Re:thinking Europe

Positions on Shaping
an Idea

Austrian Council for Research
and Technology Development

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Re:thinking Europe

Positions on Shaping
an Idea

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IMPRINT

Europe, what else?

ALEXANDER VAN DER BELLEN

**FOREWORD BY THE
FEDERAL PRESIDENT OF
THE REPUBLIC OF AUSTRIA**

The discussion about the future of the European Union is more necessary today than ever before. The world is changing at a rapid pace and Europe faces the task of rethinking itself and its role.

The challenges are well known: the intra-European developments such as the strengthening of right-wing populist, anti-European parties, the worsening political and social conflicts about European values, doubt about the liberal social order and democracy itself.

Moreover, from a geopolitical perspective, Europe is facing a whole series of major challenges: America's self-isolation, China's growing influence, Russia's ambitions to become a major world power, religious upheavals in the Islamic world – the obvious shift of geopolitical power centres challenges the Western world.

Then there are the global *grand challenges* such as climate change, environmental pollution or the scarcity of resources, but also digitalisation.

One thing is certain: given the multitude and complexity of the challenges, the key cannot be the return to the nation-state. Escape to nationalism and simple solutions are the wrong way. Even the largest European countries are threatened with the loss of importance in the event of their being left alone. Considered from a global perspective, the states of Europe are thus in danger of becoming sidelined.

In the face of the new world disorder and the global grand challenges that humanity is currently facing, only a united, effective and strong European Union can defend the interests of its citizens on a global scale – be it in securing peace at the borders of Europe, in combatting the climate crisis, or coping with digital transformation.

In any case, retreat, isolation, isolationism are not the solutions for Europe's problems or the world of the 21st century. The European Union can only succeed in the joint action of its members.

**SO THE SOLUTION
IS CLEARLY A
UNITED EUROPE:
WHAT ELSE?**

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With its book *Re:thinking Europe. Positions on Shaping an Idea*, the Austrian Council for Research and Technology Development is making an important contribution to the ongoing debate on the future of the European Union, which I welcome. The contributions provide

intriguing arguments and food for thought on the further development and reorientation of our common house of Europe. —

Re:thinking Euro

Re:thinking Europe

Introductory remarks on the history & future of an idea

HANNES ANDROSCH &
JOHANNES GADNER

*Europe? Where is it? I do not know
where to find such a country.*
(based on Friedrich Schiller &
Johann Wolfgang von Goethe)

IN THE BEGINNING WAS THE IDEA

From the beginning, Europe was an idea. For how else could a geologically completely undefined continent, which, if anything, represents an appendage of the vast Asian continental mass, be defined as an independent territorial identity? Geographically speaking, Europe is namely a subcontinent that together with Asia forms the continent of Eurasia. Yet Eurasia, as a territorial, cultural or even political concept, played and plays a subordinate role (see Mações, 2018, 3ff.). More than the geographical conditions, the notion of Europe as an independent continent is much more likely to stem from a historical and cultural idea. This begins in ancient times with Greek historiography.

Herodotus – the first great historian – is considered the inventor of this demarcation between Europe and Asia (Meier, 2009, pp. 30ff.). The origin of these names adopted from Herodotus is unknown. He himself wrote in *The Histories* (4, 45): “As for Europe, no one can say [...] whence the name of Europe was derived, nor who gave it name [...]” One theory says that the word Europe could be of Semitic provenance and etymologically refer to *eref*, which means as much as “evening” or “west”, and in turn indicates that Europe could have originally served as a foreign appellation (Meier, 2009, p. 31). This indicates that the origins of the term, which has even found its way into Greek mythology and is firmly rooted in it, do not stem from Europe itself but from outside, from foreign territory, more specifically, from Asia (Minor) [see Liessmann, 1994, pp. 19ff.]: Transformed into a bull, Zeus kidnapped the eponymous Phoenician princess from Sidon (now Lebanon) to Crete. Europe – thus the philosophical consequence – can only be conceived of as a result of a confrontation with “the stranger”, “the other”, without which it simply did not exist (Brague, 1993, pp. 101ff.).

In *The Histories*, written in the 5th century BC and the discourse on the Persian wars contained therein, Herodotus defined the division of the world into a land of Orient and Occident and established the enduring myth of Europe or the Occident, the inhabitants of which – although small in number – could oppose the superior power of the “barbaric” Persians and were able to emerge victorious from this conflict (see Meier, 2009, pp. 36ff.). Herodotus placed the war of the Greeks against the Persians as a crucial line of demarcation between Europe and Asia. If you will, this separation of the Occident from the Orient is the birth of Europe as an independent world. And it is the birth of the influential idea that Europe is not part of a larger, more comprehensive Eurasia, but a clearly defined, independent part of the world with specific socio-cultural and political characteristics. Based on this idea the first maps were produced, in which this separation was manifested; the first known is that of Hecataeus of Miletus from the 5th century BC, which – quite remarkable, albeit hardly surprising for the Greek civilisation – defines the Mediterranean as the centre of the world (see Figure 1).

Since then, around 2,500 years have passed. Because, unlike the other continents, the geographical conditions have no clearly defined, irrefutable fault lines, the idea of the shape of Europe changed several times in the course of history. Of course, today we know that the world looks different to what Hecataeus or later ancient cartographers thought. And we know that Europe is part of a larger whole. But even with this knowledge and even if much has changed significantly since antiquity, the idea of a European continent and an independent Europe has remained unbroken since then – and in the aftermath of World War II it became even more substantiated than ever before in history.

“The history of Europe cannot, therefore, refer to an unequivocally defined space, but always remains that which Europe tells about itself. Thereby, the vague geographic term Europe need not even occur. [...] Less than ever, Europe can be defined territorially, but only procedurally as a mental though entirely real construct with different affiliations” (Reinhard, 2016a, p. 17). In principle, ideas as mental constructs can have substantial impact in reality (see, for instance, Harari, 2015, pp. 27ff.; Gellner, 1990, pp. 84ff., 122ff.). The power of the mental construct of *Europe* is thereby as obvious as the far-reaching consequences that were able to emerge from this original idea. Details can be found in the history books (in a short version, for example, in Hirst [2009]; in a slightly longer example in Salewski [2000], and in a version that focuses on the conception of the idea of Europe in Schmale [2000]).

That the idea of Europe as an independent part of the world differing from others above all culturally still exists today – as for example the results from the “Eurobarometer: 40 years”¹ suggest – is a definitive result of the common histo-

Fig. 1 // Reconstruction of the world map of Hecataeus of Miletus

¹ http://ec.europa.eu/commfrontoffice/publicopinion/topics/eb40years_en.pdf

ry that Europe itself keeps telling, as well as passing down in pictures and other cultural artefacts (see Burrow, 2009, and Schmale, 2008). A prominent example of the cultural and politically motivated visualisation of Europe is, for instance, the famous cartographic representation from the 16th century that exists in numerous variations, which presents Europe as a queen (“Europa regina”) and thus not only metaphorically emphasizes the continent as autonomous, independent, even sovereign (see Figure 2). It is obvious that the geographical characteristics only play a minor role in this representation of the continent. Rather, it expresses a multilayered symbolism that visualises early modern Europe as a political and cultural entity (Werner, 2009). Furthermore, it illustrates the idea of a clear delineation of Europe from other parts of the world.

In fact, even today Europe cannot yet be clearly defined geographically, especially at its eastern edges. The question posed at the beginning of this text as to where Europe lies can thus undoubtedly be answered only in such a way that it is everywhere “where people see themselves as Europeans” (Weidenfeld, 2017). This “understanding oneself as European” can be based on no other grounds than ideational ones – i.e. based on an idea. Etymologically, the term idea goes back to the ancient Greek *idéa*, which means “appearance”, “form”, “archetype”. Today, the term – found in almost all European languages – colloquially describes a thought or idea to act upon, as well as a mental draft or plan that can serve as model for orientation. Even if this is not conscious in its everyday use, there is always something ideal in the concept of the idea that can be pursued as a visionary goal. This is why there is always something utopian inherent within every idea in the sense of an “imaginary non-existent” (see Liessmann, 2009, p. 5). At the same time, an idea fundamentally also has a purely conceptual dimension (as opposed to the material), which inevitably includes the possibility that it can never really be reached and thus – in the negative sense of the term – must remain utopian.

Likewise, the concept of the idea, dominant since Plato in European philosophy, denotes “an essential resource, namely the capacity to produce non-material, ideational (abstract) notions and to elevate them to an “ideal” by making them the object of our aspirations (in Plato: the desire, *eros*, to connect with the *eidos*, the form model). The resource of the ideal was fundamental for the development of Europe” (Jullien, 2018, p. 60f.). For, as it seems, the conception of a world view orientated towards the future, dealing with the pursuit of a visionary goal or and “imaginary non-existent”, could in fact have been a decisive driving force for the development of Europe – also in the sense of its spatial expansion (see Landes, 1999, p. 59f.).

Fig. 2 // »Europa regina« in Heinrich Bünting's *Itinerarium Sacrae Scripturae*, 1582

FROM THE IDEA TO GLOBAL HEGEMONY

– The development of Europe is unparalleled in world history, for “European civilisation [...] is the only civilisation which has imposed itself on the rest of the world. It did this by conquest and settlement; by its economic power [and] by the power of its ideas” (Hirst, 2009, p. 5). The fact that the power of European ideas should one day establish itself worldwide was, however, anything but a foregone conclusion. Because, generally speaking, due to its position on the periphery of the Eurasian continent and following the collapse of the Roman Empire as well as the subsequent fragmentation of many small dominions, from a global perspective Europe only played a minor role for a long time. By 1492 – on the eve of the discovery of the “New World” and the beginning of European expansion – there was little sign that Europe was about to emerge from this insignificance as a worldwide power.

This only changed with the European expansion between the 15th and 20th centuries, when the European world system – fuelled by scientific, military, technical, administrative and commercial innovations (see Menzel, 2015) – continued to expand, supplanted other imperial and hegemonic systems or regulatory structures and, eventually from the 19th century onwards encompassed the entire planet. The geographic outskirts that were for a long time unfavourable have contributed to the fact that Europe has always striven to “reach beyond its borders” (Reinhard, 2016a, p. 17). But it was, above all, the “discovery” of America that led to the former peripheral situation being an advantage, and the Atlantic becoming the centre of the emerging “Atlantic World system” (Menzel, 2015, p. 1135f.), which henceforth became the engine of economic development and the mainspring of European advancement (Morris, 2010, p. 500). The power of geography can – depending on the respective level of development of societies – evidently have both negative and positive effects (see Marshall, 2015; Diamond, 1997); and for the European societies since early modern times the positive effects of the continent’s geographical position clearly outweighed the negative ones.

The most crucial contributions to these changed conditions were the constitutions of European societies and their innovations, which had developed out of specific historical constellations (see Menzel, 2015, for details). For it was the innovations in the fields of shipbuilding, navigation, cartography, astronomy, instrument making, the military or financing structures which created the prerequisites for the advantageous use of the geographic peripheral location and thus the European expansion with its predominantly “maritime character” (Reinhard, 2016a, p. 19). The role of European educational culture as well as the scientific-industrial-military complex in establishing European supremacy around the globe is undisputed today (see Androsch/Gadner, 2015, pp. 16ff.).

The peculiarity of Europe was that in the modern age – for the first time in history – education was no longer reserved for the elite, but was borne across the population. With the success of book printing (see Burke, 2000), the rise of the Renaissance (see Roeck, 2017) and the triumphal procession of the Enlightenment as well as the correlated radical transformation of the social order (see Gellner, 1990, 113ff.) began a veritable “explosion of knowledge” (see Burke, 2012), which eventually led to the scientific and industrial revolution, sparking unprecedented economic growth (see Mokyr, 2017) and facilitating Europe’s world supremacy as well as its cultural hegemony (also see in detail Menzel, 2015). *The European Miracle* (Jones, 1981) is characterised predominantly by the fact that the

enormous creativity boost initiated in modern times – “one of the great and profound revolutions of history” (Gellner, 1990, p. 117) – included all areas of European societies: philosophy, sciences, medicine, ethics, jurisprudence, economics, finance, warfare, literature, music, visual and performing arts, architecture, etc.

These developments not only resulted in the already proverbial “great divergence” (Pomeranz, 2000) of Europe and Asia, but in the almost complete European dominance of the global economy since the mid-19th century, which eventually led to the shift of the global political warehouse to Europe. In 1900 Europe undisputedly commanded the world economy and dominated most of the world politically as well (see Harari, 2015, p. 280ff.; Darwin, 2008, pp. 157ff.). In the inter-war period there existed no single country worldwide that was not under European rule, had once been a colony of a European power or was at least subject to massive economic and political control or the cultural influence of Europe (Reinhard, 2016b).

Even if Europe had already passed the zenith of its power at this time – and the final “Europeanisation of the world” remained reserved for the United States (see Menzel, 2015, p. 839ff.) – the world was already almost completely dominated by Europe: the colonial powers – most prominently Great Britain as the last European world power – had carried European ideas and worldviews around the globe (Simms, 2016, pp. 217f.). European expansion had given the world a new, modern face: under the aegis of Europe a new world order and world culture had emerged (Reinhard, 2016a, p. 1255ff.). The precolonial world was fundamentally different from the postcolonial, present one – and while many don’t want to admit it, “today all humans are [...] European in dress, thought and taste. [...] almost everyone on the planet views politics, medicine, war and economics through European eyes. [...] Even today’s burgeoning Chinese economy, which may soon regain its global primacy, is built on a European model of production and finance.” (Harari, 2015, p. 281f.)

THE DESIGN OF THE IDEA OF EUROPE

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The success of Europe, originally based on an idea and the “myth of separation” (Maçães, 2018, 17ff.), has radically changed the world in the past centuries. At the same time, however, Europe itself, or the idea of Europe has changed.

For in the course of this historical process the idea of the unity of Europe has repeatedly cropped up – first in the form of concepts of a unified Christian Europe or as utopias of a universal occidental empire and, finally, as decidedly modern political conceptions (see Schmale, 2016). Particularly noteworthy in this regard is the Peace of Westphalia signed in October 1648 in view of the complete devastation of vast areas of Europe by the Thirty Years’ War (see Münkler, 2017). For, in addition to the foundation of a globally applicable international order, it fundamentally allowed “in the first place the idea of a united Europe, in which such a war should no longer be possible” (Liessmann, 1994, p. 74). Thus, for the first time in history Europe demonstrated certain conditions under which it may be possible – in spite of conflicting religious or philosophical ideas and different systems of government – to establish a contractually fixed stability between contractual partners on the basis of neutral rules (Kissinger, 2014, pp. 11ff.).

Proposals on the further development of the idea of the unity of Europe were subsequently made by various sources. For example, by William Penn, who already in 1692 in his *Essay towards the present and future peace of Europe* proposed the establishment of

a pan-European Parliament and a federal assembly from representatives of all European governments. Or by Charles de Saint-Pierre, who in his *Plan for Perpetual Peace in Europe* in 1712 called for a fundamental reorganisation of Europe through a transnational international organisation. Finally, for example, by Charles Mackay, who developed the idea of the “United States of Europe” in several news articles for the London *Telegraph* in spring of 1848, thus influencing apologists of the Europe idea such as Victor Hugo or Giuseppe Mazzini. And last but not least, by Friedrich Nietzsche, who in the face of burgeoning nationalism, which he described as “madness”, in his 1886 book *Beyond Good and Evil* called for Europe to ultimately overcome the “comedy of its petty-statism” and “become one”.

Previously, Franz Grillparzer had already pointed out that this European petty-statism encouraged a dangerous development – “from humanity through nationality to bestiality”: How prophetic these words would be became apparent at the latest with the outbreak of World War I in a scope that was previously not thought possible. The ensuing collapse of the European multinational states further aggravated the situation: the fatal petty-statism assumed even greater proportions in the inter-war period – with well-known consequences. Overcoming this devastating, nationalism-promoting petty-statism was therefore a central element of European unity efforts before, but predominantly after, the end of World War II.

Several examples of pioneers of the idea of Europe up to the well-known recent concepts – for instance, the inter-war pan-European movement of Richard Coudenhove-Kalergi; the vision of the United States of Europe, which the then British Prime Minister Winston Churchill sketched in his famous speech as an immediate response to the catastrophe of World War II at the University Zurich on 19 September 1946; or the so-called “Schuman Plan”, that the then French foreign minister Robert Schuman announced on 9 May 1950 – can be found in literature (see, for example, Timmermann, 2011, or Liessmann, 1994) and will not be further elaborated here.

In any case, whatever the differences in the specific conception of these European drafts, it should be noted that they all have one thing in common: they present the idea of a completely new Europe, based on long-term cooperation and aimed at stable peace building. Thereby two key cornerstones of a baseline are marked which reverting to in the future seems unthinkable. This is notable insofar as they were already laid down by Immanuel Kant in the year 1795 in his essay *Perpetual Peace*. At that time, of course, they were considered purely utopian. Today Europe is already well advanced on the path envisaged by Kant, and forms a legal community that has led to greater consistency through economic cooperation and to more mutual trust between Member States through cross-border communication (see Höntzsch, 2007).

The idea of Europe has long since taken shape. This does not mean, however, that Europe is in any way already finished; on the contrary, it is much more equivalent to a major construction site which needs work in all corners. Particularly noteworthy are the policy areas of economics and finances, foreign affairs, security and defence, refugees, asylum and migration, or social affairs. Merely owing to these construction sites, Europe is an “unfinished story” (Loth, 2014). Even if, for instance, in the area of science, research and innovation policy, the establishment of research framework programmes has created a positive dynamic, it must be noted that the EU is miles away from a common, strategi-

cally oriented RTI policy, which is not least reflected in the failure of the Lisbon strategy. Research, technology and innovation are of existential strategic relevance: For Europe, they could become a “geopolitical survival issue” in the foreseeable future (Rinke, 2018). In addition, even what has already been achieved in accomplishments must be maintained and defended repeatedly so that Europe will not be endangered by increasing secessionist tendencies (see Krastev, 2017).

In this context the question of where Europe lies obtains additional significance, for there is indeed no place where Europe as a political entity is actually tangible – neither in Brussels, nor in Strasbourg, let alone in Berlin or Paris. The former American Secretary of State Henry Kissinger is said once to have asked: “Who do I call if I want to call Europe?” Even if there is disagreement over the authorship of this quote, it is the true crux of the issue. Because the EU has no single representative, no obvious president, not even a well-defined spokesperson. On the contrary, there are three organisations – the Parliament, the Commission and the Council – each represented by a president. In addition, there are the heads of government of the individual Member States, who, as a matter of fact, likewise have their say on topics concerning Europe.

The EU still does not present itself as a European entity today. More than ever, its ability to act, if not its ability to survive on a global scale depends on its common, purposeful demeanour. After all, it is likely – according to former German Chancellor Helmut Schmidt – that “in this century the self-assertion of European civilisation is at stake” (Schmidt, 2013, p. 8). The dilemma Europe is facing was recently analysed by Henry Kissinger: “Europe has the capacity to be a superpower, but Europe has neither the organization, nor, so far, the concept, to be a superpower. And that, for the European idea, is a challenge” (Kissinger, 2012).

The individual European nation-states are almost completely powerless against the global challenges like climate change or resource scarcity, let alone the geopolitical developments. With the struggle of the US and China, but also India and Russia for world supremacy, the situation for Europe is further exacerbated. From a global perspective European nation-states face a return to insignificance in the light of these trends. It is all the more astonishing that the petty-statism already thought to have been overcome, is experiencing a ghostly return today – at a time when Europe can only assert itself in the dawning multipolar world order as united European states. It may be argued that Europe does not necessarily have to participate in the geopolitical struggle of the US, China, Russia and India for the new world order. However this is an extremely short-sighted perspective, as the consequences of the geopolitical transformation processes are already clearly emerging – and Europe is directly affected by them, especially due to the conflicts resulting from the erosion of the Western world order in Ukraine, the Balkans, the Caucasus, in the Near and Middle East or in Africa. Only a united and strong Europe can respond adequately to these developments, for instance, by finding a reasonable arrangement with Russia or a strategic approach to African countries.

At any rate, a return to Nietzsche’s “comedy of its petty-statism” will not facilitate effective European answers to the challenges of the 21st century. After all, even the largest European countries are barely significant globally. One simply needs to take a sober look at the numbers – such as, for example, the shares in world GDP. Similarly illustrative are other areas, e.g. population, R&D expenditures or patent applications, which are

Fig. 3 // Share of world GDP of selected countries and regions, 2004 and 2016

documented by Eurostat in a global comparison and published in the online publication *The EU in the World*.² The statistic comparison shows that the EU as a whole is – still – the largest economic power in the world (see Figure 3).

This exemplifies that Europe in the entity of the European Union carries totally different weight in the world than would be possible even for the largest Member State. Given the breadth and complexity of the challenges Europe and the world are facing today, it is clear that the EU can only succeed through the joint action of its members. Only in this way – in the European Union – Europe has the chance to remain a global player. With its population size, its gross domestic product, its scientific and innovative potential as well as its prerequisites for digitisation, the EU meets all the requirements, at least on paper, for being one of the most powerful, if not the most powerful actors in the international arena (Simms/Zeeb, 2016, p. 18f). Alone its inability to act together currently prevents the European Union from pursuing the interests of its citizens and preparing for the challenges of the globalised world.

Consequently, additional endeavours, effort and persuasiveness are needed in the future in order to realise the European idea and to continue to build Europe. In the actual design of the idea of Europe there are no limits to creativity. If, in the year 2019 some 400 million eligible citizens of the Member States of the European Union are called upon to vote on a new European Parliament, it may be assumed “that these active voters have some kind of idea of Europe in their heads” (Schmale, 2016, para. 8).

But what is this idea of Europe today? What concepts are there for the future of the European project? And how can or should, or, indeed, must the EU develop further in order to effectively and efficiently address the multifaceted and frequently debated challenges of the world of the 21st century – and not just the recent geopolitical upheavals (see, for example, Androsch/Gadner, 2018)?

² Eurostat: http://ec.europa.eu/eurostat/statistics-explained/index.php/The_EU_in_the_world

About this – according to the common complaint – hardly any significant argument is taking place. With a few exceptions, there is currently no comprehensive conceptual discourse on the strategic development of the European Union. This strategic deficit – the “Achilles heel of Europe” (Weidenfeld, 2014, p. 109) – has currently led the EU to an impasse, from which there seems to be no way forward. The aporia of the project Europe sometimes seems insurmountable.

The outcomes are already apparent. Direct consequences include the strengthening of nationalist movements or the Brexit vote. Since the 2014 European elections, nationalist and Eurosceptic parties, some of which are openly calling for the abolition of the EU and a return to the nation-state, have been the third strongest force in European Parliament (Roll, 2016, p. 19). The Brexiteers, too, have conjured up the spirit of an allegedly golden age of the nation-state, in which they have repeatedly referred back to Rule Britannia, the unofficial, patriotic national anthem that expresses the longing for past imperial greatness. This return of nationalism as a response to globalisation is accompanied by doubts about the ideal of the Enlightenment and the desire for a clearly defined, national cultural identity (see Jullien, 2018).

And yet, diametrically opposed to these retrograde tendencies of isolation, openness, creativity, innovative power and the ability to completely reinvent oneself in order to overcome one’s own boundaries are a constitutive moment of Europe. Throughout its history Europe has shown on several occasions that it is always capable of innovative new beginnings from a wide variety of initial constellations. Today, in the face of growing scepticism about Europe, major global challenges and geopolitical upheavals, such a fresh start is needed more than ever before.

RE:THINKING EUROPE

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Re:thinking Europe. Positions on Shaping an Idea is the contribution of the Austrian Council for Research and Technology Development to the discussion on the reorientation of the common European project. The articles in this anthology present ideas and concepts for a Europe fit for the future. They point out ways and strategies to establish a competitive and dynamic European knowledge society, where innovation drives economic growth, digital transformation is successful and, at the same time, social cohesion as well as sustainable development are strengthened. The book provides ideas for the social, economic, digital and ecologic renewal of the EU. Continually, the fundamental question is raised about which role education, science, research and innovation can and should play. The 22 contributions reflect a wide range of positions that do not necessarily reflect the view of the Council. Taken together, however, they give food for thought and can thus be the starting point for debate about the new conception of the idea of Europe in the 21st century, as well as the necessary further development of the European Union.

The book is divided into three parts. The contributions in *PART ONE* deal with the beginnings of Europe from a global history perspective, European expansion and the resulting consequences for the historical developments not only in Europe. The emergence of the modern sciences and their influence on the conception of Europe are discussed, as well as the question of the continuity of historical processes in the present and the future. Consequently, the past in these historically oriented contributions is always understood as a bridge to the future.

In *PART TWO*, the contributions present positions for the specific shaping of the idea of Europe or for the political development of the European Union. The spectrum ranges from proposals for the further deepening of the EU to the development of a grand strategy to the overcoming of the nation-states and the creation of a type of United States of Europe or a European Republic. On the one hand, these approaches share the common understanding that in the face of global upheaval there can no longer be an effective policy of isolated European nation-states. On the other hand, they concur in their awareness of the strength resulting from the community of European Member States – a strength that is needed in order to overcome the challenges that face the world of the 21st century.

PART THREE of the anthology deals with the necessary prerequisites for maintaining or attaining the global leadership in the areas of the future, such as research, innovation and digitisation, and thereby succeeding in global competition. The focus is on topics that – like the sciences in particular – originated in Europe and once made the continent a global leader and which, the authors are convinced, are the most promising in terms of solving the global grand challenges as well as enhancing the competitiveness of the European economy. The topics of digitisation, artificial intelligence and robotics as well as sustainability and greening are addressed. These show the potential for making Europe a global pioneer also in the future. Consequently, the EU must define its role even more sharply than before in order to really leverage its existing potential. The book finishes with a *VISION* for Europe in the year 2050.

With America's withdrawal from its responsibilities for global affairs, a global vacuum is emerging, which until now has been openly sought by China in particular. The EU has little to counter with at the moment. Especially Europe, with its traditional humanistic values and principles for a sustainable society – above all human rights, democracy, rule of law, equality, freedom, tolerance, rationality, freedom of science, environmental protection, etc., as they appear in the Treaty of Lisbon or the Charter of the EU Fundamental Rights – should take more responsibility for global civilisation than ever before. But this requires a courageous vision and clear strategic goals. Although these have yet to be formulated and negotiated, this is not impossible. Europe must be rethought again today, just as it has been done countless times in the past. And even if it is often expressed, Europe is not at its end. On the contrary: “The European idea is as alive as ever” (Schmale, 2018). This book is intended to make a contribution to ensuring that it remains so in the future. —

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FIGURES

Fig. 1 // Wikipedia (https://en.wikipedia.org/wiki/Hecataeus_of_Miletus)

Fig. 2 // Wikipedia (https://de.wikipedia.org/wiki/Europa_Regina)

Fig. 3 // Eurostat (2018). The EU in the world – A statistical portrait. Luxembourg, p. 79.

PART ONE

History as a bridge to the future

WOLFGANG SCHMALE

The beginnings of Europe from a
global history perspective

WOLFGANG REINHARD

The expansion of Europe &
its consequences

PATRICIA FARA

How the world put Europe on the map
in the 17th & 18th centuries

DAVID WOOTTON

The invention of science in Europe

PHILIPP BLOM

Europe 2050: a historical bridge

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The beginnings of Europe from a global history perspective

WOLFGANG SCHMALE

Over the course of the millennia, Europe has repeatedly fundamentally transformed itself – not to say reinvented. In this respect, Europe not only has a beginning, *the* beginning, but several beginnings. In terms of *cultural history*, that is to say in terms of the emergence of a culture that is distinct from other cultures, Europe begins even before the actual antiquity. In terms of *consciousness*, that is to say in terms of the development of the self-awareness of being *Europe*, Europe begins around the year 1500. In terms of *civil society*, that is to say in terms of the development of civil society, Europe begins around 1780. In terms of *integration*, that is to say in terms of the Europe of the present, Europe begins around 1945.

These beginnings, the year dates of which are not to be taken narrowly or literally, are more than simply loosely connected to each other; above all, however, they are all characterised by global history relationships and contexts. Thus, it cannot be said that there is the one global history beginning of Europe; there have been several global history beginnings in the past history of Europe. This essay is to be about their joint examination. And this may be educational.

ON THE TERM “EUROPE”

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What, then, is to be understood by “Europe”? All too rigid definitions have the disadvantage of being more destructive than useful. In this essay, Europe is understood as *culture*. This *cultural Europe* is the basis for today’s European Union. But it is also the basis of those European countries that currently do not belong to the EU. In any case, a culture is not defined by its external borders of states or community of states, such as the EU or the Council of Europe, but pulsates with the people that live them. One could also put it this way: the culture of Europe during the course of history is the respectively lived Europe. It is, therefore, in the course of history, never the same; its spatial extent varies. Sometimes it extends beyond the continent of Europe, sometimes it does not even fill it.

The establishment and development of a culture can be scientifically studied and described. The objectification of this view can by all means come into conflict with the consciousness of a culture. Our awareness of the culture of Europe is strongly shaped by what we may have learned about it in school, and through public discourses that are rooted in specific textual or speech building blocks which simplify history to the point of falsification. To look at the beginnings of Europe from a global history perspective is a good way of staying above stereotypical conceptions.

THE FIRST GLOBAL HISTORY BEGINNING: BEFORE ANTIQUITY, & THE BEGINNING OF ANTIQUITY

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Cultures emerge and develop over long periods of time, over millennia. Culture means that humans produce the correlation of context and meaning. These are practised in a multitude of ways (behavioural patterns, rituals, the formation of habits, etc.). They are materialised (architecture, handicraft products for the everyday and special occasions, clothes, technology, etc., etc.); they are idealised (philosophy, spiritual world, and so on); they are embedded in transcendental contexts (religion, myth).

Even without the application of scientific research methods, we are aware of how much cultural history is present in ourselves and in Europe. That is why it is crucial *with which questions* we intend to *approach* the beginnings of Europe. The question about the global history beginnings of Europe means breaking with educational tradition, for which the beginnings of Europe were Greco-Roman and not much older. The ancient historian Wolfgang Schuller described this as “the first Europe” (Schuller, 2004), in order to make it clear that ancient Europe is not our Europe, but that it belongs to the foundations.

This tradition of allowing Europe to begin with Ancient Greece and Rome has its foundations in the Renaissance, which for the first time gave Europe a clear beginning, that is, “antiquity”. At the same time, since the 15th century, the *mental maps* of “Europe”

and “Christendom” have become increasingly superimposed. “Antiquity” did not purport to be “Europe” in any way. Moreover, the Christian Europe of the Renaissance was, in principle, something other than the Christendom that had arisen in antiquity, which, alone due to the universal claim of the Christian religion, was not identical with Europe. In the Middle Ages, Christianity and Europe were hardly equated. The two terms were used synonymously in spite of their approximation of meaning in the early modern period from the 1820s.¹ Either way, since the birth of Christianity, Christians have spread far beyond Europe – and Europe was not even the birthplace of Christianity. Equating Christendom with Europe is, therefore, not purposeful at any historical point in time.

The symbiosis of Greco-Roman antiquity and Europe, which was assumed in the Renaissance, lingers to this today, but should not be taken for the actual story and culture of Europe, as has happened for a long time.

For the historical beginnings of Europe we must firstly free ourselves of all fixed notions of Europe. Today it is customary, to make the *origins* of Europe in the East, in the Orient. This is historically part of the critique of Eurocentrism. The myth of Europa is often used as an icon for this view of Europe, the plot of which is based on the kidnapping of the Phoenician princess called Europa from the East, from the shores of (today) Lebanon, to the west, Crete.

Let us put aside what the actual meaning of this legend is, which is not only about this one tale of kidnapping, but also of many interwoven stories (Gange, 2004): the fact that European culture exists thanks to the East (in the sense of the Orient), is not wrong, it is not, however, the whole truth. It is due to the inflows from the north, south and east. At that time, no cultural transfers reached Europe via the Atlantic (west). It is undoubtedly true, however, that the Phoenicians, in particular, provided for the dissemination and diversification of cultural goods throughout the entire Mediterranean realm to the Atlantic coast, and thus perpetuated the dynamic of permanent cultural transfers.

The colonisation of the European continent occurred in pre-Christian times over millennia. The cultures that the immigrants brought with them and developed in their new settlements, such as the Black Sea (today Bulgaria and Romania) or around Mycenae and other preclassical centres, are less well-known to us than classical Greek culture. Yet there was a proliferation of these cultures and they created a world whose transformation into what we now call antiquity can be reconstructed precisely through the use of these myths, the genesis of the alphabet, writing and cultic objects as well as recent archaeological findings. A culture that simultaneously thrived with that of the Greeks and Romans – that of the Celts – was as influenced by this culture as it influenced the other.

The emergence of culture in Europe in antiquity and before that was a multidirectional process. Geographically, this included Europe, the Mediterranean, North Africa, the Middle East and part of Asia (Nouschi, 2009). From this, only gradually did a specific culture develop materially and consciously: the culture of Europe.

Of this complex and broad early history, we are generally and predominantly quite well acquainted with only the later part, called antiquity. If one travels in the countries of Europe in the footsteps of historical and cultural heritage, it can be easily ascertained that the prehistoric or protohistoric archaeological sites are seldom as emphasised as the

¹ Novalis' famous essay, “Christendom or Europe”, from approx. 1798 received this title posthumously in the 1820s.

later antiquity or Medieval or early modern cultural sites. The weighting is a completely different one, a much weaker one compared to the weighting of antiquity. This asymmetry is also perpetuated by the school and education system, which, at a snail's pace at most, detaches itself from historical images.

The early cultural multidirectionality was preserved in antiquity; however the centres of cultural dynamics moved to Attic Greece and later to Roman Italy; even later, to the late antique Roman Gaul, the Rhine regions, etc. A number of very recent archaeological findings (coins, mummies, skeletons) has brought the links between the European realm and classical antiquity and East Asia (China and Japan) more to the fore – since, earlier, predominantly the traces back to India were known (Frankopan, 2016).

The fact that the three continents Europe, Asia and Africa were connected via land facilitated migration and trade with goods of all kinds. In this respect, one can go back very far in time, even if the findings of skeletons and objects overall are not distributed densely enough to write a coherent cultural history of this realm. If one also keeps in mind that Beringstrasse around 10,000 years ago was still a land bridge between Siberia and Alaska and the emergence of American cultures and the migration routes of the first inhabitants of this continent continues to be the subject of heated debates, we must honestly admit that we still cannot give exact information about the precise foundations of cultural history in respect to whichever realm. This means that, as regards Europe, we cannot yet say with certainty what belongs to the cultural foundation and what can definitively be excluded, since there were no connections. In other words, we do not yet know exactly what, from a cultural point of view, lies in us Europeans and how comprehensively global the genuine origins are. The fact that the origins are global in the sense that we have to look far beyond the geographic horizon of Europe, can, on the other hand, meanwhile be considered verified.

Let us note that “our Europe” has a global “core”. This is to say that the global connections, networking and reciprocal or multidirectional cultural transfers since the earliest historical times have been part of the culture of Europe just as much as the local, to some extent indigenous contexts. To put it another way, we misunderstand culture in Europe if we dismiss these global origins in the early days of cultural history and pretend that Europe only emerged in classical antiquity.

Perhaps that sounds as if it explains the later expansion of Europe, in particular since Columbus. Of course, history does not work in such a simple way. Nevertheless, it should be noted that culture in Europe was always *fluid*. This is the result of its global origins. It is a fundamental characteristic of European culture. The most important result of being *fluid* is *diversity*, not *unity*. A *fluid* culture is open to receiving cultural transfers, and is expansive at the same time.

THE SECOND GLOBAL HISTORY BEGINNING: AROUND 1500

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Cultures function differently because, over the course of millennia, different basic characteristics emerge that remain effective for a very long time without being static or unchanging. As far as European culture is concerned, it needs to be noted that the fundamental characteristic of *being fluid* was acquired in the formative stages. This took place in a much larger geographical area than later Europe.

In the Greco-Roman antiquity there were cultural densities that have been read since the Renaissance as “Europe”.

Perhaps in the Renaissance it was simply a dialectical process: In the East, the Ottoman Empire had been forming for some time, reducing the once great Eastern Roman Empire, that is, Byzantium. The fall of Constantinople in 1453 meant, above all symbolically, the final end of Byzantium, but it was a symbolic end that moved minds. In the East, then, Europe was besieged and got smaller, for the Ottoman expansion continued unabated to the Balkans and, finally, in the early autumn of 1529, at least temporarily reached the gates of Vienna.

This was counterbalanced, still in the 15th century, by the Spanish Reconquista, during which the Muslim rule over Spain ended with the conquest of Granada on 2 January 1492. The year 1492 was also the one in which Columbus embarked on his memorable voyage westward, seeking a western sea route to India and, to the astonished Europeans, led to the discovery of America. But already in 1488 the Portuguese navigator Bartholomew Diaz had circled the Cape of Good Hope and had begun exploring the east coast of Africa. Throughout the 15th century, such navigators had ventured further and further south along the coast of Africa. As early as the 14th century, it came to a sort of second discovery of the Canaries, which had been known in ancient times to the Phoenicians, Carthaginians and Romans.

The European horizon expanded – parallel to the Ottoman expansion in the east – to the west into and across the Atlantic, to the south, namely Africa, but also to the European north and northeast (Russia). More and more reports of all kinds contributed to the consolidation of knowledge about Europe itself. Through these descriptions Europe received something of an identity for the first time: the Continent was given clear contours and boundaries to Asia and Africa and then to America. And within these geographical boundaries, for the first time more precisely defined, was the quest for commonalities.

The search for new routes to India across the Atlantic – around the Cape of Good Hope as well as west, to “West Indies” – had many grounds and reasons, among which, however, the economic played a crucial role. The Ottoman expansion made trade with Asia more expensive, more difficult and at times interrupted it, making the search for independent trade routes worthwhile. Added to this were the poorly penetrable estates of the realm and feudal system that blocked European societies. The expansion to “new worlds” provided a remedy for some social groups.

It took until the 18th or 19th century for this expansion to reach large enough proportions to solve these demographic and supply problems in Europe, but that did not change the fact that there were cultural implications from the beginning. “Exotic” plants and objects that filled the curiosity cabinets of the princes and nobility aroused the desire for more and more. The trade in these exotic objects during the first decades of European expansion was scarcely less important than trade with high-quality, well-known goods like pepper and other spices, which had existed since the Middle Ages. Added to this was the exploitation of gold and silver and the silver mines in America, which financed the modern-day global economic cycle. At the same time, Russia expanded to Asia, in particular to Siberia.

In summary, it can be said that, around 1500, Europe received a new global boost. From a historical perspective, one could also say that it was a second global history begin-

ning for Europe, which was fully associated with the logic of *fluid* culture. Europe itself expanded economically, politically, culturally – with devastating consequences for the local populations, in particular in America and, subsequently, in Africa. But it also modified European culture through material transfers. The transition to mass cultivation of food crops that came from different parts of the world and were domesticated in Europe for the first time contributed to a change in agricultural systems and lifestyles, to name but two aspects. Potatoes and corn did not become staple food stuffs until relatively late (18th/19th century), which reduced the risk of dying of hunger and thereby promoted demographic growth. But the two products are examples of how modern European dynamics became dependent on the plant and material returns of the expansion that reached Europe and were integrated there.

Not least for European science, European expansion meant an energetic and substantive boost, which led to the development of subjects and specialisations and which institutionalised the foundation of every science through empirical procedures. All in all, this led to the awareness of Europe as Europe, which the modern Europeans understood as the superior culture among cultures of the earth.

THE THIRD GLOBAL HISTORY BEGINNING: AROUND 1780

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During the course of the 18th century the Atlantic realm formed, which encompassed the Americas in the west and Europe and Africa in the east (Bayly, 2008). This region formed a network of intensive exchange and intensive communication, and, of course, also a space for po-

litical confrontations between the European powers that were fighting for supremacy there. The Atlantic region was not isolated from others, such as the East Asian, but, rather, was the central part of an increasing global economy (Vries, 2013). This is also where the origins of a modern global network in a general literal sense lie (Castells, 2000–2004).

In the age of the Atlantic revolutions – with the emergence of the USA in North America in 1776, the adoption of the American Constitution in 1787, the beginning of the French Revolution in 1789 and the subsequent abolition of the monarchy in 1792 (Fröschl, 2000) – there was a momentous bifurcation of global contexts in which Europe stood. In America in the first third of the 19th century independent states formed from the former colonial powers; this affected almost the entire continent, with the exception of Canada, several Caribbean islands and a few small South American territories. As a result, European colonialism shifted its weight to Africa and Asia and, through the formation of empires, received a new power-political quality, which is usually referred to by the catchword imperialism.

The Atlantic global history strand differs from the imperialistic through its human rights and civil society imprints. In this great space, the Atlantic Revolution spread the ideal of human and civil rights as well as the written constitution as the basis for a state thought to be a rule of law. It was citizens who implemented these ideals. In parallel, certain associations emerged, such as the abolitionist societies, which advocated the abolition of slavery and prohibition of the slave trade, and maintained pressure on the new states and their institutions to make legal ideals a reality. These associations were transatlantic, meaning that they had members in America as well as in Europe, and they were well connected to each other.

In the early 19th century, peace societies formed on both sides of the Atlantic, which paved the way for the subsequent international peace movement. The latter formed primarily around and after 1850. This first global civil society may have been small in numbers, yet it still existed and its voice was loud and audible.

This was counterbalanced by the imperialism of the European countries in Africa and Asia, which was characterised by political recklessness, unlimited exploitation of natural and human resources and also by a pronounced anti-humanitarianism, which expressed itself not least in racism. Ultimately, everything that drove imperialism had an effect on Europe and contributed to – without here wanting to argue in a simplistic way – the wars of 1914–1918 and 1939–1945 being world wars and an incomprehensible orgy of violence beyond all concepts of human dignity and humanity, which the civil society organisations in resistance nevertheless tried to defend. The breakthrough came after the end of the Second World War.

THE FOURTH GLOBAL HISTORY BEGINNING

AFTER 1945

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After the end of the war, the way that Europe was seen and understood changed in many ways. In 1949 the philosopher Karl Jaspers expressed the thesis that in the history of mankind there was an *Axial Age*, which, around 800 to 200 BC, connected China, India, the Orient and the Occident in an epochal cultural thrust (Jaspers, 1949). Jaspers argued primarily in terms of intellectual history and basically oriented himself on the development of rationalism. His thesis has been widely adopted and is still controversial to this day (Eisenstadt, 1987–1992). For Jaspers, pre-Columbian cultures in America did not play a role in the axial theses, something that today cannot be sustained in the light of current research. This means that even pre-Columbian cultures were highly developed so that their exclusion from the category of high culture is untenable.

The philosopher Friedrich Alfred Schmid Noerr, like the philosopher Karl Jaspers, published a book in 1949 titled *Ewige Mutter Europa. Der Mythos vom Europäer* (“Eternal Mother Europe. The Myth of Europeans”), in which he pursued the manifold narrative strands of the mythological material handed down to Europe from the various geographic areas (Schmid Noerr, 1949). He, too, dissolved the hitherto customary horizon of observation.

These theses from the early post-war years are not about the accuracy of historical detail, but about the fact that the origins of European culture are no longer exclusively, uniquely purely European (geographically speaking), but, rather, were located in a more or less global context of generating innovative cultural meaning. This change of perspective had a liberating effect and was also carried out by other colleagues. The Polish historian Oskar Halecki, who worked in the USA during the Second World War, published a well-known book *The Limits and Divisions of European History* in 1950 (Halecki, 1950). In it, he came to the conclusion that, with the Second World War, the “European era” of European history had come to an end. In the terms we use today he would certainly have said that Europe is part of a global history in which it no longer plays first fiddle.

All in all, particularly after the Second World War, the voices of those scholars increased who had criticised the older, Europe-centric approaches to the history of Europe, or, in short, traditional Eurocentrism. “Eurocentrism” is the established term; of course, it has nothing to do with the currency of the euro, due to its being older. One could also

say, Europe-centrism, but we should stay with the established terminology. The mental attitude of Eurocentrism was closely linked with the colonial and imperialist epochs of Europe, which, gradually in the wake of decolonisation, was and is subjected to severe criticism and (Amin, 1989/2010; Schmale, 2016).

In 1945 and in the following years, there was a fourth global history beginning of Europe, which is known as “European integration” and took place in the briefly mentioned spiritual environment of the adoption of Eurocentrism.

Firstly, as a result of the industrial and technological revolutions, the world was more globalised than ever before. The two world wars also didn’t change that. Already in the First World War, Europe had been shown the importance of the United States; this was certainly the case in the Second World War and in the post-war order. The confrontation of two political blocs, the democratic West led by the USA and the socialist East led by the Soviet Union, took place across the globe. Even if the integrating structures were initially created only among the Western states, the Western world never functioned in isolation but always in relation to the Eastern bloc and other emerging powers such as China and India.

World political constellations necessitated new structures like NATO, but also integration structures more clearly limited to Europe, such as the European Coal and Steel Community (ECSC), founded in 1951. At the time the ECSC and the European Economic Community (EEC, 1957) were founded, France still had colonies as well as overseas territories belonging to the mother country. This also applied to the Netherlands and Belgium. Today, still, the EU borders many other countries of the world beyond Europe, due to the overseas territories of different Member States. The fact that the legal status of these territories is different is only mentioned but not discussed in detail with regard to the legal extension of the EU. A series of agreements (with initially only African states), from Yaoundé I (1964) to Lomé I to IV to the Cotonou Agreement (2000, until 2020), the latter between the EU and nearly 80 ACP states (Africa, Caribbean, Pacific Group of States), document this global connection originating in the colonial era.

Already as regards the League of Nations, founded in 1920, it has been discussed to what extent a stronger cooperation of the European Member States under its roof could be useful. Similarly, in the course of the founding of the United Nations, it was discussed whether there was any need for a closer European organisation, or whether one might not be in good hands in the UN anyway. In practice, it often came to a yes to both. A good example is the World Trade Organization, of which both the EU as well as the 28 (27 after Brexit) EU countries are members.

“European integration” thus has a two-fold meaning: In the narrower institutional sense and from its objective of creating European unity, it refers specifically to Europe. But from the beginning, it was embedded in global structures and institutions that reached well beyond Europe, as in the case of the UN. Thus, European integration has a global logic that must not be overlooked when it comes to the future of the EU (Schmale, 2018).

FINAL REMARKS

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The EU is currently suffering from a self-centredness that does not contribute to solving the great global problems that are the cause for flight and migration, for terror, for increasing anti-democratism and much more. The re-nationalisation of EU members – and the other European

states that are not in the EU – represents a completely wrong answer for the challenges of the world of the 21st century and contradicts the constitutive part of globality in the process of European integration. It therefore contradicts the *fluid* character of the culture of Europe, which had emerged in the course of the first historical beginning and was strengthened with each further historical beginning. —

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The expansion of Europe & its consequences

WOLFGANG REINHARD

EXPANSION

Expansion is the incarnation of Europe. Based loosely on Descartes, Europe could always have said of itself: *I expand, therefore I am*. Because (1) its establishment, (2) its rise and (3) its presence are all characterised by expansion. Without expansion, it would not exist at all.

The expansion of the beginnings of Europe

Europe emerged, as it were, out of nothing; that is, without a given geographic, ethnic or cultural substratum. It came about through three different expansions that converged as a result. This result became Europe. From the point of view of the members of Eastern civilisations, the claim that this Western appendage of Asia is a continent like Asia, Africa and America, is nothing but typical European arrogance. For this hotchpotch of islands, peninsulas and river landscapes was not a natural geographical unit like India or China. And its population originally formed no ethnic, linguistic and cultural blocks like the North or South Indians and the Han Chinese.

But then the Roman Empire expanded, which had accumulated the antique culture of the Mediterranean, expanded into the west of this area and shaped it culturally. Subsequently the so-called “barbarian peoples” of various origins expanded into this empire, with most of them going under and the western half of this empire falling by the wayside. However, north of the Alps a synthesis of the results of both of these expansions developed under Franconian leadership. Added to this was the third expansion – that of the successful missionary expansion of the Roman church. That is how *Christendom or Europe* came to be.¹

From the outset, however, it was competing with the expansion of a second Christianity, the Greek, and later especially the Russian Orthodox, which proceeded from the surviving Eastern Roman Empire – Byzantium. Even today, the banner with the double-headed eagle of the Byzantine emperor and the Russian czar flutters in front of Orthodox churches. Both missions met early on in Moravia and the Balkans. Although the

¹ Novalis' speech about the situation of Europe at the end of the 18th century, later published as *Christendom or Europe*, was held in November 1799 in Jena.

expanding modernisation of Western European origins had also shaped Russia and the East since the 18th century, the continuing antagonism became alarmingly clear with the collapse of Yugoslavia. The cultural border between Finland, the Baltic States, Poland, Hungary, Slovenia and Croatia, on the one hand, and Russia, Belarus, Romania, Serbia, on the other, still exists. And the question of whether the peoples and countries east of this line want to belong to Europe is harder than ever to answer today.

The expansion of the rise of Europe

West of there, *Latin Europe* had not even begun its ascent when its first wave of expansion caught the flows of the Russian world. The Scandinavian Vikings in question were still pagans when they founded the first Russian principalities and eventually became not Latin but Orthodox Christians. In the West they not only fell upon the British islands, but also reached Iceland, Greenland and, as the first Europeans, North America.

A second long-term wave of expansion pushed the continental borders of Latin Europe further east. It started from the Empire, which at first extended militarily, politically and ecclesiastically beyond the Elbe and Saale. When the population of Europe had tripled, in the high Middle Ages the *Ostsiedlung* (German eastward expansion) followed, which also covered the Baltics, Prussia, Poland and Hungary. Because even the local rulers found it extremely useful to settle immigrants from the Roman Empire under German law. One can certainly construct a continuity with the later cultural influence of the West, which was to culminate in the “Europeanisation” of Russia. If one wishes to use the formerly common term “German eastward expansion”, one could even see the mass expulsion of the Germans from the East after the Second World War as a decolonisation.

In parallel, the Crusades began as a third wave. In view of the decisive participation of the French, they, too, can be interpreted as a reaction to the population pressure that took to the sea, because Eastern expansion was not possible over land. But this is also the link between missionary aggressiveness and political aggression, which would play a major role in European expansion. In the 19th and 20th centuries, however, Europe no longer wanted to bring true religion to the rest of the world, but true civilisation.

Economic aggression, another driving force of European expansion, marks the fourth wave, which began tightly interlocked with the third, but was soon to leave it behind. This refers to the expanding world trade system of the southern European, especially Italian, cities. They transported the Crusaders, taking plunder with them and settled in the colonial principalities that the Crusaders had founded in Palestine and Syria. However, as the Crusaders had failed and those dominions disappeared, trade in these cities flourished. For they were connected to the exchange system of the Indian Ocean and the China Seas. In the 13th century Italian world trade spanned from Greenland to China. Marco Polo was more of a case of rule and an exception only insofar as his experiences were documented in writing.

The crisis of the 14th century, which we associate with the Black Death, the plague, does not lead to the complete collapse of this system. The Egyptians and the Ottomans did not interrupt Europe’s trade in Asia, but through controlling it derived considerable revenues. But while Venice was doing business with them, Venice’s rival Genoa encountered difficulties and sought alternatives. These were found in the West, in collaboration with the Aragonese, Portuguese and Castilians. Together, they went to develop the At-

lantic islands and African coasts. This was the beginning of the fifth and final expansion, the great European expansion, between the 15th century and the Second World War (Reinhard, 2016). While the Portuguese explored the African coast, thus finally finding the sea route to India, the Castilians tried in the west and discovered a new world. It is very significant that with Christopher Columbus, a Genoan in Castilian service who had originally been at home in the Portuguese Atlantic, accomplished this feat.

In this milieu, new methods of navigation and new types of ships were developed. Later the ships' artillery was added, upon which for a long time European superiority at sea would be based. The Italians had brought in the partnership with insurance for the financing of expeditions and the administration of colonies. The stock company evolved with the Dutch, which in the 19th century was active as the supporter of colonies. In addition, the Italians operated in slave trade and used slaves to cultivate sugar plantations, which was to become a gigantic slave-trade system in America that flourished from the 17th until the 19th century.

However, the great European expansion cannot be explained from a single cause and with a single theory. It is much more a chain of contingent events. In other words, there is a whole range of *necessary conditions* or prerequisites, but not a single *sufficient condition* as a catalyst. Rather, expansion activities were triggered quasi-randomly by activities by individuals or groups of people. However, only *quasi-randomly* because there always had to be certain conditions.

The lust for power and money or the corresponding resources forms the elementary anthropological basis of every expansion of peoples. Crucial, however, are their specific European characteristics. A special feature of this is the missionary impulse, which otherwise only occurred with Muslims and possibly some Buddhists. Important was, however, the geography, the division into numerous small or medium-sized landscapes and the close connection to the sea, be it through navigable river systems. Nowhere in the world do so many coasts exist in relation to the land area as in Latin Europe. Accordingly, its great expansion was maritime; its colonialism was overseas colonialism based on naval superiority. This geographic structure fits in perfectly with the decentralised political system of rival princes and aristocrats that the so-called barbarians established. After Charles the Great, no one was able to make Europe a single kingdom, not Charles V, not Napoleon and not Hitler.

Conversely, political competition was often enough drive for expansion, and more so than ever, since the countless dominions since the 18th century had become modern states. This modern state, which the Europeans invented as a result of their constant rivalry, is the most powerful creation that humans have ever produced. In the final phase of the great expansion, no one in the world was equal to it, not even as powerful an empire as China. The power of the modern European state was based on a symbiosis with the particular form of capitalist market economy that had developed in the autonomous cities of Latin Europe. This symbiosis culminated in the invention of modern state credit in 18th century England (Reinhard, 2002; Reinhard, 2017). The path led from commercial capitalism to industrial capitalism and to financial capitalism. Elsewhere, there were, likewise, cities, but no urban autonomy; there were capitalists and banking, but no public credit.

Less clear is the finding of mental conditions that go beyond the missionary impulse. Were Europeans, due to their ancient heritage, distinguished from others by their

particular curiosity, which included the highly developed sense for practical application? Were these the roots of empirical science and industrial technology? Have Europeans, through a thousand years of translation from ancient languages, in which their cultural and religious origins lie, developed a special hermeneutic competence, which, in addition to brute force enabled them to intellectually overpower other cultures?

Already here we should note that Europe was different, but not necessarily “better” than other cultures. It just became more powerful. However, in my opinion, it is by no means certain that Europe’s “unique selling points”, identified by historians such as Douglass C. North (North, 1987), Eric L. Jones (Jones, 1987) and Michael Mitterauer (Mitterauer, 2003), have all contributed to its temporary superiority. But – be that as it may – power is known not to corrupt only individuals. Perhaps a life of a contemplative culture and religion was more human and happier than that of an expansive one. With stock market profits, Kalashnikovs and atom bombs, one is no better, no more human than with bow and arrow.

One certainly cannot have spoken about supremacy in Asia until the mid-18th century, in any case. The Europeans may have been superior at sea, but over land the indigenous powers set the tone. Thus a system came into being of more or less tolerated base colonies in the Indian Ocean and the China Seas for trade in Asia’s luxury products: spices, textiles, china, tea and coffee. It was a world trade system which, on a macro-economic scale, however, did not initially play a major role for Europe. Founded by the Portuguese, it was first taken over by the Dutch and then by the British. It wasn’t until the 18th century that power relations in India had changed so much that the British were able to conquer. And it was only in the 19th century that the empires in China and Japan could be opened to Western world trade.

The world trade system also included the newly discovered America at an early stage because the trans-Atlantic, trans-Pacific and trans-Asian silver flows from Spanish Peru and Mexico were its basis. The Spaniards had subjugated the indigenous kingdoms and built a mixture of a *ruling and settlement colony* based on the work of the indigenous peoples – insofar as they had survived the culture shock of the infectious diseases. In North America, on the other hand, there were pure *settlement colonies*. Particularly the numerous inhabitants of the British domains wanted to farm the land themselves. The Native Americans had to be displaced or destroyed. Though all the enemies of Spain could appeal to the Spanish colonial critic Bartolomé de las Casas, who had claimed that the conquistadors had carried out a genocide of the native peoples and was therefore long outlawed as a “fouler of one’s own nest.” The countless targeted translations of his work do not, however, change the fact that the actual genocide took place in the British colonies and later in the USA.

Portuguese Brazil remained a sideline until it became the centre of sugar plantations with African slaves. Later these were also used for gold and diamond extraction and for coffee growing. In the 17th century the Dutch initiated the transplanting of this plantation economy to the Caribbean. In this area neglected by Spain and whose indigenous peoples had largely become extinct, various European competitors of Spain had asserted themselves. Barbados and Jamaica with the British; Guadeloupe, Martinique and Saint-Domingue with the French; Cuba later with the Spanish, and the South of the United States became part of the first agro industry in history. Millions of slaves left behind an

Afro-American population. The slave trade, in which the Portuguese, British and French were particularly prominent, operated mainly in agreement with African suppliers who controlled the supply. That is why the Europeans, with the exception of the Cape region, merely had bases in Africa, most of them located near the coast.

Between 1774 and 1823 the first decolonisation took place, in which almost all of America became independent. Initially, however, this was not so much due to American independence efforts but, rather, to aberrations in the metropolises, narrow-minded colonial policy in England, the collapse of the monarchies before Napoleon in Spain and Portugal. But reactions to the French Revolution included the slave revolt in Haiti, the first successful decolonisation of so-called “coloured people”.

After Napoleon's failure, Great Britain dominated the seas. Apart from British India, colonies were expendable and rather annoying under these circumstances. Free trade policy proved to be the best imperialism. Only on land was the Russian expansion threatening. In addition, France made new attempts in Algeria and Indochina. But towards the end of the 19th century other competitors emerged, alongside France and the new powers Germany and Italy, the USA and Japan. As a result, within a few decades, the rest of Asia and almost all of Africa was divided amongst various colonial powers. Japan had been able to assert itself, while China, Thailand, Iran and the Ottoman Empire, thanks to the rivalry of power, remained formally independent, but nevertheless came under such foreign control that they were referred to as *half-colonies*. After the First World War the British and the French empires experienced a last spurt of growth through the division of the German colonies and the Ottoman Empire. Finally, Italy conquered Ethiopia for a few years.

Meanwhile, however, the anti-colonial movement had long since begun. India set the course, especially after Gandhi had taken over leadership. The Japanese conquest of Southeast Asia in the Second World War paved the way so that in the first wave of the great decolonisation until 1954 (Indochina) / 1957 (Malay Peninsula) the territories in Asia were able to become independent. In Africa, at first the colonialists thought of staying, but hardly resisted the second wave. This began in 1956 (Sudan)/1957 (Ghana) and reached its peak in the early 1960s. In the third wave in 1975 the Portuguese colonies in Africa followed. A fourth wave arose indirectly in Namibia and South Africa from the collapse of the Soviet Union in 1989. Their dissolution was nothing less than decolonisation, at least in Central Asia and in the Caucasus. However, as in India, Vietnam and on the Malay Peninsula, in Algeria, Kenya and in southern Africa, it was not without bloody conflicts. But apart from a few remnants, at least politically, European expansion, has been reversed and in this regard is now only history.

The expansion of present-day Europe

In its *second Thirty Years' War*, 1914–1945, Europe forever lost its world political leadership, which until then had been undisputed despite all conflicts. Often enough, in the third decolonisation it was not the colonial powers but both the world powers the USA and USSR that set the tone. In addition, the newly founded United Nations played an important role. Europe, west of the so-called “Iron Curtain” had enough to do with American aid to deal with the catastrophic consequences of the war. Yet, remarkably, reorganisation attempts promptly yielded a new, entirely different kind of European

expansion, no longer with the *hard power* of politico-military superiority as in the past, but the *soft power* of economic attractiveness.

In the beginning, of course there was a political initiative, the founding of the Council of Europe by Great Britain, Ireland, France, Italy, the three Benelux countries, Denmark, Norway and Sweden, as early as 1949, at that time with the aim of achieving *a closer union among its members* (Holtz 2000, 190). Winston Churchill, who spontaneously spoke of a united Europe in 1946 in Zurich, was involved. However, his Europe was only to partner with an independent, still imperial United Kingdom. But the main reason for this was the *American Committee for a United Europe*, founded in 1948, in which the American intelligence chiefs played an important role. Though Washington in 1776 and Franklin in 1778 had already written about a United States of Europe. Now, however, it was a parallel organisation to the recently formed NATO against the USSR. At the founding conference all Marshall Plan beneficiary countries were represented and it was not a coincidence that Turkey and Greece were the next members, despite mutual hostility.

It was only after the Cold War that the hitherto communist countries were incorporated. Today the Council of Europe has 47 members, with the exception of Belarus and Kosovo, all European countries including Switzerland, Russia and even Moldova and the Caucasian states. In the meantime, however, it has become, a loosely defined human rights organisation. The unification of Europe (Loth, 2014) fell into the hands of predecessor organisations of the EU, which, after all, shares a flag and anthem with the Council of Europe.

Its origin was highly pragmatic. The resurgent Germany that was needed was supposed to be politically enclosed through internationalisation. This was the basis for the *European Coal and Steel Community*, established in 1951 by the Benelux countries, France, Italy and the Federal Republic of Germany (FRG). A parallel *European Defence Community*, decided upon in 1952, failed in 1954. But in 1957 through the Treaty of Rome a *European Economic Community* (EEC) and a *European Atomic Energy Community* was created by the same six countries. In 1967 all three were merged into the EEC. Coal and steel no longer played a key role. Now a common market was the target, which was able to be reached by 1993.

A new kind of expansion began, by virtue of economic activity, with the historical innovation that no longer expanded various competing powers, but a European organisation, which, until then, had had a certain territorial analogy to the historic core of Europe, the Carolingian Empire. Conversely, the Brexit of 2016 could even be considered as a step towards a “re-Carolingianisation” of Europe! After the long-standing resistance of de Gaulle, Great Britain did not join until 1973, together with Denmark and Ireland. In 1981 Greece was admitted, followed by Spain and Portugal in 1986, after the dictatorships of these countries had disappeared. In 1995 Sweden, Finland and Austria were added. After the collapse of communism in 2004, the “mass joining” of Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, of Hungary and Slovenia as well as Malta and Cyprus followed. For the *European Union*, as the association has been known since 1993 (Maastricht, 1992; but as a legal entity until 2009 the European Community), it was about new markets and the strengthening of post-Soviet democracy, for the countries concerned to participate in Western prosperity. In 2007, Bulgaria and Romania joined;

in 2013 Croatia. (The “neighbouring countries” Algeria and Greenland withdrew after receiving independence from France and Denmark, respectively; Norway, Iceland and Switzerland have been left out for various reasons.)

In the meantime, the Community has extended its responsibilities, and in 2004 even issued a constitution that failed, however, on plebiscites in France and the Netherlands. Of course, the Treaty of Lisbon, which entered into force in 2009, amounts to the same. As early as 1979 a currency system had been created with *European Currency Unit* (ECU); in 1994 the ECB was established; in 1999 the euro was introduced as a deposit currency and in 2002 as cash. (Great Britain, Sweden, Poland, the Czech Republic, Hungary, Croatia, Romania, Bulgaria are [still] not, however, part of the Eurozone. Denmark has contractual exchange-rate regulations, i.e. it is involved de facto.) As a result of the credit and banking crisis, the common monetary policy has been strengthened, supposedly even beyond the Lisbon Treaty framework.

Nonetheless, the EU has maintained the structure of the Coal and Steel Community to this day: a relatively weak parliamentary assembly and a community justice system, for there is a common law, a strong commission with only limited parliamentary responsibility as a quasi-government and a multi-level European Council of state and heads of government or the minister of state as the highest instance. Politically, this is a cronyism of executives at the expense of democracy, which, in the interests of self-assertion on a national level, can prevent the emergence of a European overall identity and sovereignty. In terms of content, it is mainly an economic community for common profits with a common currency, but only fragmentary common financial and economic policy and no common tax or social policy. This monster can only work as long as the profit expectations are met above and below. For the combination of expectations for a profit for all, while taking into account the interests of the national political classes, made/make the EU attractive and has enabled the new type of European expansion.

CONSEQUENCES

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Europe’s expansion has had consequences (1) in Europe itself and (2) worldwide in the former overseas colonies. In addition, there is also the question (3) of how to face expansion and its consequences.

The consequences in Europe itself

In Europe the cultural border between Latin Europe and the Orthodox world was again crossed with Bulgaria and Romania in 2007 (to Greece in 1981 and Cyprus in 2004). The candidate countries Albania, Bosnia, Kosovo, Macedonia, Montenegro, Serbia are also among the latter and, in part, bring along Muslim minorities as well. Turkey has never been completely secular and is currently being transformed into an Islamic state. But whether Islam actually belongs to Europe, as we were fully assured? If that is meant seriously, it will still take significant efforts from both sides. But also the relationship with countries of Orthodox tradition is not without problems, not least in view of Russia’s violations of interests, which one can reject, but not should not ignore, as in the case of Ukraine. The country has aspired to be a member since 2004 (incidentally, already under Yanukovych from the Russian-related *Party of Regions*) and has been an official partner of the EU since 2009. But the east Ukrainian industrial area has become mostly Russian,

and Crimea, annexed by Russia in 2014, was “given” to Ukraine in 1954 in a dubious procedure. Before, it had not been Ukrainian!²

Geopolitically, however, the EU’s frivolous eastern expansion policy could be justified by the fact that Europe has no “natural” eastern border. This results from its character as a mere historical construct and product of its own expansion. Borders like the Bosphorus or the Ural are mere conventions and quite variable. In the Middle Ages, for example, the border was on the Don (Tanais). On the other hand, Siberia is so strongly Russianised and thus in a broader sense Europeanised that Europe as a political-cultural unity could be extended to the Pacific – or Russia to the Atlantic Ocean. The one or the other was and remains, of course, a nightmare for the Russians as well as for Latin Europeans.

There are no solutions for compelling ambiguity but for various possibilities that must be sounded out very tactfully. With regard to a common European identity, the historian even considers a self-limitation of the EU – or a closer EU – to Latin Europe as a sensible solution. This could be accompanied by the overdue transformation into a genuine, democratically legitimised federal state. Another EU with the scope of the Council of Europe would usefully complement it as a free-trade area. Because the economy cannot be big enough for the market – not least the labour market.

The consequences in the former colonies

Throughout the world, European overseas expansion has also left behind complex and contradictory results (Reinhard, 2016). They culminate in the depressing experience that with changed power relations, in particular after decolonisation, victims immediately turn into perpetrators. However, a popular thesis of the so-called post-colonialists says that political decolonisation is largely completed today and that the economic situation in many countries is well on track, but that the cultural one has not even begun. For Europe forced the world to think European and codified this reprehensible state by irreversibly disseminating its system of education (Chakrabarty, 2000).

In fact, if decolonisation has left some 200 sovereign states behind, then according to the claim, they are modern nation-states of European standard and predominantly also democratic constitutional states of the European-American model. In addition, the West has created a global state, international law and human rights community organised by the UN. It also guarantees weak states their existence, which formerly would have been long conquered by stronger ones, and makes possible contractual settlement for the most diverse global problems (polar regions, seas, climate). Decolonisation is thus the triumph of a fixed political culture in Europe!

More specifically, it turns out, however, that, first of all, there *are* links with indigenous traditions, for instance, regarding the understanding of law in China or in Islamic countries. Secondly, traditional social behaviour is often prevalent, contrary to the western model of the state, but prevails because the latter’s constituents were only superficially implemented during and after colonial rule. An efficient and reasonably honest bureaucracy, a politically neutral military and a vibrant civil society with an independent press are the exception rather than the rule. While new states are also making nationalism

² Cf. on the annexation of Crimea by the Russian Federation: <https://en.wikipedia.org/wiki/Crimea>

a bridge to integration, rival ethnic identities often prove stronger, which has led to civil wars. The failure of the state to the extreme case of failed states is the consequence. Under such circumstances, citizens see their interests better understood with client associations and ethnic groups. Political systems based on such close connections are, of course, considered corrupt by the West.

If India is still a reasonably functioning democracy today, it is because of Britain's long and relatively intense colonial rule over a country where it pays off. Parts of India and other less profitable colonies were instead managed in a pre-modern way, with as little resources and manpower as possible. Which is why arrangements were made there with the indigenous elites, be they traditional, like Indian princes or Nigerian emirs, or modern – lawyers and administrators, police officers and soldiers – who recreated the colonial powers as needed. Without Indian allies, no Conquista, without African suppliers, no slave trade. Colonial rule was based largely on an alliance of the colonial rulers with local elites to exploit the indigenous underclasses. These elites could then easily take over the colonial dominion during decolonisation, but had to remedy its inadequacy with patronage networks.

The economy also offers a picture that is not so clear. Previously the post-colonial economy was denounced as neo-imperialist or neo-colonial due to the continuing dependence of the former colonies. The dependence theory of the 1970s even explicitly stated that it was not “undeveloped”, but rather “underdeveloped”, a condition that had been deliberately established by the colonial rulers, as post-colonial dependency continued to live on and basically could not be overcome. At best, it could be remedied through revolution. This is naturally racist nonsense, because it assumed that the locals were fundamentally not able to assert themselves against colonial rule. In reality, the colonies were well developed, but unilaterally in the interests of their masters, especially as suppliers of raw materials for export. Railway networks centred on export ports have conserved this situation up to today.

In this context, however, firstly, there was considerable indigenous economic activity in many places. Secondly, it is not so rare for economic aberrations to also date back to the decisions of post-colonial, independent governments, sometimes even in accordance with the economics of the time. Production of raw materials was considered meaningful in the context of international division of labour, especially at high world market prices – think of the oil-producing countries. On the other hand, forced industrialisation ensued with the neglect of agriculture according to the model of socialist states. Thirdly, and above all, the development since then has falsified the sweeping dependence theory, for in the meantime, former colonies in Asia, Latin America and, more recently, apparently even in Africa have made remarkable economic progress. The problem will have to be tackled by country. There are, however, countries like Niger or Chad that are poor because they date back to random and meaninglessly demarcated colonies. Federal solidarity, however, which could remedy this situation, is not only underdeveloped in Europe.

Today's unbalanced world economy is thus only partly inherited from colonialism. More important is the current economic globalisation, which, though, likewise in an indirect way also goes back to European expansion. The shift of production to low-wage countries with lower safety and environmental standards, the shifting of low-tax countries, the flags of convenience for tankers and container fleets, the new mass slavery on

construction sites, in households and brothels, and the tax havens with their letterbox companies for the rich may sometimes be linked to relationships that date back to colonial times. However they are not late-colonial or neo-colonial because of this, but just like the self-referential financial economy which has lost all connection to production and commerce, are phenomena from another world, the global one, which has long since left colonialism behind.

Admittedly, the economic culture of the capitalist goods, labour and financial markets along with the political culture of the modern states has been one of the most important exports in European expansion. Of course, this also involves the export of science, medicine and technology. Indians are outstanding computer scientists; Chinese build better high-speed trains than the Germans and French, not to mention Japanese or Korean cars. This resulted in massive social change. For, in addition to the neglected masses of peasants, completely new groups were created worldwide based on the Western model: employers and employees, engineers and doctors, lawyers and professional politicians, civil servants and police officers.

The whole behaviour became Western. The twenty-four-hour day, seven-day week and the Gregorian calendar regulate life all over the world. One wears Western clothes; even under colourful African robes or Islamic men's or women's garments that have asserted themselves, Western underwear is likely to be found. One communicates perfectly in a Western way. The smartphone ruled the lives of East Asians even more exclusively than that of our European citizens. There is a television in the smallest hut and there is no country in the world where football is not played with passion. Hundreds of millions of people all over the world speak English as their mother tongue or second language. To a more modest extent, this also applies to Spanish, Portuguese, French and Russian, as the speakers of these languages are largely no longer Spaniards, Portuguese, French and Russians. In short, globalisation amounts to a world culture of European-American origin, the decolonisation of which has not even begun.

Quite simply because a cultural decolonisation is not necessary and thus also not even possible. Cultural change cannot be undone. All peoples that were dominated in the European expansion of Europe and America have long accordingly *appropriated* the culture of their former masters and, in extreme cases, these people have even expropriated their culture. A paradigmatic case is the English language, which has not only become a universal means of communication in its American variety, but also appears in many different forms of national variations. In India there are even manuals for speakers of Indian English to familiarise them with the curious way in which the English treat this language of India (Nihalani et al., 2004). Historically, the whole thing corresponds with Europe's relationship to antiquity. Many Europeans today speak a language that is wholly or partly based on Latin; their legal culture is governed by Roman law; and Roman Catholicism is still the religion of many. As I have emphasised, Latin Europe is still a cultural fact. But no one feels that he or she is still colonised by Rome, because the culture of Rome has long since become our property. Thus the European origin of today's world culture is only of historical interest.

In addition, to be more precise, its origin is much less uniform than is often assumed. It has creatively produced a wealth of hybrid connections with previous cultures and continues to bring them forth. Bollywood is not Hollywood. And there is still a

wealth of non-European writing systems in use between Morocco and Japan. The Muslim lunar calendar still shapes the lives of millions with Ramadan. The East Asians still eat with chopsticks. Because in “kitchen and church” the cultural diversity is still particularly pronounced and has long since returned to the West. Even Protestant Christianity now offers a colourful image all over the world and even the Catholic is, at least in practice, less monolithic than Rome would like it to be.

Dealing with the consequences of European expansion

But the falsification of a rather ideological view of the post-colonial world still leaves open the question of how to confront the legacy of colonialism. Because the worldwide asymmetrical distribution of development, wealth and power is rightly considered a nuisance – although the standard of living has risen almost everywhere; even though people are still starving. Yet there are less of them. And we should not overlook that even the current wave of refugees already presupposes a certain wealth and participation in world culture. Really poor people who are starving cannot pay smugglers. And the idea of prosperity in the West, which offers television, seems to represent an important impulse for migration – as once the television from the West shown in East Germany did.

Although global inequality did not come about without the participation of Europe it is not entirely due to its culpable behaviour. For *being guilty* in the causal sense does not automatically imply moral guilt. The blanket antagonism of colonial masters as evil perpetrators and the colonised as good victims is empirically incorrect. The post-colonialists have taught us how unreal binary opposites can be. History is rarely black and white, but mostly grey, because the complex network of causes and effects can barely be unravelled, even with limited historical facts. That is why the blanket hate of other peoples for the Europeans is just as inappropriate as the blanket contrition that has also recently affected the Germans in the face of their colonial history. Nevertheless, non-blanket contrition and compensation in clearly defined cases can certainly be appropriate. For example, for the German war crimes in Namibia from 1904 to 1908 (Kössler/Melber, 2017). But it is just such a step that should simultaneously overcome the past by looking to a better future. Humanity has invented *forgiveness*, *forgetting* and *reconciliation* for this purpose. —

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How Work Outputs

How the world put Europe on the map in the 17th & 18th centuries

PATRICIA FARA

European History is whatever the historian wants it to be ... political, religious, military, pacific, serious, meaningless, anything else you would like it to be. There is only one limiting factor. It must take place in, or derive from, the area we call Europe. But as I am not sure what exactly that area is meant to be, I am pretty well in a haze about the rest.

(Taylor, A. J. P 1986)

Jean Monnet, often considered the European Union's founding father, once remarked that "Europe has never existed. It is not the addition of national sovereignties in a conclave which creates an entity. One must genuinely create Europe" (Sampson, 1968, 6). He was speaking in the aftermath of the Second World War, but his pronouncement carries the ring of eternal, if paradoxical, truth. Europe has of course been in existence for many centuries, yet nobody knows exactly what it is. How easy it has often seemed to assume that the West is divided from the Rest because the Best comes from Europe. How hard it has always been to decide who belongs and who is denied entry.

Monnet said that Europe had to be created, but that was nothing new. He and his fellow campaigners for a united Europe inherited a confused continental category. Lacking any obvious border along its eastern edge, Europe has never been a clearly delineated geographical entity, although its inhabitants like to think otherwise: nostalgic for an earlier imagined simplicity, Winston Churchill regretted how "professional geographers now tell us that the Continent of Europe is really only the peninsula of the Asiatic landmass ... I distinctly prefer what I was taught when I was a boy" (Hay, 1968, xvii-xviii). Europe had traditionally been understood as the realm of Christianity, which conveniently precluded any need to draw sharp lines around its edges. That religious definition of Europe was still being urged upon Germany in a radio broadcast by the poet TS Eliot, who claimed that it is only "against a background of Christianity that all our thought has significance ... I do not believe that the culture of Europe could survive the complete disappearance of the Christian faith" (Davies, 1996, 9).

Rather than showing how Europe made the world, global historians are now exploring how the world made Europe (Wolf, 2010). As Walter Benjamin pointed out, history is written by the victors, which makes it hard to recognise that Europe is not necessarily special. During the last few centuries, European versions of history have prevailed across the entire globe. In imperialist renditions of the past, Europe features as a beacon of civilisation shining out across distant lands. Explorers, collectors and missionaries travelled across the globe, aiming to transmit their culture, garner resources for their own profit, and ensure the rise of scientific knowledge about the world. Opinions vary about the legitimacy of these enterprises, but whether triumphalist or condemnatory, such interpretations rest on the assumption that the Old World gave birth to the New. They ignore the uncomfortable truth that although Europeans did indeed alter other cultures, the effects ran in both directions. The region's relatively recent supremacy and wealth arose from taking advantage of other civilisations and natural resources found elsewhere. Technological innovations flourished far earlier on the Asian side of the Eurasian landmass than the western, and Renaissance Europeans imported Islamic expertise in scientific and medical matters, disguising their eastern origins by bestowing Latinised names. Until the end of the 18th century, Asian countries – notably China and India – were equally important trading partners in a global economy.

The question of what exactly did constitute Europe first became pressing during the Renaissance and the Enlightenment, when defining Europe geographically was prompted by voyages to the Americas and increasing insistence that the world be described on the basis of reason and observation. Because cartographers were both demanding and supplying physical accuracy, it was no longer sufficient to equate being European with being Christian: instead of being a concept, Europe now had to be located on a map.

In addition to demarcating Europe precisely on a global map, scholars were reassessing its relationship with the universe. Whereas they had previously placed Earth at the centre of God's creation, during the 16th and 17th centuries they collected observational data to confirm that our orb is just one of several planets rotating about the sun. The human race no longer enjoyed cosmological supremacy, although Christians – most of them living in Europe – learnt from their Bible that God had given them the privilege of governing the entire earth, including its inhabitants.

Deciding what it meant to be European demanded determining who and what was non-European. Encountering other civilisations made it clear that the inhabitants of Europe were not unique. The growth of international exploration brought greater knowledge about the rest of the world, but it also entailed being more specific about what identified Europe. Europeans could not decree independently or in advance what it meant to be European: instead, their overseas encounters forced them into creating criteria for distinguishing their own people, flora and fauna.

This emphasis on a collective, distinct identity helped to induce an assumption of superiority and hence unity among European countries. Despite their outstanding political differences, they shared an arrogant confidence in their God-given right to colonise territory, take advantage of natural resources, and ship people from one side of the globe to the other, often under atrocious conditions. Europe became rich during the 17th and 18th centuries, but not in isolation. It accumulated wealth and power at the expense of the rest of the world not merely because of its own initiatives, but also because of actions and decisions taken elsewhere.

In what now verges on cliché, the English metaphysical poet John Donne wrote that “No man is an island.” Both literally and metaphorically, Europe has never been an island, either. To consider how the concept gradually shifted between the 16th and 18th centuries, I have divided this essay into four sections. I begin by examining how human beings – including those now bracketed as Europeans – gained a new sense of their place first in the universe and later in the world, and then turn to considering how the world’s other inhabitants imparted both significance and wealth to Europe.

THE PLACE OF THE EARTH IN THE COSMOS

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What it meant to be European was affected by what it felt like to be a terrestrial human being. In the early 16th century, most people who wondered about such things regarded Earth as the centre of the universe, stationary but surrounded by constantly circling planets and the sun. The conventional account of how views changed celebrates Nicolas Copernicus, a Polish priest. According to that well-known story about the past, his seminal book of 1543 revolutionised centuries of Greek astronomy by suggesting that the earth rotates around the sun. Before Copernicus’s inspired insight, reactionary astronomers had supposedly clung to Ptolemaic models of celestial motion stemming from the 2nd century AD, even though increasingly complex mathematical gymnastics were required to make arcane theories match observations of how the planets were actually moving in the heavens (see Figure 1).

Written by Europeans, this triumphalist version of history unsurprisingly presents a European as the heroic forefather of modern scientific thought. It ignores Copernicus’s Islamic predecessors, who for centuries had been worrying about the deficiencies of Ptolemaic astronomy, and had also proposed a central sun as one way of resolving its accumulating discrepancies (see Figure 2).

Just as this long-standing debate had originated before Copernicus’s intervention, so too it continued afterwards: contrary to popular accounts, there was no sudden transition, so that about a century went by before Copernicanism was generally accepted (see Figure 3). For one thing, many mathematicians maintained their insistence that although placing the sun at the centre might make the numbers work satisfactorily, this was merely a pragmatic model and did not necessarily represent physical reality. Just as significantly, for decades it was not possible to choose objectively between competing theories: until instruments improved, and more observations had been collected, there was no incontrovertible way of deciding whether the sun or the earth lay at the centre of the planetary system.

Replacing the earth by the sun, thus demoting it from its central position, involved abandoning many centuries of explanation about how the cosmos works. This entailed a far more drastic theoretical overhaul than a straightforward geometrical transposition. Instead of being seen to be governed by a unique set of laws, the earth came to be integrated within a far larger heliocentric universe. This reduced the significance of human beings in the cosmos, and so the world’s inhabitants were brought together in the common knowledge that they now shared a lower position in the cosmic hierarchy. Forced to adopt a different relationship with the universe, they gradually developed a new relationship with one another (see Figure 4).

For around a thousand years in Europe (as well as in many Muslim communities), the prevailing model of the cosmos was Aristotelian. According to that, the heavens and the

earth were fundamentally different from one another. The celestial realm was characterised by divine stability, with the heavenly bodies rotating eternally in perfect circles through a spiritual aether. In contrast, the terrestrial sphere was subject to change and corruption; composed of four elements (a misleading name, as they were very different from modern elements), it was governed by natural laws that extended no further out than the moon. Comets and other transient phenomena seen in the sky were categorised as terrestrial, because it was impossible for anything new or different to occur in the celestial realm.

Many different forms of Aristotelianism developed over the centuries in different cultures. But in very broad terms, European Aristotelians regarded themselves as living in a hierarchical world that was based on continuity and purpose, not on atomicity and chance as assumed by modern science. Rather than visualising the world as continents separated by oceans, early Aristotelians conceptualised it abstractly as a terraqueous globe divided into zones. For example, birds could be grouped with trees and clouds because they belonged to the atmosphere, which was dominated by the Aristotelian element of air. Because birds are living creatures, they were also placed in a vertical chain of being that stretched from the lowliest organisms up through fish, animals, human beings and angels and on towards God. The chain had remained unchanged since its establishment when the world was created, and each creature differed slightly from its immediate neighbours above and below (see Figure 5).

When the earth was removed from its central place in the cosmos, European Aristotelianism began to crumble, but this was a slow and uneven process: there was no sudden birth of modern science. For instance, the French natural philosopher René Descartes and the English anatomist William Harvey are – like Copernicus – often celebrated as great 17th-century pioneers of modernity, but Aristotelian concepts still pervaded their theories. By the end of the 18th century, most Europeans – including those who had settled elsewhere, such as the Americas – subscribed to some form of Newtonianism. Now they visualised their world as just one of several planets constantly orbiting around a central star called the sun. Most of them – but not all – believed that after creating the universe, God had left it to its own devices, so that it was governed inexorably by mathematical laws determining its behaviour for many millennia into the future. As they gazed out at the multitudes of stars in the heavens, some people speculated about life elsewhere: why, they asked, would God have created so many celestial objects if He had not intended them to be inhabited?

Around the end of the 18th century, new arguments were formulated claiming to provide rational vindication for European assertions of superiority. No longer automatically unique as the main focus of God's creation,

Fig. 1 // In this Renaissance depiction of the Ptolemaic model, Earth lies at the centre, while seven planets (including the sun and the moon) move in orbits around it. In addition, the planets circle in small epicycles: this complicated motion was needed to explain why the planets appear to move backwards at certain times. The central rings represent the four Aristotelian elements, earth, water, air and fire

Fig. 2 // Born exactly 500 years before Copernicus and enormously influential on the European Renaissance, Abū Rayhān al-Bīrūnī (973–1048) was one of the greatest Islamic scholars. In this astronomical drawing, he explained how lunar eclipses occur. He repeatedly criticised Aristotelian cosmology, and considered the possibility of a rotating Earth and a central sun.

the earth was examined scientifically to determine the characteristics that made it special. Its cosmological status had been drastically reduced, but the terraqueous globe became a subject of study in its own right. Alexander von Humboldt meticulously recorded the annual mean temperatures at different places across the Atlantic Ocean, plotting them as smooth curved lines linking Eurasia and North America. Whereas the globe had previously been divided historically into the Old and New Worlds along a north-south line of longitude through the Atlantic Ocean, Humboldt demarcated it geographically along the equator. Rather than conceiving human beings as independent entities, he incorporated them within their environments and maintained that culture is related to physical surroundings. Because North America was a temperate zone, he argued, the people who lived there were – in principle, at least – capable of sharing the advanced civilisation enjoyed by their European counterparts. On the other hand, the lush natural exuberance of South America resembled that of Africa: according to Humboldt, the peoples indigenous to the southern continents were intrinsically inferior, condemned to primitive violence.

MAPPING EUROPE

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In the early mediaeval period, human beings related themselves to the world spiritually rather than geographically. Europe meant Christendom, and although it loosely overlapped with the western part of the Eurasian land mass, its conceptual value was more important than its physical location. Maps were not necessarily intended to help a traveller move from one location to another, but rather to display a theological vision of God's creation incorporating both space and time (see Figure 6).

The so-called T and O maps showed only the northern hemisphere, its outer circle denoting the surrounding ocean. The three branches of the inner T showed the Christian world's three most important waterways – the Mediterranean, the Nile and the Don – separating three continents: Europe and Africa on either side, with a larger Asia at the top, surmounted by Paradise in the East. What was significant was not the shape or character of Europe, but its edges, the watery boundaries protecting it against the Muslims of Asia and North Africa. The Mediterranean was an easy choice; the Don might seem a less natural border than the Ural Mountains for dividing Eurasia into east and west, but what mattered was the religious divide.

Fig. 3 // This diagram of a geocentric universe comes from a celestial atlas of 1708, *Harmonia Macrocosmica*, indicating how long it took for the notion that the earth rotates around the sun to be universally accepted. It was proposed by the Danish astronomer Tycho Brahe, and shows the earth at the centre; the sun and the moon rotate around the earth, and the five known planets revolve around the sun. In the middle of the 17th century, there was insufficient observational evidence to choose between this Tychonic model and the alternative ones of Ptolemy and Copernicus.

At the same time, there were also more directly representational maps of the globe, notably those initiated by the Egyptian astronomer Ptolemy in the 2nd century and repeatedly copied by hand (see Figure 7). There were, of course, huge gaps and inaccuracies in geographical knowledge, but like the T and O maps, many cartographic images were intended not primarily as physical guides, but rather as symbolic portrayals of power. For example, some late 16th-century depictions of Europe showed her as a queen, her Hispanic head next to Africa and Bohemia covering her heart (see Figure 8); other maps included imagined features such as *Terra Australis* or the Northwest Passage.

As European traders ventured away from the well-charted Mediterranean to cross the Atlantic and the Pacific Oceans, demand grew for more reliable navigational information. In order to reach distant parts of the world, Europeans developed maps that aimed to be accurate miniaturisations of physical reality. One particularly important early innovator was the late-15th-century mathematician Regiomontanus, whose most famous beneficiary was Christopher Columbus. Based in Nuremberg, at the crossroads of Eurasian trade routes, Regiomontanus designed more precise measuring instruments and took advantage of the new local printing industry to distribute his reliable tables of numerical data. Although the oceans long remained better charted than the interiors of continents, navigational maps became increasingly accurate representations of the globe.

Wherever its borders might be located, one major obstacle to forging a united Europe was the uneven distribution of power among its constituent nations. Central Europe was dominated by the Hapsburg monarchy, while the Bourbons controlled France as well as much of Spain and Italy. It seemed that there was always war somewhere, waged either in Europe itself or overseas between European powers laying sole claim to the same foreign territories. One proposal for a United Europe came at the beginning of the 18th century from the Abbé de Saint-Pierre, who suggested redistributing the aristocratic ownership of various areas to achieve a more even balance. As he optimistically

explained, “For the more Sovereignties there are in *Europe* of Equal, or not so much Inferiour Force to one another, there will be the more Peace” (Saint-Pierre, 1714, 6). His emphasis on peace had a long lineage, stemming from the conviction that a cohesive Europe would be more effective at protecting Christendom’s external enemy, the Muslims.

Cartography was an act of imperial possession: by naming and mapping, Europeans claimed ownership of foreign regions. Yet their urge to dominate the world by portraying it accurately on a piece of paper made it imperative for them to delineate their own domain geographically as well. A vague association with Christendom no longer seemed sufficient to define what was meant by Europe. Even though Constantinople had played such a crucial role in establishing Christianity, Turkey was more or less automatically excluded after its conversion to Islam. The main decision to be made concerned Russia. For many centuries, the river Don had marked the eastern boundary of Europe, yet the Russians were often regarded as relatively uncivilised and oriented towards Asia; in any case, argued critics, even those who were Christian followed a different tradition from Catholics and Protestants. Russia came to seem less alien towards the end of the 17th century, when Peter I deliberately introduced a programme of westernisation. Succeeding tsars continued this approach, and through its actions during the Napoleonic Wars, Russia demonstrated its right to be included in Europe. As a consequence, the border was moved further east to follow the Urals and correspond more closely to Russian territory.

Proclaiming themselves to be enlightened, philosophers increasingly rejected criteria based on Christianity. For Voltaire, Europe’s unifying characteristic was polite civilisation, and he advocated tolerance rather than conformity to a prescribed norm, describing the continent as “a kind of great republic divided into several states, some monarchical, the others mixed; the former aristocratic, the latter popular; but all corresponding with one another. They all have the same religious foundation, even if divided into several confessions. They all have the same principle of public law and politics, unknown in the other parts of the world” (Hay, 1968, 123). Voltaire’s version of Europe was based on the older Republic of Letters, whose citizens relayed news and conducted debates by correspondence, often in one of the international languages, Latin and French. Stretching across Europe, but also including Americans such as Benjamin Franklin, this idealised community supposedly transcended political barriers to unite educated people – women as well as men.

In the Republic of Letters, scientific knowledge was held to ignore national boundaries. To some extent this was true. Following the foundation of London’s Royal Society in 1660, learned societies rapidly began springing up across Europe, and by the end of the 18th century almost seventy major cities boasted their own. They published scholarly journals to share their discoveries internationally, and many of them had foreign

Fig. 4 // This image of a heliocentric universe was published in *On the Revolutions of the Heavenly Spheres* (1543) by Nicolas Copernicus. He showed the earth and the other five known planets rotating in circles, to conform to the Aristotelian notion of divine perfection in the heavens. The preface to his book, written by Andreas Osiander, maintained that this was a mathematical model and did not necessarily represent reality.

Fig. 5 // Raymond Lull's Scale of Intellect (1303), a Christianised version of Aristotle's chain of being.

as well as local members. For instance, the Swiss mathematician Leonhard Euler was employed by the St Petersburg Academy for fifteen years before transferring to the Berlin Academy and being elected a foreign member of the Swedish Academy; originally written in French, his popular book on natural philosophy was translated into several different languages and achieved enormous sales right across Europe. As another example, major opportunities to demonstrate scientific cooperation occurred in the 1760s, when there were two Transits of Venus within eight years. Because these astronomical events promised a way of measuring the dimensions of the solar system more accurately, observers from many different countries travelled to stations around the world, several of them given diplomatic immunity to ensure their safety.

In practice, the scientific world was riven by rivalries, so that nationality and religion were both important considerations when judging the validity of a theory about the natural world. According to Walt Disney versions of scientific history, physics was transformed forever

in 1687, when Isaac Newton published his seminal tome on mechanics and gravity. But just as had been the case with Copernicus, change was well underway even before Newton was born, and there was certainly no sudden or uniform conversion to his ideas. Theological objections were voiced all over Europe, including in Britain; these precluded universal acceptance, especially in Catholic countries with Jesuit-controlled educational organisations. Newton's explanation of gravity relied on tiny particles being inherently attractive, but many critics viewed this proposal as sacrilegious, because it transgressed the binary distinction between inert matter and spiritual entities given power by God. Furthermore, Newton's universe was subject to divine intervention, as if – sniped his adversaries – he envisaged God to be a sloppy watchmaker incapable of creating a perfect clockwork mechanism (Fara, 2002).

National competition compounded these religious difficulties. Newton's main immediate predecessor was René Descartes, and French philosophers were loath to accept the ideas of Britain's great hero; similarly, Germanic scholars favoured Gottfried Leibniz, and England's propagandists denounced French backwardness. Such chauvinistic attitudes were encouraged in publications; for example, a popular English journal promoted Newton as a local hero rather than as an international genius, boasting that Europeans regarded his monument in Westminster Abbey as an honour to the nation rather than to Newton as an individual. Such insistence that truth is tied to nationality or religion is not necessarily restricted to the long-distant past. During the 20th century, British scientists were initially reluctant to accept that Einsteinian relativity had superseded Newtonian gravity; some Germans rejected not only Jewish scientists, but also

Fig. 6 // A typical T and O map. East was conventionally at the top, as the direction of Jerusalem and Paradise.

the scientific theories they proposed, while Mendelian genetics was banned in Soviet Russia as a product of Western capitalism.

International neutrality on scientific matters only began to approach being a realistic claim after the French Revolution, when the version of Newtonianism that now prevails throughout the scientific world was introduced by the self-styled “French Newton”, Pierre Simon Laplace. Banishing God, Laplace set up a deterministic universe lacking any divine intervention: in his model, the movements of planets and particles are governed by ineluctable natural laws, so that the state of the world can be predicted forward into the future and back into the past. As well as being more united scientifically during the Napoleonic era, Europe was also consolidated politically. But old attitudes died hard, and science inherited some religious vocabulary. In the 19th century, Newton became “the high priest of science”, and European expeditions to measure the earth’s varying patterns of magnetism were called the Magnetic Crusade.

MAKING EUROPEANS DIFFERENT

— Once Christopher Columbus had brought back news of an American continent, Europeans were forced to start thinking about themselves differently. Geographically and economically, America inspired them to leave the well-charted safety of the Mediterranean and venture across the Atlantic; intellectually, they were obliged to recognise that Greek philosophy no longer provided enough answers. And in terms of their own nature, encountering people from other continents encouraged them to identify ways in which they could be special in both senses – unique as well as superior. Presenting Europeans as the most advanced civilisation, they measured human progress by their own standards: other societies were not only distant geographically, but also separated in time by being behind. Paradoxically, Europeans claimed that their own values were universally valid, even though other cultures were deemed incapable of formulating them.

European naturalists were enormously excited by the plant and animal specimens that arrived first from the Americas, and later from Australia and other distant parts of the globe. When travellers tried to describe other societies and environments, they could only communicate by comparing the unknown and unexpected with the familiar. Initially, their instinct was to accommodate new discoveries within Aristotle’s chain of being, but that had been designed to cope with habitats lying within reach of the Greek empire. As more and more flora and fauna flooded in, it became apparent that continually expanding the chain internally was impossible, so that new methods of classification were needed. Although several were suggested, the one that prevailed was proposed by the 18th-century Swedish taxonomist, Carl Linnaeus (Bindman, 2002).

Linnaeus’s scheme made it appear that he was grouping or mapping human beings

Fig. 7 // This mid-15th century Florentine map was adapted from Ptolemy’s *Geography* of 150. There is no clear border between Europe and the Eurasian land-mass, but China is shown on the right.

According to the Bible, every type of creature – including fossils – has existed since the earth was created, but evolutionary ideas began circulating during the second half of the 18th century, long before Charles Darwin's *On the Origin of Species* (1859). Although European explorers regarded the indigenous inhabitants of America, Africa and Australia as being different from themselves and from each other, they included them in the same race: they were all human beings, as opposed to dogs or horses. It was not until the 19th century that anthropologists transformed “race” into a scientific term, a measure of distinction based on supposedly quantifiable factors such as skin colour and skull shape. For much of the 17th and 18th centuries, many Christians believed that all human beings shared a common origin, a view that later became known as “monogenism.” This corresponds to the biblical account that all human beings are descended from God's first couple, Adam and Eve, who were assumed to be white – darker-skinned people were said to have shifted from this original, natural colour. The main rival theory of multiple origins centred on the three sons of Noah, and that version associated blackness with wickedness.

Unintentionally, the Dutch monogenist Pieter Camper consolidated notions of white superiority in his attempt to demonstrate that there are no distinct human races. To explain how people could be equal yet look different, Camper adopted a climatic approach, but he set about proving his convictions in a way that appeared to show precisely the opposite of what he believed. Arguing that people's skulls are – unlike skin colour – not affected by environmental influences, this skilled anatomist decided to compare different types of skulls according to their shape and dimensions. Such a research project only became possible towards the end of the 18th century, when non-European skulls were becoming available for study in sufficiently large numbers. For each one in his sample, Camper measured the angle of slope from its forehead down to the upper teeth, and then displayed the profiles on a grid. Next he compiled a chart showing sixteen skulls arranged in mathematical sequence from a tailed ape and an orang-utan at the left, through “Negroes” and “Calmucks”, with a European and a Greek Apollo on the right (see Figure 9). Inspected closely, these diagrams do indeed confirm Camper's insistence that there is far more similarity between the humans than between them and the primates. Unfortunately, the visual message that emerges more strongly is a very different one: that the geometric records of the skulls corroborate a racial hierarchy, a progressive scale from animals to African blacks to Europeans.

This distorted interpretation of Camper's theory had an enormous impact. Citing Camper, Europeans could argue for hierarchy not merely in facial angles, but also in intellectual powers, skeletal structures and other physical characteristics. “Caucasian” is now entrenched as a fundamental human category, but it was first introduced near the end of the 18th century by the German anatomist Johann Blumenbach. Viewed in retrospect, the label's origins should be embarrassing for all those who feel that they qualify to receive it. Historically, male slaves had often been Africans and Tartars, and since they carried out tasks demanding brute force, they were classed as ugly. In contrast, the luxury end of the female sex market was supplied from the Black Sea area, so that Caucasian women became epitomised as ideals of beauty, a judgment endorsed by Immanuel Kant. How ironic that a mountainous region lying between Europe and Asia, remote from scholarly centres but renowned for supplying women sold into sexual servitude, should give its name to what was seen as Europe's major racial group.

Fig. 9 // By arranging skulls in order from a “tailed ape” to a “Greek Apollo”, the Dutch naturalist Pieter Camper intended to show that there are no distinct human races. Unfortunately, this diagram was often misinterpreted to confirm a progressive scale from animals to black African to white Europeans.

MAKING EUROPE RICH

By the middle of the 19th century, much of Europe was heavily industrialised and rapidly becoming the richest area in the world. Although that fact is undisputed, there is no consensus on the reasons for this unprecedented gap in wealth between the European and Asian economies. Britain in particular is feted for launching a so-called industrial revolution that later reached the rest of the continent. Several explanations have been proposed – European scientific rationality, abundance of raw materials, population control, market structures – but they all share the assumption that Europe was intrinsically special and also responsible for the shift.

Another way of approaching this historical feature of divergence is to consider how global pressures steered Enlightenment Europe into travelling along that particular route to the future. Events in the Americas and Asia strongly affected the European economy during the 17th century. Although Portuguese and Spanish explorers were shipping vast amounts of gold across the Atlantic, very little stayed in Europe; instead, it was promptly exported to buy spices, tea and silk that could only be produced in Eastern Asia.

Chinese and Japanese importers were uninterested in tin, iron, wool, furs and other European goods, preferring to accumulate gold not for coins, but to create beautiful objects and to stockpile as insurance against future disasters. Because wealth was controlled by a tiny minority, there was no internal competition for Asian exports, whose price remained stable. In contrast, Europe experienced a long period of inflation, during which the value of gold rose less rapidly than that of other commodities. As a consequence, it was financially advantageous for Europeans to re-export American gold and buy exotic luxuries. Silver was also flowing through Europe in this easterly direction. As mines in Mexico and Peru increased their output during the first half of the century, the value of silver fell in Europe, so that trading companies exported it to India, where the price was substantially higher (Bernstein, 2000, 114-97).

In the face of increasing competition from Asia, the European producers who succeeded were those who imitated and undercut their rivals; in other words, they experienced an external incentive for change. The natural factor of local fuel supplies also played an important role. Because much of Asia (especially the Indian subcontinent) had plentiful supplies of wood, its manufacturers had little motivation to alter their production processes. In contrast, with its depleted forest coverage, Britain could only survive against international competition by mobilising its untapped coal reserves. As a consequence, British industrialists were forced into developing more efficient steam technologies, which in turn accelerated the country’s industrial expansion (Parthasarathi, 2011).

Describing the industrial revolution as a sudden explosion of native entrepreneurship makes an appealing, self-congratulatory story, but it was created retrospectively. Instead of investigating how European culture stimulated invention, attention needs to be focused on how Europeans invented the narrative of their own success (Ashworth, 2017). As just one example, consider cotton manufacture, often cited as the main success story illustrating British industrialising initiative. From the early 17th century onwards, plantation owners in the Americas insisted that the British demand for sugar could only be met if they were supplied with more workers from Africa. In order to purchase these slaves, British merchants originally traded woven cotton textiles that they had imported from India. But after their government began imposing heavy taxes on Indian cloth, British manufacturers were forced into developing cheaper, more efficient ways of manufacturing it themselves – and to do that, they had to study and imitate Asian technologies. Rather than indicating a spontaneous outburst of invention, the Lancashire cotton mills reflect English workers' reaction to international competition (Riello, 2013).

Following the examples set by France and Holland, the British state played an enormously important role during the 17th and 18th centuries in ensuring industrial and commercial expansion. It was only during the 19th century, in the face of substantial industrial unrest, that Britain revised its regulatory economy and shifted towards a free market. Before then, the state needed money to wage wars – and excise taxes were the solution it chose. By imposing heavy protectionist tariffs, the government encouraged domestic production, reduced overseas competition and converted its colonies into sources of cheap raw materials. In order to make sufficient profit and also meet national quality controls, British industrialists were obliged to develop increasingly efficient manufacturing methods.

Just as Europe was linked into the global economy, so too Britain was embedded within Europe, despite the exceptionalist claims the country continues to make. Throughout the Renaissance and Enlightenment periods, Britain relied on the labour and knowledge of European immigrants. Many of them were skilled artisans, notably Huguenots, but there were also leading foreign scholars in the universities and at the Royal Society. For instance, at various times a Frenchman headed the Royal Mint, a Swede was in charge of the Woolwich dockyard, and three of Newton's closest colleagues came from Italy, Switzerland and France. Without European expertise, Britain would not have become one of the world's leading nations in the 19th century.

I would like to end with a message that is felt personally but also written on behalf of the British academic community. I am extremely grateful to the Austrian Council for generously inviting a British national to write an essay for this splendid volume celebrating Europe. As the daughter of a German immigrant, I have always regarded myself as European, and in common with the overwhelming majority my colleagues, I am appalled and embarrassed that my government is (incompetently) pursuing such a disastrous policy of separation. In addition to writing this chapter, I have tried to make our collective voice heard in my position as president of the British Society for the History of Science, which in September 2018 is extremely proud to host in London the biennial conference of the European Society for the History of Science. Even though my country's leaders wish us to secede politically, its inhabitants are determined to remain citizens in the Republic of Letters that originated in the European Enlightenment. —

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FIGURES

Fig. 1 // <http://www4.ncsu.edu/~kimler/hi322/ptolemy.html>

Fig. 2 // https://en.wikipedia.org/wiki/Al-Biruni#/media/File:Lunar_eclipse_al-Biruni.jpg

Fig. 3 // https://www.google.co.uk/search?biw=1078&bih=804&tbm=isch&sa=1&q=tychonic+model&oq=tychonic+model&gs_l=psy-ab.3..0l2j0i30k1j0i24k1.42123.462510.48633.18.14.0.0.0.161.1128.13j1.14.0....0...1.1.64.psy-ab..711.976...0i13k1j0i7i30k1j0i67k1.0.354GL-JnUyA#imgsrc=yuBF5xSAIWaAM:&spf=1506522568412

Fig. 4 // https://en.wikipedia.org/wiki/Copernican_heliocentrism#/media/File:Copernican_heliocentrism_diagram-2.jpg

Fig. 5 // https://www.google.co.uk/search?tbm=isch&source=hp&biw=1078&bih=804&q=lull+chain+being&oq=lull+chain+being&gs_l=img..3...1327.4346.0.4647.17170.0.0.0.96.922.16.16.0....0...1.1.64.img..1.8.493.0..0j35i39k1j0i30k1j0i8i30k1j0i24k1.0.QJ5XV4SIHLg#imgsrc=5lrxo4FX59dAM:&spf=1506522942797

Fig. 6 // https://www.google.co.uk/search?biw=1078&bih=804&tbm=isch&sa=1&q=T+O+map&oq=T+O+map&gs_l=psy-ab.3..0j0i8i30k1l2.825734.829926.0.830403.22.14.0.0.0.282.1054.10j1j1.13.0....0...1.1.64.psy-ab..13.8.874.0..0i67k1j0i5i30k1.107-mPZGnUi1Vc#imgsrc=wcfdb8dWGLArM:&spf=1506522452139

Fig. 7 // https://en.wikipedia.org/wiki/Ptolemy's_world_map#/media/File:PtolemyWorldMap.jpg

Fig. 8 // https://commons.wikimedia.org/wiki/Atlas_of_Europe#/media/File:Europe_As_A_Queen_Sebastian_Munster_1570.jpg

Fig. 9 // <https://www.strangescience.net/sthom1.htm>

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The invention of science in Europe

DAVID WOOTTON

THE IDEA OF EUROPEAN SCIENCE

What do we mean by “science”? We all know what science is, but no one can define it because we apply the term to a series of different intellectual activities which have, at best, a family resemblance. Nuclear physics is a science; evolutionary biology is a science; chemistry is a science. Astrology and phrenology were once believed to be sciences, but are no longer. What makes a science? In some cases we can point to a method – the experimental method. In some cases we can point to an outcome – the ability to predict future states or control processes. In some cases we can identify a successful intellectual model which describes how things could come to be the way they are, as natural selection explains the diversity of species, or continental drift explains seismic activity. Mathematics isn’t a science because it is primarily abstract; horticulture isn’t a science because it is primarily practical. What sciences do is bring together information and theories in a tight, mutually confirming relationship. Indeed we might claim that what makes a science is a certain way of thinking about information and theories: we talk of data and facts, of hypotheses and theories, of evidence and proof. Wherever we find this language we are in the world of science (or the person using it wants to persuade us we are in that world). Science involves, to use a term that (like “family resemblance”, which I used earlier) derives from Wittgenstein, a particular language game which we may call for convenience the fact/theory game. Different sciences engage with the world in quite different ways – an observational science like astronomy has little in common, as far as its procedures are concerned, with an experimental science like chemistry. What they share is the conceptual apparatus provided by the fact/theory language game.

Is there something peculiarly European about science? In this essay I argue that science was invented in Europe and that it is constructed out of components that are distinctively European in origin.¹ At the end of the essay I will argue that recognising the European origins of science has significant implications for global culture.

Before we turn, though, to the European origins of science we need to deal with two alternative accounts to the one I will be presenting here. The first we might term the anthropological or the sociological account, which argues that all cultures have explanatory systems which describe how the world is and how we operate within it. Science, religion, the economy, power, status: these take different forms in different societies, but it makes sense when discussing any society to identify its religious and scientific beliefs, its ways of organising power and status, and the functioning of its economy. It follows from a universalist account of this sort that we can write a global history of science which studies the encounters between different sciences just as we study the encounters between different cultures (Fan, 2012; McCook, 2013). Such an approach is fundamentally relativist: all cultures, all societies, all “sciences” are to be regarded (at least for the purposes of academic study) as of equal value. There is of course a fundamental paradox in such an approach, for the relativism it advocates is itself a peculiar cultural achievement, and does not extend to its own intellectual system – to disagree with this account is not to be different, but to be wrong (Hollis/Lukes, 1982; Laudan, 1990).

This universalist approach, which claims that all societies have “sciences”, runs into a fundamental difficulty, which is that it assumes what it needs to prove. Take the comparable category of “religion”: anthropologists, sociologists and historians have assumed that every society or culture has a set of religious beliefs; but it is easy to show that the category of “religion” (like, indeed, the categories “society” and “culture”) is a modern construction. Classical Greece and Rome, and medieval Christianity did not have the category of “religion” (Nongbri, 2013). Moreover, there is an important difference between “society” and “culture”, on the one hand, and “religion”, on the other. You can have a culture without knowing what culture is, just as you can, like Molière’s M. Jourdain, speak prose without knowing you are doing so; but it would seem to be impossible to have a religion without having if not the concept of “religion”, then at least certain key concepts packaged within it: the distinctions between natural and supernatural, religious and secular, belief and unbelief, for example. It is clear that there are cultures which don’t have these concepts and so don’t have a religion, just as there are societies which don’t have sciences if we define science as requiring an elaborate fact/theory game, and societies which don’t have geometry or algebra.

The second, alternative account holds that science was invented in classical Greece. The pre-Socratic philosophers, we are told, rejected supernatural explanations for natural phenomena: they mark the beginning of scientific enquiry. With Aristotle, something resembling a scientific enterprise begins to take form (Leroi, 2014). This account is entrenched within European culture for two reasons: first, it contains a significant element of truth; and second, since the universities from their first foundation in the Middle Ages, following the example of classical Rome, attributed intellectual preeminence to the Greeks, it was natural for the first scientists to claim to be continuing in, rather than

¹ The argument of this contribution largely follows that of my own (Wootton, 2015), though my account of Ptolemaic astronomy differs.

breaking from, an intellectual tradition begun by the Greeks. Take medicine as an example: Hippocrates (c. 460 – c. 370 BC) and Galen (c. 129 – c. 210 AD) provided the intellectual foundations of medical theory and practice until the 16th century. From the 16th century, theory and practice began to diverge: medical practice was still largely Hippocratic and Galenic, but anatomy, from Andreas Vesalius and William Harvey onwards, rejected the authority of the classics. Hippocrates and Galen continued to be read as textbooks into the 19th century, but the triumph of the germ theory of disease, with Louis Pasteur, meant that by the end of the 19th century both medical theory and practice were radically unlike anything known to the ancient Greeks. Yet the history of medicine was still presented by doctors as one of continuity not discontinuity simply because the medical profession itself, and the institutions educating and licensing doctors, had a continuous, unbroken existence. This institutional continuity concealed and still conceals intellectual discontinuity (Wootton, 2006).

PTOLEMAIC ASTRONOMY & ARISTOTELIAN PHILOSOPHY

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If the notion of continuity between Hippocratic medicine and modern medicine is essentially a fiction, in other intellectual areas the question of continuity/discontinuity is more complex. Take astronomy. The astronomy of Ptolemy (c. 100 – c. 170 AD) was taught in the universities of Europe until early in the 17th century. It was, in the terms I have previously adopted, an elaborate construction of facts and theories. It was remarkably successful at predicting the movements of the planets and eclipses of the sun and moon – in the early modern period the Chinese imperial court relied on Arabian astronomers to predict eclipses because Chinese experts were unable to produce reliable results; they were soon supplanted by European astronomers who could get even better results (Elia, 1960; Chapman, 1984). Ptolemaic astronomy had an applied form of knowledge, astrology, which was taught in universities to doctors as a fundamental part of medical practice.

Although challenged by Nicolaus Copernicus, who claimed to have a more elegant cosmology, and although unable to explain the occasional appearance of new stars and the trajectories of comets, Ptolemaic astronomy was thriving until the invention of the telescope in 1608. But when Galileo Galilei discovered that the surface of the moon was mountainous, that there were vast numbers of stars invisible to the naked eye, and that Jupiter had moons, he undermined the central claims of Ptolemaic astronomy: that the heavens consisted of a series of nested spheres rotating around a single centre and that heavenly bodies were themselves perfect spheres. And when he discovered that Venus had, like the moon, a full set of phases, he destroyed the whole system, as this could only be the case if Venus orbited not the earth but the sun (Wootton, 2010). Thereafter all serious astronomers acknowledged that the intellectual choice was between the systems of Copernicus and Tycho Brahe; the Ptolemaic system was discarded – on the frontispiece of Giovanni Battista Riccioli's *Almagestum Novum* of 1651, for example, the Ptolemaic system lies discarded on the floor (see Figure 1). Riccioli understood his intellectual task as being to weigh the relative merits of the Copernican and Tychonic systems. As a Jesuit, Riccioli accepted the orthodox Catholic view that the earth was stationary. He argued that the Tychonic system was intellectually superior to Copernicanism, and, in addition, compatible with the text of the Bible and the traditional teaching of the church. As an astronomer,

Fig. 1 //
Frontispiece of Giovanni Battista Riccioli's
Almagestum Novum of 1651

he knew that the Ptolemaic cosmology was no longer intellectually viable (Graney, 2015).

I don't see any good reason to deny that Ptolemaic astronomy was scientific. It was based on extensive observations; it had robust theories; it was capable of accurate predictions; over time it was refined and improved. Remarkably, it could acknowledge when it was wrong: Ptolemaic astronomers knew when new evidence meant that their system had become indefensible, and they quickly abandoned it. The rapid demise of Ptolemaic astronomy in face of the discoveries of the telescope is, paradoxically, proof of its scientific status; religions and philosophies can survive counter-arguments; sciences are always susceptible to refutation (Popper, 1935; Popper, 1959).

But I would argue that in 1600, Ptolemaic astronomy was the only science. Which meant that there was no general category of "science" within which Ptolemaic astronomy fitted. Astronomy was an applied branch of mathematics. It existed within an intellectual world in which philosophers, not mathematicians, claimed to

know how the world must be organised. Natural philosophy was, in 1600, a powerful intellectual tradition, grounded in the texts of Aristotle. Natural science did not yet exist. Aristotelian natural philosophy was not scientific because it assumed that all widely accepted beliefs were true (e.g. that ice is heavier than water); and it maintained that all knowledge could be presented in deductive, syllogistic form. This meant that Aristotelian natural philosophy had no robust procedure for the falsification of its claims about the natural world. This inherent weakness was intensified in the medieval universities, where the authority of Aristotle meant that his text could not be questioned, and intellectual enquiry, which primarily took the form of commentary on Aristotle, served simply to reinforce, not question, accepted truths. Thus, experimental enquiry developed in the middle ages only in areas where there was a noticeable gap in the Aristotelian corpus – in the study of the rainbow, for example, and magnetism. A good deal of effort has been put into trying to establish that there was, or should have been, or could have been a pathway by which Aristotelian philosophy transformed itself into modern science, but the simple fact is that modern science everywhere came into existence through the rejection, not the revision, of Aristotle.

THE INVENTION OF DISCOVERY

Galileo's telescopic discoveries occurred in a culture that was already prepared for the notion of radical intellectual change. Galileo was hailed as a new Christopher Columbus, the discoverer of new worlds. This should be understood as something

more than a merely rhetorical flourish, for the discoveries of Columbus had begun the process of replacing an essentially conservative intellectual culture by one committed to constant renewal. In every major European language the "discovery" of America resulted in the introduction of a new word, based on the idea of uncovering, to refer to the intro-

duction of radically new knowledge: *descobrir* (Portuguese), *descubrir* (Spanish), *découvrir* (French), *scoprire* (Italian), *ontedekken* (Dutch), *entdecken* (German), *discover* (English). Before 1492 there was no language of discovery because it was assumed that all knowledge was old knowledge: Adam, Moses, Aristotle had known everything important, and the task of the intellectual was to recover lost knowledge. But it was clear that the Americas (once it was established that they were not part of Asia and their geographical extent had begun to be explored) had no precedent: ancient geographers knew nothing of them, and no Bible text referred to them. Moreover their very existence disproved a central claim of Aristotelian cosmology, that the earth consisted of a sphere of the element earth suspended in a sphere of water – for if this were true there could be no points on the surface of the sphere of Earth that were directly opposite each other; yet parts of the New World were evidently the antipodes of parts of the Old World. So the discovery of the Americas was not simply an addition to existing knowledge; it showed that existing knowledge could be fundamentally mistaken. With the idea of discovery came the belief in progress.

We can see this new conviction displayed on the title pages of Francis Bacon's *Advancement of Learning* (1605) and *Novum Organum* (1620), both of which represent a ship sailing back through the pillars of Hercules (traditionally representing the limits of the navigable world) bringing with it new knowledge (see Figure 2). Bacon's claim was that the world was being transformed by the printing press (which disseminated new knowledge), by the compass (which had made oceanic voyages possible), and by gunpowder (which had led to European military supremacy). These breakthroughs, like the discovery of America, had been, in Bacon's view, essentially accidental; but a new intellectual programme committed to the idea of discovery should make possible further breakthroughs in every area of knowledge.

Bacon did not realise that the three technologies whose importance he emphasised were of Chinese origin; but none of them had had the revolutionary impact in China that they had in Europe. The political division of Europe into competing states ensured that there was constant pressure for innovation. In a united Europe the pressure to find an alternative route to the Spice Islands, which drove the oceanic discoveries of Portugal and Spain, would not have existed. In a Europe with a common culture, shared values, and political unity it would have been possible to turn against gunpowder technology, as the Japanese did in the 17th century. In a Europe united in religion, effective censorship would have blocked the emergence of unorthodox ideas, as the Catholic church tried to block the Copernican hypothesis. Political and cultural conflict created power-

Fig. 2 // Frontispiece of Francis Bacon's *Novum Organum* of 1620

ful motivations for the emergence of a culture dedicated to change and progress.

THE INVENTION OF FACTS

— Bacon imagined the construction of new sciences; but he failed to grasp that the crucial model for the new sciences was already present in astronomy, and that it was mathematics that was to be the discipline out of which the new sciences would emerge. Bacon was no mathematician; he was a lawyer, yet his account of his imaginary new sciences did not draw upon the law as a model for establishing reliable knowledge (pace Martin, 1991), despite the fact that two of the crucial terms for modern scientific discourse (evidence, fact) were to have their origins in the law. Indeed, we can say that the fact/theory language game depends on the bringing together of two distinct cultures, that of mathematics and that of the law. In mathematics, the crucial heritage was Euclidean geometry, which had provided the technical foundations for Ptolemaic astronomy. In the law what was crucial was the rejection of medieval traditions of providential justice (trial by ordeal), and their replacement by a process of accumulating evidence from witnesses, which enabled the judge or jury to establish the facts (Bartlett, 1986).

The word “fact” is important, and its significance has long been overlooked because it is a common word in classical Latin, and in Renaissance Italian, French, and English (the equivalent in Spanish is *el hecho*). But in classical Latin and these Renaissance languages there is no word for a fact in the modern sense. The verb *facio* means “I do”, a *factum* is a deed. In legal discourse a *factum* was often a crime, and in English law the jury determined guilt or innocence, and there was no appeal on a matter of fact (on a decision as to whether someone had or had not done something) beyond the jury’s verdict. Jury verdicts were thus treated as if they were infallible. A new usage of the term “fact” to refer not to the actions of human beings but to natural events can be traced back in various languages (Latin, Italian, French) before 1660, but the word suddenly acquired a vastly new popularity after the founding of the (London) Royal Society in that year. The Society declared in 1663 that its objective was the establishing of matters of fact, not (as Aristotelian philosophy had done) enquiring into causes (see Figure 3). Under the influence of the Royal Society the term became widely adopted throughout Europe (though it was slow to enter German – the word *Tatsache* is described as “youthful” by Gotthold Ephraim Lessing in 1778). “Facts” are a new type of epistemological entity because they are (like court verdicts) statements about reality. In classical Latin the word which is often now translated as “fact” was *res*. A saying was *res ipsa loquitur*, the thing speaks for itself; in English this became “the facts speak for themselves”. Things speak only metaphorically; but facts are already

Fig. 3 // Frontispiece of Thomas Sprat's
History of the Royal Society of 1667

inseparable from the signs which express them. Facts can be mobilised in arguments in a way that things cannot.

What was crucially important about the new category of “facts” (replacing the old categories of “things” and of “phenomena”) was that facts are, like the verdicts of English juries, by definition true – a false fact is not a fact at all. And so elaborate precautions, modelled on the procedures of the law, were adopted to ensure that facts were reliable. Where previously the claims of “authorities” (such as Pliny) were regarded as beyond dispute, now facts had to be tested and eyewitness accounts had to be sought. Well-established claims, established by authority, such as that garlic destroys magnetism, could not survive in this new environment. Facts thus represented a new type of secure knowledge, standing alongside the proofs of mathematicians, and well above the old categories of authority and opinion. The emergence of the word “fact” in its new sense marks the birth of the elaborate fact/theory enterprise which is characteristic of modern science; the Royal Society’s insistence that it would concentrate on facts not theories marks an attempt, not to abolish theory, but to bring fact and theory into a new, more intimate relationship.

THE ROLE OF PRINT

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What made this new epistemological category of the fact possible? What made it possible to tighten up standards when assessing claims about the natural world to the point that they were comparable to the standards in a Renaissance court of law? The answer is the multiplication of eyewitness accounts. In the court this was made possible by a lengthy process of enquiry in the Roman law system, and by the confrontation of witnesses in the English adversarial system. In the sciences, what made this multiplication of witnesses possible was the printing press (see Figure 4). A simple technical development, the index, made it easy to locate and compare similar and contrasting passages. In a manuscript culture texts are in short supply, and education is preoccupied with memorisation and repetition. The text has an unquestionable authority, and the scholar is its servant. In a printing press culture, as texts multiply, a Republic of Letters comes into existence in which judgements are made and shared by comparing texts one against another (Waquet, 1989; Daston, 1991). The relationship between text and reader is transformed, and the reader feels authorised to argue back against the text (Eisenstein, 1983).

In a print culture, once the classic texts have been edited and circulated, printers are obliged to create an appetite for new works. Books must be more authoritative, more original, more entertaining than their predecessors. The result was a transformation of the concept of the “author”. In the Middle Ages an author was an authority, and they were always dead. Even William Shakespeare was only referred to as an author after his death. In the 17th century, authors are people with something new to say, and as a result a new concept of intellectual property, and a new preoccupation with plagiarism, emerges. Combined with the idea of discovery, this creates a new sense that the originators of novel and original ideas are to be celebrated, often by naming things after them. Columbus had named islands in the Americas after his Spanish patrons, and Galileo named the moons of Jupiter the Medicean moons, after the grand dukes of Florence. But America was named after Amerigo Vespucci; and people were soon writing about the Copernican system and Boyle’s Law.

MATHEMATICS & EXPERIMENT

If “facts” are an important marker of the emergence of a new type of knowledge, the people primarily responsible for the new sciences were, above all, mathematicians. This is because mathematicians, unlike philosophers, were deeply engaged in forms of applied knowledge which were constantly put to the test of experience. Oceanic navigation, cartography, gunpowder weaponry, and the design of fortifications all drew on the skills of mathematicians, increasing their career opportunities and their social status, and encouraging them to feel that they could lay claim to a new intellectual authority. Moreover, in Italy mathematicians had found an important new role for themselves: the invention of linear perspective painting, as developed in Florence by Filippo Brunelleschi and his associates around 1413, required a close collaboration between mathematicians and artists, and mathematicians continued to teach the principles of perspective to artists. Linear perspective involves the construction of one or more vanishing points, where lines converge towards infinity. This was a purely geometrical construction which at the same time made possible a lifelike representation; yet according to the Aristotelian and scholastic tradition the universe was limited and spherical. The mathematisation of vision involved the creation of a visual and conceptual world independent of Aristotelian philosophy and Ptolemaic cosmology; it created a precedent for mathematicians declaring their independence from philosophy and constructing their own alternative way of interpreting the world (Edgerton/Edgerton, 2009).

It is thus not surprising to find mathematicians, used as they were to combining theory with practice, pioneering the experimental method, and the language of the new science, derived, where it did not derive from law, from mathematics. Thus “fact”, “evidence”, and, of course, “law of nature” come from the law; but “theory” and “hypothesis” come from mathematics – both terms originally refer to a mathematical model for the movements of the planets. Galileo conducted experiments and learnt a great deal from them; but he always aspired to present his results in physics as geometrical proofs, and was uninterested in giving detailed accounts of experiments which would make possible their replication. Here the key breakthrough comes with the circle of Marin Mersenne in France. Mersenne himself set out to replicate Galileo’s experiments with falling bodies, but such experiments were difficult to conduct because falling bodies are hard to measure.

An important moment of transition came with Evangelista Torricelli’s claim that a tube filled with mercury upended in a bath of mercury could be used to measure the weight of the air – he had invented what we now call a barometer. Torricelli died in 1647, before he could publish his experiments, but reports of them reached Mersenne, and they were taken up by his circle. Blaise Pascal confirmed Torricelli’s hypothesis

Fig. 4 // The Workshop of an Engraver (*Sculptura in Aes*)
by Jan van der Straet, called Stradanus, from Philips
Galle's *Nova Reperta* of c. 1600

by arranging for a barometer to be carried up the Puy de Dôme, showing that the mercury descended as the amount of air above diminished. But much more controversial was Pascal's claim that the empty space at the top of the barometer was a vacuum – an impossibility according to Aristotle. This led Robert Boyle in England to develop an air pump (see Figure 5) capable of creating a near vacuum, and to the discovery of Boyle's Law, that the pressure of a gas in a container is inversely proportional to its volume. Mercury was easy to obtain (it was used to treat syphilis), and experiments with barometers were soon being conducted across Europe.

SCIENCE AS EUROPEAN

This series of experiments on the weight of the air, on pressure, and on the vacuum serves to illustrate a fundamental feature of the new science: it was genuinely European, and not confined to any one country. Copernicus, a German-speaking Pole, studied at the universities of Bologna and Padua. The great astronomer Tycho Brahe moved his observatory from Denmark to Prague. The English anatomist Harvey, the discoverer of the circulation of the blood, was educated in Padua. Johannes Kepler enquired about the possibility of an appointment at that university. A Scottish student of Galileo's was present when Kepler first saw the moons of Jupiter, discovered earlier by Galileo, through a telescope. Galileo negotiated with the governments first of Spain and then of Holland in an effort to convince them that the moons of Jupiter could be used to calculate the longitude of ships of sea. Nicholas Steno, born in Copenhagen, studied in Holland, travelled in France, and settled in Italy. Louis XIV recruited distinguished foreigners, including the Italian Giovanni Domenico Cassini and the Dutchman Christiaan Huygens, to be members of his Académie des sciences.

But the movement of people should not be overemphasised. The longest journey Galileo made was from Florence to Rome. Pascal never left France. Isaac Newton never left England. Crucially, what moved were not people but letters. Pascal's friend Mersenne wrote letters to Italy, Poland, Sweden and Holland describing the Puy de Dôme experiment. If Mersenne was the centre of one important network of correspondence, the secretary of the Royal Society in London, Henry Oldenburg (himself German by origin), was soon at the centre of an even vaster, pan-European network, and by the end of the 17th century a quarter of new fellows elected to the Royal Society were foreigners, most of whom never came to London (Hatch, 1998; Hunter, 1982). One of these was Antonie van Leeuwenhoek: his microscopic discoveries, made in Holland and reported in Dutch in letters to Oldenburg, were published in England in the proceedings of the Royal Society.

Even more than letters, the printing press played a crucial role in the European dissemination of the new science. Galileo read William Gilbert's *De magnete*, published in London in 1600, shortly after publication, and quickly began to replicate its experiments.

Fig. 5 // Robert Boyle's air pump, from his *New Experiments* of 1660.

Fig. 6 // Portrait of Andreas Vesalius from his
De humani corporis fabrica of 1543

Galileo published all his works in Italy, until the banning of the *Dialogue Concerning the Two Chief World Systems* by the Inquisition in 1633. But the *Sidereus nuncius* of 1610 was promptly pirated in Frankfurt, and in the 50 years after 1633, works by Galileo were published in Italy (Bologna, Padua, Ravenna), in Holland (Leiden, Amsterdam), in Germany (Strasbourg), in France (Paris, Lyon) and in England (London). Many of the key texts of the new science were first published in Latin, the universal language of scholarship. Those that were not were quickly translated: thus Galileo's *Dialogue Concerning the Two Chief World Systems*, published in Italian in 1632, banned in 1633, appeared in Latin in 1635, while Robert Boyle's *New Experiments Physico-mechanicall Touching the Spring of the Air*, published in English in 1660, appeared in Latin the next

year. Many Latin texts were also translated into the vernacular, though such translations were less frequent and often slower to appear. Thus Harvey's *De motu cordis* (first printed in Frankfurt in 1628) was translated into English in 1653, and Jean Pecquet's *Experimenta nova anatomica* of 1651, which contained an important account of the vacuum experiments of the Mersenne circle, appeared in English in 1653.

The printing press was not only important for the dissemination of texts: a very high proportion of the major works of the scientific revolution came accompanied by images. In anatomy and biology printed engravings were the crucial factors in bringing about a revolution. A striking example is Vesalius's *De humani corporis fabrica* of 1543 (see Figure 6): Vesalius was lecturing in Padua, his illustrations and woodblocks were produced by Venetian artists, and the printing was carried out in Basel. The illustrations were carefully labelled (the labelling of in-text diagrams being a technique derived from geometry) so that text and image were tightly linked together. Thus it became possible to see on the page exactly the extent and the limits of Vesalius's knowledge – his successors could with confidence announce they had made a discovery if they had found a feature of the body that did not appear in Vesalius's text and images. Mechanically reproduced images were thus crucial in turning anatomy into a discipline which made constant progress (Ivins, 1953).

Alongside the printing press, another, older technology played a fundamental role in the scientific revolution: glass-making (Macfarlane and Martin, 2002). The telescope, the microscope, the barometer, the air pump: all these depended on glass-making skills. Lenses had been produced in significant numbers since the invention of spectacles in the late 13th century; and the technique for producing glass mirrors (which involved blowing cylinders of glass, opening them up, and coating them) was much improved in 16th-century Venice; but long before then Europe had invested, to a greater extent than any other culture, in glass-making. The reasons have something to do with climate (glass windows serve as a barrier to the elements) and something to do with religion (stained glass windows made possible large scale representations of religious images). It is safe to say that without a sophisticated culture of glass-making there would have been no scientific revolution (one may contrast Europe here with China, where the emphasis was on porcelain production).

The new sciences of the 17th century were built on foundations laid by Euclid, Archimedes, and Ptolemy – they provided the mathematical skills the new scientists put to work. Renaissance mathematicians were all familiar with the experimental work of Ibn Al-Haytham (c. 965 – c.1040) in optics, but he had few readers within the Islamic world, and no successors. The construction of a discovery culture after 1492, and, in the 17th century, of a sophisticated fact/theory enterprise, as represented by the new usages given old words such as “fact” and “theory”, was a distinctively European enterprise, drawing on European legal traditions, and facilitated by movable-type printing and glass-making skills. Outside Europe the key tools of the new science, such as the telescope and microscope, were slow to be adopted, and until the 19th century most non-European literate societies remained manuscript cultures (Huff, 2011).

Not only was the new science distinctively European, so were its consequences (Mokyr, 2018). The crucial machine which made possible the industrial revolution was the steam engine, and the steam engine was a direct descendant of the scientific revolution. The cylinder and piston which drive a steam engine were derived from the air pump constructed by Denis Papin (a French Huguenot exile in London) for Boyle; Papin invented the pressure gauge; Boyle’s law (which Papin helped formulate) captured the extraordinary potential for power present in compressed air; and Papin designed the first steam engine driven by atmospheric pressure – the forerunner of the Newcomen engine. Papin failed to follow through successfully on his conceptual and technical innovations; but what was left for Thomas Newcomen was (an admittedly complex) set of practical, design problems to solve – the steam engine was fundamentally Papin’s invention.

LOOKING TO THE FUTURE

– Do the European origins of science have anything to tell us about its future in an age of globalisation, an age in which medicine, physics, chemistry, biology, astronomy are fundamentally the same the world over? There are several features of the European origins of modern science that bear further consideration. First, the scientific enterprise originated in a world of competition: competition between states for wealth and power, between mathematicians and philosophers for status, between printers for book sales. The scientific enterprise retains a peculiar feature that was present from its inception: it is simultaneously competitive and cooperative (Merton, 1973). Scientists compete for grants, awards, prestigious appointments, but at the same time they cooperate by sharing information. In this respect the new science was quite different from alchemy, for example, which treated knowledge as something secret, to be shared and exchanged only amongst adepts. Newton devoted much of his life to alchemy; but he conducted his alchemical researches in total secrecy, and never exposed them to public debate and testing. His alchemical work led nowhere, while his laws of motion transformed, not only our understanding of the world, but our ability to act within it.

This brings us to a second peculiar feature of the scientific enterprise: science makes continuous progress, and it does so by a destructive process of testing and refutation. I have argued above that one of the major reasons for regarding Ptolemaic astronomy as a science is that the Ptolemaic astronomers immediately recognised that Galileo’s discoveries were incompatible with their intellectual system: the great Jesuit Ptolemaic astronomer, Christopher Clavius (see Figure 7), for example, revising his works on his deathbed in 1613,

a few months after Galileo's observation of a complete set of the phases of Venus had been confirmed by astronomers in Rome, had already no hesitation in declaring that a new astronomy was needed to replace the old (Lattis, 1994). Thus, science can only flourish in a context of free debate and disagreement, one in which people are prepared to admit that they might be wrong; what Kuhn called normal science may be intensely conformist, but in the long run progress depends on there being space for radical disagreement and open debate (Kuhn, 1962). Scientific culture thus requires what Karl Popper termed an open society (Popper, 1945); as soon as restrictions are placed upon competition and disagreement (as happened in Italy after 1633, or Russia after 1917) science ceases to flourish. Formal restrictions may now be rare; but there is a risk that as scientific enquiry is increasingly supported by a small number of grant-giving bodies, and as a small number of major journals determine reputation, an informal and pernicious conformism may become pervasive. Peer review, central to modern academic publishing, can serve as a silent pressure towards the construction of a professional consensus.

We have entered a new age. The printing press has been replaced by the World Wide Web as a means of disseminating information. The same films, the same books, the same songs are disseminated throughout the world. The consequences are strangely contradictory. On the one hand, an increasing uniformity and conformity, and on the other pockets of irrational belief which are fostered by the capacity of eccentrics to identify each other, club together, and distribute their views around the globe – the Flat Earth Society was re-founded in 2009, and anti-scientific views are gaining a new hearing in politics. Whatever the future of science may be, it will be global, not European. But science will continue to be defined by the close interaction of facts and theories, and it will, if it is to thrive, continue to be, like the European Republic of Letters out of which it emerged, a peculiar mixture of cooperation and competition. —

Fig. 7 // A 16th century engraving of Christopher Clavius after a painting by Francisco Villamena

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FIGURES

Fig. 1 // <https://scholarship.rice.edu/bitstream/handle/1911/78837/wrc03985.jpg?sequence=1&isAllowed=y>

Fig. 2 // http://libweb5.princeton.edu/visual_materials/maps/websites/thematic-maps/bacon/bacon-titlepage.jpg

Fig. 3 // <https://www.flickr.com/photos/90567076@N03/8226271275>

Fig. 4 // [http://www.metmuseum.org/toah/images/h2/h2_49.95.870\(10\).jpg](http://www.metmuseum.org/toah/images/h2/h2_49.95.870(10).jpg)

Fig. 5 // <https://library.brown.edu/exhibit/archive/filesa9fda0f99eb9045bdfaf12c4dcf58d9e.jpg>

Fig. 6 // <http://www.thehistoryblog.com/wp-content/uploads/2013/04/Andreas-Vesalius-1543.jpg>

Fig. 7 // https://en.wikipedia.org/wiki/Christopher_Clavius#/media/File:Christopher_Clavius.jpg

2050
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Europe 2050: a historical bridge

*Observations on climate change & technological development
between the 16th & 21st century*

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PHILIPP BLOM

On 2 January 1565 a flood carried an unprecedented natural spectacle into the middle of the port in Rotterdam. As eyewitnesses reported, a huge iceberg moved further and further towards land within fifteen minutes, burying beneath it several buildings in the port. The painter Cornelis Jacobsz van Culemborch captured the event and thus became the co-author of an artistic genre: the winter landscape.

The still small Dutch town of Rotterdam had never seen an iceberg before, and yet it was only one out of an increasing number of natural events which in the second half of the 16th century made a growing number of people feel as if the world had become alien to them. The seasons shifted.

The winters became longer and brought severer frost; the summers were often short, rainy and cool. Stories of the bitterly cold winter circulated throughout the continent. Frozen birds fell from the sky; the wine rations of soldiers were cut off from large ice blocks; glaciers expanded and crushed farms and villages. Even the Mediterranean ports like Marseilles, Venice, and Istanbul were repeatedly inaccessible to ships because they were frozen until May.

FAMINE & BREAD RIOTS

The so-called Little Ice Age, whose harbinger was the iceberg in the port of Rotterdam, had far-reaching consequences. A temperature drop of an average of two degrees caused not only bitter cold; the changes in weather systems, sea temperatures, and precipitation patterns hit agriculture particularly hard. For Europeans, who largely lived from local crops, this was a disaster. A difference in temperature of two degrees corresponds to almost three weeks of vegetation period. Ever more often, the grain failed to ripen in time and rotted on the fields. Famines, epidemics, and bread riots were the inevitable consequences.

From today's scientific perspective the cause of this sudden climate change, which, according to different estimates, stretched from the late 16th until the late 17th or even early 19th century, is completely inexplicable. Reasons range from a shift in solar activity to variations in the inclination of the earth's axis to the consequences of the European invasion in the Americas, which, in particular due to newly introduced pathogens, killed entire indigenous populations, bringing the widespread methods of the slash-and-burn culture of entire agricultural regions to a halt and thus diminishing the release of CO₂ into the atmosphere and leading to a drop in temperatures. None of these influences has been proved, however, sufficiently serious to be single-handedly responsible for the Little Ice Age. The search for the cause will continue.

From a pre-scientific point-of-view, the issue, of course, looked quite different. Since God's creation had been thrown into chaos, it seemed only logical that the Lord should punish its creations by sending them bad weather. Innumerable penitential sermons, church services, processions, and hymns testify to the efforts of entire communities to pacify the Creator. Even the witch hunts were often directly linked to the cooling. Especially in Central Europe, almost every particularly severe winter was followed by a wave of trials, in which the accused were repeatedly blamed for not only making livestock ill and fornicating with the devil, but for destroying crops and having caused extreme weather conditions such as spring hail or violent storms.

The entire social pyramid was hit hard by these events. For the poor rural population living on subsisted farming the catastrophe was immediately apparent; in the cities, high grain prices led to inflationary price increases and occasional uprisings; for the nobility, the loss of tax revenue meant a weakening of their own position and, in the case of many ruling houses, rising debt.

FROM WEATHER JOURNALS TO SCIENCE

In the long run, this crisis in agriculture would prove a decisive factor in the emergence of a new European order. Although climate change was not the cause for the development of early modern societies, as a constant source of pressure it is still attributed the role of catalyst for accelerating and intensifying upheavals. From agriculture to economics, to political and social constitution, to science and even philosophy, no aspect of life has been excluded from these changes.

At the beginning of this complex, networked chain reaction was, among other things, the necessity for various rulers to compensate for sudden crop failures and thus to avoid violent unrest and perhaps even revolutions. Grain from the Baltics was exported

via Amsterdam throughout Europe as far as Italy; markets and especially international trade were gaining importance.

At the same time, nature itself, which had fallen out of sync, became the object of intense observation. For the first time in Christian Europe, scholars independently kept methodical weather journals, made records of natural phenomena, collected all the data and facts that they could find. Often these efforts were religiously connoted, perhaps to determine the date of the Last Judgment – but also increasingly often, they were predominantly, or even entirely, empirical. Trade and scientific observation had one place in common: the city. Here a new kind of human became important in urban society, a professional, literate middle class that based its influence and increasing importance not on race or belief, but on professional ability, economic dynamism and individual virtues – which were later described as being virtues of the bourgeoisie.

Amsterdam exemplified this new economic and cultural impulse. Within just one generation, an insignificant fishing town had turned into an international centre of trade. Baltic grain had laid the foundation for enormous fortunes and, after the stock exchange had been founded in 1602, the market developed its own dynamics, which, in turn, started to change society.

Acting in a market promotes pragmatic tolerance. What is important is to fulfil contracts, not the origins or religion or personal priorities of the contracting party. Laws must apply to all and must be transparent and applicable, otherwise investors stay away. Markets function like neutral spaces in which individualism, personal rights, the rule of law, and compliance with contracts are more important than collectivist rules such as “*cuius regio, eius religio*”.

The emergence of market societies that were based on empirical knowledge and professionalism slowly but surely revolutionised Europe. The right faith (the church) and the respectable family (the nobility) lost influence over a class of parvenus, whose economic power was undeniable, but which still enjoyed little political power.

Part of this gradual revolution was tangible and included the concrete consequences of the Little Ice Age. Botanists used empirical methods to improve agriculture, including seeding clover on fallow fields, which, as well as regenerating the soil, provided winter feed for more livestock, which in turn produced more manure and could be used as effective draught animals for ploughing. Thus, human diet was enriched with more animal proteins. The diversification of products through the planting of weather-resistant crops such as potatoes and corn, which were new in Europe, also played an important role here.

These new methods eventually proved to be successful. Crop yields, for instance, increased by almost a third. It is also remarkable how these new methods were spread: printed books, flyers, and almanacs carried them to the most remote parts of the continent. Improved printing presses and cheaper paper were the technological prerequisites for this enormous transfer of knowledge.

THE POWER OF THE MARKET

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This agro-economic revolution also had political consequences. With the increasing importance of markets, landowners – most of whom were members of the aristocracy – discovered a new source of income. Rather than siphoning off the sur-

plus of subsistence agriculture and selling to local markets, large estates produced directly for the market, a considerably more lucrative option.

This increase in productivity, however, had wide-reaching social consequences, especially through the enclosure of the commons. Tens of thousands of landless peasants were expelled from their houses to create consolidated production areas. A lifecycle that had existed since ancient times came to a sudden end and many of the displaced were forced to seek work in the cities. Some historians see this process as the beginning of an industrial working class.

The agricultural revolution was an answer to the fundamental crisis of the European food supply, which had been caused by the temperature drop of the Little Ice Age. But it also changed the face of European societies, focusing more on markets, on an industrial, a professionalised production of goods and services, of ideas, art, and military clout.

Almost a century ago historian Karl Polanyi already noted that the economic thinking of the Middle Ages was not interested in growth. Within the static social order, the priority of honouring a social role was to fill it out, not to rise up into a different class. Profits were converted into social capital, for instance, by a wealthy merchant donating a church window, but not earning interest-earning capital. (How dishonourable it was to take interest rates can also be seen from the fact that this was one of the economic sectors open to Jews).

However, during the course of the economic re-organisation of feudal states, which were constantly involved in costly wars, a new school of market-oriented thinking emerged. Mercantilist theorists formulated new ideas about economics which suggested that a successful state exports more than it imports, that trade is a continuation of war by other means. The goal of economic activity, they argued, was to produce surplus by successfully exploiting natural and human resources at home and abroad. Economic growth based on exploitation became the guiding principal for every successful monarch and every state.

THE CLAIM TO POWER

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The key to all of these processes was held by a newly self-confident and growing social class: urban people who could read, write, and do arithmetics, and had theoretical professional skills. They were merchants, tax officials, engineers, and of-

ficers, mathematicians, lawyers, scientists, and teachers who carried and promoted this revolution. With the growing economic and social influence of this class, however, a growing craving for political power emerged, which was still largely in the hands of the nobility and the church. To argue this claim a strong point was needed.

Justification was found in philosophy and history, in a reason which until then had always remained marginal, namely the idea that every human being is by nature entitled to the same freedom, dignity and rights. It is not surprising that feudal lords had little sympathy for this view. Certain philosophical ideas achieved canonical status in feudal and in slave-owning societies as the one of ancient Greece. These ideas were based on dualisms and identified its rulers with the true, the noble, the good, and with divine pleasure. The idea that the social world is not naturally split in two but is on the contrary unified by each individual's equal claim to rights and freedoms held poor career prospects in aristocratic or oligarchic societies.

During the 17th century the professional middle class grew in influence and power. More market-based societies such as Amsterdam already practiced the idea of tolerance, individualism, and equality before the law, and it was these arguments, which undermined the feudal world view, that were the real beginning of an ideal revolution. The extent to which these ideas are socially anchored in the rising middle class may also be inferred from the personal background of their first representatives: René Descartes was an artillery officer, Baruch Spinoza an import-export merchant, John Locke a governmental official, Thomas Hobbes a private teacher, Leibnitz an administrator, etc.

The ideas that were later called the core ideas of the Enlightenment, from the beginning belonged to the professional middle classes. They were also the intellectual culmination of a process that had begun with a climate-induced crisis in agriculture and the feudal order.

One thing becomes particularly clear from this highly compressed presentation: the so-called Little Ice Age was a climactic event that had immediate consequences for nature in its entirety, including human societies. Ultimately, however, it was these direct consequences that transformed them bottom up and ultimately led to the transformation of feudal societies into early capitalist systems: a horizon of knowledge that was defined by religious scriptures, powering a new, empirical knowledge place, old social structures like the commons were dissolved and replaced by market-conformed production and lifestyles; a new professional class took the initiative and in many societies, the weight shifted from the fortress to the market.

A climactic event resulted in a slow revolution embracing all aspects of human life. From originally affected agriculture to economic thinking, markets, working and living conditions, nutrition, acquisition of knowledge, the rise of the middle classes and even into culture and philosophy, everything changed in these societies, of which we are the direct heirs. The iceberg, which in 1565 was a sort of harbinger for global cooling in the Netherlands, proved to be only the tip of a much more powerful change beneath the surface of the existing societies.

Despite this strong evidence, it may be an unfamiliar notion that climate change not only affects weather and agriculture but also the structure of a society right through to its self-understanding and its philosophy. In fact, however, this is only due to a cultural construction, the roots of which are older than the Enlightenment: man as the crown of creation, sublime over all creaturely constraints. When this biblical perspective is relativised it becomes apparent that *Homo sapiens* are part of nature. Like lizards and songbirds, humans also have to adapt to their natural circumstances. An influence that is as subtle as the weather and the experience of nature itself will inevitably lead to economic, social, and cultural changes – not only in the 17th century but also in the near future.

THE 21ST CENTURY & THE AMPLITUDE OF UNCERTAINTY

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Let us again go back to the Dutch coast. A dyke construction engineer of the local government recently mentioned an interesting dilemma. His colleagues and the scientists concerned agreed that in light of the rising sea levels, the dykes needed to be increased, but the scientists were divided as to whether by thirty centimetres or six metres.

This describes an amplitude of uncertainty regarding the consequences of global

warming, the ignoring of which would not only be catastrophic for coastal regions. Similar results are shown, for instance, by NASA research. CO₂ content in the atmosphere per million particles since 1950 has increased to a level exceeding all previous values on this planet in the past 400,000 years. Through the industrial revolution humanity entered new territories not only in the field of technology and through consumption. We are also in an unprecedented situation with regard to the climate and ecosystems. This also means that it will be the decisions of the current generation that set the course for life and survival on this planet.

This raises a crucial question: if the climate change of the Little Ice Age brought about such radical and comprehensive change for entire societies, what does this mean, then, for the future of our societies in times of global warming? Is there any reason to suppose that the climate change already underway due to increased CO₂ emissions in the course of the industrial revolution will bring about less serious, less revolutionary upheavals, which span everything from economic and social aspects to political contexts and philosophical concepts? Do we really have reason to believe that the current order of politics, economy, and knowledge is inherently more solid, less vulnerable now than it was five hundred years ago?

Anyone who thinks about the future of Europe has to ask this question. All speculation about possible future scenarios loses analytical power when it ignores the dramatic change of the natural environment. Each attempt at finding an answer must be as complex as the question itself.

MIGRATION

Let us start with what is most obvious: As in the Little Ice Age, climate change in the coming decades will trigger a massive agricultural crisis, albeit probably less in temperate Europe, which would come to feel the most dramatic direct effects of climate change only if, as some maritime researchers fear, the gulf stream collapsed due to the change in temperature and salinity of the oceans, resulting in a massive cold snap in western Europe. But if this event does not materialise, European agriculture will not have to cope with catastrophic consequences, even if sensitive and specialised products such as wine are already suffering from the rise in temperatures.

Other parts of the world, on the other hand, are already experiencing the massive consequences of the incipient warming. Especially around the equator, usable agricultural areas are shifting due to desertification and change of weather systems and it is expected that this movement will not only continue but will accelerate, moving arable regions several hundreds of kilometres away from the equator. In Africa and Asia in particular, hundreds of millions of subsistence farmers will be affected. Many of them will be forced to migrate to the megacities in the hope of avoiding starvation.

This will have two major effects on Europe. On the one hand, the huge migratory movements within the affected countries will lead to political instability and to armed conflicts over resources such as water and fertile land. This will, on the other hand, directly affect strategic interests, economic security and Europe's supply of raw materials and food.

One example of this merciless mechanism is the war in Syria, which was preceded by the most devastating drought that the so-called Fertile Crescent had experienced in eight hundred years. Tens of thousands of farmers in the north of the country were forced to pay debts first, then slaughter their livestock and eat their seeds before they finally gave up and

had to move to the slums of Damascus and Aleppo, followed shortly afterwards by civil unrest. The causality of this climate crisis and the ensuing mass slaughter is sometimes doubted, but there can nevertheless be little doubt that this will be a blueprint for future conflicts.

NO GOOD SOLUTION?

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The huge number of refugees that came to Europe in 2015 was a direct or indirect consequence of such processes. This migration pressure will increase significantly in the coming decades. This will also have consequences within the societies of Europe. Migration has already become perhaps the most important political topic in European elections and has also led to a decisive shift to the right in established liberal democracies.

For the past two years European politicians have mainly tackled the migration problem by closing down routes, building fences, introducing border controls and starting security cooperation with border countries such as Turkey and Libya, which handle fugitives much more robustly – to put it mildly – than would be possible in Europe.

The closure of European borders has temporarily eased the situation within Europe. But it cannot hide the fact that the number of those who are forced to find a new life or to survive elsewhere will continue to grow due to climate change and population growth.

European countries have a long-term choice between a shift to the right on the way to a fortress Europe which shoots refugees at the border, and an increase in legal migration, which in turn could have serious consequences for social peace in European societies. There is no clean solution to this problem, no clear answer. But there is also no alternative to systemic change.

This correlation between climate change and the development of liberal democracy in European societies will undoubtedly become particularly important. It will drive global migration and global conflicts, and will make it necessary to take determined action, first in terms of a radical reduction of CO₂ emissions, and eventually by stopping the consumption of fossil fuels and the exploding damage to the ecosphere.

The scientific consensus is that such measures are essential for preventing a catastrophic rise in global temperatures by more than three or even four degrees Celsius, and for curbing the change of ecosystems and living organisms (including *Homo sapiens*).

It is a historical irony that the recipe for success which the West developed during the Little Ice Age – economic growth based on exploitation – today has become an existential threat. More growth is unthinkable, at least in the medium term, without an ever-increasing consumption of raw materials, ever-increasing levels of hyper-consumerism, and an increasingly more toxic change in ecosystems through CO₂ and other waste products.

Although climate scientists have reached a broad consensus on these issues (so far, the most widely accepted climate change prognoses have come true as predicted, albeit much more quickly than anticipated), it is not clear how an adequate democratic consensus could be created and implemented within such a short time, and initiate sweeping changes in the entire western model of life. Pessimists are of the opinion that western countries are faced with a choice between slipping into a catastrophic future as liberal democracies or plunging into the experiment of eco-dictatorship. Neither of these two options seems particularly appealing.

TRANSFORMATIVE TECHNOLOGIES

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These factors already make it clear that the effects of climate change will transform all aspects of our societal and individual life in the 21st century. Yet even in the rich world, another technological factor will play a tremendous transformative role: if the printing press was the key technology of early modernity, digitisation is the new transformative key technology. This technology will drive social, political and economic transformation through the deployment of big data, the explosive increase in processor speed, and especially the development of adaptive, self-learning systems consisting of networked individual units.

Digitisation will revolutionise our lives more profoundly than we had previously thought possible. It will intervene in our economy and our social self-construction, making a large part of human work, and thus workers, economically superfluous. It will necessitate entirely new economic and social arrangements, will allow concentrations of power that will not only put data and patents but also societal welfare and political influence into fewer and fewer hands. Through the collection and increasing comprehensive analysis of data it will enable social control as well as leaps in knowledge in which people will no longer have a share, and it will change, if not destroy, the democratic makeup of our societies.

Climate change and digitisation – both consequences of the industrial revolution and its hunger for fossil fuels – will radically change the face of this planet and human societies in the next two or three decades. Global ecosystems and weather patterns, the economy and world population, political order and power relations are all directly affected by this transformation.

Given this tremendous upheaval and the amplitude of uncertainty – thirty centimetres or six metres – that goes hand in hand with it, it is all the more important to emphasise and mobilise what is perhaps the only stabilising factor in this structure. Unlike in the 16th century, when religious processions and witch hunts were slowly replaced by empirical research and intellectual exchange, the scientific method itself is not invalidated by changes in environment and society, even though it is already clear that the role of human effort in the science of artificial intelligence and algorithms is pushed back.

Scientific thinking and therefore the action based on it are the only allies in this potentially catastrophic situation. But this raises another crucial question in the comparison between the future and the last great episode of climate change: during the so-called Little Ice Age late-feudal societies were transformed into early capitalist market societies. In this process, scientific thinking emerged. The social dynamics of the time, however, also enabled a new self-perception of the growing societies and promoted ideas that we now call the Enlightenment.

What will the intellectual, philosophical consequence of the next transformation be? Will the ideas of the Enlightenment prove to be as stable as the scientific method? Or will its universalism, its belief in progress and its legal discourse surrender to a perhaps dystopian, but at any rate completely different reality and be replaced by a new conception of people as inferior biological computers?

The answer to this question will only be given in a few decades from now. However, the direction that this response will take is in the hands of those who are taking decisions today. In a democracy this means: it is in our hands.

EUROPEAN CHALLENGE

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In the context of this technological, climatic and, indirectly, also social and political transformation, a European Community capable of acting decisively could play a key role. It has long been obvious that the problem areas of a global and, as Zygmunt Bauman wrote, fluid modernity – global warming, migration, financial flows, terrorism, etc. – cannot be solved in the small-scale context of national states. A decisive and effective policy would only be possible transnationally and at a European level. Only pooled sovereignty achieved by giving up national powers to the community could give states some room to manoeuvre, because only they can effectively intervene and make binding decisions. Unfortunately, in the light of recent political developments the prospect of a united and democratic Europe as an actor on the global stage seems more distant than ever.

Given the short horizon of time of the already ongoing transformation, it will be a historic challenge to steer the political and social debate in Europe towards pragmatic solidarity. A strong, directly elected European Parliament and a broad-based community policy could use the inevitable transformation to create the foundations of new forms of co-existence in digital and globally networked societies. Whether the European Community and its constituent societies will be able to meet this historical challenge will be shown over the coming years and decades. The stakes could not be any higher. —

PART TWO

Strength from unity

ANTON PELINKA

The incomplete federation –
the Europe of the union

PHILIPP THER

Beyond the “refugee crisis”

WERNER WEIDENFELD

The necessary overcoming of
strategic speechlessness

FRANZ FISCHLER

For a sovereign Europe

ULRIKE GUÉROT

Republic of Europe?

BENJAMIN ZEEB

Re:thinking Europe

NINI TSIKLARI

The pulse of Europe

ROBERT MENASSE

A brief history of the
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the economy is

The incomplete federation — the Europe of the Union

The almost completed enlargement & the still outstanding deepening

ANTON PELINKA

The European Union is many things to many people – and for some it is one thing, something else for others. The EU is a scapegoat, responsible for an uncontrolled mass immigration or out-of-control, “neoliberal” predatory capitalism; or, however, it is guarantor for inner-European peace, as the awarding of the Nobel Peace Prize by the parliament of Norway – a non-member of the EU – showed in 2012.

The European Union developed into the European Union through the enlargement and deepening of the European Coal and Steel Community (ECSC), which formed the European communities with the European Atomic Energy Community (EAEC). It is, on the one hand, attractive for many who have not acquired membership, such as for the states of the Western Balkans and the former USSR states. On the other hand, opponents of the EU in the Member States are mobilising for withdrawal. The forthcoming “Brex-it” in 2019 – the result of a vote in the United Kingdom of Great Britain and Northern Ireland in 2016 – is a particularly clear expression of the contradictory nature of how the Union is perceived.

The following contribution discusses the future of the EU from its history – in the sense of an extrapolation that allows for different scenarios. It focuses on the developmental dynamics that characterise the history of European integration – the enlargement, which has made a union that almost encompasses the whole of Europe from a community of six western European states; and the deepening, which with internal logic has increasingly taken on tasks transferred from the Member States of the Union.

THE ENLARGEMENT DYNAMICS OF A UNITED EUROPE

– The unification of Europe began in 1952 with the founding of the European Coal and Steel Community. The motivation for this merger between six Western European states was to turn a continent in discord into a continent of peace. What brought Europe to the edge of the abyss was not to be repeated. The (self-)destructive nationalism that was responsible for triggering the wars of 1914 and 1939 as well as the Holocaust as a first-time crime against humanity, was supposed to be tamed – by the relativisation the principle of nation-state sovereignty.

For this purpose, those responsible for the unification process used a method that was and will be named the Monnet Method after the “architect” of this process, Jean Monnet: The united Europe was not to arise through a concept of a final state – for instance, a pan-European constitution, but through a process that was characterised by the release of an economic and political dynamic.

It was and is the connection of economic interests and political objectives that created the Europe of the Union. From an economic community of six western European states, which at first was limited to the coal and steel sectors (as the European Coal and Steel Community, ECSC) and which, from 1956, became the European Economic Community (EEC), eventually became a pan-European union of 28 states, at the heart of which is the single market and a developing parliamentary system.

In Rome, 1957, when the EEC was founded, the six founding states invited all European states to join the Community. The six consciously avoided defining clearly what makes a state “European”. Also avoided was laying down the criteria that have to be met by a state seeking membership in the Community. That was not to happen until 1993, when the European Council in Copenhagen determined that a state should meet the standards of a liberal (pluralist) democracy, a constitutional state and a market economy. This happened in 1993, when the EC applied itself to becoming a pan-European one from a Western European community – in the context of the accession wishes of the formerly communist states.

From the beginning, the European Community was a concept that had also devoted itself to deepening. Unlike the “competition rules” of EFTA (European Free Trade Association), the function of the EEC indicated from the outset that the ability of the EEC-member states to act in favour of Community competences should be reduced. The developing common economic area – expressed in a foreign trade policy determined by the Community, no longer by the individual states – shifted responsibilities from the individual states to Brussels. From the beginning, Community membership meant a loss of a piece of national sovereignty.

This loss of sovereignty was also the reason that neutral states like Austria did not – initially – opt for membership in the Community, but opted for an “integration light”, which

was offered by EFTA. It was for reasons of neutrality and non-neutrality that led Austria, Sweden, Finland and Switzerland to refrain from EEC membership. It was the geopolitical framework of the Cold War – and not a fundamental no to the loss of sovereignty associated with EEC membership: the neutrals, out of self-interest, did not want to disturb the East-West balance in Europe. For the six EEC founding states had consistently been members of NATO, and for that very reason the EEC was seen as part of a Western bloc system.

When the first enlargement took place in 1973 – the accession of Great Britain, Ireland and Denmark made the community of six a community of nine – the tension between enlargement and deepening dynamics became clear. Great Britain and Denmark negotiated various special rights in the following years, exempting them from certain deepening steps (such as economic and monetary union) or granted them special financial status (such as Great Britain, starting with Margaret Thatcher’s “I want my money back.”).

Ireland’s accession was the first sign that the geopolitical positioning of the EEC, which had been transformed into the “European Community” by the merger with the ECSC and the European Atomic Community (EAC), was open to change: Ireland joined the EU as a non-pact member, as a *de facto* neutral state. It showed that the EC could not simply be seen as an extension of NATO’s military alliance system.

The dynamics of enlargement – and this was made clear by the accession of Greece (1981) and Spain and Portugal (1986) – had a special democratic dimension: In the three countries which after decades (Portugal, Spain) or years (Greece) in the 1970s had shaken off dictatorial regimes and had established a liberal-democratic, pluralist political system, membership in the EC was explicitly understood as a factor for strengthening democracy. The EC was an instrument designed to ensure a democratic process of transformation – a task, which, starting in 1990, would then determine the EU’s behaviour towards the post-communist states of Europe.

The enlargement of 2004 was probably the least problematic in the history of the Union. Sweden, Finland, Austria had already been economically integrated into the economic area of the EU, and their democratic quality in line with the criteria of Copenhagen had been undisputed for decades. The only obstacle that had precluded membership – a sensitivity to neutrality policy – had disappeared in the face of the end of the military, political and economic confrontation of two blocs in Europe. The three neutrals became members of the EU, with formal maintenance of their neutrality status – without the functionality of this status after the “Cold War” having been a particular subject of discussion.

At the beginning of the last decade of the 20th century the community that had mutated into the European Union as a result of the Maastricht Treaty (1994) was faced with the challenge of “eastward expansion”, which would mean a qualitatively and quantitatively decisive leap forward: the acceptance of states that had been part of a bloc system under the leadership of the USSR during the Cold War – in both military and economic terms. With the implosion of the Soviet Union, the existence of the Warsaw Pact and the Council for Mutual Economic Assistance (Comecon) also came to an end. The transformation states of eastern and central Europe, the Baltics, the Eastern Balkans and also – partially – the Western Balkans saw rapid integration into the EU as the optimal safeguarding of their political sphere, their freedom; and they also saw in EU membership the best guarantee for increasing their prosperity.

However, the enlargement steps of 2004, 2007 and 2013 also demonstrated the

contradiction, at least latent, between the enlargement and deepening dynamics. The post-communist states of Europe saw in EU membership something like the “return to Europe” and more or less denied that the Europe of the Union was not a Europe to which they could “return”, but a Europe that had never existed before. The post-communist states – above all the “Visegrad states” Poland, the Czech Republic, Slovakia and Hungary – in public discourse neglected the essence of the deepening dynamics: the gradual surrender of national competence (and thus power and sovereignty) to the Union.

The eastward expansion was, therefore – more than the enlargement steps before – characterised by contradictions. The failure of the “constitutional treaty” – the ratification of the one already signed in 2004 had failed due to the French and Dutch “veto” in the form of a no vote in a plebiscite for ratification of the treaty in these two countries – was also the failure to deepen the EU before it could turn into a Union of 28 from one of 15; before its inner political, economic, cultural diversity would take on a new quality. The EU expanded in 2004, before it had deepened – deepened also in the form of a simplification of the decision-making process by reducing possibilities to veto in the EU Council.

Even though the Lisbon Treaty, which came into force in 2009 – the currently valid, *de facto* constitution of the Union – has been able to implement much of what the constitutional treaty would have intended (such as strengthening the structural conditions for a common foreign and security policy), eastward expansion made it clear that the continuation of the enlargement process was in a state of tension with the deepening of the EU.

This also became clear with the admission of Cyprus. Cyprus and Malta became members in 2004 as part of the eastward expansion, although the criterion of a post-communist transformation did not apply to these two island states. The inclusion of Cyprus contradicted the previous principles that had been respected by the EU in all other expansions: Cyprus became an EU member although the *de facto* border and therefore also the territorial identity of Cyprus was and is controversial: The government responsible for the EU member Cyprus does not control a substantial part of the territory claimed by it. The northern part of the island sees itself as a separate state whose security is ensured by Turkish troops.

The circumstances that led to this problem, unprecedented for the EU, are symptomatic of the Union’s deficit in deepening: Greece, acting as an advocate for the accession of Cyprus, threatened to veto the accession of the central and eastern European states. The EU in its entirety, and especially also Germany and France, on the other hand, understood the forthcoming EU expansion primarily as the admission of the states of Central Europe and the Baltic States.

With the admission of Croatia in 2013, the EU momentum for enlargement has not yet come to an end, but this end is visible. The states of the “Western Balkans”, i.e. the successor states to Yugoslavia that have not yet joined the EU, and Albania, probably have realistic accession prospects that are also officially granted by the EU. Their accession is hampered by the fact that conflicts between these states (for instance, with regard to Kosovo) are not resolved, and the stability of Bosnia-Herzegovina does not appear to be secure.

The accession of Moldova, Ukraine and Belarus is conceptually feasible, but unlikely to be realistic in the foreseeable future, because the EU, for good reasons, has no interest in offensively disrupting the fragile relationship with the Russian Federation. Quite apart from the fact that, currently, the states on the eastern border of the EU clearly do not meet

the Copenhagen criteria. These obstacles also stand in the way of Georgia's EU membership – in addition to whether and to what extent the states of the South Caucasus are part of “Europe” at all.

In Rome in 1957 the founding states of the EC avoided defining what the criterion “European” meant that new members would have to fulfil. The Copenhagen criteria of 1993 – democracy, rule of law, market economy – are universal; they are, in any case, not specifically European. They are undoubtedly also fulfilled by states such as Japan, New Zealand, Canada and the US. But such an expansion was and is beyond the interests of the Union and those of non-European states.

That the EU had – for understandable reasons – failed to define the criterion “European” became abundantly clear with the status of Turkey as a candidate country. Turkey, which has been “associated” with the EU for years, in 2004 received the status of a candidate and in 2005 started accession negotiations. The fact that these have been standing still for years, that in view of all interested observers and stakeholders, Turkey will by no means become an EU member in the foreseeable future, does not change the conceptual blurriness of the dilemma: Is Turkey a European state – irrespective of the currently existing circumstances, which preclude it, especially regarding the Copenhagen criteria, that Turkey cannot become a member in the foreseeable future?

The EU has avoided defining what “European” is – beyond the quality features of democracy, rule of law, market economy. The opening of the debate about such a definition is the opening of Pandora's Box. Because Europe is one thing for some and quite another for others. A debate about the nature, the essence of Europe would not lead to a result that is supported by a broad consensus. And yet, this debate is inevitable: not only because of the (de facto currently not up to date) candidate Turkey, but also because states like Georgia see themselves as “European” and basically pursue the goal of joining the EU.

The Europe of the Union inevitably has a geographical dimension: New Zealand is not Europe, nor is Japan. But if the borders of Europe are drawn according to the prevailing geographical understanding, then part of the Russian Federation is Europe – and part of Turkey as well; then Ukraine is clearly Europe, but Georgia is clearly not.

The Europe of the Union has a cultural dimension and this cannot be separated from a cultural-historic-religious one. The idea that Europe is a product of a Judeo-Christian “civilisation”, of a philosophical tradition coming from an ancient Greek understanding and from the systematic legal thinking of ancient Rome is as convincing as it is ultimately blurry: especially when it emancipates itself from the territorial limits of Europe.

Defining Europe as a “civilisation” characterised by culture and religion would not only include Georgia but also the entire western hemisphere. And such an understanding of Europe, in terms of enlargement momentum, leads to a dead end. Not only because Brazil or Jamaica obviously do not think of becoming members of a “European Union”, but also because the Europe of the Union is characterised by religious diversity (including Islam) and this religious diversity is superimposed by the megatrend of secularisation.

It is possible to call Europe “Christian”; it is possible to see Europe as a product of Judeo-Christian tradition. But the reality of today's Europe is shaped by the significantly diminishing impact of ecclesiastical religiousness. Especially in western and northern Europe, the prevailing attitude to religion is a tolerance that classifies everything religious as a part of a private sphere that is not intended to determine the political, and also does not.

The fact that the so-defined, hegemonic secularisation is challenged by an Islam alive in Europe, as a faith of a relevant minority but also by the renaissance of a state religion in formerly communist states does not change the fact that the Europe of the Union today is doubtlessly characterised by religious (above all Christian) traditions, but that these today are have become almost politically irrelevant.

Today's EU (and probably also tomorrow's) is marked by experiences, by memories of catastrophes that not only brought the nationalism of the 19th and 20th centuries across Europe, but also by the wars and destructive orgies of the centuries determined by religious fundamentalism before the modern era. This also began with the gradual overcoming of religious delusion, which was responsible for pyres as well as for the war that devastated Europe between 1618 and 1648, as much as the nationalistic fundamentalism of the 19th and 20th centuries.

Whatever Europe is – it needs an understanding of its territorial, of its geographically defined core. And it builds on an anti-fundamentalist understanding that excludes the destructive rage of any, even a religiously rooted, fundamentalism.

THE DEEPENING DYNAMICS OF THE UNITED EUROPE

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membership in the EU – the absolute end of the enlargement of the EU is clearly foreseeable: the borders of the EU are on the Bosphorus and – given the apparent unwillingness of the Russian Federation to see its future within the EU – on the western border of Russia. The EU has, successfully, become a pan-European community of 28 from the western European community of six; and the forthcoming exit of the United Kingdom changes little in that regard. The secessionist endeavours of Scotland and Catalonia, which have clear perspectives for EU membership, show that EU membership is still attractive in Western Europe. Geographically, the EU has – almost – reached its finality.

But in terms of content, the EU is far from a finality. In Zurich in 1946, when Winston Churchill brought up the issue of “United States of Europe” (a term used by others before him), he deliberately used the United States of America as a model to which Europe should strive – for Churchill, of course, without the United Kingdom that had previously been seen as a global empire.

The EU – a federation? It already is, partially, today. The monetary union *de facto* limited the sovereignty of “core Europe”, which belongs to the euro zone. The opportunities developed by the Treaty of Lisbon to make binding majority decisions in European Parliament as well as in the EU Council, is an element of federal quality. And above all, the single market restricts the ability of EU countries to intervene in the freedom of the movements of goods, persons, capital and services.

The EU is – in part – like a federation. It is – without calling itself that – in part like the “United States of Europe” But only in a limited sense. This is not contradicted by the contractually anchored “principle of subsidiarity” – this also applies, without being so named, in the USA: everything that is not explicitly assigned to the competence of the federation or the union, lies within the competence of the individual states. The US is no more a “central state” than the EU could ever be.

The inclusion of Croatia (2013) has brought the dynamics of enlargement to a temporary end. Although in the foreseeable future states of the Western Balkans will be able to attain

A crucial element that precludes a federalisation of the EU is constitutional competence. In the EU, for this, a treaty change (a new treaty) is necessary, which not only requires the signatures of the governments of all Member States, but also the ratification by the national parliaments and/or the national electorate. In the USA, constitutional amendment is also only possible through a complex process involving not only qualified majorities in both chambers of congress but also the approval of three-quarters of the states. But there is no such thing in the US, as in the EU, as the guaranteed veto right of each individual state against a constitutional amendment. Moreover, in the United States, the adaptation of the Constitution to changing societal conditions is made possible by Supreme Court rulings, which, while not changing the Constitution, can be reinterpreted.

The decisions of the Supreme Court are not only – legally – binding. They are also enforced in practice against reluctant forces using the power of federal executive authority. This was demonstrated in 1956 by President Dwight D. Eisenhower when he repealed the implementation of the Supreme Court's ruling of segregation in schools – enforced by the use of the military in Little Rock, Arkansas.

Such executive power is lacking in the EU: the executive branch of the Union, the Commission, has no way of enforcing European law with similar powers to those of the federal organs of the United States. Of course, the Commission can, through a legal process, impose sanctions against Member States – however, such measures can only be implemented with the unanimity of all states (without the directly affected state). Compared with the possibilities of the US government, that is, the US president, the executive power of the European Commission is radically underdeveloped.

The fact that the EU is not (yet) a federation depends primarily on the interests of the Member States. These are the losers in any shift of competence or power from the states to the Union. And since any significant deepening step can only be taken by amending (or restating) the EU treaty, it is plausible that the veto power of the Member States – or even just one of them – will prevent the deepening. Why should the government of a state renounce its power?

It is the school of inter-governmentalism (to which Andrew Moravcsik belongs) that derives from a structurally given interest of the state, that the further development of the Union towards a federal state is highly unlikely, if not impossible. Of course, the question then remains why, since the foundation of the ECSC in 1952 and the Roman Treaties of 1957, significant steps were determined and also implemented, such as the introduction of the internal market in 1987, or the founding of the Economic and Monetary Union (euro zone) in 1994. Because, if the action of the veto powers, that is in the EU states, are primarily determined by the interest in maintaining their own power and as a consequence of the defence of any power transfer from the state to the Union level, why, then, were the previously followed steps for deepening not prevented? Why did the EU states partially disempower themselves when the calculated action of the national government is primarily aimed at preventing a European state – albeit one that is still very incomplete?

The school of (neo-)functionalism (to which, for instance, Philippe Schmitter also belongs) provides an answer to this: it is the logic of the unintended consequence, which has, so far, driven the deepening of the Union. The interests of the (western) European

states that, after several years, had led to the founding of the ECSC due to the post-war situation resulted in the further development of the common coal and steel market into a market encompassing the entire economy. The common market, on the other hand, produced its logical evolution into an internal market that detached the freedoms of economic activity from the ties to the individual Member States. And the single market made it ultimately seem logical, almost made it necessary, to create a common currency for this increasingly compact union of production and consumption.

The logic of unintended consequence means that in 1952 or also 1957 the introduction of an internal market with all its transnational freedoms and the creation of a monetary union with its supranational elements – such as a central bank – might have been imaginable but certainly not politically implementable. The deepening of the EU that had already been achieved was not the result of a design created from the beginning, a final structure of the Union. It was the result of a process, the logic of which still exists. Only the successes of the previous integration steps – such as freedom of trade within the EEC – made it possible to plan and implement the next stages of integration.

The major consequences of the hitherto achieved deepening have become so obvious that express reference must be made as to the achievements in European integration. First and foremost, it is the internal peace function of the Union: The EU has its Member States, *de facto*, deprived of the ability to wage war against one another. This is not the consequence of a war de-legitimising standard – wars were “forbidden” by international treaties even before the Second World War, and yet, they still took place. That fact that a Member State cannot take warlike action against another EU Member State is due to economic and cultural interconnectedness, which also lies in the democratic character of the individual Member States.

Between 1870 and 1940 – a period which barely spans three generations – three German armies invaded France. Since the beginning of the integration process, analogous aggression within the EU has become virtually impossible – due to the economic interests of the states whose economic structures are no longer definable as “national”; due to the cultural realities, which, even as a result of comprehensive education and exchange programmes, make the mobilisation of a broad public opinion against a diabolised neighbour state scarcely possible; and due to the logic of “democratic peace”. Democracies do not (or only in exceptional cases) initiate war against other democracies; and because the EU Member States (as well as the Union itself) meet the criteria (at least the minimum criteria) of a democracy, wars within the Union cannot take place.

This peace function became clear when the Yugoslavian wars of succession began at the external border of the Union in 1991. The collapse of Yugoslavia made something possible that – at least according to past experience – simply cannot take place within the EU. The comparison between the EU’s internal peace guaranties and the larger, most murderous warfare that Europe had to endure after 1945, increase the Union’s attractiveness.

The peace function of the Union is certainly not absolute. It does not apply to the external relations of EU countries. In 1982, when Argentina started military aggression against the Falkland Islands in the South Atlantic Ocean – under the pretext of liberating this archipelago (called “Malvinas” in the Argentinean narrative), the British government answered with military force. The United Kingdom acted in a sovereign way – the Europe of the Union played no part in this war conflict, nor could it have played a part. For

the defence of one's own state territory against an external enemy (i.e. against a non-EU member) is not a European but still a national matter.

The Falklands War made it clear that the successfully developed inner peace function of the EU does not correspond with any external peace function. The fact that the Union has effectively abolished war as a means of delivering conflict within the EU does not mean that the Union has found an analogous way of preventing war outside its borders – even if it involves a Member State of the Union.

Another significant result of the deepening already achieved is the internal market. This, initially implemented as a political consequence of an economic community, has significant consequences for the integration of the whole society of the Union. The free movement of persons means that citizens increasingly live and work in other EU states, outside the borders of their own states. The accession of the new Member States of the “eastward expansion” to these freedoms – which was initially delayed due to transitional periods – means that there will be long-term compensation of income and living conditions between the economically different parts of the Union. On the other hand, the freedom to provide services means that competition will intensify, particularly in the regions that are close to the EU's borders – to the benefit, in particular, of the consumers.

Part of the deepening and the associated freedom of establishment is the partial overcoming of the intra-European borders with regard to political participation. Citizens of an EU state who have normal residence under the right of establishment in another EU country can participate in local elections. The political exclusionary effect in the form of an unconditional binding of political rights of participation in a state-defined citizenship is thus put into perspective – even if the power of definition of the individual state continues to prevail in national elections.

The deepening of the Union has also produced a Common Agricultural Policy (CAP), which involves negotiating EU agriculture at the level of the Union, a policy of standardising and, in particular, implementing agricultural subsidies. Competitiveness of the EU agricultural and fishing industries follows European and no longer national rules. This also applies to competition as a whole. National markets can and must not isolate themselves. The Union ensures that fair competition, which gives national governments the possibility of national protectionism, provides the best possible conditions, above all, for consumers.

The quality of the deepening shows that the Union is more than a confederation in which sovereign states coordinate their nationally defined interests with each other. However, the deepening that has been achieved also makes clear that the Union is not (yet) a federation. The level of deepening underlines that the comparative teaching of political systems classifies the EU as a “*sui generis*” system for good reasons; as a system that lies between a model of a federation of states (or a confederation) and that of a federal state (a federation). Of course, any further step towards enlargement will bring the Union closer to the federal model – and any step that takes back an already achieved deepening removes the EU from this model.

The Union did not have to reinvent the wheel on its partially successful path to towards the state. Other federations have tried to overcome analogous challenges with analogous means. The interim situation of the EU, between a confederation of states and a federation, is not a unique characteristic, as could be understood by the term “*sui gen-*

eris”. Other federations, which, like the EU, have emerged from a “bottom up” process, and have formed through existing states, have gone through various intermediate stages before indisputably proving themselves to be federal states. This applies, for example, to Switzerland, which, until the constitution of 1848 (and the end of the last war between the cantons), was understood as more of a confederation than as a federation, and as this is still expressed today in the term “Confederatio Helvetica”. However, this also applies to the USA, which, likewise between 1776 (declaration of independence) and 1787 (adoption of the constitution still valid today), is seen not as a federal state but as a confederation. And even in the USA, only a war trauma – that of the civil war between 1861 and 1865 – brought about a leap in quality that determines the prevailing consciousness that recognizes the USA as a nation and the union as a state at the level of consciousness.

The interim situation of the EU allows us to think ahead in terms of the development potential of the Union in both directions – in the direction of “more Europe” (“an ever closer union”) or “less Europe”. For both directions, continuation of the deepening or its partial withdrawal is the decisive indicator. The areas in which a further deepening is intensively discussed – for deepening steps that are not only wishful thinking but insist on the politically feasible ideas – are, above all, the field of external security and that of social homogenisation.

THE EU AS A SECURITY & SOCIAL UNION

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The functional approach of Jean Monnet, around 1950, was focused on the growth of the war-torn economy of (Western) Europe; therefore the focus on coal and steel. Recon-

struction promoted the production and use of key economic recovery goods in a market that dissolves national borders, thereby enabling a qualitatively new step towards the integration of six European states into a single market.

It is precisely this functional approach of Monnet’s that continues to help shape the deepening steps that go beyond Europe, as it was defined in the Single European Act (1987 – Internal Market), the Maastricht Treaty (1994 – the Economic and Monetary Union) and the Treaty of Lisbon (2009 – reinforcing foreign and security policy structures). What tasks should the Union undertake at the end of the second decade that are felt to be particularly urgent in European society?

In the spirit of the Monnet method, the EU needs to make itself useful in order for it to deepen and develop – despite the resistance of national governments concerned about their national rights, despite the populist currents, movements, parties, especially from the right but also from the left. The tasks that are offered for further deepening are primarily the external security of the EU and the prevention of the growth of social inequality in the pan-European context.

The enhancement of external security is a task that the EU, in principle, has long since accepted: through its commitment to a foreign, security and defence policy; and also through the obligation to control the EU external border. What is missing is a consistent willingness of Member States to give clear tasks to the Union – and to provide the necessary instruments for this.

Since the Treaty of Lisbon, the Union has had an “External Action Service” headed by a “high representative”, who is also the vice president of the Commission. The EU

thus has a foreign minister who is not just called that, and a diplomatic service, which takes another name with regard to the semantic sensitivity of states. The EU is represented in the centres of international politics – in Beijing and New Delhi, in Cairo and in Washington. In the United Nations, of course, it does not have member status. Above all, this is offset by the sensitivities of the EU states, primarily the sensitivity of both European permanent members of the UN Security Council, who see in their position as UN veto powers the means of numbing their phantom pain – a reminder of the world role of the past.

That could change with the departure of the United Kingdom. Because this can clarify the relationship between NATO and the EU. In all questions of military security policy, the British position has always been not only to prioritise NATO, but to give the EU as few tasks as possible. The British veto against this side of a security union will be superfluous in 2019. However, as it is unimaginable that the EU will develop a parallel structure to the existing NATO structure, increasing the Union's perception of external security policy tasks not only requires coexistence but a systematic cooperation between the EU and NATO.

This will pose symbolic problems for non-NATO member states (Ireland, Austria, Finland, Sweden, Cyprus, Malta) – problems for labelling their neutrality or non-alignment. But without a partial integration of the EU and NATO the EU cannot gain a strengthened foreign and security profile.

Without a deepening of foreign and security policy, actors such as the US, China or Russia can repeatedly play off one EU state against the other; EU countries particularly affected by migration like Greece, Italy or Bulgaria will always feel overwhelmed; understandably, the impression of the lack of European solidarity will arise.

The EU is an economic giant – but the Union is a global political dwarf. Its economic and particularly also its trade potential, which can no longer be differentiated nationally due to the existence of the single market, lacks a political equivalent. From a foreign and security policy point of view, the EU is far from the possibilities of a federal state. It resembles here the loosely-linked African Union (AU) or the Organization of American States (OAS).

When the United States of America, founded as a confederation in 1776 and confirmed in the War of Independence against the British colonial power, was challenged by foreign policy such as piracy in the (European) Mediterranean affecting American trade – this was one of the reasons why the 16 founding states met in Philadelphia in 1787 in order to transform the confederation of states into a federal state by means of a constitution and thus to gain the ability to act in foreign and security policy appropriate to the economic interests. In this respect, too, the Union can draw on the experience of others.

The fact that there is social inequality in Europe, that the gap between poor and rich is large – and that according to certain calculations is growing – provokes the question about the welfare state of the Union. After 1945, using different forms (the British and Swedish, the Austrian and the Dutch, the German and the French models) the western part of Europe tried to combine the political freedom of liberal democracy and the effectiveness of market economy with a network of social security. The result: the democratic and welfare state, which brought the first historical connection of maximising freedom and security.

This success built on the existence of the sovereign understanding of national states.

But this success is increasingly being undermined – by the phenomenon of globalisation. This is not politically wanted or politically controlled; it is also not new. However, it has achieved a new quality through exponential technological advances (for example in the field of communication). Taking care of those rather new challenges would obviously go beyond the possibilities of traditional statehood.

But this justifies a growing inequality between economy and politics: Economy has dissolved boundaries, politics hasn't. The national states lack the instruments to prevent politically unmanageable capital flows from massively affecting national labour markets. And this is – rightly – seen as one of the causes for social inequality. Of course, for social inequality in the states, not for social inequality worldwide – because the beneficiaries of this development are the people in China and India, Southeast Asia and increasingly also in Latin America, and incipiently also in Africa.

For Europe, this means that the model of the nationally defined welfare state has slipped. And it would be a central task of the EU to oppose this process of the erosion of a European success model: not by attempts to stop globalisation – that would be naively Donquixotic – but through attempts to produce more solidarity, more equality within the economic giant of Europe.

An underestimated step in this regard was the establishment of the European single market. This was and is mainly driven by the interest in promoting economic dynamism. But it also had huge consequences for the social fabric in Europe. The single market is a comprehensive socio-political concept.

The social effects of the single market are ambivalent: Assuming a primarily national view, the freedoms of the single market have, above all, anti-egalitarian consequences. Polish plumbers in Germany, Romanian welfare helpers in Italy, Bulgarian construction workers in Austria are causing a reduction in labour costs – and thus salary levels – in Great Britain and Germany, Italy and Austria. From a European perspective, this is, of course, different: defined from primarily a material perspective, life chances in poorer countries of the Union are increased. The single market is a mechanism that helps to reduce inequality between the poorer and richer regions in Europe.

That is why the single market is an important step towards social union. That is why the defence of the internal market – such as the free movement of people and services – is the defence of a piece of a social union that already exists in concept.

Of course, this is not a convincing argument for the workers threatened by unemployment in the north of England, who for that very reason voted against staying in the EU by a large margin. But the inner logic of economic development has always known losers – the rapid decline of the part of the population working in agriculture across Europe shows this. When dealing with megatrends it is not appropriate to simply oppose it – that did not help the pre-industrial weavers in Europe. When dealing with megatrends it is necessary to cushion the social situation of the modernisation losers, to support them socio-politically.

Immigration to Europe can also be seen from a similar aspect. Influx into the labour market, into existing social systems – if managed in a controlled manner – has stimulated economic growth. However, it also threatens the existing forms of social equity – above all through “wage dumping”, through the willingness to work for a relatively low level of social security.

These effects of modernisation and globalisation cannot be eliminated by wishful thinking, nor by the resurgence of border control in the Schengen area – such as between Malmo and Copenhagen or at the Brenner Pass. These effects cannot be prevented, but they can be managed: through obligatory welfare state intervention in the form of mandatory social standards. But this also requires empowerment from the Union. Sovereign-feeling nation states in Europe will only harm themselves economically with an isolationist policy without being able to control the social problems of immigration.

The European Union builds on a set of values that are cast into a social charter and, abridged, can also be found in the criteria adopted by the European Council in Copenhagen in 1993. The first criterion is democracy – understood as political pluralism, as a multiparty system based on competition. This is by no means “only” a formal understanding of democracy. Because competition must take into account the central criteria of fairness – and also equality such as equality expressed in the principle of “one person, one vote”.

The beginning of European integration is built on a social understanding that sought to optimise political freedom and social security as two compatible goals. What is missing is the transfer of these welfare state approaches to the Union level – the Europeanisation of the social and welfare state. Such an establishment of the welfare state already exists in the form of the implicitly equalising consequences of the single market. In order to minimise the disadvantages and the associated fears of the losers of this development – German construction workers, for example, who see themselves as victims of Europeanisation through the influx of Polish construction workers – there is a need for socio-political empowerment of the Union.

The direction for such action in a social union is given: as life opportunities in poorer states and regions of the Union improve, the consequences of European immigration, which are perceived as social and wage dumping, will decline. Naturally, there needs to be a continued effort to explain and educate. The European Union is not the cause for the social consequences of globalisation. The Union is a poorly used tool to control the rafts of globalisation. The Union is – potentially – the continuation of the welfare state model of success on a transnational basis.

SUMMARY

– The EU is not finished, it is a continual process. In this process, phases are possible that are perceived as a standstill. These are quickly labelled with the term “crisis”, or the phases of stagnation classified as “eurosclerosis”. Some developments are approaching a predetermined end – such as the enlargement of the EU, which is approaching its finality: the EU will not encompass many more Member States than it currently has. It has almost reached its possible territorial dimensions.

It is this substantive finality, the functions and tasks of the EU that are far from being final in any way. Measured in terms of the tasks of a federation, as exemplified by the United States or Switzerland, central functions of statehood can be transferred to the Union in the future. The Union can become “deeper”. But it does not have to. Of course, one thing it cannot do is establish itself in the status quo in the long term.

To this end, the ever-new and recurring challenges are too urgent: The “eastward expansion” has shifted a hitherto existing social balance, the question of a European

welfare state becomes ever clearer – also and especially in the context of the reality of the single market and its freedoms. Immigration, provoked by various causes such as war, displacement and economic hardship, has pushed to the fore the question of the control of external borders, a task to be exercised by the Union – as well as the isolationist tendencies of the US to make the EU's reinforced foreign and social security policy independence a central topic.

For the European Union, the testimony of the first president of the EEC Commission, Walter Hallstein applies: Europe is like a cyclist that can go forwards or backwards, or in a circle. But if the movement stops, the bicycle will topple over. —

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Beyond the “refugee crisis”

Challenges of a European refugee policy

PHILIPP THER

During the 20th century, Europe was a continent of flight and displacement. This not only applies to the two world wars, but also to the respective postwar periods, when in relation to the total global and European population far more people found themselves on the run than in the year 2015. After the First World War, about seven million people were uprooted in Europe, and after the Second World War about thirty million. More recently, the conflicts in former Yugoslavia resulted in the flight of about four million people; in Bosnia and Herzegovina it was more than half of the population. These refugees had to be fed, housed and integrated in far worse circumstances than the approximately one and a half million war refugees from the Middle East who have reached the European Union since 2015.¹ Given these respective dimensions, the term “refugee crisis” appears exaggerated from a historical perspective for 2015 – at least for Europe – and, above all, too blurred.

¹ All figures in this article are based on Ther, 2017; Gatrell, 2013, also provides a good overview

In the year of the “refugee crisis”, the way the refugees were treated constituted a crisis, starting with the hunger rations in the refugee camps of the Middle East, because the Western and Middle Eastern donor countries did not respond adequately to the UNHCR’s calls for help. Another factor was the surprise over the fact that so many people would set out on their own, and the inability to develop a common refugee policy in the EU. In this respect, the political discourse about the “loss of control” (“Kontrollverlust”) at the external and internal borders of the EU focuses on a small element of a much larger problem. Compared to earlier refugee movements, the exodus was channelled relatively quickly and handled well in most of the transit and destination countries, also thanks to the support of many citizens and NGOs. In contrast with previous mass flight, there was no mass homelessness in Europe, nor was there hunger or an outbreak of epidemics like those which cost about one million people their lives after the two world wars. As a transit and destination country, Austria played a large part in ensuring that this scenario did not recur in 2015. This all in all positive fact, however, stands in contrast to the conditions in Syria and other conflict regions, where refugees (who are mostly “internally displaced people” or domestic refugees) still live in great need and have bad prospects for starting a new life.

If there is a discussion about loss of control in Europe, perhaps there should also be a discussion about what increased control could mean regarding 2015 or in the future. There is no doubt that there was a temporary loss of control over entry and exit at some internal European borders during some months. But should Austria, Germany and other EU states have deployed the military and police to the border and used tear gas and violent means to prevent the refugees from crossing the border in September 2015? What would have happened in Hungary and on the so-called Balkan Route then? Do fences and walls that can be erected in the flat lands of southern Hungary, but not in the Mediterranean, really result in a gain of control? That may seem so on the surface, but it would have side effects, especially in increasing the cost of flight and providing traffickers with even more business opportunities. Yet these critical remarks about refugee politics in the year 2015 or, above all, its perception, should not encourage the idealisation of a so-called “welcome culture” (“Willkommenskultur”, as it was termed in German) and its underlying humanitarianism. According to social science studies, flight cost the people who arrived in Germany in 2015 and early 2016 a median of 5,000 euros per person (Brücker, 2016. The average cost was even higher). Extrapolated to the approximately one million Syrians who came from an already poor and war-impoverished country, this means the cost of flight reached at least five billion euros. These funds could have been better spent in investing in language training and education, establishing a business or one day rebuilding the home country.

In addition, the high costs resulted in a social selection. Only those with the strongest elbows, who had the necessary knowledge about the flight routes and could afford it financially, were able to flee. Accordingly, about half of Syrian university graduates are currently residing in the EU (Betts/Collier, 2017, p. 265). The gender distribution also strongly shifted. Because of the patriarchal structure in the societies of origin, far more men fled than did women. In the age cohort of between 16 and 30, men make up three quarters of the refugees.² This complicates integration, because it means that most of

² These figures refer to Germany, see BAMF, 2017, p. 20

the refugees either cannot start a family, which takes very high priority in the Middle East, or, like the guest workers of the 1970s and 1980s, have to “import” their spouses from their countries of origin at some point in time. If the partner arrives later without previous exposure to the language, society and economy of the destination country, integration will, in many, regards have to begin anew.

A means to resolve these issues could be the “humanitarian corridors” that have been tried and tested for two years in the EU. This concept is based on bringing refugees directly from conflict and civil war areas and the local aid camps to countries willing to receive them, in order to spare them the exertions of a long route of flight and, above all, reach those people who are particularly endangered and needy. Humanitarian corridors were first developed and put into practice in the EU by Catholic lay organisations in Italy, which began flying in Syrian women, children and families directly from Lebanon in 2016. The Social Democrat-led government under Prime Minister Paolo Gentiloni (however, in March 2018 he lost the parliamentary elections) took over this model, and it is now to be continued at EU level. This once again shows that refugee policy depends very much on civic engagement.

Already after the First World War, Jewish and Christian aid organisations and the Red Cross saved countless lives. On the eve of the Second World War, 10,000 Jewish children were saved from death in the National Socialist concentration camps as part of the so-called “Kindertransport” – again thanks to the activities and donations of civil organisations. In the early post-war years and during the Cold War, NGOs continued to promote the international resettlement of refugees. The main destination used to be the United States, which opened its borders for the first time in the late 1940s for refugees and took in more than 300,000 displaced persons. This breakthrough for a humanitarian refugee policy continued in the 1970s, when the reception of refugees was decoupled from general immigration quotas. It is a recent development that NGOs are politically attacked for their activities, sometimes even as traffickers.

The driving force behind this humanitarianism was the Civil Rights Movement and, similarly to Europe, the student movement of 1968. In 1980, the Refugee Act finally passed, in which the US set an annual target of 50,000 resettlements. This benchmark was hardly ever kept in the many years leading up to 2016, when Donald Trump was elected as president, bringing the total admission to the US to about three million refugees. The American leadership of the West was therefore a very important anchor of international refugee policy.

However, humanitarianism was not an end in itself; it contributed to peace-building and conflict resolution in many conflict regions. In addition, the US gained new citizens, who often remain grateful for their entire lifetime to their saviour in distress. As in the field of defence policy, US refugee policy has indirectly relieved the EU Member States from being the main destination countries for international resettlement.

Until recently, given the disputes surrounding EU refugee quotas and the sluggish implementation of existing arrangements for the transfer of recognised refugees out of Greece and Italy, the impression has been that the European Union would no longer be able to find a common line of action in this area. But in April 2018, the EU Commission and a grand coalition of willing EU states made a surprising commitment to humanitarian corridors. By summer 2019, as part of a joint programme, up to 50,000 refugees from

various conflict areas are supposed to be admitted to 20 EU countries. The programme is also supported by new Member States such as Romania, Bulgaria and the Baltics, so that the often-forced comparison in 2015/16 between a (supposedly liberal) Western Europe and (supposedly xenophobic) Eastern Europe does not hold. As expected, the long list of willing countries of destination does not include the Visegrad countries, Denmark (where right-wing populists tolerate the government and have been influencing migration politics for years) and – most recently – Austria.

The decision of the Austrian government to reject humanitarian corridors not only stands in conflict with a large majority of the EU states, but also with its own government programme, which contains a passage declaring that “especially vulnerable groups” should be helped (cf. Federal Government, 2017, p. 35). This concession to the Christian wing of the ÖVP (People’s Party) has now apparently fallen under the table. The refusal to take part in any global or European refugee resettlement is ignorant of Austria’s own history, because in 1956, 1968, 1981 and 1992 it profited from the fact that most of the refugees arriving in Austria were taken in by other states. That relief from several major humanitarian crises seems to have been forgotten by the present Austrian government. However, historical memory or even gratitude apparently count little in the machinations of a demoscopic democracy, which primarily focuses on short-term surveys, as well as the right-wing sentiments against refugees. Hungarian Prime Minister Viktor Orbán already capitalised on this when Austria and the Federal Republic decided, in the first days of September 2015, not to close their borders (contrary to widespread assertions and discourse, the borders were not “opened”). Although Hungary was relieved of a major humanitarian burden, Orbán then hurled at German Chancellor Angela Merkel that the refugees were from now on “a German problem.”

Orbán is not alone in the Western world in this attitude; he has a powerful ally in Washington. When Donald Trump took office as president, he not only ordered the much-disputed “Muslim Country Ban”, but a very restrictive refugee policy. He imposed a moratorium on the reception of refugees, effectively a “Refugee Ban”, but this was hardly noticed in the media. Following protests from church congregations and in Congress, Trump partially retracted this step in summer 2017, pledging to accept limited refugee quotas. But even this was only with reservations, and at the end of 2017 Trump announced that certain nations, such as the Syrians, would be excluded from resettlement to the US. This means that refugees from some of the worst zones of civil war have no chance of being admitted or, indirectly, that pressure on the EU will increase accordingly.

In addition, at the end of 2017, the United States announced that it would not cooperate with the UN in drafting a global refugee and migration compact. In principle, however, this argumentation is comparable to the withdrawal from climate protection: The United States no longer wish to oblige themselves to join any international treaties and seek to regulate the reception of refugees without international cooperation in the future. In the meantime, in domestic politics Trump is shifting the “narrative framing”, the framework and the terms of the debate. In his political vocabulary refugees are at most migrants, and are additionally criminalised with the attribute “illegal”.

For the UNHCR and the world’s approximately 22 million international refugees, this is bad news. Because there is no doubt that one of the most important sub-organisations of the United Nations is in need of reform. In the past three decades, the UNHCR

has increasingly reduced its activities to emergency care. This is mainly due to a lack of funding, which is likely to worsen with the US's withdrawal from the UN migration policy. And this emergency care, as the history of the "refugee crisis" of 2015 shows, only works to a limited extent. Since 2014, in the refugee camps in the neighbouring countries of Syria, the UNHCR has had to reduce food rations to caloric values, which older Austrians, Germans, Poles and other Europeans can recall from the first post-war years. The lack of food, dismal living conditions and lack of perspectives for the future were reasons why so many people from the Middle East made their way to the EU.

In fact, the UNHCR was not founded in 1950 as a mere relief organisation, but also intended to link refugee care with large-scale developmental projects. In Jordan and Lebanon, this would be vital for survival today, not just for the war refugees, but for those countries themselves (Jordan has accrued high debt in order to support the Syrian refugees; the austerity programme to reduce that debt provoked a brief revolt in early June 2018). But the impetus for integration, which directs several paragraphs of the Geneva Refugee Convention, has largely been forgotten in recent decades. This is also because, as a result of the wars in former Yugoslavia and the alleged victory of human rights in 1989, wars were, for the first time, recognised as a reason for flight, but at the same time admission remained temporary. At first glance, this limited humanitarianism may seem in the interests of the refugees, who usually seek a return at the beginning of their exile, but it has led to lasting integration being pushed further into the background as an objective.

Another key element of international refugee policy, since the suppression of the 1956 Hungarian uprising, has been the international resettlement mentioned above. At that time, Western policy was based on a solidarity community, and the 200,000 Hungarian refugees were distributed from Austria to 37 states. The largest contingents were received by the US and Canada, each with 35,000 refugees. In terms of population size, Switzerland was the most generous, West Germany admitted 15,380 Hungarians, although in 1957 more than a quarter of a million people fled the GDR and the arrival of repatriates from Eastern Europe ("Aussiedler") reached a first peak. After the suppression of the Prague Spring, the procedure was in principle similar: the Western states divided the refugees amongst themselves so that each country could handle the associated burdens more easily.

A basis for this solidary attitude was not least the economic boom of the postwar period. In all Western countries, there was a labour shortage, so refugees were welcome for this utilitarian reason as well. However, this was not openly declared because it was more attractive to present oneself as a saviour in distress. The Eastern Bloc states were embarrassed that so many people left for the West and perceived Western refugee policy as a moral presumption, which they denounced, not least because they knew exactly why so many people "voted with their feet" – to refer to a metaphor from the fifties. Perhaps old inferiority complexes also explain why Viktor Orbán and other post-communist politicians have attacked the EU and German refugee policy since 2015 so fiercely and that they respond allergically to a normative policy in the first place. Moreover, after 1989, only a very small number of the 1956 refugees returned to Hungary, so their experiences are lacking in the collective memory of their home country.

International resettlement also helped to defuse the refugee crisis in Southeast Asia at the end of the 1970s, when at least as many people were on the run as there are today in Syria. When more and more "boat people" fled across the South China Sea to Malaysia,

Singapore, Indonesia, and the Philippines due to repression by the Vietnamese communists, who put hundreds of thousands of people into “re-education” camps, this evoked a worldwide response and pity. Despite resistance from Congress and negative polls, President Jimmy Carter enforced the admission of 400,000 refugees from Southeast Asia by 1980. Three factors played a role in this: a bad conscience over the war in Vietnam, a sense of responsibility for the consequences of the war (which Russia completely lacks in Syria today) and, above all, the agenda of the Civil Rights movement. Canada and Australia also definitively ended their “white only” immigration policies, each receiving more than 100,000 Vietnamese refugees.

As in the US, this was accompanied by a lower weighting of utilitarian criteria in immigration policy, and refugees were now included for humanitarian reasons. This shift from utilitarianism to normativism has shaped Western and European refugee policy until very recently, but in 2015 it reached its limits and has since been increasingly criticised and undermined.

With the admission of the Asian refugees, American society distanced itself not only with words, but with actions from former racial discrimination. It was equally important to decouple refugee admission from general immigration, and this was completed with the Refugee Act of 1980. If the United States now turns away from this policy, which was continued by the Republican presidents Ronald Reagan and George Bush senior and junior, it would be a major blow for the UNHCR and would increase pressure on other potential host countries, above all, in the EU.

This is not to suggest that the EU would have only played a passive role then or today. European states, especially France, also gave impetus to the opening up of the United States in the late 1970s. The former colonial power declared its willingness to support international resettlement from Southeast Asia; in total, France admitted 110,000 Vietnamese refugees. Several other European countries support the UNHCR with contingents of between 5,000 and 20,000 people, and the most willing in terms of population were the Scandinavian states, notably Norway. As in the US, civil society initiatives spurred on this European humanitarianism. In France, André Glucksmann, Jean-Paul Sartre, Raymond Aron and other intellectuals founded the initiative “un bateau pour le Vietnam” (a ship for Vietnam). In Germany, Rupert Neudeck and Heinrich Böll took this idea and collected donations to build the rescue ship *Cap Anamur*, which saved 11,000 lives in the South China Sea. This was not uncontroversial – in 1979 the West German Foreign Ministry decreed that only refugees who had been rescued by German-flagged ships could be accepted (*Cap Anamur*, like the fleets of various NGOs in the Mediterranean in 2015/16, often took refugees from other ships). In addition, critics of the rescue efforts claimed that this only motivated more people to risk a dangerous escape across the ocean – an argument that has been widely used since 2015, but cannot be proven empirically.

From 1979 on, the Southeast Asian refugee crisis was finally resolved through broad international cooperation. As part of the “Orderly Departure Programme”, the neighbouring states most affected by the mass flight were assured that they would be relieved of the refugees. In return, Indonesia, Singapore and Malaysia pledged not to turn away the boat people. Conditions in the refugee camps, where extreme poverty, corruption and prostitution were widespread, subsequently improved. The UNHCR managed the

transfer of the Southeast Asian refugees well, and thus once again gained international status and trust. Ultimately, the mass flight of the boat people also subsided because the Vietnamese communists reduced the pressure on their own population, allowing farmers to sell part of the harvest privately. Subsequently the living standard in the country of origin improved. Whether and when this will happen in Syria and other war-torn countries in the Middle East is difficult to predict. (The civil war in Lebanon lasted 16 years and ended only when all parties of the conflict were completely exhausted.)

Looking at these historical models, it becomes clear how embarrassing it is that the EU has failed to develop a common refugee policy. After all, it is a community of states and not a loose alliance like the Western democracies or the ASEAN states during the Cold War. However, the Visegrad states do not wish to acknowledge this and insist on their national sovereignty. The new Austrian government has also rejected EU refugee quotas, which are nothing but a continuation of international resettlement. In an interview published at Christmas 2017, Chancellor Sebastian Kurz said the individual Member States should decide for themselves whether and how many people they wish to absorb – which meant, without him saying it openly, that his government did not intend to admit any more refugees into Austria. In June 2018, he even proposed an “axis of the willing” between Italy, Austria and Germany to keep out refugees.

In the government programme agreed in 2017 between the ÖVP (People’s Party) and FPÖ (Freedom Party), the term “refugee” was abolished as a concept and a subject, much as it has been in the Twitter messages of Donald Trump. Instead, the 180-page programme almost exclusively refers to “illegal migration”, which should be restricted using all means. According to the plans of the government, asylum seekers are to hand over their brought cash (this could possibly have been inspired by Denmark), which will initially be used for basic social security. On top of this, the Austrian government no longer wants to accommodate the refugees individually and in private apartments, but only in collective housing.

The plan to, from now on, only house refugees in camps that are not named as such, because that might arouse unpleasant historical memories (like the term “axis”), at the same time represents a turning away from the goal of long term integration. This turnaround in refugee policy has already transpired to Germany and especially to neighbouring Bavaria, where Sebastian Kurz has many supporters among CSU politicians. There has been a similar framing of debates there for some time now: The conservative media no longer write about refugees but about migrants, and these are more and more often associated with the adjective “illegal”. In the *Frankfurter Allgemeine Zeitung*, Germany’s leading conservative newspaper, more or less well-known law professors are permitted to explain at regular intervals why flight is illegal, and why the mass reception in Germany in 2015 was even immoral. In fact, the unauthorised crossing of the German state border is an offence, but according to the Geneva Refugee Convention, refugees are not to be punished for crossing borders, even if they have fled through third countries. Regarding the moral position of September 2015, one must still ask whether the alternative, a massive police and military operation in Burgenland and southeastern Bavaria, would have really been the better alternative.

The conflating of all types of migration, which Trump pursues, as do the Visegrad states, is just as wrong from a perspective of international law as it is from a historical

one. Refugee migration and labour migration are different, and they are treated differently under international law for good reasons. Refugees leave their homeland because they have to, economic migrants because they can. Refugees leave because they fear for their lives, economic migrants because they want to improve their standard of living. Unfortunately, in many ways refugees have far worse preconditions for the start of a new life. They usually arrive impoverished, sometimes traumatised, and they can seldom choose their destination country.

It should be remembered at this instance that the reception of refugees has almost always paid off for the countries of arrival, at least when the respective states and societies adopted a constructive attitude towards integration (an attitude that is, as already mentioned, fundamentally rejected in some EU countries). One could cite examples from the early modern period, such as the inclusion of the Huguenots and the Salzburg exiles in Prussia (which, however, meant a serious economic loss for the archbishopric). Yet one can also point to more recent periods, such as the economic boom of the post-war period. The German economic miracle of the 1950s and 1960s and the somewhat later upswing in Austria would not have been so miraculous without the huge reservoir of labour resulting from the mass flight from Eastern Europe. It can also be shown by hard data that investments in the integration of refugees, such as for example the equalising of burdens in Germany or France from 1962 after the arrival of the so-called “pieds noirs” from Algeria have paid off, as have similar programmes in Eastern Bloc countries such as the GDR and Poland.³ Conversely, it can be observed that when the respective states do nothing for integration or even reject it, this will have a corresponding effect and cause burdens for the future.⁴

The most recent historical experience of receiving refugees in Europe was the arrival of approximately 700,000 victims of war and ethnic cleansing from former Yugoslavia. For the first time, a war or warlike conflict was recognised as a collective reason for flight. This de facto extension of the Geneva Refugee Convention (de facto, because there was no internationally agreed additional protocol as in 1967, when the Convention was extended in terms of content and geographically to the whole world). The refugees from former Yugoslavia were admitted in all EU countries and also in countries that joined the EU in 2004. The motives for this joint action were manifold; not least, as in the US after the Vietnam War, a bad conscience about the failure to find a way to resolve the Yugoslavia conflict may have played a role. Moreover, the revolutions of 1989 had reinforced a general consensus on human rights and therefore on refugee rights.

However, this reception of refugees was, as mentioned, limited to the time period in which the reason for flight was still valid. The Federal Republic of Germany, which suffered from a deep economic crisis from the mid-1990s onwards, sent most of the refugees back to the successor states of Yugoslavia after the Dayton Peace Agreement, often against their will. Sweden, on the other hand, took account of the advanced integration, especially of the children, and kept about half of the former Yugoslavs. Still carrying on its tradition as a place of asylum during the Cold War, Austria acted the most generously, granting more than two-thirds of the refugees a permanent residency permit. This was

³ See the data in Ther, 2017, pp. 247–248 and 271–272

⁴ See also Ther, 2017, pp. 325–327 and, with regard to Austria, 345–350

linked to the good labour market situation, with the refugees in turn contributing to the economic upswing. Considering only the increase in population caused by the refugees and the resulting additional consumption, this resulted in an increase in Austria's gross domestic product of at least one percent. About 20 years ago, the prerequisite for permanent residency was the proof of a job or corresponding income.

Viewed more abstractly, two different principles played a role in the policy towards refugees from former Yugoslavia: their reception was based on the enhanced normativism and humanitarianism that emerged during the Cold War and was further intensified by the revolutions of 1989. In contrast, the permanent right of residence and integration were affected by utilitarian and pragmatic motives. The question of how to align normativism and utilitarianism is a difficult one that can lead to ambiguous answers. For democratic legitimisation, it is important that the reception and integration of refugees be based on a social consensus, otherwise this can lead to counter-reactions.

From a historical point of view, it is important to warn against exclusive utilitarianism, since regulating the reception of refugees and other migrants solely based on their potential benefit to the host society can, as it did in the 1930s in the US or in France, result in refugees whose lives are threatened being flatly dismissed. The consequences of the policy of that time are well known: many Jews died in the Shoah because they had no chance of escaping to countries that were willing to accept them. After the Second World War, this failure led to greater consideration of humanitarian points of view. Ultimately, the Geneva Refugee Convention, which can be regarded as an extension of the UN Charter on Human Rights for a specific target group, goes back to this normative change.

However, pure normativism, which has shaped the refugee policy of the West since the late seventies, also has drawbacks. Political norms can change and their proponents in democracies can be voted out. Especially in bad economic times, the admission of larger refugee groups is politically contestable and cannot be conveyed without further justification. Moreover, lasting integration requires a deeper consensus than does short- and medium-term emergency aid, as was provided in autumn 2015 within the framework of the so-called "welcome culture".

A utilitarian argument that can be deduced from history is that refugees have almost always increased the prosperity of the host countries (and one must add here that their flight posed at least as much of a loss for the countries of origin). However, this is a rational, predominantly cognitive argument, which, given the emotional charge of the debates on refugees since 2015, has a limited outreach. It is therefore all the more necessary to counter the fears of refugees (and migrant workers) that have been deliberately stirred up by right-wing populists and nationalists. This should be done as one of the pillars of the EU, not least with regard to human rights. If the Geneva Convention or refugee rights are massively curtailed, as they are in Hungary and some other EU Member States, then in the long term this will have consequences for overall human and civil rights in Europe.

Another question is where to best help refugees, whether in Western countries or in close proximity to the conflict areas. Undoubtedly more can be achieved in the latter with significantly fewer resources, because the cost of living and wages are much lower. In their much-discussed book on Western and German refugee policy, Betts and Collier (2017) have argued that more should be done for refugees in the countries surrounding

Syria and other conflict areas. As a second argument, the refugee specialists from Oxford University have posited that integration would be easier there due to the greater linguistic and cultural proximity. The first argument can be easily substantiated with figures, for example, when comparing the costs of accommodation in Germany with those in Jordan and Lebanon. The second argument does not always carry: if this were the case, the Palestinians in neighbouring countries to Israel should have been well-integrated by now. Cultural proximity is a construct that is created or undermined by political elites and in some countries even openly combatted.

Moreover, experiences ahead of the great exodus to the EU make one sceptical about how far the first argument can carry. The EU states and other international donors were only prepared to make higher payments to the UNHCR, the International Organization for Migration (IOM) and other refugee organisations when the refugees were, so to speak, on their doorstep. Since then, the refugee camps in Jordan and Lebanon have been supported in such a way that the food supply there functions reasonably well, which still does not mean that the refugees there have work and longer-term prospects. In Yemen, where the civilian population is suffering from hunger and cholera epidemics, the conditions are still unbearable, in part probably because the refugees from this civil war country cannot reach the EU.

In European refugee policy, therefore, the principle “out of sight, out of mind” still seems to apply. If the Visegrad states are already rejecting the admission of refugees and a common European refugee quota (which, as shown, is only a European variant of the international resettlements), then they would at least have to become much more active in the conflict areas of the Middle East. However, refugee aid on the ground should not be limited to emergency care; it should include job creation, the construction of schools and other measures to ensure that refugees have a long-term perspective. Would such a division of tasks be one way of achieving a common refugee policy in the EU? The authors of this volume were asked to write their texts with a view to the Austrian EU Council presidency, so perhaps this argument might have some political relevance, especially in Austria. The fact that it is insufficient to dismiss refugees or to build walls and fences, is undeniable, and is shown by the experiences in Hungary, where refugees from the Middle East still slip through or around the fence at the borders with Serbia and Croatia.

A distribution of burdens is also necessary with regard to the southern EU Member States. For many years, Greece and Italy have been much more strongly affected by flight and irregular labour migration than the EU's without external boundaries. But according to the Dublin Agreements, the countries of first arrival are responsible for the initial reception and implementation of asylum procedures. The EU has created a compensation mechanism for this: the other Member States are supposed to admit resettled refugees from the initial countries of reception. Hungary and the other Visegrad countries reject this redistribution and EU refugee quotas, perceiving them as a Brussels dictate and interference with their national sovereignty.

However, despite all understanding for this attitude – the post-communist countries regained their full sovereignty only after 1989 – should one really give up the principle of international transfer and resettlement at the European level? This and the fundamental idea of universal human rights and the refugee rights derived from them and enshrined in the Geneva Convention constituted a basis for common values during the

Cold War amongst those states which were summed up until 2016 as “the West” or “Europe”. It is doubtful whether this West, after the annus horribilis in which Donald Trump was elected president and 52 percent of the British voted for Brexit, still exists as it did after the annus mirabilis of 1989.

However, the EU still exists and, with the admission of 50,000 particularly vulnerable people in April 2018, has shown that it is unwilling to abandon its traditional values because of an ultimately manageable “refugee crisis”. This is also in the economic self-interest of Austria and other small- and medium-sized Member States, who would otherwise be confronted with border controls which inhibit trade and tourism (e.g. if Germany indeed decides to control and send back refugees already at the border, they would need to be fortified and controlled like before the conclusion of the Schengen Treaty). The Austrian government therefore stands at a crossroads during its EU Council presidency. It can either continue to use the topic of refugees by example of Viktor Orbán to set a tone for domestic politics and perhaps win elections or, in a balancing of utilitarian and normative arguments and with a view beyond the borders of the EU, contribute to a common European refugee policy. More of a vision of the future is not necessary at present in the minefield of refugee policy. —

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The necessary overcoming of strategic speechlessness

The momentum of a grand strategy

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WERNER WEIDENFELD

Europe needs to take its future into its own hands. In the meantime, this self-evident fact has virtually become a historical drama (Weidenfeld, 2017). This is ensured by tectonic shifts in the world political power architecture – from the transatlantic eruptions to the profound transformations in the Arab world to the shifts in Asia. Then there are the rifts on the European continent that cannot be overlooked (Krastev, 2017), between East and West, when it comes to migration; between North and South, when it comes to the development of the eurozone. The many problems cannot be solved by situational crisis management, as has been attempted in recent years. It requires a great strategic concept for the future (Weidenfeld, 2014).

STATUS QUO: Trust erodes, mistrust grows, alienation dominates. Some determine a turn of events in the party system, others announce that “everything will be different.” Earlier points of orientation lose their stability – from the USA to the European Union. Intriguing polarisations grip societies. It is easy to persuade with populist simplifications. The age of alienation has begun (Krastev, 2017).

CULTURAL EROSION

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Concerns and fears dominate the social image. Terrorist attacks have become the experience of the everyday. Europe is under pressure. Embarrassing political helplessness is now defined as post-factual age. How can these phenomena be explained? What constitutes this epoch, which appears as a historic turning point? The party state of 20 years ago no longer exists – nor does that media landscape or that civil society.

The core of the process is ascertainable: each person and each society has to permanently filter and sort out the virtually infinite variety of incoming information. This is particularly true in times of a dramatic increase in complexity. One thinks of globalisation and digitisation, of technological advances and demographic change – the need for order is gigantic. History and politics usually provide an orientation of knowledge that places the individual data in understandable contexts. In times of East-West conflict this great world-political power structure of global antagonism was a solid point of orientation. As this era came to an end, the demand for orientation was more directly and more heavily focused towards domestic players. In former times, orientation knowledge was available. But now? Political artistry largely preoccupies the antennae of political attention with adept power machinations. Apparently, one grows used to politics devoid of depth or a great strategic concept.

And then it becomes clear that the last alternative provider of political orientation is failing: the USA (Weidenfeld, 1996). For many decades, America was the point of orientation for many Europeans, a positive model or a negative antipode. One wanted to imitate the role or go against it with anti-American sentiment. The global hegemony of surveillance, the power mogul driven to paranoia by terrorism lost its distinctive character. Consequently, the depth dimension of transatlantic relations is being eroded at increasing speed.

This gap could be filled by Europe – as a strategic concept, as a normative horizon, as a narrative of the past and future. But so far, the topic of Europe leaves this demand unsatisfied with its lack of a bigger picture. The intermittent flightiness in the political and media debate on mega-topics is accompanied by the usual power games. If there is no clarification of the basic questions, then one wants to at least register point profits in the competition of the parties or candidates. The traditional parties slyly practise their experienced games. Taunting is part of the business, as well as pokering for points. Sledging matches are carried out. Those looking for illustrative material for the media headline “Age of Confusion” will find plenty.

The finding is that the situation of Europe is confused and unsettled; it is excited and fluid. Europe is strategically speechless.

QUESTIONS OF IDENTITY

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Where is Europe situated? What constitutes its identity (Schmale, 2008)? Where do its borders lie? What is the scope for Europeans’ public self-perception? For some time now, the answers to these questions are only met with helplessness. Political-intellectual shouts land in a dismayed emptiness. Where and how to find the filter for organising the incoming information of Europeans? The construction site of the Continent needs order to be able to gain orientation for the future.

Let’s bear in mind how Europe deposited the various layers of identity (Böttcher, 2014). From the beginning, Europe was not only a geographical structure but a combi-

nation of territorial ideas and cultural values, of historical perceptions and normative elements. Europe's importance was shaped more than 2,500 years ago in ancient Greece. The word comes from ancient Greek mythology: Europa was the beautiful bride of the mighty god Zeus. When Greek thinkers spoke of Europe, they thought of their civilisation, their land surrounded by barbaric, uncultivated peoples. Greek culture was considered the centrepiece of what the idea of Europe represented. In this civilisation full of philosophical intellect the Greeks established a definition of public affairs as a responsibility entirely based on the responsibility of the citizen. Every free citizen was supposed to voluntarily contribute to the public policy of the polis. This was the first foundation of European thought. Then the mighty Roman Empire displayed its influence: effective administration, the idea of a legal system. From there Europe inherited its rule of law.

With each new discovery and conquest, the normative conditions shifted, extending Europe's borders beyond the small Greek peninsula with its advanced culture to the north, south and west. Europeans have always questioned the political borders of the Continent. To this day, the Continent is faced with the problem of an indeterminate border to the east. The religious foundations also changed. For centuries Europe could be found where Latin worship was celebrated. Later the idea of enlightenment became a key experience for Europe. The forces of enlightenment separated church and state. The secular state became the standard of political order.

And then the spiritual horizon of music, painting and poetry appears. Art is a vital identity founder. Mozart and Beethoven, Bach and Schubert send greetings from Europe, as well as Picasso, Rubens and Richter or Goethe and Schiller. The bond of art is the intermediary for Europe, the spiritual Europe a part of the European soul. The search for essence does not require much effort. Europe becomes evident in the daily art experience.

None of these developments has completely disappeared from the European self-image: the combination of territorial expansion and cultural values, the question of borders, the legacy of religion in a secular world, migration and minority conflicts, as well as Europe's history as a history of wars.

Anyone who has travelled from Europe to China, India or the USA immediately learns that he or she comes from a culturally highly specific continent. In the face of globalisation the culturally specific profile is immediately tangible – from public responsibility for the polis, constitutional bureaucracy, religiously based humanity, the Enlightenment, the secular state with its democratic legitimacy. And just as quickly one senses the great spheres of action of the European future, which result from these great heirlooms: the updating of legitimacy, the guarantee of transparency, the clarification of leadership structures, the revival of democratic debates on European political alternatives, and the co-creation of new world politics. The formerly bipolar world politics has meanwhile become multipolar – USA, China, India, Brazil, Russia and the European Union. And in the major conflicts, from the Middle East to Korea, the world power Europe must actively participate in conflict settlement. It seems interesting that with every major challenge, every major crisis – see Brexit – the approval of Europe grows.

The alternatives to such a concept can at times also be currently observed. In almost every member state there is an escape movement from the complexity of the situation to the simple formula of the populist kind. The core problem to be solved is clear: it is the discrepancy between internationalised problem structure, European decision-making

and national legitimacy structure. Incomprehensibility and seeming inexplicability then characterises the age of confusion. The practical-operational consequence is obvious: Europe's historical fundamentally grounded orientation must be elucidated, explained and conveyed.

Europe will not gain new vitality from bureaucratic mammoth agreements. Today Europe can develop a new ethos as a saving answer to globalisation (Turek, 2017). The overcoming of a second phase of Eurosclerosis can only reveal who masters the great art of interpretation. Europe has the potential to become a world power. However, this potential must be properly organised and fulfilled through a spirit of European identity.

Identity is created through a shared range of experience. The possibilities are there. The density of integrative connections has increased drastically. The fateful push of being dependent on one another must be answered politically: Europe must understand itself as a strategy community (Weidenfeld, 2014). Ways of concretely doing this are tangible on a daily basis: from the guarantee of security to the organisation of migration to the political design of the monetary union. This is how Europe receives a face. And the starting question, What is European?, is answered, as it were, by itself in the clarity of the strategic profile.

MEGA-TOPICS Strange that the necessity and opportunity to form precise perspectives on strategy are not being used. Calls for a “United States of Europe” (Simms/Zeeb, 2016) or a “Republic of Europe” (Guérot, 2016) do not meet this need – on the contrary: such demands do not provide a precise strategy and, rather, provoke resistance against such diffuse general images. The mega-topics to be tackled in the next five to ten years are obvious to any sensitive observer.

The political scope of the Economic and Monetary Union demands a greater capacity to act. In addition, the so-called “European semester”, with its budgetary reporting obligations, will now be equipped with options to intervene in the future. Tax and socio-political competences are also part of this instrument. The proposal of a European monetary fund fits systematically into this picture.

In addition, the security of Europe must be reorganised, and in an effective manner. From the European Army to the command structure of a headquarters, a common military procurement policy, the effective organisation of Europe's external borders, Euro-cybersecurity and the transnational organisation of inner-European security.

All this can only be realised in “differentiated integration” (Stratenschulte, 2015). Not every new strategic departure can or should wait for a “Europe of the 27”, but it is important to differentiate between the respective cooperative circles. So Europe needs goals, perspectives, orientation. It has to build a strategic culture. Anyone who wants to answer positively to the great turning point in world politics needs a different political-cultural approach to Europe.

Let us keep in mind that in globalisation there is the idea for a new, powerful justification of integration. A departure from the second Eurosclerosis can only convey who dominates the art of great insight. A powerful political reality that seeks its identity needs a place of representative self-awareness. In the classical doctrine of representative democracy this place is the parliament. The European Parliament and the national parliaments are currently, however, far from being the place for the self-perception of a society with its future visions and hopes, with its fears and conflicts.

WHAT TO DO?

There is a historical example from which suggestions for today and tomorrow can be derived (Gehler, 2017). At the end of the 1970s and beginning of the 1980s one could observe a mood in Europe that was very similar to today's atmosphere. With its negative economic data Europe appeared to be in an almost unstoppable state of decline. Whoever was interested in the future was supposed to look to Asia. "Eurosclerosis" had become a key word to describe the situation. At that time a few leading European politicians wanted to save the continent – Mitterrand and Kohl, in particular. They realised that they needed an additional strategic head, and found him in Jacques Delors. Delors made it clear to his clients that, firstly, the problem had to be defined in order to think in detail about the strategic answer. In the end, he offered a major, identity-raising challenge: the completion of the internal market coupled with an agenda of almost 300 pieces of legislation, with a concrete timetable and a comprehensive communication strategy. The consequence is known: the great crisis mutated into a success story.

How can this experience be transferred into the highly problematic present? First of all, it is important to gain clarity in view of the difficulties – from the eurozone crisis to the refugee drama to the threat of terrorism. And then it is necessary to define a strategic answer precisely to each problem and translate this into an overall perspective of the European future. When under pressure, things can be learned and, finally, can lead to a solution.

It is, then, not about pipe dreams of a new historic epoch. It is about the design of interdependence. The density of the interweaving of political, economic, cultural, digital issues has long since been realised beyond the traditional boundaries of the national and regional. An immense transfer of power has already been completed. Either you will be overrun, incapacitated, even strangled – or you will create adequate scope for action, such as an effective European Union with strong leadership. This requires not only the normative priming; it also requires the strategic heads.

By combining these various dimensions, successful, effective, democratically vital policies can be created. This is how Europe can realise its world political responsibility, its global self-assertion. It is about the concept of a positive, inspiring vision of Europe's own future. This defines our task for the Europe of tomorrow: the narrative of future meaning has to be worked out. It must be interpreted and explained. In other words, the soul of Europe must be found again.

KEY TO POLITICAL

POWER ARCHITECTURE

THREE MAIN PROBLEMS ARE
OBVIOUS IN THIS PROCESS:

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beyond traditional control. Core European questions are decided in confidentiality behind closed doors, and Europeans have no choice but to wait for nightly press conferences to find out the results. In addition, more subtle observers can observe the areas of tension between the president of the European Council, the president of the Council of Ministers, the president of the EU Commission, the president of the European Council, the

Problem number 1:

The question of leadership is unclear. Who will take responsibility for it? The European Parliament criticises the "summit-itis" of governments. All decisions should be shifted to summits which would be be-

president of the European Parliament, the president of the European Central Bank and the High Representative of the Union for Foreign Affairs and Security Policy. This is the long list of leaders. But who really has the leadership responsibility for which task? Nobody can answer this question at this time.

Problem number 2:

With the unclear leadership question, a second problem category is closely intertwined: the need to create transparency. The European Union is undoubtedly one of the most particularly untransparent phenomena political life has ever dealt with. This applies not least to the current principles of the Lisbon Treaty. Untransparency causes distrust and alienation. Against this background, the warning of the “incapacitation of Europe” is often expressed.

Problem number 3:

All this is grounded in the elementary problem category of all political systems: the question of legitimacy. The alienation of the people with respect to the European administration is unmistakable. They do not feel adequately oriented by this “monster of power”. They do not understand the decision-making process. They do not feel a part of it. Who, then, is legitimised in this regard to make such far-reaching and profound decisions?

Of course, the European Parliament has come out on top during the past 20 years in the struggle for more competences. Nevertheless, the citizens do not regard the legitimacy question to be answered. Too far away, too abstract, not tangible enough – this is how the European Parliament appears. Against this backdrop, if one hears the call for “more Europe”, one must be confused. Similarly, one would be confused if such complicated facts were reduced to the controversy over “more” or “less” Europe. The answer has to be approached much differently.

In all tasks in which a single state is overwhelmed in domestic, foreign and security policy, Europe must also really be able to act. This is not an untransparent, barely legitimated Europe with unclear leadership structures. The deficit of agency, where we really and definitely need Europe, is a defect that must be overcome.

To cap it all off, the European Council should convene a high-level strategy council with the European Parliament. It should work on restoring a clear view of the proper allocation of competences. The agenda of this strategy council should include a second task: to work out a concept that creates a Europe that is close to the citizen. To explain Europe in detail, to create Europe as a place of participation – that would be the solution. This task for the future justifies every effort of imagination, creativity and methodical rationality. With a concept of a Europe for the citizens, Europe’s policy must eliminate the explanatory deficit. A lot of time and energy must be focused on the explanation. Whoever gains the authority to interpret also wins the future. A creative, strategically-minded generation of politicians could achieve a “Europe of citizens”. It only requires the corresponding strategic leadership, and the citizen-centred Europe emerges. —

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For a sovereign Europe

FRANZ FISCHLER

CURRENT STANDING: CHALLENGES FOR EUROPE?

The year 2050 is a magical date, a popular projection screen, reflecting the longings, hopes and fears of people. What will the world look like? How much will global warming and digitisation have changed our lives? Will it be better for our children and grandchildren? How many immigrants will be living in Europe? Will it be peaceful?

Despite all the uncertainties inherent in the future prognoses, from today's perspective two aspects can be predicted without a doubt. First, globalisation will have massively shaped the societies of the year 2050. And second, the world population will have exceeded nine billion.

What role will Europe play in this? How will the European Union have evolved? Can Europe fill the global political gap that is widening as America pulls away? It is clear that new foreign policy challenges and the shift to sustainable development will reshape the European Union. Europe will be even more strongly perceived as a place of yearning for people from all over the world – which is why it is all the more important to engage Europe in political terms in order to be able to speak out with sovereignty and in a strong and voice.

How will global power relationships look in 2050? What role will the United States, Russia, China and India play? In any case, Europe must strive to continue to be among the global players. Europe must be self-confident and able to act in order to defend its liberal way of life in an increasingly autocratic world. Europe must be the globally respected human rights lawyer. There is thus an urgent need to continue to develop the European Union so that internally it runs smoothly in the year 2050 so as to be able to concentrate on the global whole. Europeans want a Europe that protects them. But Europe can only protect its citizens if it is sovereign.

Therefore, if Europe wants to continue its peace project, it is high time to think about new ways of dealing with the growing internal conflicts and the external challenges. How can European cooperation be made successful again? There are enough proposals on the table, and the year 2017 brought fresh momentum into the debate. In spring Commission President Jean-Claude Juncker presented his White Paper on the future of Europe (European Commission, 2017). It identifies five possible scenarios to move Europe forward. The first two scenarios are quite pointless, because “carrying on” as before ignores the fact that Europe is in several crises right now; a mere “focus on the single market” the task of the political union would amount to the same, and the EU states would, above all, sooner or later be marginalised in foreign and security policy. Against the third alternative, “those who want more do more”, which ultimately results in a Europe à la carte, predominantly the new Member States are blowing up a storm, because they fear that they will only play a peripheral role in the truest sense of the word. So the scenario “doing less more efficiently” remains. This option is attractive for two reasons: properly applied, it could lead to a certain reduction in bureaucracy and, above all, what the federal states love, it gives the regions more responsibilities. More joint action, the goal of the fifth scenario, would definitely be the most ambitious way, but currently lacks realpolitik options.

It is interesting that, in his speech to the European Parliament on the state of the Union, Jean-Claude Juncker brought his own, sixth, option into play, an ambitious approach that would seek “much more joint action”. This scenario, however, is not seen as having good chances of being realised, which shows that – apart from a few intellectuals – the politicians currently acting seem to have little ambition to advance the consolidation of Europe.

In May 2017, with Emmanuel Macron, a clear pro-European politician emerged as winner of the French presidential elections. Barely four months later at the Sorbonne, he gave his first major European policy speech (Macron, 2017) as the new president of France. The presentation shows that, in Emmanuel Macron, France has a president who puts Europe at the centre of his politics. He called for a common defence budget, a euro budget, a euro finance minister and a parliament for the eurozone. His reform plans are much more concrete than Juncker’s proposals, but his vision follows on from Juncker’s proposal. This new French commitment of Macron is now being rewarded with the Charlemagne Prize 2018. For the time being, we must wait for Germany’s answer until the new government can revive the Franco-German axis.

HOW WILL THIS CONTINUE?

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How will this continue? The most likely scenario is that none of the five Juncker options comes to fruition, not even the vision of Macron, but that, depending on the policy field, a separate path is taken. For different standards or in agricultural and structural policy, less regulation by the EU makes sense. With regard to refugee and development policy and many other policies there is a great risk that, unfortunately, a “carrying on as before” will prevail and in the foreign and security policies as well as the euro, an à la carte option will most likely come into effect in Europe. However, a new enthusiasm for Europe will not trigger that.

It is important that decisions are made soon. If not all Member States can or want to join from the beginning, this is not a particular issue. The original treaties already provided that the obligations of the Member States need not be identical.

In order to make the European Union fit for the challenges of 2050, it must once again find its way back to the very core of all policies: to fight for more justice, better handling of conflicts, for sustainable solutions and for promising forms of cooperation. Or as Ivan Krastev (2017) put in his book *After Europe*: “Europeans should develop a willingness to compromise and a will to reconcile” (von Thadden, 2017). The basis for this in the form of the European Charter of Fundamental Rights has existed for a long time. It is still the best and most far-reaching charter of its kind in the world. However, we also have to “risk more democracy”, as Ferdinand von Schirach called for at the opening of the Salzburg Festival in summer 2017. His plea for representative democracy should remind us that vibrant democracy and flirting with a yes-no democracy, as the populists propagate, simply do not go together. That representatives of populism declare themselves as the people and declare their lust for power as the power emanating from the people is both a distortion of facts and also dangerous. On the other hand, we have allowed growing sections of the population to distance themselves *de facto* from the democratic decision-making processes – to a certain extent, have withdrawn from society. One should not be surprised at this, bearing in mind that messages to the public today are often either given in a language that only few people can understand, or consist of empty slogans, preferably distributed through social media. No wonder that, in the meantime, 20 to 30 percent of the population in western European democracies now do not want to have anything more to do with politics, but also increasingly reject the elected representatives.

The most important thing in this situation is to seek dialogue, to discuss new ideas without bias, and, above all, to act. It is not about reinventing the EU, but giving credible answers to the most urgent European questions on the basis of existing treaties.

In order for this to succeed, two myths must be dispensed with: First, with the claim that few changes would be possible without a change to the treaty, and second, with the myth that a Europe of different tempos would be incompatible with the European project. What is not possible, however, are solutions à la a fiscal union, where individual states not only demand opting out, but prevent a common decision from the outset. Such relapses into intergovernmentalism should be prevented as far as possible.

This will only succeed, however, if we return to the community method – as Jean-Claude Juncker called for in his first appearance before the European Parliament. Already in the light of his experiences with the population issue, Jean Monnet developed Euro-

pean integration as a series of concrete projects. Instead of philosophising about theoretical governance models, at least the most important problems, the solving of which the European people hope for, must be tackled. However, the European method also includes accepting that sovereignty is exercised jointly by EU institutions and not via the kind of compromise that is occurring more and more in the European Council.

PRIORITY FIELDS OF ACTION FOR THE FUTURE OF THE EU

What are the absolute priorities for getting the European cart back on track and establishing the EU as strong and vital by 2050?

— Firstly, a functioning eurozone. While the ECB has done a good job of crisis management, ministers have allowed the above-mentioned intergovernmentalism. This needs to be corrected. This will succeed, if the Eurogroup becomes a European institution that is responsible for all aspects of economic and monetary union. After all, the Economic and Monetary Union (EMU) only affects these countries. At the same time however, this also means that the door to the EMU must remain open to all Member States. It is hoped that the Franco-German axis will pump new energy into the further development of the EMU on the basis of the orientation decisions of the EU Commission.

Secondly, the protection of the people needs to be taken better into account. The growing number of terrorist attacks and attempted attacks calls for better strategies for cooperation of intelligence services, the police and the judiciary. Control of the external border can no longer be left to the individual Member States, and people smuggling must be systematically combated. In the long run, the EU cannot stay away from the need to take part in conflict resolution, but must participate much more in coalitions to eradicate terrorism. And, finally, for anyone in the EU and for those who want to come to the EU, it must be clear that the catalogue of fundamental rights must be respected. Similarly, the single market must be protected, and unfair and WTO-averse trade practices tackled.

Thirdly: In migration policy it is important to make a clear distinction between security refugees and economic refugees, and to stop illegal migration.

Fourthly, to stimulate growth and make the European Union an “innovation leader” by 2050, the Union must become more innovative. That means, in research and development, in new technologies and in the financing of new business models, investments must be made much more important than simply sticking to the traditional structural programmes. In this way, young people have a better chance, especially as they are generally more competent to deal with future technologies and digitisation than the older generation.

Financing new growth must also be treated differently in budgets to the non-productive budget spending.

But all this does not mean, fifthly, once again one-sidedly hinging on growth at any cost, and ignoring the resulting collateral damage. Sustainability is tailor-made for Europe. We have to prove, however, with concrete projects what it means to create a resilient balance between economy, ecology and social responsibility. There are failures here, because some Member States and industries have shelved well-known strategies instead of implementing them.

Especially in times of what seems to be a complete paradigm shift in the USA and a growing number of autocratic systems in all parts of the world, the voice of Europe is called for. At the same time, the urgency to tackle climate change and its consequences is growing dramatically and we must, in any case, be more resource-efficient. Similarly, for two-thirds of the world, development opportunities need to be rapidly and significantly improved.

Europe must promote multilateralism and stand against protectionism. In order to be credible, it must also reduce its own trade barriers and not engage in ideological, anti-liberal games.

All these projects have several things in common:

- they are all very complex
- none of them can be solved nationally
- they all need more time than the policy makers who think in legislative terms want to admit
- none of these problems can be solved sectorally or within a bubble, “out of the box” thinking is required
- each of these issues can only be solved if we focus fully on innovative thinking and the use of new technical development, especially digitisation.

It is precisely in the peculiarities of the problems to be solved that the superiority of the European versus national solutions becomes particularly apparent.

A STRONG & UNITED EU IS THE SOLUTION

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It is therefore not only feasible to strengthen the EU, it is also the most profitable political investment for each and every one of us. Apart from that, a strong European community is the prerequisite for the EU’s finally being able to fulfil its long-held claim of being a major player in shaping globalisation and internationally promoting European values.

The United Nations’ Sustainable Development Goals and the Paris Climate Agreement also point in the same direction. Once again, extremely ambitious goals were formulated without first knowing what the technical solutions should look like. Yet it is precisely this level of ambition that is intended to incite researchers and innovators, the business angels and pioneers. The skeptics should take this to heart: the frontrunners of development bear a higher risk (which must partially be covered by the public sector), but they will also draw the most benefit from the development. We must therefore not allow the gate, which has been opened by these new international treaties, to fall shut again with the first wind that blows up. Only through the timely implementation of both of these agreements will it be possible to create the transformation into a resource-efficient economy while at the same time providing new employment impulses. Only through the implementation of both of these agreements will it be possible to eradicate extreme poverty, hunger and disease and to unlock the enormous potential of Africa, Oceania, South America, North and Southeast Asia and to initiate global prosperity. Who, if not Europe, should take the lead? Who else but Europe has a better value base to take on leadership here? An end must therefore be put to the endless hesitation and

procrastination and with the usual tactics of “let me have my cake and eat it, too.”

However, the demand for more European initiative must just as much be asked of security policy. Development cooperation and economic stimulation are essential components of a modern security strategy, but are not enough on their own. Greater European involvement in external security issues is needed. This is, first and foremost, in Europe’s own interests, especially since the greater part of all conflicts and human tragedies is taking place on our doorstep.

This requires global cooperation. In order to increase the chances of success, the relevant international institutions such as the UN, with its sub-organisations, NATO, WTO – in short, all Bretton Woods institutions – also need a complete makeover after more than 70 years. This could also then help Europe speak with a voice.

European cohesion – a keyword in the EU since the expansion to the South – will continue to be put to the test in future. The structural and regional policies of the Community have been too weak from the outset to bring the poorer regions to the average level of prosperity. And with the introduction of the euro and the lack of opportunity to devalue individual currencies, the economic divergence between northern and southern Europe has again increased. An end to this trend is currently not in sight.

In more and more Member States the message of European solidarity is fading. How else can it be explained that the states do not seek common ground but try to sound out the pain threshold of the other Member States? In addition, the leaders have begun to simply suspend or avoid conflicts by forming a “coalition of the willing”.

To a good extent, of course, this is also a consequence of resurgent nationalism. In times of growing unemployment and lack of prospects the knee-jerk recourse to national superiority fiction still seems to be tempting to keep voters happy.

It is to be expected that a strong Franco-German axis can bring Europe back to the lead, and that the European Commission, which is supposed to be the actual initiator of new political projects in Europe, will be included in this tandem.

Now the ball lies in court of the so-called “Leaders’ Agenda” – in the decisions on reform to be decided by June 2019. Hard decisions are on the agenda, or the global development will take place without Europe. —

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Rep
Euro
?

Republic of Europe?

*From the union of national states
to a European democracy*

ULRIKE GUÉROT

In his essay *After Europe* the political intellectual Ivan Krastev raises the question of whether we are experiencing a comparable “disintegration moment”, as was once the case with the multiethnic Habsburg empire or the Soviet Union. Referring to Joseph Roth’s novel *Radetzky March*, he notes that when political and cultural artefacts disappear, they will do so abruptly. He aptly concludes: “The end ... is both inevitable and inadvertent.” The end is the natural outcome of structural deficiencies and an unintended consequence of a sleepwalking process, a special moment with its own dynamic (see Krastev, 2017). It is legitimate to ask if we are moving towards such an epoch of change and if – as Stefan Zweig once wrote – our contemporaries are not able to recognise the historical moment that they currently find themselves in.

A SOBER LOOK AT EUROPE TODAY

The EU has, in fact, fallen into a deep depression. Last year it enjoyed the confidence of only around 47 percent of all Europeans, even if the numbers rise slightly in the face of the Brexit debacle, which comes along like a grub-b by European *reality show*; interestingly, also in countries such as Hungary. But for such a large political project, even for the reestablishment of Europe *à la Emmanuel Macron*, such low support from the public in many parts of the EU is clearly not enough. The great erosion of the European idea has clearly left deep marks on the Continent. The party systems in most EU Member States have collapsed, not least in the wake of the euro crisis; the European social democrats have disappeared; the European left is deeply divided in all EU Member States and the political vacuum is filled by nationalist parties that have come together in a kind of “identitary international”, from Geert Wilders to

Marine Le Pen, the Polish Law and Justice (PiS) party to the Hungarian Fidesz party, the True Finns or the Austrian FPÖ (Freedom Party). These parties are all well organised, have a large electorate behind them and clearly also enough financial sponsors. These national parties do not pursue a social policy everywhere but often, e.g. in Poland, and have therefore become a threat to left-wing parties in particular. Where the left was not able to hold its arguments about the social issue in the public arena, the arguments moved to the right.

On the one hand, the right-left polarisation has increased; on the other, there is a bourgeois middle that is resisting this push of nationalism and populism. Behind Macron's successful election victory and his slogan "Ni Droite, ni Gauche" is the same structural crisis of political representation that made it difficult for Germany to form a sensible coalition at the turn of 2017/2018.

If the European idea is to be saved, clear and ambitious European goals must now be pursued that go far beyond the scenarios for the future of the EU that the Commission presented to the public in March 2017. From the banking crisis to the euro crisis, from austerity to refugee policies, from the Catalan independence referendum to the next showdown of Brexit negotiations, the EU has not come out of crisis mode for years. The outcome of the elections in Italy in March 2018 represents a major challenge, not only for the country itself but also for Europe. In the Czech Republic a prime minister has been elected who has long written off the EU.

For a long time, the word Weimarisation haunted Europe's gazettes, and a look at Poland or Hungary suffices to capture analogies of the political situation with the inter-war years. The participation of the FPÖ in the new Austrian government and, above all, its access to security-relevant ministries of the interior and defence also perplex international observers. The current incantation of civil society cannot belie the fact that a creeping militarisation of European societies has long been taking place. Everywhere, recruits are sought and defence budgets are increased. The surveillance state is also thriving on the breeding grounds of fear and security discourses. For nothing, the EU has spent so much money in recent years for "surveillance", anti-terror measures or even the European border-protection agency Frontex. To be in favour of "more Frontex" today equals a European commitment. Subliminally, the narrative shifts from the EU as a peace union to a security union. Where other policies in the EU have long ceased to function or have never functioned, e.g. the refugee policy, the motive of security is still apt to create European unity or at least to credibly pretend.

INAPPROPRIATE COMPARISONS: EUROPE BETWEEN WEIMARISATION & POST DEMOCRACY

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"Every epoch is immediate to God", is what the famous German historian Leopold von Ranke said in a much-cited lecture from 25 September 1854 (see Ranke, 1971, p. 60). In this respect, European history from 1914 until 1945 is not repeating itself. Nothing from that time

can be seriously compared with today's situation in the EU – neither the social nor the economic or political structure, nor the historical or global context. And yet there are parallels with the first half of the 20th century: a rapid technological acceleration (today we have the Internet and robots, at that time there were telegraph poles and aircraft) and

a growing number of losers of modernisation (back then the mass of agricultural workers and artisans repressed by the industry, today the unqualified workers living in precarious conditions) and not least the “crisis of masculinity” – what at the time was the first disassembly of patriarchy by women’s suffrage is today the demand for 40 percent women on executive boards (see Blom, 2009). “Male” is now the second-most popular factor in attracting right-wing populist parties after “education” (see Foa/Mounk, 2017). In his book *Male Fantasies*, in the 1970s Klaus Theweleit already vividly described that nationalism, militarism and fascism were not least a reaction to the first women’s movement (see Theweleit, 1977). Even today young men are primarily concerned about security and a retreat to nationalism, coupled with the desire for strong leadership. So it is not surprising that in Europe, according to some studies, the number of those who are not convinced that democracy is the best form of government is on the rise.

The fact is that Europe is again undergoing a modernisation push similar to the one of around one hundred years ago, and the question is whether European societies will solve this one together – through a European social contract – or, once more, against each other. The path dependency of the EU produces systemically national solutions through the European Council. In this respect, it is crucial to break the power of the Council in the political system of the EU and, instead, to enhance the sovereignty of the citizens as the actual subject of policy-making in the EU. In other words, the European integration of states was yesterday; now it is about European democracy or a European union of the citizens, promised in the Treaty of Maastricht in 1992 but never honoured. And democracy essentially means the parliamentarisation and separation of powers. The EU, in its current form, is a long way from both.

The cover picture chosen by the most well-known German philosopher, Jürgen Habermas, for his latest book on Europe, *The Lure of Technocracy* (Habermas, 2013), has twelve stars attached to it like a marionette. The existing EU system is, then, the epitome of “post-democracy”, as Colin Crouch put it: “You can always vote but you have no choice” (Crouch, 2008). Above all, this is aimed at the technocratisation of politics, which shows itself to be particularly good at the European level. Also the non-word of the year 2010, “without an alternative”, which was used again and again by the German chancellor especially in relation to the European sovereign debt crisis, points in the same direction. The term suggests that there are no alternatives in political decision-making processes from the outset and therefore no need for discussion and argumentation. Following this assumption, democratic decision-making processes, that is to say, the struggle for alternatives, would become obsolete. Even if the EU is not yet a technocracy in the purest sense, the path to a European democracy, in which there is a common vote, is still far off.

This becomes particularly clear in the EU’s inability to enforce the ECJ ruling on the refugee relocation crises vis-à-vis Hungary and Poland. But if the EU cannot enforce any law, is it still a legal community? As a result, more than ever before, in the EU today the central issue is who will decide? In other words: who is the sovereign? The EU does not know or cannot sanction its own ECJ judgments against its Member States. It does not have the legitimate authority in the spirit of Max Weber. That is the fundamental problem of today’s European Union. For this reason, it cannot, in fact, put a stop to the dismantling of democratisation of the national state, such as in Poland or Hungary.

EUROPE & ITS CITIZENS

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The European population knows this. One half of the citizens wants to go back to nationalism; the other half wants a *different* Europe. A part of the civil society, especially young people, is therefore, more and more passion-

ate about renewing old structures.

This raises the question of what we are doing in this Hegelian moment, in which a system is exhausted but at the same time has no power to reform because it is in a populist state of shock. In the 1992 Maastricht Treaty the state and the market were, de facto, decoupled, placing the currency and economy and European tax and social policy in national hands: state, industry and democracy are, therefore, not a stable triangle at European level today but, rather, mutually exclusive. The European economy uses the single market and the common currency, without worrying about redistribution of democracy. In short: European democracy has no economic driver.

The EU is caught up in the “unproductive contradiction” (Ménasse, 2014) that the political project Europe is in the hands of nation-states, but these nation-states cannot shape Europe; or, as the late Ulrich Beck put it: If we want to have a fiscal union, we have to accept the transfer of fiscal sovereignty from national governments to a European organisation. How is this to be achieved? (Beck, 2013). More precisely: the central role of the European Council in the governance system of the EU is systemically opposed to a European solution (see Streeck, 2013; Offe, 2015; Brunkhorst, 2014), for European solutions do not work, because respective “national interests” are invoked and favoured.

SOVEREIGNTY, UNITY, DEMOCRACY

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Thus it was not integration but sovereignty, unity, democracy that were the key words used by Emmanuel Macron in both his Europe speeches in Athens and at the Sorbonne in September 2017. Already in 1964, Walter Hallstein, the first president of the European Commission, said in his famous speech in Rome: “[Europe’s goal] is and remains the overcoming

of the nations and the organization of a post-national Europe” (Hallstein, 1964). Today, at the beginning of the 21st century, it is time to remember this. Europe’s founding idea is also Europe’s future! However, today, it is no longer about “more integration”, as often as it is demanded, but rather about a decidedly different Europe. It is about shaping a European democracy beyond the national States, about embedding the euro in a transnational democracy.

Today Europe is almost completely embedded in the economic and monetary policy. The problem is that political and social integration have not kept pace and are asymmetrical to economic integration. But one market and one currency are the conditions for one European democracy. Functionally, democracy is ultimately institutionalised solidarity. In line with the French sociologist Marcel Mauss, a nation is ultimately nothing other than the “institutionalised solidarity” of a group of individuals who become aware of their economic and social independence, as he writes in *Die Nation oder der Sinn fürs Soziale* (Mauss, [1934] 2017, pp. 32ff.). When it comes to Emmanuel Macron’s proposals for a European finance minister or a euro budget, ultimately, Europe is today struggling with nothing more than its institutionalised solidarity, in other words, literally, its nation-building.

EUROPE & ITS SOCIO-ECONOMIC DIFFERENCES

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The benefits are that the industrial outcome or the economic growth in Europe can hardly be reproduced within national borders. The real socio-economic imbalances in Europe are no longer between the nation-states. Above all, there is a great imbalance between the centre and the periphery and a great imbalance between the urban and rural regions, and that is everywhere in the eurozone – also within Germany or France (see Ballas et al., 2014). Within the eurozone there are no more “national economies”. A German car, for example, is not “German”: it has leather seats from Italy, tyres from France or screws from Slovenia, but ends up in the German export statistics. Apart from that, economies such as Slovenia are largely dependent on the German automobile industry and are in this sense not an autonomous economy (see Pogátsa, 2009). Only, with institutionalised solidarity the intellectual leap into a common Europe has not yet been made.

What is measured on a national basis, which should no longer be measured on a national basis, is productivity, exports, etc. Basically, it is nonsense to measure the export statistics on a national level within one monetary area. Differences, for example, between Hessen and Brandenburg are also not measured. Equally nonsensical or pointless is the discussion about the necessary state insolvency law within the eurozone, i.e. the possibility for individual countries to leave the monetary union if they can no longer meet their debtor obligations. An example of this is the American financial constitution. Now, it is true that in America individual federal states can go “broke”, such as New York in the 1970s. However, for the entire monetary area in the United States there are uniform government bonds under whose “umbrella” bankruptcy can be settled, precisely not using “market conditions”. Anyone who calls for insolvency law for states within the euro area but at the same time refuses to introduce eurobonds is, de facto, preparing to embark on the exit from the euro and ultimately leaves the insolvency issue to speculative developments. This discussion has recently become a hot topic again with the “position paper” of German coalition negotiations, but shimmering through the evasive formulations is that the political actors in Germany are now realising that, in addition to the above-mentioned “fiscal backstop”, there must be a “monetary backstop” within a monetary union in the long term. This has long been written about in specialist literature (see Collignon, 2017).

“Euroland” must therefore be understood, in short, as an aggregated economy with a national account, otherwise the euro states will be monetarily – and thus its citizens fiscally – in competition: operation within a currency area and a value-added chain with unequal taxes, wages and social rights. But that does not work within *one* political community. If Europe is to be rethought, if it is to become one democracy in the near future, then a price must be paid for it: the general political principal for all citizens of Europe! Civil (legal) equality is, according to Habermas, one of the central foundations for the stabilisation of a democracy. Along this principal, Europe would have to be rethought, or, in other words: legal equality tops nationality.

The previous national political approach of the EU or the eurozone is currently de facto perverting the protective function of the state it has for its citizens: the euro Member States are in a monetary (by bond-ranking and speculation on national debt) and fiscal *race-to-the-bottom* competition, which is held on the backs of the Europeans. But states should actually guarantee equal rights for its citizens, for they are actually respon-

sible for the people and not for the markets. In the euro system, on the other hand, this is exactly the opposite. The euro states are competing for their citizens to guarantee the best possible conditions for “national” industry. Within one and the same national state democracy that would not be possible: from Rügen to Munich in the Federal Republic, despite regional differences, in the end, everyone receives the same unemployment benefit, or Hartz IV. This is exactly the system-stabilising element à la Habermas, or, simply put, the price of democracy, even if the living conditions in Rügen and in Munich are not the same.

THE GENERAL POLITICAL PRINCIPAL OF EQUALITY

– Different civil and social rights in Europe, above all within the eurozone, are precisely the problems paving the way for a transnational European community. It is not about national competition, but in all European states it is about globalisation losers versus globalisation winners, which, however, are not adequately taken into account in the political processes of the European Union.

Thus the influx of populist currents is a predominantly rural phenomenon today – everywhere in Europe. So a rural, social crisis will turn into a European election crisis. Their results can be seen in almost every election in which the share of votes in populist parties in rural regions with high unemployment continually increase. The rural social crisis of today is the European crisis of tomorrow!

However, structural reforms – the EU’s eternal *buzzword* – do not help, because where there is nothing, nothing can be reformed. Of the six billion euros earmarked to combat youth unemployment in 2013, only about 25 million were used because in the rural regions of southern Europe there is no infrastructure, no middle class, and thus also no dual education system for young people. The memory of the fact that economics is, in the first instance, culture and therefore something that has to do with history and geography, as Montesquieu already acknowledged in his book published in 1748, *The Spirit of the Laws*, is completely lacking in today’s consideration of the crisis (see de Secondat, 1965). The consequences are inappropriate political decisions that cause disruption to EU rural life instead of preserving decentralised environments where organic farming is possible.

Applying the general principal of equality for all Europeans – starting with the eurozone – the equality of the internal market participants would be added to the equality of European citizens. Precisely this would be the leap from a purely internal market project, which through European competition law and adjusted legislative acts has essentially developed integration dynamics of (see Grimm, 2014, pp. 1046–1058), towards a political unity committed to a *Res Publica Europaea* – the public good of European citizens. For, until now, the same rights and regulations have only applied to market participants in the EU legal community – with consequences for oil cans to light bulbs. Yet, European citizens enjoy no legal equality.

Ius aequum, however, that is, equitable law, is the foundation of every democracy. And those who embark on a political body based on equal rights establish a republic. If European citizens did this, they would found a European Republic. That would be a paradigm shift from the United States of Europe, based on the integration of nation states and their sovereignty, to a European Republic in which sovereignty rests with the

citizens, and which would have to be represented as a central body of opinion and decision-making in a European parliament – and not in an opaque EU Council.

De facto, this was already promised in 1992 in the Maastricht Treaty; this “civic union” was, however, never politically implemented. In the EU, the citizen is not the sovereign of the political system and the European citizens are not equal before the law. To change this would be a radical beginning for Europe, which alone would point the way to a European democracy. In other words, this means: one euro and one IBAN number would, perspective, have to be followed by one social insurance number for Europeans. Then, *ius aequum* in the sense of Cicero would be given, and, thus, the central foundation of a European Republic, of which Victor Hugo dreamt as early as 1872: “À coup sûr, cette chose immense, la République européenne, nous l’aurons.” Through the same legal basis for Europeans, European solidarity could also be institutionalised, making Europe a nation in the sense of Mauss.

HOW TO GET THERE? FROM NORMATIVE EQUALITY & CULTURAL DIVERSITY

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First it should be noted that European citizens are not necessarily opposed to such a European democracy. So Europe does not arise through the common identity or the “European demos”, always said to be missing, but through common law. It is the convergence of law that gives rise to commonality; in this case from the right to vote, tax law and social rights of entitlement. The euro was, in reality, nothing other than a legally fixed key date regulation for monetary convergence. Legal convergence, however, is not centralisation, which is always assumed in a European unification process. In Germany, for instance, the benefits from unemployment insurance are the same for all citizens, although the federal republic is not a centralised state and the individual states are culturally very different.

A universal, equal and direct right to vote (“One person, one vote”) for the whole of Europe would thus be the next important step in establishing a political unity on our continent that ultimately legitimises the economic unity of the single market and the euro. Only then can the European Parliament become the initiator of a European democracy worthy of the name, and whose sovereigns are European citizens. In other words, we must legitimise the legacy of the French Revolution: i.e. from the Federal Republic of Germany, the French Republic, the Republic of Austria, the Republic of Italy or the Republic of Poland becomes a European Republic – by universal and equal elections based on the principle of the equality of all European citizens. The objection that such a move outweighs the big states, especially Germany, over the small ones like Luxemburg or Malta, is not justified, because *politics tops nation!* Do all Germans vote the same?

With this approach, Europe would finally have a parliament in which the political would be placed above the national. This is already what the European Parliament claims to be today. But it is neither the legislator of the EU, nor is it based on equal voting rights. It is, therefore, not the place of European democracy, precisely because it is not elected in a general and equal election and therefore does not represent the sovereign of Europe, the European citizens, and, in addition, has no right of initiative. A new European movement would therefore have to aim for a full parliamentarisation of the European

system – along the lines proposed by Emmanuel Macron in both his speeches, Athens from 7 September and Paris on 26 September 2017. In both speeches he significantly develops the notion of one European sovereignty, which is aimed at various European policy objectives, from security policy to a European prosecutor's office to a eurozone with a fundamentally restructured legitimacy.

UTOPIA IS WHAT WE MAKE

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For many, today it seems unimaginable to envision this for the future Europe. Similarly, for the territories of the German Confederation around 1870 a unified German social insurance system was also unimaginable: “Never!”

is what was called out back then. And then came Bismarck and it worked. No one can say what is conceivable and enforceable on a European level long term. On the contrary, the idea of common European unemployment insurance began a long time ago in Brussels (see Dullien, 2008).

The good news is that the majority of European citizens have long accepted the principle of political equality. According to a sociological study, this principle – also with regard to social benefits – has long been accepted by approximately two-thirds of European citizens (see Gerhards and Lengfels, 2013). The population seems to be further along than its political elites who are currently following populist pressure. Therefore, there is no need for discussion about a European identity that does not exist, but a new perspective. The European mantra of “unity in diversity” always means only normative unity in cultural diversity.

This would be achieved by a political system in Europe that complies with the principle of Montesquieu's separation of powers: a Europe-wide legislature controls a European executive. A eurozone parliament elected according to the same voting rights would be given full legislative powers. This is democracy as we know it! The European Parliament should be able to bring in legislative initiatives, i.e. have full rights of initiative and thus also budget rights, and the so-called ordinary legislative procedure which requires the approval of both chambers, would have to be extended to all policy areas. European regions could establish a European Senate as a second chamber. The European President could be elected directly.

The European Republic would then be a kind of network of autonomous regions and cities over which a republican umbrella would be stretched, which guaranteed political equality for all citizens. The European regions and metropolises as constitutive bearers of a European Republic would be bound together by a transnational democracy, whose three main pillars would be, firstly, a pro-rata parliament, secondly, a congress with two senators each per region/metropolis, and thirdly, the identity-forming direct election of a European president – as it is proposed today in numerous party programmes.

The charm would be that the simultaneously large and federally organised Euro states (i.e. above all Germany, but also Spain or Italy) would be deconstructed in their autochthonous regions, and thus, predominantly, Germany would no longer be able to assume a hegemonic position of power in the *European governance system*: 50 equally sized regions in Europe (see Menasse, 2004) represent a different “level-playing field” than the current 19 Euro or 28 (soon 27) EU states, in which the three (too) large EU Member States tend to dominate and block the smaller Member States. Europe would

be what it always should have been: the overcoming of nation states. Savoy, Alemanien, Eupen-Malmedy, Bohemia, Alsace, Basque Country, Scotland, Tyrol or Bavaria, they would all have their cultural place in a European Republic. The Catalan question would also thus be solved *en passant*.

In this context, it should be noted in conclusion that the European federalists of the first hour, who in the midst of fascism in the 1920s, 1930s and 1940s conceptually anticipated a united Europe, had in mind the idea of a Europe, a Europe as a federation of roughly equal, regional units in which the big nation states do not dominate the smaller ones. The champion of European integration, the Swiss Denis de Rougemont, and others, were convinced that the new Europe must be consistently post-national. The Austrian national economist Leopold Kohr already argued convincingly in 1972 that only anchoring Europe in the regional could be the solution, among other reasons, because this would best correspond with Montesquieu's concept (and revived by Hannah Arendt) of a "Federation of small units" (see Kohr, ([1972], 1995). Europe would win both ways: ability to act in the international arena externally; citizen proximity and regional identity internally.

Today's European Union is not stable. Without a decisive step forward it will not be sustainable in its current form. Europe needs a clear goal, a clear direction and perspective, an emancipatory agenda, a concrete idea of itself. The one European market and the one European currency must be supplemented by a European democracy, because a currency is already a social contract, but democratic legitimacy is needed. This would be the decisive milestone in transforming the EU's political system from a "union of states", which is essentially "governed" by an EU Council that is only indirectly legitimated via a real European democracy, in which ultimately only one thing can apply: the citizens are the sovereigns of the political system, they are all equal before the law, the parliament decides and there is a separation of powers. The general political principle of equality is the basis of every democracy. Its implementation into the political system of the EU would be the great reformation of Europe! In order to accomplish this radical new beginning of Europe we only have to remember the definition of nation which Theodor Schieder, a conservative historian, by the way, already stated in 1963: "A nation is a community of citizens, not primarily a linguistic or ethnic community." We are – perhaps or hopefully – on the verge of the emergence of Europe in the sense of a European Republic! —

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Re:thinking Europe

Key points for a political union of the eurozone Member States based on Anglo-American constitution

BENJAMIN ZEEB

Almost 70 years ago our forefathers started a new political project on this continent. The treaty, which was freely concluded in 1951 by six nation-states, meant at its core nothing less than the preparedness of these nations to give up their sovereignty. Today, it is not only the structure that would emerge from this decision that is under massive pressure. Increasingly it is being questioned whether a project so conceived and so dedicated can long endure.

In 2018 we are at the beginning of a decisive battle, the outcome of which will also decide whether the suffering and the dying that had to be endured between 1914 and 1945 was in vain. The constant references back to the war, the constant admonishing alone, however, do not suffice. No talk, no holiday, no museum will alleviate the suffering from that time in any relevant way, as likewise no abuse or insult holds the power to add or detract from it. Of course it was appropriate to build monuments to the dead, yet the only monument that truly counts is the success of this great task remaining before us, which alone can guarantee the peace, the freedom and the prosperity of all Europeans in the long term.

It is difficult to warn a generation, which has only come to know peace and progress, about the abysses of history. Lincoln stood in the Arlington National Cemetery among countless graves as he held his Gettysburg Address. Churchill even made reference to no “massacres [having] been committed for which there is no parallel since the Mongol invasion” when he called for the creation of a United States of Europe in 1946 in Zurich (Churchill, 1946).

Of course the war was omnipresent then. Today it has become a distant memory, which historians desperately keep trying to save from fading.

And yet there are parallels. Then as now, no less was at stake than the question of whether the democracy that Lincoln described in his speech as a “government of the people, by the people, for the people” (Lincoln, 1863), can assert itself against its enemies.

Although attention in recent months has mainly been focused on the United States; right here in Europe democracy itself has once again come under fire. On both sides of the Atlantic we are experiencing coordinated attacks on the values and structures that our democratic societies have sustained since the end of World War II, and in the US at least since the end of the Civil War.

These coordinated attacks require a coordinated response. The European nation-states, however, are increasingly unable to organise defence. So regardless of all the technological developments, where Europe will be in the next 10 to 20 years depends, above all, on whether Europeans will be able to reinvent themselves and thus preserve their democratic form of society in the next decades. This can only succeed in the context of a Europe-wide democracy. In the foreseeable future, the EU will either have taken the step from a confederation to a political union, or else Europe will have disappeared as a subject of history.

LEASEHOLDERS ON THEIR OWN CONTINENT

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To prevent this fate, the weaknesses of the EU must be clearly addressed. The problem is that the Member States alone are too weak to enable effective governance in the areas of finance, economy, environment, immigration, foreign policy and defence. The common currency is not

based on a common parliament and a common economic policy, and is therefore condemned to eternal instability. The tax systems of the Member States are not coordinated, leading to a race to the bottom between the EU countries, which calls into question the very foundations of the European welfare systems.

While the EU sets ambitious climate change targets, Member States are failing to deliver on their respective promises. The continent lacks a single, jointly financed army commanded by a joint government. As long as this is not changed, their defence remains inadequate. In fact, Europe is being defended by NATO, where most of the military capabilities are being provided across the Atlantic and the English Channel. The majority of Europe may have a common “area of freedom, security and justice” – Schengen – but there is no common enforcement of Europe’s external border and no effective migration policy. The resulting consequences, for instance in the Balkans or the Mediterranean, are foreseeable (see European Commission, 2009).

While a so-called “refugee crisis” of unknown magnitude shakes the continent and its neighbours, the logic of divergent national interests dominate. A common solution is not in sight. However the causes of this massive migration remain unacknowledged and human suffering continues unabated. The longer the problems go unanswered, the more the frustration grows about the injustices of the Dublin Regulation in border regions of the EU. And the more the resulting conflict is also drawn into the political everyday life of the countries of Western and Central Europe.

At the same time, on the eastern flank of Europe, Russian occupation of Crimea and the Donbass has created a constant launch pad of distortion. From here, Russia will hinder the development of Ukraine for the foreseeable future. This aggression is not only directed at Ukraine itself, but equally against NATO and the EU; and ultimately against the model of civil society and the rule of law that Europe stands for. Timothy Snyder has described this conflict as a competition between “those who want to oppress civil society and those who want to embody it”. He argues convincingly that a repeat of Poland’s success story in Ukraine or another of its former satellite nations could cause Russia existential problems (Snyder, 2015).

But that is not all: in almost all policy areas, Europe faces enormous challenges. Be it energy policy, LGBT rights, youth unemployment, environmental policy, labour market reform, privacy issues and personal freedom, and much more. There is little scope for

policy making in which significant progress can be expected in the near future. Unfortunately, it has now become clear that the EU cannot solve any of the problems it faces as long as it operates within the limited framework that the treaties provide.

This could be particularly disastrous given the looming technological change in the so-called periphery of the eurozone. Automatisation and digitisation have already begun their triumphant advance. At the very moment when investment in the infrastructure of the economy of the future should take place, the wheel of history stands still in Europe. Memories of the Great Britain at the turn of the century are awakened, which, at the latest when the war broke out in 1914, had completely lost the enormous lead that it had at the beginning of industrialisation (see Hobsbawm, 1999, p. 160). While national budgets of many eurozone countries remain deprived of flexibility for years to come, there is a shortage of investment which will be difficult to catch up with in the future. Since, at the same time, no private capital is flowing in a relevant amount, there is the danger of a “lost generation” in Southern Europe (see OECD, 2017, p. 48). The perspective of a politically and economically continuously unstable region around the Mediterranean is very likely – as long as there is no substantial change in capacity and direction of eurozone governance.

At the same time, the modern welfare state is increasingly lacking the strength and financial leeway to cushion the negative social impact of this backsliding. In any case, in its current national form it will not be able to be maintained in many parts of Europe.

In the current situation, Europeans are leaseholders on their own continent. This situation would be more sustainable if we were not in a situation where a multitude of global challenges made state action necessary at the very moment when the institutions that facilitated this action in the past have lost their reliability.

As the European nation-states fail in ever more visible ways to face the challenges of the 21st century, they have also created an opening for anti-democratic and authoritarian forces. These have long begun to present to their audiences the weakness of the executive with the core values of Western democracies. Free Trade, liberalism, tolerance and solidarity are sold, above all, by the political right, but also increasingly by the left, as the root cause of established politicians’ inaptitude.

A much-cited passage from Milton Friedman from 1962 aptly describes the historical situation in which we find ourselves:

Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes politically inevitable.
(Friedman/Friedman, 1962)

Much better than the pro-European forces, the authoritarians, identitarians, nationalists and opponents of globalisation have understood how to take advantage of the moment and juxtapose their ideas as “the new thing” with an outdated world order, carried by corrupt elites and propagating obsolete values.

The only way to stop the march of the enemies of democracy is to regain sovereignty. More than anything else, Europe needs efficient and effective, democratically legitimate government action. Only if the citizens of Europe can see that their political will can be translated into political authority which doesn’t bow to external, superordi-

nate powers can democracy really thrive on this continent. Within many European nation-states this can no longer be achieved with the EU as it exists today. The uneasy feeling of alienation that many Europeans have, not only on the periphery but also in the centre of the EU, is not fiction but reality.

WHERE IS THE SOVEREIGN?

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Numerous referenda have taken place in recent years, such as the vote in the Netherlands on the Ukraine-European Union Association Agreement, the refugee policy in Hungary, and Brexit in the United Kingdom, all of which have been used by voters to express their displeasure and punish respective government parties. They were carried out to make citizens feel that their voice matters. But feelings alone are not enough. Any attempt to provide selective relief to failing European parliamentarism through direct democracy cannot work unless the central disturbance at the heart of the EU is resolved.

A defeat of the pro-European forces in a major eurozone country would inevitably mean the end of the common currency and, most likely, also the Schengen Agreement. After that, there won't be much left to defend. After the election is before the election, and so the fate of the Continent is decided at regular intervals in national votes. Because the feedback between citizens' interests and effective political action is lacking, democracy in the nation-states becomes a systemic risk for Europe. This is an untenable situation.

We must take the right path at every turn so as not to risk a collapse of the European house. For the anti-Europeans, on the other hand, a single decisive victory is enough. If we cannot succeed in stabilising the EU and establishing a functioning parliamentarism, it is only a matter of time before fragmentation and re-nationalisation come to fruition. Statisticians are well aware that it doesn't matter much how likely or unlikely a catastrophic outcome is, if only the experiment is repeated enough times. It is not the feeling of fear alone that drives people into the arms of the Trumps, Le Pens, Wilders and Storchs. The whole truth is that the representative democracy is suffering from a problem: the mechanism whereby members of parliament are elected by citizens and then represent their interests in parliament, has been undermined on both sides of the Atlantic.

How could it come to this? Talking to Euro-politicians in Brussels, Paris or Berlin often gives the impression that the EU is in good shape. One has only – this much is understood – not communicated the positive aspects of the Union sufficiently and the population has not understood correctly what they have in Europe. If only one were able to find the right words, then the problem of anti-Europeanism would quickly be brought under control. If any shortcomings are admitted to at all, external factors are made responsible: global trends that disrupt the world of many Europeans and promote inequality – influences, then, that lie beyond the scope of political action.

However, the fact that Europe has a tangible problem with democracy and with effective government action is only rarely acknowledged and if it is, then only behind closed doors. The failure is easy to describe. In most policy areas, but especially in two central ones, which most closely affect national sovereignty, foreign and fiscal policy, there are no more national solutions. The refugee crisis is just as unsolvable on a national level as the euro crisis. Although individual nation-states can bring their respective positions to the negotiations, they are unable to define a binding common position

for Europe as a whole, which could then be translated into efficient, effective policies. Moreover, it is also not possible to legitimise pan-European policies across Europe. There is no European government, no European opposition, no real European parliamentarism and thus no recognition of European sovereignty.

This situation was largely unproblematic as long as Europe's nation-states mainly cooperated bilaterally and the most important decisions were still taken in the capital cities. This changed with the introduction of the common currency, and at the latest with the arrival of a completely new geopolitical situation.

As a result of the euro crisis, individual parliaments have *de facto* lost their budgetary rights, that is to say, the central and most fundamental basis of power of any representative body. The loss of their own central banks further ensures that even the most powerful states within the EU (such as Germany) are no longer in the position to make truly sovereign decisions. In any case, unilateral foreign policy is unthinkable, since no European state alone has the weight to intervene decisively. While the Union faces an increasingly aggressive Russia and has demonstrated its inability to act in both the Syrian and refugee crises, Trump's election as US president and the impending erosion of the *Pax Americana* further weaken the global political climate. The crux of the problem is that we vote nationally but we have to govern European.

The often repeated thesis, which also played a major role in the Brexit campaign, which states that political power was seized by Brussels, is wrong. No, even Brussels is powerless, operates on the basis of laboriously negotiated inter-state compromise and has a ridiculously small budget. The political power, the sovereignty of European citizens has simply evaporated, somewhere between Brussels, Strasbourg, Frankfurt and the European capitals. As long as the European Union's political system does not change, Greeks, Portuguese, Hungarians can vote for whomever they want; there will hardly be any significant change. Their nation's weight within the EU is simply not enough. Nor will it be possible to defend Europe against external enemies and internal dangers as long as the power to make such decisions is not transferred from the nation-states to the European level. This, in turn, presupposes that all action at the level of the European Union is legitimised by the majority of its citizens.

It is no longer the task of convinced Europeans to explain why the Union is good for the people and how it works. Rather, we must clarify why the Union can no longer do anything for most Europeans in its current configuration, why it no longer works and, indeed, how this could be changed.

For further, deeper European unification, however, we hear from politicians at regular intervals that there are "no majorities at the moment". But this would be necessary to finally give Europe the capacity to solve its numerous problems. It seems as if in Brussels, Vienna, Paris, Berlin and elsewhere, it is hoped that somehow eventually the tide will turn, the storm will abate and that there will then be a return to the familiar mode of creeping Europeanisation that has worked for decades.

But this mode has reached its logical end and Europe is now facing a binary decision: zero or one. Either a genuine political union is created or there is a return to the nation-state: without Schengen, without the euro and ultimately without Brussels. For the laboriously negotiated compromise as a means of integration, the regulation and juridification as alternatives to democratically legitimated government action are no longer viable.

EVENT VS PROCESS: THE END OF EUROPEAN UNION AS WE KNOW IT

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member states for the benefit of all citizens and ultimately collapsed due to external pressure and internal conflicts, and genuine political unions. The latter succeeded in combining the two central aspects of sovereign statehood, defence and public debt.

Examples for the former type are the Polish-Lithuanian union and the Holy Roman Empire. Both entities were paralysed by permanent internal quarrels and weakened due to the interference of foreign powers in internal affairs. Thus, in the 18th century, Russia, Austria and Prussia undermined the sovereignty of the Polish state through repeated interventions. In particular, they benefitted from the fragmentation of the Polish parliament and the so-called *liberum veto*. This guaranteed – in much the same way the EU does its Member States today – a right of appeal with which all decisions could be blocked. In this way, the state could not prevail against internal power groups, became helpless and increasingly easy prey for external enemies.

A similar situation emerged in the Holy Roman Empire of the German Nation. France and Sweden were used as guarantors of peace in the Peace of Westphalia in 1648 and were given the right to intervene in German politics. Even after numerous Imperial Reform debates the state was unable to defend itself and represent the interests of its citizens.

Both political entities finally collapsed. Poland was divided at the end of the 18th century; the Holy Roman Empire fell victim to the onslaught of revolutionary France at the beginning of the 19th century. As in today's EU, rules and procedures alone are not enough to make up for the lack of a common government.

On the other hand, the development of the Scottish-English union in 1707 was different. It enabled formerly bitter opponents to concentrate on the forces on the island and use them more effectively against the external powers. The Acts of Union guaranteed Scotland a generous representation in Westminster Parliament and the maintenance of its legal and education system. As the current political situation clearly shows, this project was never about harmonising all aspects of everyday life; both partners got their own customs, traditions and national identity. At the same time, however, the Scots relinquished their own foreign and defence policy. As a result, the newly formed Union was able to punch far above the weight than its demographic and economic status would have suggested.

A similar development led to the founding of the American Union in the late 18th century. It is often assumed that the new continent developed completely separately from Europe. In fact, the US state was not constructed in the absence of influences but rather through them. The thirteen colonies emerged victorious from the wars against Great Britain but also with enormous debts. Together they found themselves in a hostile world again.

The withdrawal of the British Navy made American traders the target for pirates that operated from North Africa. Canada remained British and thus hostile. The constitutional agreements that emerged out of the context of the War of Independence turned out to be wholly inadequate in meeting these challenges. There was no real executive; the parliament did not have the right to raise taxes. All international agreements had to be

signed individually by all member states. At the same time, there was no army or functioning navy. All in all, it was a situation that must seem familiar to us Europeans. The ties that held together the former colonies were so loose that many Americans feared that the United States might break apart again. But the situation changed: in 1789 the Americans adopted a new constitution, which, according to the British model, combined public finances, the debts of all member states and foreign policy, and subsequently created the most powerful country in the world.

History thus demonstrates that successful unions are not born of gradual processes in quiet times, but as a consequence of sharp ruptures in periods marked by extreme crises. They do not come as an evolution but, in a way, require a big bang. The political union that Europe so desperately needs now requires a single moment of collective effort from its citizens and governments. A full parliamentary debt and defence union is the only way to solve Europe's crisis and permanently avert foreign threats. Only in this way can Europe finally become the positive force on the world stage that it really should be.

One of the most serious mistakes that Trump's opponents in the US made was to keep processing the lunatic utterances of this candidate without really taking seriously the fundamental dissatisfaction of many Americans. Now we have to be careful not to repeat this mistake in Europe. All that the harsh condemnations of the rhetoric of a Marine Le Pen or a Frau von Storch accomplishes is to increase the reach of the original provocation. Effectively fighting against populism means depriving it of its breeding ground and countering the feeling of impotence and lack of opportunity with viable ways of economic self-determination and political participation. In the tight corset of national sovereignty both are only possible to a very limited extent.

As great as the challenge may seem, political union is our only chance to prevent the breakup of Europe. Because something else distinguishes us from the United States: Yes, Trump's term will leave deep wounds. But in the United States of America, after the four or maybe even eight years of his presidency there will still be a president, a House of Representatives, a Senate, a Supreme Court and a central bank – the constitutional system sets limits on Trump which will not allow “deadly” wounds. The US will still be a powerful country after he is gone. We in Europe cannot expect the same. Our Union is not strong enough to handle a similar event.

SIX POINTS FOR THE FUTURE OF THE UNION

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While the need for a new EU and the model that could be followed seems clear, the question remains as to how it could be realised. Given the already mentioned scepticism of the European population, any attempt to forge a coalition for a new Europe will not be an easy task. The first element that we need to think about in this context is how we can convey the need for such a new Union on the European continent. Apart from a few idealists, no one regards the necessary federalisation as a love marriage.

Rather, we need to make sure that Europeans across the continent become aware of the very different advantages that a new Europe will bring them. Just as the citizens of the founding states of the US had very different motivations for joining the union – from the fear of pirates in the coastal states to the protection against Spanish expansion.

The American election campaign has clearly shown how precisely individual voters

can be targeted today. In detail, specific preferences can be analysed and political messages tailored accordingly. In particular, Donald Trump's election campaign used this opportunity to also send contradictory messages to various groups of voters. However, this level of dishonesty is by no means necessary to carry out a successful political unification campaign on the Continent. It is sufficient to formulate a short but definitive list of a core, while leaving it to different parties and interest groups to bring this core to life.

For the citizens of Greece, the right to democratic participation can today only be fulfilled at European level in a fully democratic parliament of the Union. Just as a citizen of Latvia can only be guaranteed security by a European Army. The list of these individual reasons for a truly united Europe can be expanded and adapted according to the target group. The quintessence, however, is still to create a symphony of messages that makes it clear to Europeans that they can all benefit from a politically united Europe.

Given the diversity of Europeans, it seems uncontroversial that a coalition to build this future Europe cannot emerge on just one side of the political spectrum. Rather, the promotion of this idea requires the unification of Europeans as diverse as an anti-capitalist demonstrator in Madrid, who fears that Europe has left behind every social conscience, with the manager of a German medium-sized enterprise, who is concerned with the prospect of his exports, should the common currency break down.

Such a diverse coalition of civil society organisations, political parties, representatives of the economy and activists therefore requires a programme that is as limited as it is substantively clear, limited to what is absolutely necessary, but not falling behind. Such a limited set of demands could include six items guaranteeing, on the one hand, sufficient room for manoeuvre not to anticipate the future political and social developments of the Union and, on the other, taking into account the historical laws for politically stable entities:

1. To re-institute effective political authority through the establishment of a common budget for, and only for, common tasks, which is also what is necessary to stabilise the euro as the common currency, and for exploring the extent to which debt that relates to common projects can be mutualised.
2. To establish one common European external border and migration policy, policed by the Union as a whole.
3. To establish a common European citizenship not linked to a particular Member State.
4. To establish a common European Army with a monopoly of legitimate force for the common external defence, with a single command structure, doctrine, budget and procurement, etc.
5. To establish a single foreign office with the exclusive task of executing the common external policy.
6. All these functions will be financed by a common European tax or debt and will be subject to scrutiny and budgetary review by a common European parliament.

In short, what needs to be communicated about the future of the European Union is that it does not prejudice political debate but recreates the necessary space for it to take place. Such a Europe will not prescribe the economic or social model that the Union must

follow, but rather lay out the foundations for negotiating this model among the citizens. That would be the end of the lack of alternatives and a return of the sovereignty of the people to the European stage.

Once again, the example of the United States makes it clear that its constitutional model over time has radically enabled different economic and social models, from interventionism to protectionism, from top tax rates of over 80 percent in the middle of the last century to today's historically low rates. At the same time, the fears of the European population should be addressed. It must be made very clear that Europe would not dismantle its respective identities, but complement them and help diversity to survive.

The construction of such a coalition is a tedious task and one full of conflict. Yet it is the only alternative that we have to build a more democratic, transparent and efficient Europe. Without such efforts, all that remains is the gloomy perspective of a continent left behind. —

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the
pulse
of EU

The pulse of Europe

Why you should take to the streets for Europe every Sunday

NINI TSIKLARI

It is the beginning of March 2017, Sunday afternoon, 2 pm, at Karlsplatz in Vienna. Four hundred people are standing together while it rains. Concerned and at the same time hopeful, they are waving European flags. I take the microphone:

Dear Europeans, I have good and bad news for you. The bad news is that our community of values, which for decades has been considered natural, now faces serious dangers and we can no longer rely on their unconditional existence. The good news is, however, that we citizens have the opportunity to counteract these dangers. Each and every one of us is in the position to take action and to shape the future of Europe. You wouldn't need to become a politician, magician or a revolutionary. First of all, it helps to realise that the fundamental freedoms, core values and all the benefits of the European Union are not self-evident, and to communicate about this with family, friends and relatives. It also helps to realise that we can face the global challenges of this time only through collaboration and mutual interest. If you want to live in peace and democracy, you should be committed to it. Let's not talk around it. Whatever form Europe 2050 will take in order for it to be fit for the future, it requires, above all, a strong basic framework: people who loudly believe in the European idea and do not want to sacrifice it to nationalist tendencies. The preservation of peace, democracy and rule of law as well as the further development of the EU for the time being needs a new European (self-)consciousness. Ergo, Europe will be kept alive only with the consent of its citizens.

By storm, rain or sunshine, since the beginning of 2017 people from different generations, of various origins and views, diverse socioeconomic backgrounds have been taking to the streets and marketplaces to set a new example for Europe. In their diversity, they all have one thing in common: preserving Europe and thus also creating the opportunity to develop

it at all. Because almost every national election has had an important impact on the fate of the countries in the EU or influenced the future of Europe, the dangers of non-voting and political apathy, thanks to Brexit, were quickly recognised. This was particularly tragic and simultaneously motivating for many young people in Europe, who called on each other to be more involved and to bring together all the young forces in Europe: “Imagine, you wake up one morning and the world is different. Rights, freedoms and securities that appear to be self-evident no longer exist. And the worst thing about it is that you never thought that it would come to this”, said a call to action (The Young European Collective, 2017).

At the Pulse of Europe rallies, each time, people can have their say at the open microphone. Three to four generations take the microphone and share their opinions, desires, visions of the future and also personal, emotional stories about Europe. These stories can be told by everyone. By an Englishman, for instance, who, since Brexit, has lived here in Austria and no longer knows where he belongs. By a diplomat, who, for years, has watched how national stubbornness serves to obstruct commonalities. By a young Austrian, who, after a cycling through Europe, sees the whole continent as the Fatherland. By a young woman, who, for her children, wishes to protect a united and globally recognised and active EU. By an old woman, who travelled from Braunau am Inn to Vienna just for the opportunity to be involved in this initiative¹. At the end of the rallies in Vienna a human chain was formed around the fountain in front of Karlskirche (St. Charles’ Church) and the European hymn was sung (see Figure 1).

For the first time, people developed a common feeling that Europe is something emotional and not technocratic. Since then, thousands of people across Europe have been taking to the streets every week, each Sunday, forming human chains, waving European flags to the song “Insieme:1992” by Toto Cutugno, mobilising people to go to the polls and arousing transnational solidarity. The current state: 137 cities, 21 European countries; in some cities (Berlin, Munich) often up to 5,000 participants have gathered on a Sunday afternoon (pulse-of-europe.eu, 2017). The Pulse of Europe initiative was established spontaneously as a response to Brexit and the election of Donald Trump by a couple from Frankfurt.

It is based on ten points:

1. Europe must not fail
2. The threat to peace
3. We are responsible
4. Get up and vote
5. European fundamental rights and the rule of law are inviolable
6. European fundamental freedoms are not negotiable
7. Reforms are necessary
8. Take mistrust seriously
9. Diversity and joint qualities
10. We all can and should be a part of it (ibid.)

Out of the 200 people demonstrating at the end of November 2016 in Frankfurt am Main the numbers quickly grew to 50,000 in the European realm (Averesch and Bücheler, 2017).

¹ Watch on YouTube: Pulse of Europe Vienna

While people of various cultures, languages and generations stand together, enthusiastically waving flags and singing the European hymn, it is striking that, since 2017, Europe has become perceptible, palpable again. In many European cities a positive pulse has been set in motion, which previously had not existed in this way and which cannot be extinguished anytime soon.

Europe is connected here by the people with the basic ideas of the European Union: respect for human dignity, the rule of law, solidarity and free thought and action. Convinced that the majority of citizens believe in the basic ideas of the European Union as well as its reformability and do not want to sacrifice it to nationalistic developments, the Pulse of Europe movement found broad support across all strata of the population. In a current study by Chatham House about new European groupings (Raines, Goodwin, Cutts, 2017) Europeans are divided into several groups depending on their approval or rejection of the EU.² Unlike the “Contented Europeans” (23 percent), “EU Rejecters” (14 percent), “Frustrated Pro-Europeans” (9 percent) and “Federalists” (8 percent), the Hesitant Europeans (36 percent) are the largest group of all. They are considered to be fundamentally positive towards the EU, but are described as being politically apathetic. As a non-partisan, non-denominational and independent European movement, Pulse of Europe aims to shake up these “Hesitants” or, rather, the “silent majority”, to mobilise people to vote and to convey a positive, pro-European sentiment.

Before the 2017 French presidential election, for instance, in more than 130 cities throughout Europe there were expressions of solidarity with France under the motto “Restez avec nous!” (“Stay with us!”). Mobilising the French voters was the main aim behind it. In addition to the other 125 cities, people gathered in Vienna, Innsbruck, Linz, Salzburg and Krems an der Donau on 30 April and 7 May 2017 to support France together (see Figure 2). Texts were sent to friends and relatives in which they were called upon to vote. Under various hashtags such as #Restezavecous or #PulseofEurope photos and videos were shared with the voters of France on social media.

Europe is in puberty and is currently in an important development phase towards a community form that goes beyond an economic union. The future of Europe is developing “bottom up”. Networking, constant adaptation, changing decision-making patterns, selective action, participation, intervention of civil society, initiative – these are the new tools that keep European society moving. New, young pro-European movements like Pulse of Europe or initiatives like Free Interrail and WhyEurope, just to name a few, are bringing about a renewal of Europe from the depths of civil society. At least they are giving important impetus. Since 2017, not only people of various political and social backgrounds are coming together on the streets, to openly discuss Europe. Young people from various European countries are taking the initiative to fight for Europe and taking their future into their own hands. They improvise, crowdfund; are creative, well-educated, enthusiastic and innovative. They demand a free Interrail ticket for other young Europeans from the age of 18. They make social media memes to explain to young people why Europe is worth it. They design the first blue European football jerseys that say “I am European” (see Figure 4). They ensure that you not only carry Europe in your heart but also visibly on your own clothes. Since 2017 it has even been possible to get fashionable

² The study was carried out in December 2016 and January 2017 in Belgium, France, Germany, Greece, Hungary, Italy, Poland, Spain, Great Britain and Austria and encompasses a total of 10,195 interviews (min. 1,000 per country).

Fig. 1 // Pulse of Europe Austria, human chain on 26 March, 2017

Fig. 3 // Pulse of Europe Austria 2017, 4 June 2017 – Open microphone and the washing line initiative in Vienna

Fig. 2 // Pulse of Europe Austria 7 May 2017
– Group photo “Vienne aime la France” –
Vienna loves France

EU Flag Fashion clothing with the European flag on it. Europe is becoming a lifestyle of whole generations, despite economic and political crises.

In Austria, too, there have been a number of European projects and initiatives since 2017, such as the bizarre European card game “Come to me!” or “Routes”, developed in Austria, where you can experience a Europe trip in the middle of Vienna and on one day experience first-hand what it means to feel European. Other examples are, for instance, the Europe Lab Austria, in which further European civil society projects in Austria are constantly being developed and implemented at the Bürgerforum Europa initiative. Or the Italian espresso mobile, which gets into conversation with people across Europe over good coffee. There are no limits to the creativity and motivation for communicating with the citizens and dealing with their concerns. Only through dialogue with people can fears and worries be transformed into confidence and hope.

Since summer 2017 the Pulse of Europe gatherings have given citizens the opportunity to write down their own ideas, emotions, opinions or desires for a better Europe on a piece of paper and to hang them on

Fig. 4 // WhyEurope 2017–
Jona Maxime Coco – “The
first ever European Football
Jersey”

a washing line. This makes them visible and they can also be read and shared by other participants (see Figure 3).

In conclusion, I would like to reproduce some of these messages and requests from one hundred people who took part in the washing line initiative in Vienna, unchanged and without comment. This also meets the original intention behind this initiative of communicating individual thoughts and ideas about Europe and the future of our joint European project to a broader public:

HOPES & DEMANDS

1. For open borders and for more effective external borders	11. In school lessons = advantages (social, ethical, ...) of the EU, not just the structure of parliament	23. For peace in Europe forever!	and – yes! – also juxtaposition (live and let live) – joy for the great cultural diversity! A little bit of pride, just like that, on social achievements...
2. More EU in the country!	12. Goleminata e samo vo čovekot	24. More measures for environmental protection!	
3. Together instead of just side by side of cultures and nations	13. EU, because everyone is worth the same!	25. Unity in diversity!	38. MEPs visit kindergartens!
4. Common European asylum system	14. Una in diversitate	26. EU-wide uniform rules for tax collection! "Tax profits in the source countries"	39. Fully-communitised financial system. Now!
5. Strengthening of freedoms, more togetherness, better understanding of important issues (work, migration, ...), balance of nations	15. Communicate successes	27. Solidarity with refugees!	40. More promotion of science, research and education!
6. More opportunities for participation by EU citizens	16. ... because we all have the same grand-grand-parents!	28. EU should do more for the EU social project!	41. A common identity through a GSAP and EU-Army!
7. One European passport <3	17. EU passport!	29. European passport/identity card!	42. More power to the EU-parliament!
8. Protecting the EU Army + external borders	18. Common messages!	30. A pro-European TV channel!	43. Your platform unites more constructive powers of different "camps" :) Keep it up!
9. Create balance between solidarity (peaceful coexistence) and freedom (individual growth) for individuals + societies!	19. More European research networks!	31. Change the economic system!	44. A true social pillar that addresses social issues more!
10. Joint finances	20. More "advertising/ better communication of all the many good and great achievements! (peace, freedom of travel, ...)	32. More positive EU success stories in local media!	45. Borders arise in our minds
	21. Those responsible (not only Mrs Merkel, M. Macron and M. Junkers) know that a joint European tax and budget system must be realised! R.M. 21.05.2017	33. More republican commonality, less power to national governments!	46. Europe = peace
	22. For a social union that is not only market-oriented!	34. Make politics more interesting for young people! :)	47. More cross-border European art, culture and music projects
		35. EU lessons in schools/political education with a European focus	48. Joint Intelligence Service (European FBI)
		36. Election of European parties instead of national ones! "Republic of Europe" <3	49. Supranational MEPs
		37. A strong cooperation	50. More proximity to citizens
			51. Europe of human

rights, no business with rogue states!

- 52.** Cooperation across borders brings us together in peace
- 53.** ERASMUS programmes bring us together
- 54.** Free Interrail Ticket for those aged 18!
- 55.** Less bank help, more humanitarian aid!
- 56.** Kissing contest (annually): The city that generates the most kisses relative to the population wins a cash prize and the title "EU Kissing Capital"
- 57.** Communication & Transparency
- 58.** Inner-European express trains
- 59.** Appreciating diversity!
- 60.** Uniform VAT for the EU!
- 61.** Literally: United in Diversity
- 62.** 72 years of peace in Central Europe
- 63.** Put unity and being human in the foreground
- 64.** World peace
- 65.** Stop talking about the EU in the media in third person. We are Europe! (It's okay in the case of institutions)
- 66.** An EU that sees diversity as a privilege & not as a threat

- 67.** European social security
- 68.** EU parade after/during the Council presidency. Make European diversity visible
- 69.** Communication (public relations)
- 70.** Minimise lobbying
- 71.** Voting based on primary residency, not nationality!
- 72.** From Vision to Reality: Republic of Europe! Where all people realise themselves in their regions, shape/form them + live a great commonality of diversity. From competition to the common good
- 73.** A strong EU compared to Russia and the USA!
- 74.** I'm looking forward to a European Republic!
- 75.** A strong parliament, less nationalism, for the United States of Europe!
- 76.** Positive hints to & for the citizens: free work opportunities, free education in the EU
- 77.** 1a politicians in EU Parliament!
- 78.** European's "Hollywood" (more own productions)
- 79.** More TV reports about work in the EU Parliament
- 80.** EU should do more for development cooper-

ation in and with all so-called countries of origin

- 81.** More solidarity between the EU States
- 82.** Everyone is different but the same!
- 83.** UK and Brexit will show us whether we need the ER. Thanks, UK!
- 84.** Europe is the house of nations!
- 85.** Europe is the house for ALL!
- 86.** Export the "Model Europe"!
- 87.** NO al nazionalismo!
- 88.** Peace creates freedom! For me, this is Europe!
- 89.** Globalise human rights! No business with rogue states!
- 90.** Suggestion: hand out the book Enraged Citizens, European Peace and Democratic Deficits by Robert Menasse in schools.
- 91.** Peace in Europe, peace in the whole world
- 92.** Europe is for me: together instead of against one another
- 93.** We love Europe + pints
- 94.** Too national = too antisocial
- 95.** Better and more intense communication

of EU institutions on a local scale – more participation!

- 96.** #Respect
- 97.** Clear positions of all parties and governments on the EU in Austria & the other countries
- 98.** EU = social, human rights, climate protection, solidarity union
- 99.** We should spread the values of the EU into the rest of the world. It's waiting for it.
- 100.** L'Europe est la paix, la solidarité et la liberté. C'est comme ça que je l'aime!

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FIGURES

Figs. 1, 2 & 3 // Pulse of Europe Austria 2017 – Olivia Retzer

Fig. 4 // WhyEurope 2017 – Jona Maxime Coco – "The first ever European Football Jersey": <https://www.kickstarter.com/projects/822077090/european-football-jersey>

WEBLINK

Web 1 // www.pulseofeurope.eu

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A brief history of the European future

Or, why we must earn our inheritance

ROBERT MENASSE

Hegel once said: “*The human being also dies out of habit.*”

He wasn't, of course, questioning the biological finitude of human life, but referring to the political and social nature of the human being. If one lives entirely in the everyday, eking out an existence “doing servile work, in which the tool has become autonomous, in other words a machine”, then this “dying out of habit” sets in, a “trembling in the face of social death”. This trembling is the final agitation of an historical movement that has run aground, because its intention and necessity, namely progress in the spirit of freedom, has been forgotten, and its goal, even if provisional, is seen as threatening to the familiar and hence repressed.

This passage from *Elements of the Philosophy of Right* describes very well the current *moral situation* of the European Union, in which rights are once again subject to habit, and which is a *situation* in the real sense, because it has halted the *process* of European unification. The only thing still moving here is sheer fear of the future, which expresses itself as resentment. When it takes to the streets, this resentment is called a *movement*, yet it is merely a caricatured necrology of the human being as *zoon politikon*.

YET ONLY HALF A CENTURY AGO, THE FUTURE WAS SO BRIGHT

— The picture of the future drawn by the founders of the European project was a masterwork of pragmatic reason in the spirit of the Enlightenment. It was radically bold and avant-gardist, while also based on historical experience and possessing elegant clarity and logic. Its political guidelines were human rights and, concretely, the human need for peace, social security, chances in life and opportunities for social participation. It was a project of *life* in dignity.

“The work of unity which we have begun, and which we work on daily, is no schematic idea projected blindly onto the future, no nebulous dream. Rather, it is a reality, because it is oriented towards the realities of Europe.” These words were spoken by Walter Hallstein, the first president of the European Commission, in a speech in Rome in 1964. Despite drawing much attention at the time, today it has been forgotten.

Reading Hallstein’s speech today and reconstructing the reality of the idea he spoke of, it is impossible not to be amazed and fascinated. It also reveals the origins of so many Europeans’ mortal fear of Europe.

So what were the “realities of Europe”? After a thirty-years war (1914-1945), Europe lay in ruins. Many could still remember the Franco-German war, the overture to Europe’s self-destruction. The people that now set out to rebuild Europe had seen that peace treaties and international alliances could not alone guarantee peace and lawfulness. So compelling was this experience that it was possible to convince people that lasting peace should be created in a new and entirely different way. But how? The founders of the European integration project had recognised the aggressor that had destroyed the continent’s infrastructure, that had caused suffering and misery for generations, that was responsible for the most horrendous crimes against humanity, all the way to Auschwitz. The aggressor was nationalism, the ideological self-aggrandisement of nations, the national arrogance that inevitably results in permanent conflict with the interests of other nations. These “national interests”, wrote Jean Monnet, “are nothing but the shortsighted economic interests of national elites, the satisfaction of which, in economic terms, involves writing off the national population, and the populations of other nations, as losses, and in real terms turning them into victims.”

Creating peace in Europe was a moral ambition that all could share. Yet Monnet was fully aware that moral appeals and trust in people’s warweariness would provide no more lasting security than international peace treaties. His idea, formulated as a plan with the French foreign minister Robert Schuman, was to overcome nationalism by gradually encouraging the nations to abandon rights of sovereignty, until, equally hollowed out and deprived of their very core, they would cease to have a future, hence undermining nationalism definitively. For this to work, supra-national institutions would have to gradually take over from national institutions. This process began with the creation of a high authority that regulated coal and steel production on behalf of the member states. Coal and steel were crucial not only for war but for reconstruction and economic revival. Creating a supra-national authority that controlled these products, ensuring their fair distribution and preventing secret rearmament, was the first step in a planned post-national development that would lead to the political and economic integration of the European nations, prevent them from deviating from the path, and that would ultimately supersede the nations entirely.

Nationalism has destroyed European culture and civilisation.

STEFAN ZWEIG

The nations and their political institutions have proved once and for all that they are not equal to the task of lasting peace and rule of law.

JEAN MONNET

Whatever we decide and try to carry out in the new institutions, the goal is and remains the overcoming of the nations and the organisation of a postnational Europe.

WALTER HALLSTEIN

When I think that the French, the Germans, the Belgians, the Dutch, the Italians and the Luxembourgers will all follow a common set of rules and therefore see their common problems in the same light, and that as a result their behaviour towards each other will fundamentally change, then I say to myself that relations among the people of Europe have made crucial progress.

JEAN MONNET

This progress is an objective fact, and the dynamic of the historical process initiated back then led, in many small but steady steps, to ever greater progress. Consider, for example, the removal of national borders in the Schengen space and the introduction of the first ever transnational currency in the Eurozone. Consider the common market, which has led to a trans-European economy and the extinction of the national economies, something that national economists and the politicians they advise have yet to comprehend. Indeed, the process of European integration can take credit for the longest period of peace in the histories of the countries taking part in this project.

At the same time, something strange has happened. Today's political representatives and large parts of the public have forgotten the historical reason for the project, its original goals. Would François Hollande be able to freely repeat Mitterand's statement that "nationalism is war"? Would Angela Merkel dare to even to spell Walter Hallstein's words, "the goal is to overcome the nations"? Anyone can answer in their sleep the question "What is the EU?" with "A peace project!", before yawning and nodding off again. However the answer is less than half the truth. The whole truth was and is: "Ensuring lasting peace by overcoming the nations and creating a post-national Europe".

"Peace project" is less than half the truth because it fails to say how peace can be guaranteed, and hence remains open to ideological illusions about the necessity of national identity and the defence of national interests. Peace is taken for granted, however what is defended, and seen to be threatened, is not peace so much as habit. This is the habit of perceiving oneself as belonging to a nation, and on this basis being able to understand oneself and one's position in the world. One of the things seen to be threatened is the ability of citizens to participate politically, in other words democracy itself, which has been taught as national democracy and conceivable only as such.

IF YOU CAN'T HEAR THE MUSIC, THE DANCERS SEEM MAD

— People who have never heard the meaning of the project are now noticing its consequences and consider it insane and threatening. The political representatives responsible for European policy, who are elected nationally, know that their political survival depends on them offering to protect national interests. In other words: they must use all available means to sustain the fiction that “national interests” are synonymous with the interests of the electorate. Thus a vicious cycle emerges that we refer to in Europe as “renationalisation”. The impetus for renationalisation doesn’t come from the far Right, the classical nationalist biotope, but from the political centre – and is system immanent.

Reconstructing the idea of the founding fathers of the European project, it becomes clear why most people inevitably consider mad what were the bold but essentially logical conclusions drawn from historical experience: an overcoming of the nation-states, a Europe that develops a form of political organisation without nations. For most people today, such a thing is utterly inconceivable.

Inconceivable. No one conceived that the Berlin Wall would fall. The day before, it was inconceivable, and yet it happened the next. Then, it was utterly inconceivable that the Soviet Union would implode. And yet it did. It was desirable, it was a permanent item on the West’s political agenda, it was invoked in sermons repeatedly, yet that it would actually happen was inconceivable. The goal had become a platitude, and the platitude had created the political fantasy that a world existed in which platitudes ruled, rather than ambition to realise the possible. And yet the inconceivable happened. Yes, it had an independent dynamic, but it was the result of a movement that had been set in motion politically and then repeatedly invoked. A political generation that doesn’t learn from this is a lost generation.

All the arguments still made for the indispensability of national (self-)organisation have long been disproven by history and, for those who don’t know history, by contemporary reality and experience.

The familiar argument – one made increasingly aggressively – is that the nation creates identity and that shared culture, history, mentality and language are the medium of solidarity between the individual and the social whole.

This claim is a fiction. If a common language were to constitute common national identity, then Austria would have to be part of Germany. If historical culture were the binding element, then Upper Austria and southern Germany would be a single nation that would exclude northern Germany and western Austria. Common history? On this basis, Austria is closer to Hungary than to Germany. City dwellers have a radically different mentality to the inhabitants of alpine villages or the rural plains, irrespective of national boundaries and languages. For someone from Vienna, the cities of Bratislava, Budapest or Prague are nearer, both in terms of historical mentality and geographical distance, although they are the capitals of other nations, and although other languages are spoken there than in, say, Gföls in Tyrol or Feldkirch in Vorarlberg, whose inhabitants have the same passports as someone from Vienna.

What about the argument that it was the nation-states that brought about democracy and the rule of law and that only they can preserve these attainments? This is not naive fiction so much as historical delirium. In 1871, for example, did free people rejoice

in being united in the German nation? No, it was a bloodbath. And after bloody hands had been washed, after the chainmail that stank of death and decay had been hung up in the cupboard and the spiked helmets polished, did a golden age of democracy dawn? Under Bismarck's sword, amidst the hail of paramilitary bullets, in the terror of political murder and executions without justice? Are emergency laws the ideal of the rule of law? The truth is that, until the foundation of the European community, most Europeans had spent longer under conditions of political tyranny, totalitarianism, fascism and war than as citizens of free, democratic, sovereign nations.

Do nations encourage unity and community? Of course, one has to agree – if one is blind. Only then it is possible to believe in a common bond between, for example, northern and southern Italians, or steadfast unity between Basques, Catalans and the Spanish nation, not to mention the Irish, the Welsh and the Scots, who famously all see themselves as happy Britons!

How about the idea that the rational basis of the nation emerged in its historical development into the nation-state, into a political organisation founded on enlightened constitutional patriotism? This, too, is a mix of fiction and delusion. Today's migration movements show how nations brutally exclude people willing to become patriots of their constitutions.

Today we can see how quickly it is possible to mobilise national grudges and aggression towards, for example "the Greeks", even in a society like Germany, which considers itself enlightened and politically correct. All a chimera, all fiction.

No matter how one analyses it, one meets the same rational basis for nationbuilding: it was an historical step – perhaps a necessary one – along the path that the European project for the first time trod peacefully. What was German nation-building, for example? Forty small states became a single market with a common set of rules and political institutions. Who would seriously contend that this represents the end of the history of the political and social organisation of humankind? Conversely, given the historical experience of National Socialism and the dynamics visible today, who would claim that nationalism can be definitively tamed?

Victor Hugo pointed out all the way back in 1850 that French nation-building was no more than a historical stage. "Just as Normandy, Brittany, Burgundy, Lorraine and the Alsace, all our provinces, were absorbed into France, *without thereby forfeiting their various advantages and unique qualities*", so all European regions and cultural spaces would inevitably "merge into a higher unity and form a European fraternity". When Victor Hugo published this utopia, his contemporaries, worthy critics whose names are forgotten today, recommended he be sent to the "fools tower", in today's parlance: the psychiatric ward. The ridicule was immense. Twenty years later came the Franco-German war. That wasn't so funny.

"The divisions between states in Europe have never been greater than they are today: each state shuts itself off in violent isolation, with laws, economic measures and autarchy. At the same time, all are aware that the European economy and European politics are a common destiny and that no country can avoid a world crisis by closing itself to the outside. [...] the two worldviews, national and supra-nationalism, face one another in the ring, the problems can be dodged no longer, and very soon it will become clear whether the states of Europe insist on the current economic and political enmity

or whether they wish to finally solve these energy-sapping conflicts through complete unification, through a supra-national organisation. [...] Will Europe continue to self-destruct, or will it unite?" These words were written by Stefan Zweig in 1932. As we know, both things happened. Continuing destruction, which became total, leading to the most terrible crimes against humanity – and then, as a result of these experiences, the process of unification.

One can find dozens of such quotes, from Novalis onwards, showing that poets, philosophers and free spirits often thought further ahead than so-called realists, who not only made themselves comfortable in the familiar, but continuing to defend the familiar even when it was no longer comfortable but murderous. This all goes to show that what the *zeitgeist* considered mad – or, to put it politely, utopian – often obeyed a more permanent rationality, or at least a deeper human longing, while the pragmatists always sank, very pragmatically, with the world that they were unable to think their way out of.

As utopian as it may sound to many, the notion of the necessary expiry of nations and the idea of a post-national Europe cannot be described as a utopia. Something that has realised itself over sixty years, in concrete steps in a concrete place, namely on our continent, cannot be a utopia. On the contrary, in the light of historical experience and what we can see happening today, the belief that nations can be rescued, and that they alone are able to guarantee freedom, autonomy, the rule of law, peace and security, can only be described as a negative utopia. It is the morbid power of the nations, the aggression with which they confront their diagnosed death, that has caused the European Union's current crisis. Although the nations *no longer* function, a developed post-national Europe does *not yet* exist. Moreover, we are now even afraid to imagine such a thing. At the same time, it is absolutely obvious that the parameters of our lives, all the processes and developments that we must form in order not to become passive victims, all the phenomena and problems for which we must find political responses, have long been transnational. The chain of value production is transnational, as are investments and profit returns, energy production, security problems, communications, the dangers connected to modern communications technologies, for example surveillance and control, ecological problems and so on. None of these stop at national borders, nor can they be managed within national borders in sovereign independence.

Is that clear? No. Just read the newspapers, read the posts and the letters of concerned citizens, read the results of the opinion polls. They show how strong the death out of habit still is, how dramatically the blindness to history is also blindness to the contemporary world. Everything that the concerned citizen does, everything that gets him excited, all the unsolved problems and the conflicts that smoulder and reignite, again and again, each time more violently, are taken as proof that the EU doesn't work, that it can't work. At the same time, the demands of national governments that "this reality" be recognised, that national sovereignty and so-called national interests be defended more effectively, become more and more aggressive and radical. And yet it is precisely these national blockages of common policy, the constant direction of political symbolism towards national electorates, that lead to the political blockage of the Union as a whole, and of every individual member, to political ineffectuality and the desperate and pointless recourse to old and ineffective methods. What today we call crisis is exactly this: the unproductive contradiction between post-national development and re-nationalisation.

Everything we talk about with growing excitement is merely a succession of symptoms. Or, as Hegel put it: “Standing on the brink is often least adequate.”

AND YET IT IS REASONABLE

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Post-national development has become global objective reality. What we call globalisation is nothing but the gradual disempowerment of the nation-states. Yet Europe is the only continent where disempowerment isn't just happening, but where, over sixty years ago, it was set in motion as a conscious political decision and developed in small, controlled steps as a transnational community of solidarity. That's why Europe has greater expertise than anywhere else on globalisation. Or at least: *had* greater expertise. Today, it is trapped between *no longer* and *not yet*, paralysed on one side by its cowardice to continue along the path, and on the other by its fear of the backlash; between amnesia about what it all meant and absence of imagination about where it is all going, between post-national development and brutish re-nationalization.

This blockage can only be cleared, the crisis resolved, by reconstructing the idea of the European project. The story that needs to be told is the desperately sought “narrative” that Europe allegedly lacks, but which in truth has merely been repressed. The idea of building the first transnational continent, and in doing so being part of an Enlightened avant-garde, would be sufficiently fascinating for those whose damaged national pride needs a rational remedy. No one bold enough to call themselves human wants to feel better by shamefully excluding others in their peer group; no one bold enough to call themselves human being wants to be politically exploited in the name of ideological solidarity, to repeat the mistakes of the past, to compete with others for the biggest slice of the global pie, to measure their success in the statistics of their nation. It isn't national happiness that a human being seeks, but universal human rights.

The engagement of the concerned citizen shows itself not in a futile and increasingly aggressive battle to rescue national sovereignty, essentially the bellowing of nationalist and populist slogans, but in ambition to influence the *post-national* process in a *democratic* way, to further the development of Europe's democratic institutions, to strengthen its democratic legitimization, and to exercise the imagination regarding the formation of a *European Republic*.

Because clearly, the realisation, and hence the ambition, that the sovereign nation-states must die, raises the question of Europe's political constitution afterwards.

It is fascinating to see how far ahead the founding generation of the European project thought, how concrete their imagination was, how rooted it was in “Europe's realities”. To continue quoting Walter Hallstein's speech: “The primary European reality, as our work of unity sees it, is the European people, the European individual, as a member of his or her family, as a member of a community, of a home region. Hence the European communities, whose aim is to order the co-existence of the European people in a new and better way, are also responsible for a properly understood regional politics.” Regional politics soon became the heart of the political efforts of Hallstein and Monnet. For them, the region was the logical political unit of administration in a post-national Europe. It is the region that really forms people's mentality, that provides identity. Everyone knows that, just as a Bavarian knows that he isn't a Prussian, and that the only time both feel like Germans is during the weather forecast ... or, after reading the newspapers, in common

hatred of “the” Greeks. It is the region that has proven to be the sole social and cultural continuum in a history of constant and randomly shifting national borders. It is a hallmark of every region that their mentality and historical culture can’t be broken by any nation which they have entered or been forced to join. Conversely, despite having been randomly divided up after wars, having been split and separated by national borders, regions have never ceased to be common cultural spaces; and when their borders opened again or were dissolved by the EU, they have quickly and clearly proven themselves again. Moreover, all the European regions are roughly the same size geographically and have the same population numbers. It is the ideal size for getting a sense of the whole, for understanding the immediate realities of life, for participation in matters of political organisation, in other words the desirable political engagement of citizens, for subsidiary democracy. And that is crucial for the democratic development of a European republic. As Walter Hallstein said: “Were it our intention, through the creation of a common market, merely to release economic forces, and to move populations to wherever their labour can most rapidly be turned into economic gain, then we would be forgetting that the human being isn’t merely a homo economicus or a homo faber. We do not regard the goal of human relations as lying in the maximisation of the social product. *It is precisely here that we differ from systems of unfreedom.*”

I now want to repeat very slowly what the founding intention, insight, plan, aim and reasonable basis of the European project were. This was a project that no longer wanted to Europeanise colonies and to defeat European competitors, that was ready to “sacrifice” millions in the name of the fiction of national greatness. Rather, “it wanted to be a Europe that, for the first time in history, would start to Europeanise itself” (Susan Sontag on the EU).

When this idea entered the Lisbon Treaty in the form of “Europe of the regions”, the national representatives saw it as a platitude at best. (Though we know from 1989 and what followed how platitudes can assume historical force! Oh, you poor, expiring national representatives!) Yet wherever it had the chance to develop, the idea has proven itself. For example: South Tyrol. There can be no doubt that South Tyrol’s prosperity and the satisfaction of the large majority of Southern Tyroleans can be attributed not to its belonging to the Italian nation, but to the fact that it is an autonomous region in a free European network. Of course, there are people in South Tyrol who have good reason to criticise the situation there. This only goes to prove that, as long as we haven’t discovered the door to paradise, subsidiary democracy is the worst of all forms of rule, apart from all the others, including national democracy.

The idea of a Europe of regions would be able to realise a principle of the Enlightenment, one that has also become a worn-out commonplace, without ever being completely realised: this is the principle of equality (of opportunity). Freedom, equality, fraternity – that is the treasure that we have inherited from the French Revolution, and that continues to represent the fundamental capital of our political efforts today. This legacy of the revolution remains the ambition of enlightened politics, despite having been travestied by the greedy heirs of the revolution, people too stupid even to spell the concept of revolution, to their profit and our misère – freedom from social responsibility, equality of the commodity of labour, fraternity in price fixing. Take life opportunities. As long as it makes a huge difference whether you were born in a large, politically influential and eco-

nomically powerful nation, or in a small and politically and economically irrelevant one – in other words: whether you have to make a living in Germany or in a small half-island nation like Cyprus, then the idea of equality is a mockery. A Europe of regions as conceived by Hallstein and Monnet would deliver not only on democratic freedom but also on equality. As Hallstein said, “we must not limit ourselves to lifting outdated borders and allowing freedom of movement for people, goods and capital. *Instead, we must take on the traditional imbalances between the regions, not to mention the imbalances that have developed more recently.* Otherwise we would end up contradicting the goals of the Treaty of Rome, which demanded that economic gaps between individual regions be lessened *while at the same time protecting cultural differences.* The regional-political responsibility of the communities pertains not only to those areas where there is *danger of over-development*, but also to those areas that are economically underdeveloped. This means that when we carry out economic or social policy, *there must always be a regional-political element in our actions.* Regional politics must enter all these policies. However, the reverse is also the case: whenever we do regional politics, it involves European economic and social policy as a whole.”

I cannot understand what should be so wrong with a transnational community of solidarity, in an era when globalisation, though unstoppable, needs to be actively shaped. I cannot understand why, after all our experiences with nationalism, overcoming nationalism should be a bad idea. I cannot understand why today’s leaders consistently refuse to mention the ideas of their predecessors. Is it forgetfulness, misunderstanding, denial? Why, when these ideas indicate ways out of a crisis that the leaders have otherwise failed to deal with?

**OH, RIGHT. THEY WANT
TO GET RE-ELECTED.
NATIONALLY.**

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One thing is clear: the nation-states are going down. The sooner we get used to this fact, the better our democratic and autonomous future will be.

Otherwise there will be soot and ashes all over again, suffering, ruins, scapegoats murdered en masse, the real sinners dead too. We will stand distraught before the smoking ruins and murmur: “This must never happen again!”

Hegel’s death out of habit. —

WEBLINK:

Web 1: // <https://www.eurozine.com/a-brief-history-of-the-european-future/>

PART THREE

Europe's future with science, innovation & digitisation

HELGA NOWOTNY &
HERMANN HAUSER

Europe is back

HANNA KUITTINEN,
WOLFGANG POLT &
MATTHIAS WEBER

Mission Europe?

CARLOTA PEREZ &
TAMSIN MURRAY LEACH

Smart & green

JOHANN FÜLLER

Ideas ahead

ANDREA RICCI &
MATHIAS WEBER

Beyond the horizon

WOLFGANG DRECHSLER

Will software eat the state?

SABINE HERLITSCHKA

Using digital momentum for Europe

SABINE T. KÖSZEGI &
MARK COECKELBERGH

**Envisioning our future with
robots & AI**

Euro
is ba
ck

Europe is back

*The future of research &
innovation in Europe*

HELGA NOWOTNY &
HERMANN HAUSER

THE IDEA OF EUROPE UNDER ASSAULT

To make predictions is always risky. At best, they are a forceful reminder of how little we know, especially when it comes to the future. At worst, they are based on extrapolations of what we now already know. In between are the technical reports that are low risk, but useful. They tell us in dry figures and graphs what to expect ahead, be it the available energy supply, the demand for rare earths or demographic trends that will impinge on how societies are likely to grow, feel and decide. And yet, making predictions is also attractive. They give us the licence to think ahead and to aim at the larger picture. And they come with a warning attached: do not take everything at face value, as facts may freely mix with normative ideas; *what* is with *what should be*. The biggest warning, however, is self-evident: every prediction may turn out to be wrong and should therefore be approached with humbleness. Despite the wisdom of the crowd the collective track record in making predictions is poor. As individuals, we are unlikely to do much better.

With these *caveats* we approach the task ahead: an attempt to answer a question that has plagued Europe for a long time. Why is it that Europe seems unable to turn the immense wealth of scientific ideas and impressive discoveries into the kind of innovation that fuels the economy and makes it become a major player on a highly competitive world market? Even if we concede that truly radical innovation, as defined by Keith Pavitt a long time ago, are rare, there are plenty of incremental innovations spawned continuously that beget ever more innovations. Comparatively few of them are generated in Europe and if they are, they are apparently unable to mature sufficiently fast before making the leap onto the global scene.

But what is this Europe today and how is it likely to evolve? Not surprisingly, it is a Europe that comes with multiple faces. The first is the very *idea of Europe*. It claims to be the origin story, born out of the bloody wars and terrible slaughters that marked the past century. It stands for a new beginning, the forceful aspiration towards Unity and *Never Again!* that emerged amid the ruins after World War II. The idea of Europe has often been summed up as a common, the European project, based on shared values and aspiring to guarantee peace while acknowledging the diversity of the Member States. The idea is still appealing to most people in Europe today – notwithstanding the tragedy of Brexit and not denying the gap that exists between the idea and political reality. For the younger generation that lacks the historical experience, the idea of Europe is one of open borders and open to the world. It is largely taken for granted, together with the lifestyle it has enabled: being connected, with the possibility of easy and cheap travel, being part of an international youth culture with English as *lingua franca*. And for those who wish to study abroad, an Erasmus fellowship is available to escape tight family bonds.

The assumption of shared European values, loosely defined as they are, has recently come under severe strain with the rise of nationalism and populist political parties in many parts of Europe. Values are often contradictory and are interpreted in different ways. Recent developments in the United States, however, have led Europeans to compare their overall situation with the ongoing transformation of a once greatly admired country into a hardly recognisable place. Many Europeans register with bewilderment that in the US millions of citizens are left without healthcare coverage; that poverty is on a rapid rise in one of the world's richest countries; that a highly unequal education system that hosts the world's top universities leaves a sizeable part of the population at levels of education unacceptable anywhere in Europe. Add to this the incomprehensible obsession with gun ownership that places the US at the top of manslaughter statistics.

It is in such a context that Angela Merkel's short sentence "We Europeans must take our destiny into our own hands" should be understood. Uttered in a beer tent in Munich in May 2017, it came as response to the intention announced by the 45th president of the US to dismantle or withdraw from the institutions that Europe has built and sustained over the past – from the Paris climate treaty of 2016 to the Iran nuclear deal, from the WTO to UNESCO. It is in this context that the idea of a European project must be revalued. Yes, the project remains overly bureaucratic and cumbersome in its design and implementation. Yes, it currently faces many hurdles and seems to stumble from one crisis onto the next. And yes, it is a project still under construction. It is often more appreciated and admired from the outside than from the inside. But it needs to be defended. In an interview published in *Corriere della Sera* on 24 December 2017 the writ-

er and Nobel laureate Mario Vargas Llosa exhorted the reader not to fall under the spell of an unwarranted pessimism: “Europe of today is threatened by nationalisms, from the Iberian peninsula to the post-communist East, from Barcelona to Warsaw and Budapest. But the European Union, which you are the first to criticise, is the greatest achievement of all times since World War II. You should like it more and defend it against localisms and nationalisms” (Vargas Llosa, 2017).

Less noted in the political arena and hence more protected against virulent nationalisms has been the largely successful implementation of the support of research, technology and innovation in the European project. The 9th Framework Programme is currently under preparation for the seven years following 2020. With some pride and satisfaction Europe can look forward to building upon what has been accomplished so far. The Framework Programmes have continued to gain in profile, clarity of objectives and overall amount of funding to support RT&I at a European level. They have achieved the goal of connecting Europe in this domain. Competitive European funding has been established as the norm and so has collaboration with industry. Complaints about too much bureaucracy persist, but overall, a satisfactory alignment of EU policies and national RT&I policies in Member States has been achieved despite continued discussion about what should be funded at an EU and what at a national level.

In this respect, the undoubted success of the European Research Council, ERC, holds an important lesson. With scientific quality as the sole and overriding criteria, the ERC has been able to set up a highly competitive world-class funding agency for frontier research. It has vindicated a bottom-up approach without thematic priorities to work best for fundamental research. But it has also shown that such a highly competitive programme favours applicants and their host institutions that work in environments that succeed in preparing their best for playing in the champions’ league. Working in countries whose GDP spending for RT&I falls under a critical threshold clearly disadvantages their researchers. The few who succeed are likely to move to places where working conditions and career prospects are better.

THE EUROPE OF REALPOLITIK

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This brings us to the other face of Europe, that of *realpolitik*. Its dynamic depends on the vision and the actual power exerted by the present leaders, their mutual relationships and on the extent domestic issues are able to dominate the European agenda. Whether the apparent strains in the relationship with the US will push European countries towards more profound reforms of EU institutions remains to be seen. Emmanuel Macron has announced his plan for reforming Europe under the slogan of “*l’Europe qui protège*”. It is too early to say whether Germany and France will be able to realign their contrary positions on many issues and whether a viable compromise can be found in order to move Europe forward (Leonard, 2017).

An unexpected additional aspect of the Europe of *realpolitik* has recently been captured by Ivan Krastev’s book *After Europe*. It is well-argued and presents thought-provoking theses. The defining moment for Europe is the current migration crisis. Krastev claims the same significance for it that the attacks of 9/11 held for the United States. The sudden inflow of millions of refugees and migrants has rendered differences visible that persist between Eastern and Western Europe. In the name of the proclaimed freedoms of

movement of goods, services, people and capital these differences have long been ignored. The promises of a brighter economic future made when the new member countries joined the EU completely overshadowed the deeply rooted historical experience of people living in the former communist countries. The refusal to accept refugees under a European quota system, according to Krastev, is due to a profound historical divide. While Western Europe from the late 1960s onwards underwent waves of modernisation that transformed it into open and multicultural societies, the liberation from former communist rule was experienced as a national, if not nationalistic, awakening (Krastev, 2017).

In the relatively small Eastern European countries one of the celebrated freedoms that comes with EU membership, the free movement of people, may paradoxically turn into resentment against the EU. The choice of the most dynamic and well-educated younger generation to leave their home country in order to take up better-paid jobs and more promising lives in Western Europe, continues to cause resentment by those who have to remain. A sizeable exodus coupled with the demographic trend of ageing societies reinforces the fear stoked by nationalistic and populist political parties that the acceptance of migrants would threaten the cultural identity and the very existence of the nation.

Such a brain drain is even more salient in the RT&I area. Despite many well-intended efforts on the part of the EU, the process of catching up economically, but also culturally, in the new Member States has been much slower than expected. Investments in RT&I remain low. Universities and research institutions struggle with insufficient funding and delayed reforms of their governance. This is combined with the bureaucratic and legal inability to divert effectively at least a part of the structural funds that Brussels generously pours into the Eastern European countries into strengthening the infrastructure for research and innovation. Efforts to include Eastern European countries in programmes like “smart specialisation” failed to have the desired effect. Precious human resources remain scarce and are attracted to work outside the country. They will fail to return unless overall working conditions, including the internal governance of academic institutions, are markedly improved.

Concentration effects in research and technology are nothing new. The Matthew effect in science, according to which a disproportionate amount of recognition is attributed to individuals and institutions which already have a high reputation, has repeatedly been proven empirically. It is reinforced by university rankings that have become ubiquitous. The US also boasts a high degree of concentration of academic and innovation hot spots on its East and West coasts, with relatively sparse attractive places in between. Scientific excellence is known to attract scientific excellence, which can clearly be seen in the concentration of ERC grants. As of December 2017 the top 50 host institutions host 50 percent of the ERC main grants (i.e. 3,962 out of 7,892 grants). The next 100 host institutions host about 25 percent of the ERC main grants (i.e. 2,025) while the last 595 institutions host the remaining 25 percent of the grants. Likewise, the top US universities with their immense endowments and well-honed selection mechanisms in staff recruitment and student admission largely and operating as private corporations, display the concentration effect. So do Cambridge and Oxford and ETH Zurich for Europe. They have all learned to combine scientific excellence at a world level with academic freedom and well-funded, intense innovation activities. Concentration is the norm and not the exception. Yet, seen from the perspective of *realpolitik* for those who find themselves on

the other side of an already entrenched political divide, such concentration phenomena can become an explosive issue, adding to other perceived grievances.

GLOBALISATION, DIGITISATION & MORE CHANGE TO COME

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evolve with the complexity of our societies. Innovation will remain a driving force, albeit one that will continue to evolve, changing in content and how it is organised. We therefore envision a future Europe in full thrall of digitisation, with AI and machine-learning having become pervasive in all domains of work and life, acting as highly sophisticated tools in novel forms of symbiosis with humans. The discussion on whether AI will have the power to destruct an entire civilisation will still go on. So will the resistance against the power amassed by a few large corporations holding on to more data and what to do with it than any government.

We further assume that Europe will still exist, most likely in a fragile balance with a strengthened China that has finally taken on a leading role at global level, largely at the expense of a weakened United States that must still be reckoned with. Europe will have progressed as a union of federal states. Digital technologies will have become an integral part of how people live their daily lives, but more importantly, they will enable new forms of governance through widely distributed networks of coordination. Simulation models and interactive games will generate novel forms of participation, transforming our current ideas of representative democracy into something that relies on institutions that are considered trustworthy, perhaps with the help of novel technologies like blockchain (if the problem of its excessive energy consumption has been solved by then).

Here is where we end our speculative history of the future, as we do not feel sufficiently competent as sci-fi writers. So, you might ask, are you predicting just more of the same? Yes and no. History is made of long threads of continuities, but punctuated again and again by events that decisively change the course. When and where they occur is impossible to predict. We are making some progress in our ability to look a bit further and unravel some of the unintended consequences of human action. Simulation models and complexity science open our horizon. However, nothing in the human past warrants the conclusion that this time we will be better prepared to act upon what science renders visible. Only too often, humanity continues its sleepwalking.

Two major trends highlight the challenges that lie ahead. They are globalisation and technological change. Globalisation has a long history. It is certainly not an invention by neoliberal economists. Today, it exists in the interconnection and integration of global economies across national borders through trade, investment and migration. Underpinning, if not directing many of these developments, is the sharp increase of global financial interdependence which has reached unprecedented levels. This integration has led to global growth, especially in poor countries like India and China, while it also induced distributional stress in rich countries. The social and political consequences of this uneven development are experienced today, calling for adequate mitigating policies if we want to exploit wiser the opportunities globalisation offers (Kanbur and Nowotny, 2018).

Let us now take the plunge into the unknown – into a future that is both open and radically uncertain (Nowotny, 2015). Whatever else may happen, we can be fairly confident that science and technology will continue to co-

Technological change in the last 75 years has also been spectacular. In the last four decades computerisation and digitisation have spread to practically all sectors of economic activity and daily life. Internet penetration and mobile phone usage have exploded, with almost half of the world's population now connected to the internet. The price of telecommunication has sharply fallen. Mobile devices have become a new form of data collecting and interactive processing. They generate a huge amount of data on consumption patterns, health and life style monitoring, mobility and communication patterns. These data are utilised to set up entire new services and industries, designed for prediction and prevention, for selling not only new products, but novel experiences. In turn, these services continue to generate more data through interactive networks. As many of these far-reaching technological changes occur through and within globalisation, it is all the more important to follow the different effects they might have in different parts of the world, including their unintended consequences.

Another way of analysing some of these long-term trends is to look at the changing relationships between natural resources (i.e. matter), labour (i.e. human resources), information (i.e. knowledge and technology) and capital (i.e. infrastructures, global financial flows, DFI). A report on the future security environment of the US depicts a plausible scenario in which future use of both natural resources and labour falls, while the use of information and capital rises. The strategic elements in this scenario covering a time horizon till 2050 tend to be the technical advances that can be characterised as being “smaller, faster, lighter, denser, cheaper”. These technologies include sensors, precision, autonomy, hydrogen, fuel cells, linear motors, rare earth elements, additive manufacturing, logistics on a huge scale, sharing to boost utilisation and performance enhancement. However, such finely tuned, lean systems are also fragile and thus contain risks (Ausubel et al., 2015). The predicted shift towards the dominant role which will be assumed by information, including Artificial Intelligence and Deep Learning, and capital concentrated in large corporations such as GAFA (Google, Amazon, Facebook, Apple) puts the spotlight even more on the open questions of the future of work, the use of human resources and an overall adequate regulatory framework.

A seemingly mundane example that illustrates many of the quandaries lying ahead is the European car industry. The fact that electric cars are becoming as economical as conventional engines, is hardly a surprise. The speed at which autonomous driving vehicles, ADV, will take over the market remains debateable, but there is little doubt that they will acquire a significant share with far-ranging consequences for how we plan our cities, working-time arrangements and transportation logistics. Even more far-reaching will be the necessary re-structuration of business models, ranging from the car manufacturing firms to insurance companies.

There are still a few obstacles on the way for electric cars to become mass produced. One of them is the cost of the so-called powertrain – the cost of the motor and other components that make the car go forward – that will have to keep decreasing with the price of batteries as the crucial cost item. The supply of affordable material like lithium, cobalt and graphite will have to be secured, just as the network for charging stations will need to increase in density. But sweeping changes are also expected for the industry that furnishes car parts, as electric cars have about 25 percent fewer parts than conventional vehicles. Companies engaged in producing engine parts will have to come up with new

products or will be out. Gas stations as we know them will disappear. Other likely changes are the loss of fuel tax revenue for governments and the construction and maintenance of highways will need new finance models. Meanwhile, the race is on between car companies to redeploy their vast manufacturing network in order to meet the demand for electric vehicles faster than Tesla, while struggling to change their erstwhile successful business model at the same time (Ewing, 2017).

Similar sweeping changes lie ahead for the healthcare system. The drive towards precision medicine that allows for “high-definition” is rapidly picking up pace. More than anything else it is the advance of digitisation in the life sciences that has opened completely new avenues for “Life Out of Sequence” i.e. the sequencing of genes, cells, neurons and other entities of biological organisation (Stevens, 2013). The new digital formats allow for unprecedented interventions by harnessing the digital code. It allows to capture real-time evidence on health and disease through a stream of one kind of data and to compare it to billions of other high-resolution personal profiles as well as for “you-to-you” comparisons over time (Testa, 2018). Already now, the doors of the labs have swung widely open for start-ups as well as for pharmaceutical giants eager to seize the immense opportunities. In the meantime, governments, ethics and various regulatory committees are struggling how to find the right scale at which to adjudicate and regulate a health enterprise whose reach and depth in changing how medicine is practised, how healthcare is delivered and which therapies will be offered at what cost and for whom, are still to be defined.

It will thus be of utmost importance to find new collective mechanisms of support to adapt in time to rapidly changing circumstances. This is perhaps most urgent for the workplace where a bygone industrial age interpreted the hiring of labour and loss of employment as a temporary, cyclical phenomenon. But the need to replace obviously failing institutions designed as answers for the problems of a previous age extends much further. It includes current pension and education systems; the (mis)management of the urban-rural divide; and health care systems utterly ill-equipped to adapt to the opportunities offered by the “digitisation of life”.

**UPSCALING
INNOVATION
IN EUROPE.
BUT HOW?**

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In the concluding part we return to the question posed at the beginning: why is it that Europe is seemingly not able to fully utilise its impressive scientific capabilities and transform them into innovative products, processes and firms that succeed at the international market? Obviously, the question has a comparative – and a competitive – dimension. While China and, more generally, Asia are treated with a mixture of admiration and fear of unfair competition, a focused, long-term and analytical comparison is often missing. These are countries, it is said, with political regimes that allow quick and effective top-down decisions, while Europe is hampering itself with excessive bureaucracy, excessive ethical considerations, or both. The fact remains that a huge asymmetry of information persists. The depth and amount of knowledge about Europe in Asian countries is far higher than the information and knowledge we have, or care to have, about them.

The comparison with the US raises a number of different points. Not only are all the big high-tech corporations, like GAFA, based in the US, but so is Silicon Valley, the

dream of any innovator in Europe. The US is widely admired for its alleged “culture of failure”, the lack of which is ritually deplored in Europe. Inevitably, such a stereotypical comparison ends up in glossing over major differences of relevance. The historical development in the time after World War II is obviously one of them and so is the central role played by the US military in defence-related research. While historical trajectories undoubtedly confer many advantages, they can also lead to lock-in technologies and situations. In any case, it is too late to alter them. Amenable to change, however, is the enormous discrepancy in the availability of venture capital in the US compared to Europe.

According to surveys available through the World Economic Forum* European venture capital activity is just a fifth of what it is in the US. This is partly due to the legendary attraction Silicon Valley has exerted on investors, entrepreneurs and talented young people from all over the globe, resulting in billions of dollars that have been poured into the US economy. Among the most important factors that have prevented many European technology companies from reaching the same levels of dominance as those in the US are the advantages that have accrued to the US venture capital industry from an early start in the 1960s and '70s. According to a recent report by Ernest & Young there are signs, however, that this is reaching a turning point and that the European venture capital industry and the investment ecosystem have matured. While the US venture capital industry had a head start of a couple of decades on European VC, more than half of European firms have now been active for over 12 years. This means that many experienced fund managers exist who have seen multiple cycles and have developed track records with sector-specific knowledge. Investors can therefore expect to be offered far more compelling investment propositions compared to ten years ago. Last year, Europe's venture capital funds raised EUR 6.4 billion – a nine-year high – according to Invest Europe data.

Compared to the US, European funds have also been significantly smaller, but this too is changing. According to WEF records, nearly 30 percent of funds raised in 2016 were over EUR 100 million, which increases the ability of major institutional investors to access the asset class.

Fig. 1 // Top countries for total venture capital invested. (Share of total venture capital invested 2014, \$ billions)

¹ The following section relies heavily on: <https://www.weforum.org/agenda/2017/11/europe-venture-capitalists-silicon-valley/>

8/10

Fig. 2 // Eight of the world's ten most innovative markets are in Europe, with the top three places held by Switzerland, Sweden and the Netherlands.

This rise has not gone unnoticed. The WEF data show that North American investors contributed approximately 10 percent of capital invested in European VC funds over the last five years. This is double the average for the previous five-year period. Further advancements point in the same direction. Venture capital investments into European start-ups and SMEs have continued to increase, reaching a total of EUR 4.3 billion in 2016 invested into more than 16,000 European companies. At a European level, the European Commission and the European Investment Fund announced a EUR 1.6 billion fund-of-funds programme to further increase fund sizes and attract larger institutional investors. In its Capital Markets Union the Commission has amended the venture capital regulation, making it easier for VC firms to make cross-border investments. The Capital Markets Union also includes actions to further reduce the number of existing barriers, which are still higher than in the US.

Europe's diversity also has advantages. Tech hubs, from Amsterdam to Zurich, are thriving. Many of these hubs are internationalising quickly. According to Invest Europe, ICT companies across Europe are receiving the highest proportion of VC, followed by thriving biotech and healthcare start-ups. In the Global Innovation Index, Europe has become home to eight of the world's ten most innovative markets, with Switzerland, Sweden and the Netherlands holding the top places. European VCs are able to fund these innovative companies at lower valuations than their US counterparts. "Unicorns", the billion-dollar companies in Europe are valued at 18 times their annual revenue compared to an average of 46 times in the US.

To summarise: for investors, the chief determinant of European VC is the return it generates. The European Investment Fund is VC's largest single investor across the Continent showing strong returns in today's low yield environment, with ten-year net annualised returns of 5 percent, five-year returns at 9.5 percent and three-year net returns at 12.2 percent. Its top 30 funds from 2007 onwards delivered a median net return of 27 percent. While Europe lacks a Silicon Valley, global investors have begun to harness the opportunities on offer. With venture capital fundraising and investments on the rise, impressive exits and returns, and supportive new EU initiatives, the future looks good for investment in Europe's pioneering start-ups and SMEs.

How to strengthen the innovative capacity of Europe remains a major challenge, but one has to keep in mind that the process of innovation itself is also changing. Although the role played by creative individuals will remain, the process of innovation has already become much more complex. It thrives on ideas coming from many sources

and will depend even more on multiple contributors working in a distributed network of innovators, supported by new technologies. The way in which innovation is organised will assume a much larger role. Joseph Schumpeter already drew attention to the organisational and financial innovation processes which are essential to be in tune with the processes of product and process innovation occurring within the firm. Empirical evidence shows that successful organisations are capable of reinventing themselves, again and again. They value expertise and are able to recognise, or even organise, the generation of innovative ideas, regardless where they come from. They cultivate internal and external connectedness in order to be embedded in wider networks. And, this is another important component, they know how to make decisions under uncertainty (Dodgson and Gann, 2010). While the management literature continues to spawn an endless number of case studies of successful and failed innovation, we still lack a comprehensive theory of innovation and how it evolves.

The future of innovation in Europe will also depend on what happens today. Recently, an entrepreneurial culture with a specific European bend has emerged in some unlikely places, albeit from a low level. Universities have begun to provide spaces for their students to try out innovative ideas and to familiarise themselves with entrepreneurship. Start-ups receive political attention and some support. Maker Faires, hackathons and various other competitions and rallies have sprung up seemingly spontaneously. They establish connections across cities and countries that allow for a kind of grass-roots entrepreneurial culture to unfold also in Europe.

Meanwhile, at the EU policy level and in close interaction with the innovation policy community discussion on directed innovation has picked up, geared towards a greener economy and sustainability goals. The influential voice of Mariana Mazzucato has been instrumental in establishing mission-driven science and innovation at EU level with the aim of setting direction for innovation and creating new markets (Mazzucato, 2013). Another promising signal has come from attempts to transform the idea of a European Innovation Council, EIC, into concrete action.

Europe now produces more start-ups than the USA. The problem is making them scale up. For an innovation ecosystem to be successful it needs the cooperation of many parts of society. Innovation is a team sport which requires at least the following five ingredients: competent entrepreneurs; an experienced Venture Capital community with enough funds; universities supportive of spinouts and efficient IP transfer; large companies; government tax incentives for business angels who are willing to take risks and are able to act as

Fig. 3 // Where is venture capital going?
(2014, US\$m)

mentors. Although Europe lags behind the US in all these requirements the progress over the last decades has been impressive. The steep gradient in the quality of the innovation ecosystem starting with Silicon Valley at the top and then declining through the East Coast, UK, and continental Europe has become much shallower, although the pecking order still exists.

In order to address this deficit, Commissioner Carlos Moedas proposed the European Innovation Council (EIC). The EIC was conceived as a follow-on initiative to the European Research Council (ERC). It retains excellence as the core selection criterion which has made the ERC so successful. It allows single companies to make bottom-up applications to the EIC and there will also be a DARPA-like mission-driven component. The three financial tools contemplated include: (1) Awards for proof-of-concept projects (2) Equity: Enhancing VC investments by a given multiplier (e.g. 2x) for qualified projects and (3) Loans: providing loan guarantees for high-tech companies.

All these are aimed at innovative companies in Europe, which we hope will include the UK. It is also proposed to create EIC fellowships which will allow start-up CEOs to mix with CEOs and CXOs of Europe's large companies as it has become clear that SMEs can benefit from the market access, finance and market knowledge of large companies. In turn, it has become clear that large companies have an innovation deficit which only agile, sometimes somewhat crazy start-ups can fill. The EIC will be part of the Framework Programme 9 starting in 2021, but there will be a pilot using existing funding streams starting in 2018.

Europe has never had a technology gap – the main problem was lack of management expertise for start-ups and scale-ups. This is improving rapidly as is the availability of venture capital which is still on one-fifth of the US. The EIC is trying to help by supporting the ecosystem financially as well as by bringing the right people together to make European Innovation the success it deserves to be.

Nobody knows what the future holds and undoubtedly many unexpected events and developments will occur. Seen from the perspective of 2018, the future for research and innovation in Europe does not look bad at all. —

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FIGURES

Fig. 1 // Ernst & Young

Fig. 2 // Global Innovation Index

Fig. 3 // World Economic Forum Collaborative Innovation report 2015

Miss
Euro
?

Mission Europe?

*A revival of mission-oriented
policy in the European Union*

HANNA KUITTINEN,
WOLFGANG POLT &
MATTHIAS WEBER

WHY MISSIONS MIGHT MATTER (AGAIN)

—

In recent years, there has been a renewed interest in the concept of so-called “mission-oriented research, technology and innovation (RTI) policy”. By mission-oriented research, technology and innovation policy we understand “initiatives [which] typically are ambitious, exploratory and ground-breaking in nature, often cross-disciplinary, targeting a concrete problem/challenge, with a large impact and a well-defined timeframe. More specifically, they have a clearly defined (societal or technological) goal with preferably qualified and/or quantified targets and progress monitored along predefined milestones. Directionality and intentionality of these initiatives is what differentiates them from other types of initiatives, such as systemic or challenge-oriented policies” (JIIP, 2018a, 4).

This interest has grown against the background of two developments: While so-called “horizontal” or “generic” approaches to research, technology and innovation policies have by and large been successful in improving the general innovation performance in many countries, there were perceived limitations in terms of sufficiently addressing “grand societal challenges” such as climate change, security, food and energy supply or aging populations to name but a few. In addition, the success of mission-oriented approaches in countries like Korea, China and the United States in boosting technological development and competitiveness also gave rise to a debate which (again) asks for re-considering the role of government in technological change. A major impetus for the very recent discussion was the book by Mariana Mazzucato *The Entrepreneurial State*, which pointed to the potential of successful government intervention which had been neglected in the past decades (Mazzucato, 2013).

The debate on the appropriate role of government in research and innovation is not new, though. Since World War II, several waves of policy approaches have succeeded each other, each with a different emphasis on the main rationale and intervention logic (for a recap of the historical development, see Gassler, Polt, Rammer, 2006 and 2008, and section two of this chapter). These paradigmatic changes of research, technology and innovation policies were also reflected in the European context: Already in the preparation for the fourth Framework Programme for Research and Technological Development (FP 4), the so-called Maastricht Memorandum (Arundel and Soete, 1993), prepared by an EC expert

group, emphasis was put on the importance of a new type of mission-orientation (as opposed to the old, more narrow approaches of the immediate post-war period with their main focus on defence, aerospace and nuclear energy). Based on a systems approach to innovation, the idea of this new type of mission-orientation in R&I policy was suggested for long-term goals, exemplified by the area of environmentally sustainable development, which needs to be well embedded into societal needs and requirements. The influence of this programmatic document on the shaping of FP 4 was limited, but it seems to have been more influential on the next framework programme (FP 5), which introduced key actions targeting long-term ambitions cutting across established areas of research and technology development.

It was not before the mid-2000s that the notion of “missions” was taken up again. The Aho Report (Aho et al., 2006) called for “resurrecting the demand side of innovation” (Edler and Georghiou, 2007), and the subsequent expert group on European Research Area (ERA) rationales reintroduced the notion of key societal challenges to the debate about R&I policy in Europe (Georghiou et al., 2008). While this term was inspired by the “Grand Challenges” debate in the US, it differed by stressing the societal nature of long-term future challenges rather than focusing on scientific-technological challenges. The Lund Declaration of the European Council (2009) took up this idea and stressed the key role of the ERA for strengthening Europe’s ability to tackle such challenges, like global warming, tightening supplies of energy, water and food, ageing societies, public health, pandemics, security or an eco-efficient economy. With Horizon 2020, this approach was put into practice in programmatic terms, with the third pillar of Horizon 2020 and other multi-lateral initiatives in Europe (e.g. Joint Programming Initiatives) being dedicated to societal challenges.

In parallel to these developments at a European level, several Member States embraced similar concepts for redefining their research and innovation policies. The Netherlands had already started during the 2000s to integrate research and innovation policy initiatives into the wider context of transition policies, focused on specific areas like water management and energy supply. The specificity of the Dutch approach consists of combining R&I policy with organisational, regulatory and institutional changes in order to trigger a transition of the respective supply systems. In Germany, the High-Tech Strategy may have been initially motivated by the ambition to strengthen primarily the competitiveness of German industry, but it subsequently combined this goal with other, for instance environmental, goals (Dachs et al., 2015). The German “Energiewende” is yet another example of an ambitious policy aiming to trigger a process of transformation by combining new impulses from research and innovation with changes in regulatory and institutional framework as well as with major infrastructure investments. The French Commission Innovation 2030 and the Swedish Challenge-Driven Innovation programme may put more emphasis on the supply side of innovation than the Dutch transition approach or the German Energiewende, but they equally frame R&I policy in the context of ambitious sectoral policy goals.

The OECD has equally rediscovered the importance of a more comprehensive approach to innovation policy by looking into experiences with what it calls system innovations, drawing on some of the aforementioned national examples, among others.

It is against this backdrop that the specification of “missions” at an intermediate level of granularity was suggested as a focusing device to bridge the gap between societal

challenges and specific R&I projects (Lamy et al., 2017). With the recently published programmatic paper on mission-orientation in European R&I policy (Mazzucato, 2018), the rationales for a mission-oriented approach have been explicitly spelled out as a trigger of further political debate and public consultation. This debate is backed up further by the recommendations from other expert groups (ESIR, 2017, RISE, 2017), two major analytical studies on the empirical evidence on mission-oriented policies (JIIP et al., 2018a and 2018b) and foresight activities (Weber et al., 2018).

MISSIONS:

HISTORICAL & CONTEMPORARY CONCEPTS

–

Historical development of Mission Oriented Policies

In advanced industrial economies, technology policy has historically had a strong focus on promoting the development of specific new technologies that were expected to contribute to political, societal and economic objectives. In the pre-WWII era, occasional dedicated funding of research in agriculture (plant breeding, plant protection), health (vaccines), mining (geology and engineering) or navigation, transport and communication (shipbuilding, aeronautics, and telecommunications) are examples of an early type of technology and innovation policy. World War II may be regarded as the effective starting point for technology policy in the modern sense. Military needs led to a coordinated build-up of research capabilities and specific research institutions in certain scientific disciplines and fields of technology, e.g. aeronautics, nuclear technologies, and weapons-related engineering, on a massive scale. This was the start of the era of so called “mission oriented” technology policy. After WWII, mission-led technology policy continued by focussing on large scale R&D efforts, now mainly in two technological areas, nuclear energy and aerospace. Over time, this mission-led policy approach diversified into other thematic areas (e.g. ICT, materials, etc.) – sometimes more, sometimes less successfully – and was supplanted by other approaches as its inherent limits became visible. Since then, four principal approaches to research, technology and innovation policy could be distinguished:

- A **“traditional” mission-led approach**, which evolved during the 1940s (WWII) and the 1950s (emerging “Cold War”) concentrating on key military technologies;
- an **industrial policy approach**, meaning the broadening of the mission-led approach towards civil industrial “key” technologies beginning around 1960;
- a **systems-oriented approach** focusing on functional and generic aspects beginning in the 1980s and associated with the rise of the (national) systems of innovation framework;
- a **“new” mission-led approach** with an orientation towards technologies crucial for coping with new societal developments (such as demographic change and the resulting ageing, new health concerns, environmental sustainability, security).

These approaches are the reflections of different intervention logics and the perceived problems of the respective other approaches. Hence, they coexist in different mixtures and weights in today’s policy portfolios. In the following, we give a brief comparison of the different approaches (see Table 1):

Tab. 1 //

HISTORICAL DEVELOPMENT OF RESEARCH, TECHNOLOGY & INNOVATION POLICY PARADIGMS

STI Policy Paradigm	Thematic dimension	Conceptual/legitimatory dimension	Institutional dimension
“Old/traditional” mission-oriented approach	<i>Emphasis on “large-scale” technologies/technological systems (i.e. space, defence, energy, transport, etc.)</i>	<i>Production of “public” and/or “merit” goods – but not necessarily with an economic aim</i> <i>Addressing “market failure”, the main intervention logic</i> <i>“Linear model” of technological change and innovation</i>	<i>Top-down definition of thematic priorities</i> <i>Establishing of thematically specialised large-scale public R&D organisations (e.g. nuclear or space research centres)</i>
“Industrial policy” approach (“key civilian/dual-use technologies”)	<i>First: more narrowly defined “strategic sectors/technologies” (e.g. nuclear power, supersonic transport, micro-electronics)</i> <i>Later: other “general purpose technologies” (e.g. ICT, biotechnology, new materials, nanotechnology)</i>	<i>Fostering competitiveness in “strategic industries”</i> <i>Emphasis on static and dynamic economies of scale and specific market failures, especially spill-overs from “generic” technologies</i>	<i>Emphasis on planning, technology forecasting, technology assessment</i> <i>Establishment of “National Technology Programs”</i> <i>Increased efforts in “technology transfer” between basic/applied, military/civilian</i>
Innovation systems/systemic approaches	<i>Emphasis on “functional” aspects of the innovation system:</i> <i>Interaction & cooperation (especially industry/science relations)</i> <i>Conditions for business start-ups, regulation, improving “innovation eco-systems”</i>	<i>“Systemic failures” instead of market failures</i> <i>Addressing “innovations systems” as a whole, but with specific emphasis:</i> <i>National innovation system</i> <i>Regional innovation system/clusters</i> <i>Sectorial innovation systems</i> <i>“Open innovation” model gaining ground</i>	<i>Increasing number of actors/institutions involved in STI policy (e.g. agencies and councils)</i> <i>Regional dimension of innovation becomes important</i> <i>Great number of “horizontal measures” emerge (e.g. for Industry-Science Relations [ISR])</i> <i>Challenges of multi-level governance and policy coordination are accentuated</i>
“New” mission-oriented approach	<i>Sustainable development</i> <i>Climate change</i> <i>Food security</i> <i>Renewable energies</i> <i>Security & safety</i> <i>Demographic change and ageing</i> <i>Mobility</i> <i>Often “challenge-oriented” rather than “mission-oriented”!</i>	<i>Orientation towards societal needs and “Grand Challenges”</i> <i>Not confined to “supply/technology push”! Adoption, diffusion and demand-side are essential</i> <i>Systemic innovation of large-scale technological systems (e.g. infrastructures for mobility, energy distribution, communication ...)</i> <i>Social & institutional innovations increasingly in focus!</i>	<i>Integration of different societal groups, need for “participatory” approaches</i> <i>Need for horizontal coordination of hitherto different/distinct policy areas</i> <i>Much greater need for international cooperation in STI Policy</i>

The reason why these paradigms supplanted each other is that each paradigm has encountered its own limits and shortcomings: the “old missions”, conceptionally based on the linear model of innovation and with very centralised governance structures turned out to be an appropriate model for science driven large technological systems but not necessarily for market environments. The industrial policy approach had some successes (TGV, Airbus, ...) but also accounted for a number of failed projects on a grand scale because of difficulties of “picking winners” and proved to be vulnerable to “capture” from interest groups, resulting in what has been labeled “pork-barrel” politics. The horizontal and systemic approaches that were subsequently developed were largely successful in avoiding these traps, but on the other hand – as described in the introduction – were increasingly seen as not sufficient to cope with the specific requirements of the grand societal challenges, which again seem to ask for a more oriented, more coherent and more strategic type of policy intervention. Enter the new mission orientation.

There are substantial differences between the old and the new mission oriented approaches, though. Today, missions would have to reflect the complexities of societal demands and technologies alike. While asking for more directionality, the old very centralised forms of governance seem to suit only specific types of missions, as we have seen from our recent research. Instead, we found a considerable diversity of mission-oriented policies currently in place and showing different degrees of success. In the following, we undertake to describe and categorise these different types of missions with a view to provide the evidence on which policies in this realm can be based.

Typologies of current (new) mission oriented approaches

In this section, we want to introduce a more comprehensive and at the same time more systematic approach to differentiating current mission-oriented policies, by focusing on four main dimensions of these policies:

- *Motivation* (aspirational vs. problem-driven): Many of the missions currently under discussion are driven by the expectation that we may be facing major problems in the future, e.g. in relation to the state of the environment, in terms of social disparities, security matters, or health risks from epidemics. Reference to the UN Sustainable Development Goals is often used to provide rationales for the pursuit of such missions. Others are motivated by the ambition to enter new terrain; in other words, they are not driven by a perceived problem or challenge, but are exploratory and aspirational in nature.
- *Intention* (understanding vs. solutions): Missions differ in terms of the intention they are targeting. The key question is whether a mission-oriented R&I policy aims at better understanding a phenomenon, which is often the case in large-scale scientific missions, or whether it aims to provide a “solution that works”. A solution may of course often require understanding the underlying phenomenon, but as we know from the history of science and technology, realised solutions tend to rely only partially on codified scientific knowledge and to draw also on non-codified, tacit knowledge and experience. Moreover, it is simply a matter of fact that some scientific missions are first and foremost confined to understanding phenomena, with a vague idea, at best, of possible applications resulting from it.

- *Scope* (well-defined vs. ill-shaped): Missions differ from other types of R&I policy approaches by being focused on a clearly identifiable target. This target can be well-defined in terms of the ambition pursued as well as the outline of the envisaged solution (e.g. bringing and returning man to the moon, using a multi-stage rocket, or the doubling of the range of electric vehicles). Such well-defined missions can usually be turned into well-confined projects of limited duration and size. Other missions, however, are characterised by a vague target – whether or not limiting climate change to a two-degree increase by 2100 is appropriate is a matter of scientific debate – and a multitude of possible (partial) solutions. As they tend to be inter-related in complex ways, turning such ill-shaped and “wicked” missions into well-confined projects is almost impossible.
- *Means* (scientific-technological vs. socio-institutional): Many traditional missions have been technological in nature, as demonstrated by a recent review (Research Policy Special Issue, 2010/2012). Their widespread uptake, however, may require organisational, institutional and behavioural adjustments (e.g. in the medical or military domains). Other missions, however, may take social, economic or environmental challenges as their starting point (e.g. poverty) or require at their core social or institutional innovations.

Not all combinations resulting from these four dimensions can be identified in practice. The analysis of more than 200 examples of mission-oriented policies and programmes has shown that four types of missions prevail:

1. *Technology accelerators*: This is probably the most common and most well-known type of mission. They aim at realising – or improving the performance of – quite well-defined objects or technologies, by combining well-established building blocks with novel ones that require further research, inspired and guided by the mission. Technology accelerators are geared towards realising “solutions that work”. The initial motivation may have [been] societal in nature, but the key to solution is sought in technology.
2. *Science missions*: These type of missions aim at making a quantum leap in understanding phenomena, but it is not aimed at providing a solution to a challenge or problem, as in the case of technology accelerators (even though some vague ideas about potential applications may exist).
3. *Transformers*: This type of mission has become more prominent in recent years. Transformers aim to change entire systems of provision. As such, they are often motivated by major expected societal or environmental challenges, and they require addressing technological and social innovations, as well as structural and institutional changes of the systems in question. Given the complex nature of the systems, it is often not easy to specify the target and the means for triggering transformative change, implying an iterative approach of combining research on new solutions with their testing and upscaling as well as with better understanding system dynamics. Transformers do not necessarily have to be large in scale and scope, but due to the interconnected nature of many of the systems in question, it is a demanding task to specify well-delimited missions within the broader transformative agenda (e.g. a low-carbon system transformation).

- requires missions related to mobility, heating, industry, energy, agriculture, etc.)
4. *Umbrella missions:* It may be contested whether this fourth type constitutes a separate type of mission or not, but they are distinct in that they bundle several specific but rather disconnected missions under a common umbrella. This umbrella can be constituted by an overarching general goal (e.g. competitiveness as in the case of the German High-Tech Strategy) or by a common process of handling the different missions (e.g., as in the case of the Commission Innovation 2030). The realisation of an umbrella mission may then be based on a combination of different initiatives, some of which may be mission-oriented, while others are structural in nature or aim at improving conditions for innovation and diffusion in general.

Examples of new missions by type

This section presents some findings based on the mission-oriented R&I policy case studies undertaken in the projects led by the Joint Institute for Innovation Policy on behalf of the European Commission (JIIP, 2018a; JIIP, 2018b). The full case studies are available on the European Commission website.¹

The in-depth empirical work included a compendium of 18 very different types of mission-oriented R&I initiatives in terms of scale and scope and policy instrument applied, all cases being strongly rooted in temporal, geographical, political, and thematic contexts. The following will briefly describe the main characteristics of each type of initiatives and show indicative examples based on the case study findings.

Scientific and technology-centric accelerators:

An accelerator mission is targeted to advance scientific or technological development faster in order to achieve clearly predefined targets. They aim to provide technological solutions for problems arising from a socio-economic context by prioritising innovation activities. They often have well-articulated and time-bound objectives to make significant advances in technological development and deployment. Although the fundamental character of accelerator missions is to achieve radical innovation and technological breakthroughs, they can also have societal targets or lead to important (unintended) societal and economic effects.

The accelerator missions can have a wider or narrower scope. The wider scope accelerator missions are aimed at boosting the development of entire scientific field allowing the research and technological development to take various paths. The ongoing US Cancer Moonshot initiative is an indicative example of a scientific accelerator mission aimed at archiving in five years the advances in cancer research and treatment that without the initiative might take at least a decade. Other examples of these wider scientific missions include the historic US government mission War on Cancer, or contemporary initiatives such as EU Human Brain Project Flagship or US BRAIN Initiative that are targeted initiatives to better understand the function of human brain and fight against a multitude of neurological disorders.

¹ https://ec.europa.eu/info/publications/mission-oriented-research-and-innovation-policy-depth-case-studies_en

FIGHT AGAINST CANCER: FROM THE US WAR ON CANCER TO CANCER MOONSHOT

The US government initiative War on Cancer started in 1971 with the signing of the National Cancer Act by President Richard Nixon, and reflects the national effort to find a cure for cancer by increasing research to improve the understanding of cancer biology and the development of more effective cancer treatments. The initiative relied on a sophisticated scientific and technological research system, with a high level of coordination and networking between the actors, allowing the leverage of most of the synergies and complementarities, and to accelerate the delivery of the results and benefits. Despite significant progress made in cancer detection and treatment, the initiative did not erase cancer, and it has been argued that the target setting was overly optimistic and undermined the complexity and nature of the challenge. The War on Cancer initiative can be considered as a precursor of the on-going Cancer Moonshot initiative. It was launched by President Barack Obama in 2016 to accelerate cancer research, improve access to therapies for more patients and increase the ability to prevent and detect cancer early. The aspirational target is putting the country on a path to achieve, in five years, research and treatment gains that otherwise might take at least a decade. This initiative aims to develop and implement solutions to accelerate progress in cancer prevention, detection, diagnosis, research and care, and to reduce disparities in cancer outcomes. The initiative wants to inject urgency into the cancer research and care systems, and reimagine how the government, academia, non-profits and private sector can better organise their resources to collaborate to take on cancer, with the patients at the core of the initiative.

UNDERSTANDING THE HUMAN BRAIN: THE EU HUMAN BRAIN PROJECT & THE US BRAIN INITIATIVE

On 2 April 2013, President Obama launched the BRAIN Initiative as part of a broader White House Neuroscience Initiative to “accelerate the development and application of new technologies that will enable researchers to produce dynamic pictures of the brain that show how individual brain cells and complex neural circuits interact at the speed of thought.” The challenge is to map the circuits of the brain, measure the fluctuating patterns of electrical and chemical activity flowing within those circuits, and understand how their interplay creates our unique cognitive and behavioural capabilities. The enhanced understanding of the human brain is expected to lead solutions to neurological disorders and diseases. The Human Brain Project (HBP) is a 10-year European Flagship project initiated in 2013, targeting a comprehensive understanding of the human brain. HBP aims to combine all existing knowledge and data about the human brain for building a realistic computer model of the brain by 2023. Such a model will help researchers understand how the human brain works and the diseases affecting it. The initiative is a result of the endeavours of the European Commission to address grand scientific challenges through sufficiently long-term multidisciplinary research initiatives, termed FET Flagships. The FET Flagships present a new partnering model for long-term European cooperative research, demonstrating the potential for common research efforts and strategic

alignment of scientific research programmes in fundamental neuroscience, advanced simulation and multiscale modelling with the construction of an enabling research infrastructure.

One fundamental characteristic of the scientific missions, such as those on cancer or understanding the human brain, is the fact that the scientific progress is very complex to predict. Scientific discovery can occur in a much unexpected manner and arise from a large variety of scientific disciplines. For instance, cancer research has significantly advanced through the successful mapping of the human genome, inherently not directly related to cancer research. The War on Cancer initiative did not only contribute to enhanced treatment of cancer but also came up with cure for AIDS, showing in practise how scientific breakthroughs can be the result of advances in another scientific discipline. In this vain, the EU Human Brain Project was heavily criticised by the scientific community due to the neglecting of the cognitive sciences, and building a model of the brain from individual neurons without holistic understanding of the role of brain behaviour. The serendipitous manner in which science is advancing would suggest that scientific accelerator missions would need to be explorative by nature and fund science very broadly in order to allow the best solutions to emerge from a wide variety of scientific disciplines.

Accelerators can also take the form of more narrowly scoped technology focused “moonshots” that have a more precisely defined technological target, such as the Apollo mission, aimed at taking a man to the moon and back, or the pan-European Concorde mission with a supersonic aircraft as a target. The technological accelerator missions can also occur as shorter-term funding impulses to rapidly solve an urgent problem, such as the development of the malaria and Ebola vaccines.

LANDING A MAN ON THE MOON: US APOLLO PROGRAMME

Apollo was a US government programme in the 1960s designed to land an American on the moon and return him safely to Earth before the end of the decade. The programme can be considered a fruit of its context: during the Cold War it was of key importance for the United States to be the first nation (especially before the Soviet Union) to send a man to the moon. The initiative was led by a dedicated NASA programme office and involved a great number of private and public stakeholders, bringing together a wide variety of technological expertise needed to accomplish the mission. In essence, the Apollo can be considered a large public procurement initiative upscaling and demonstrating manned space flight. The Apollo programme was successfully accomplished on July 1969 when the Apollo 11 mission set foot on the surface of the moon. The implications of the programme were much wider than the original scope, as Apollo spurred advances in many technological fields and contributed to innovations in a variety of sectors, such as medicine, food, geology, telecommunications, computing and biosciences. The programme can be attributed to over 1,800 spinoff products so far. It should, however, be noted that the initiative had a very large budget (approximately 0.8% of the GDP) and did not have direct societal relevance, which in today's context seems to be rather unrealistic conditions for a mission-oriented policy.

RESILIENCY AGAINST FLOODING & CLIMATE CHANGE: THE DUTCH DELTA PLAN

The Delta Plan originally dates from late 1930s. After the North Sea flood of 1953, the initial plan was revised and the new Delta Plan was developed to protect the Netherlands from flooding by developing a series of construction projects to shorten the Dutch coastline by a total of 700 kilometres. To be able to accomplish the mission, research and technological development were needed to develop and build tailor-made construction works and to take into account safety on the one hand, and nature, tourism and the economy on the other. The project is still ongoing, because the fight against flooding is a permanent challenge. Furthermore, since 2008 the mission has been broadened. Besides the protection from flooding by the sea, the current Delta Programme (initiated under the Second Delta Plan) aims to make the Netherlands resilient to climate change and ensure a sufficient supply of fresh water in 2050.

GLOBAL COMPETITIVENESS OF THE EUROPEAN AEROSPACE INDUSTRY: CONCORDE & AIRBUS

The Concorde was the first supersonic transport passenger-carrying commercial airplane, built jointly by aircraft manufacturers in France and the United Kingdom. The collaboration was launched by the signing of a bilateral agreement in 1962 to share costs and risks in producing an SST, with the first prototype produced 10 years later and the first routes inaugurated in 1976. The aircrafts manufactured were procured by the respective state-owned airline companies, British Airways and Air France. Their Concorde fleets flew to destinations all over the world, mostly on transoceanic routes. Due to financial unviability, which hampered its uptake by other airline companies, and the fatal crash of 2000, Concorde operations finally ceased in 2003. Airbus is a consortium established in 1964 of European aerospace manufacturers, set up by the French, UK and German governments, and was founded to compete against the US aircraft manufacturers. In comparison to Concorde, Airbus has a much stronger market orientation and a strategy much more aligned with the needs of airline companies. Nowadays, Airbus is a private company involving British, French, German and Spanish partners. The first aircraft available under the Airbus brand was the A300, in 1972, and since then, Airbus has become one of the world's top two commercial aircraft manufacturers, competing directly with the American Boeing Company.

Technology missions are more often focused on accelerating or upscaling technological development when a dominant design is already more defined or at least more predictable. The initiatives are often based on a strong innovative ecosystem that provides a suitable framework for missions to flourish. In many cases, the success of the mission is due to long historical trajectories and prior creation of R&I capacities. Although an accelerator type of mission is aimed at achieving scientific and technological progress faster, it may actually be based on decades of prior research. The Apollo programme, in essence, was a large demonstrator project bringing together and upscaling many technologies and was founded on the long-term research of NASA.

At least for some of these technology accelerator missions, public policies directly or indirectly supported the demand for the new technologies. For example, the Apollo programme was a public procurement initiative, and similarly the Delta Programme is about public infrastructure development to protect the Netherlands from flooding caused by the rising sea level. Similarly, for the health missions, governments are important stakeholders and users of some of the new technologies developed for addressing public health, and public procurement or regulatory policies have been used to promote certain technologies or applications.

Transformer missions:

Compared to accelerators, the transformer-type of initiatives are targeted towards technological development and the deployment of a new technological trajectory i.e. contributing towards a change between an existing, prevailing trajectory and a new, emerging technological trajectory. These types of initiatives often involve a systemic change for which accelerating the technological development alone is not enough but a more profound change as to how technologies are accepted by society and applied by consumers is needed. Transformative missions set out to change the existing systems, like in the case of the German Energiewende or Hydrogen Society of Japan thriving towards a systemic change of energy system. Or they can be targeted at transforming a part of the system such as the electric mobility initiative of China and Norway, or initiatives targeted to enhance the development of solar energy in the cases of US SunShot and Chinese Solar Energy Policy.

Many of the initiatives analysed deal with global societal challenges and require an integral and holistic policy approach, often beyond the scope of R&I policy alone. Transformer missions respond to challenges that are complex and systemic (so-called wicked problems) and inherently involve a transition to a new technology trajectory, characterised by competition against the incumbent technologies and challenges related to system inertia and the high transaction costs of changing the prevailing system. The success of these policies is largely dependent on the match between the new technological solutions and the needs, acceptance and support of society. Thus, the initiatives aimed at transformative change necessitate more comprehensive policies involving supply- and demand-side policy measures in a balanced and timely manner. In principle, the supply-side policies are oriented to support technological development and the industrial capacities needed to facilitate the systemic change, whereas the demand-side policies are targeted to create or retarget demand, and to facilitate societal acceptance and change in consumer habits, including measures such as public procurement, providing incentives for users to adapt the technology (e.g. direct subsidies, indirect tax incentives), regulation and standard setting, smoothing the way towards wider market uptake and diffusion of the technology.

**CHANGE OF
ENERGY SYSTEMS:
JAPANESE
HYDROGEN SOCIETY**

The Hydrogen Society initiative is an ambitious policy aimed to transform the energy production and consumption landscape in Japan by introducing hydrogen as a major source of energy in transportation, housing, heat and power production, and industrial processes. The earthquake and tsunami disaster in 2011 causing the Fukushima Daiichi nuclear reactor meltdown, led to an immediate energy crisis in Japan and forced the country to look for new solutions for energy production. As a result of detailed analysis, the

government and industry jointly decided to implement the Hydrogen Society plan, starting in 2015, with completion by 2040 (or beyond). The Hydrogen Society plan consists of three phases: Phase 1 is an extension of the current fuel cell programme, which includes broader diffusion of fuel cells into the global market accompanied by dramatic cost reduction of both hydrogen and fuel cells. Phase 2 envisions the large-scale introduction of hydrogen power generation and the establishment of a wide-spread hydrogen supply infrastructure. Phase 3 would establish a zero-carbon-emission hydrogen supply system throughout the manufacturing process. Hydrogen energy has the potential to provide an important carrier for excess renewable energy contributing to balancing the fluctuating production of renewables and Japan meeting its commitments to the Paris Agreement. This ambitious policy mission is not without hurdles, but coordination mechanisms have been established to involve all necessary stakeholders to enable a system-wide transformation across the society.

LOW CARBON ENERGY TRANSITION IN GERMANY: ENERGIEWENDE

The *Energiewende* is a national German long-term strategy for the development of a low-carbon energy system based on renewable energy and energy efficiency. The initiative has emerged from the 1970s grassroot anti-nuclear power movement to an integrated policy in 2010 that addresses all sectors of the economy and is driven by four objectives: fighting climate change, phasing out nuclear power, improving energy security and guaranteeing industrial competitiveness and growth. The goal of the initiative is to phase out Germany's nuclear power plants by the end of 2022, transform the energy system to become strongly reliant on renewable energy resources (min. 60 percent of the final energy consumption, min. 80 percent of the gross electricity consumption) and enhanced energy efficiency, and to reduce greenhouse gas emissions by 80–95 percent by the year 2050. The *Energiewende* relies on the technological innovations realised through research and development activities and relies on citizen engagement on the systemic transition. Among the key components of the success of the *Energiewende* is the fact that it did not initially prioritise one kind of renewable technology over another, but rather just provided a general direction, without specifying objectives for different renewable energy technologies. It has been said that Germany is testing a “mix of top-down direction-setting and bottom-up buy-in” to make the *Energiewende* work. The strategy is characterised by centralised coordination and very clear and ambitious objectives on one hand, and widespread support of citizens, on the other.

SYSTEMIC TRANSITION OF TRANSPORT: CHINESE NEW ENERGY VEHICLES INITIATIVE

The New Energy Vehicles (NEV) policy in China is an example of a large-scale systemic and transformative mission with an objective to have five million NEVs (i.e. cars that are either partially or fully electric) on the roads by 2020 and that, by 2025, at least one in every five cars sold in China is a new energy model. It is an attempt by the Chinese government to address several challenges: energy security, pollution and environmental challenges,

and economic and technological upgrading. The initiative is implemented in a strongly directed top-down manner with a relatively comprehensive policy mix covering both supply-side policies and demand-side policies. While considerable progress has been achieved, the overall mission targets of the policy have not yet been met. However, China has recently become the largest NEV market in the world. Challenges of the policy have been related to the general backwardness of the Chinese car industry, limited connections to foreign technology development and lack of enthusiasm from consumers to buy NEVs, and carmakers to produce NEVs. The Chinese NEV case also highlights the complexity and potential contradictions that the objectives of such large-scale missions may entail. In the NEV case, two of the original objectives may, in practice, be conflicting: achieving the overall mission (large-scale penetration of NEVs) may lead to opposite (negative) impacts in terms of environmental objectives (i.e. lead to increase in pollution and CO₂ emissions).

Umbrella missions:

Umbrella missions can be considered as rigorous initiatives aimed at the long-term direction setting of public policies and private investments. They can be considered as more open-ended and wider enabling policies. Examples such as the German High-Tech Strategy, the Top Sectors Strategy of the Netherlands or the French Innovation 2030 Commission are examples of such initiatives.

SOLUTIONS TO SOCIETAL CHALLENGES & COMPETITIVENESS OF THE INDUSTRY): GERMAN HIGH-TECH STRATEGY (HTS)

The High-Tech Strategy (HTS) was launched in 2006 by the German government as a comprehensive national strategy for all its ministries, with the aim to sustain global competition based on a structural upshift of the German economy towards greater research and innovation intensity. The first phase of the HTS was mainly emphasising cross-sectional topics to foster structural change with a focus on key enabling technologies, such as health, energy, ICT, nanotechnologies, etc. An overarching target was to increase Germany's total intramural R&D expenditures to 3 percent of GDP, which was first met in 2015. This approach faced an overhaul with the launch of the New High-Tech Strategy – Innovations for Germany in 2010 and 2014, now relying on an expanded concept of innovation that includes not only technological innovation but also social innovation with specific emphasis on the provision of solutions to societal challenges, including six priority areas: digital economy and society, sustainable economy and energy, innovative workplace, healthy living, intelligent mobility and civil security.

We can also see these types of vision-setting and resource concentration initiatives on an international level and initiated by philanthropic organisations. Examples such as the Bill & Melinda Gates Foundation's work on poverty, health and education, or the global Mission Innovation on low carbon energy are good examples of overhauling direction setting and providing an enabling, coordinating structure on tackling the global challenges as a common front involving public policy, research, companies and society.

GLOBAL FIGHT AGAINST CLIMATE CHANGE: MISSION INNOVATION

The Mission Innovation (MI) initiative is a global initiative of 22 countries and the European Union aimed to accelerate the clean energy revolution by doubling the public clean energy research and development investment over a period of five years, and encouraging greater levels of private sector investment in transformative clean energy technologies. MI was officially launched at the Paris UN Climate Change Conference in 2015 and involves private actors alongside governments. The official target is to have public R&D funding in clean energy research at 30 billion USD/year by 2020, or to increase cumulative research funding over the five years to 100 billion USD (+35 billion USD) from the baseline estimate of 75 billion USD. Besides the main objectives, a complementary action, Innovation Challenges, was announced in June 2016. The seven innovation challenges include smart grids, off-grid access to electricity, carbon capture, converting sunlight, clean energy materials and the affordable heating and cooling of buildings.

CONCLUSIONS: IMPLICATIONS OF MISSION ORIENTED POLICIES FOR POLICY MAKING & GOVERNANCE IN A EUROPEAN CONTEXT

What we could synthesise from our investigation into empirical cases of (successful) mission-oriented policies are the following main observations:

- Most mission-oriented R&I initiatives are initiated by public organisations and designed in a top-down manner.
- New forms of governance must ensure vertical and horizontal coordination of stakeholders and break any existing silos. Such organisations might emerge from competition among (a consortia of) existing national agencies to run mission-oriented R&I initiatives on an EU scale.
- Public organisations must set long-term direction towards and commitment to clearly identified missions. The direction-setting is not, however, a question of “picking winners” but, rather, a process of prioritising the societal targets and creating favourable conditions for the best solutions to merge, co-evolve and compete.
- In addition to public funding, novel and flexible ways of financing should be promoted including contributions from the private sector.
- Citizen engagement is a challenge for many of the mission-oriented R&I initiatives observed but remains of key importance. Their role should go beyond the mere buy-in of mission-oriented R&I initiatives and demand articulation. New forms of involvement must be found to ensure that mission-oriented R&I initiatives target what matters to the citizens.
- Mission-oriented R&I initiatives need coherent policy actions across a number of policy areas and levels. Policy mixes should be holistic and include demand-side policy instruments and put emphasis on a better match between demand and supply.

- Mission-oriented R&I initiatives must be reflexive and flexible enough so that they can be reassessed and adapted to new developments and challenges, or possibly ceased. Evaluation and monitoring require criteria adapted to the mission, objectives and problems that they target.” (JIIP, 2018a, 5)

From these findings, it must have become clear that the challenges for establishing a successful mission-oriented policy are substantial. That holds true on the national but even more so on the European or international level. These challenges include coordination with sectoral policies, coordination with national policies, engagement of a wider range of stakeholders in the definition of agendas and the implementation of policies. In operational terms, this implies a shift towards a new programming model, characterised by the following features: 1) ensure diversity by calling for broad range of possible inroads of “solutions-oriented research”, 2) an embedded scaling and selection process, 3) users/beneficiaries involved at all stages (through to different degrees), 4) a much stronger role of programme management in ensuring the integration of different activities towards the “mission”, 5) a new approach to monitoring and evaluation (outcome focus) to ensure reflexive and a dynamic policy design. While the extent to which these requirements matter differs from mission type to mission type, all of them are prerequisites for a successful mission-oriented policy.

To sum up, it has become evident that the programmatic change in Horizon 2020 of giving high prominence to the notion of societal challenges is not enough to reorient significant parts of research and innovation activities towards more ambitious and longer-term goals. As long as the modalities of framework programme (FP) implementation remain largely the same as they have been for the past 30 years, the gap between ambitious long-term and higher-order goals, on the one hand, and the prescription of specific topics as defined in work programmes, on the other will continue to be too wide to lead to the ambitious and sometimes even transformative solutions needed to tackle grand societal challenges. Moreover, without a serious embedding of R&I agendas into the wider political agendas in key policy areas such as health, environment, transport, energy, etc., the wider uptake of novel R&I-led solutions is going to be as uncertain as ever. Without improved coherence of policies and stakeholders’ strategies, the grand challenges are likely to remain unanswered. Mission-oriented policies might be an answer to these pressing challenges. —

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TABLES

Tab. 1 // own graphic

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gree
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Smart & green:

A new “European way of life” as the path for growth, jobs & well-being

CARLOTA PEREZ &
TAMSIN MURRAY LEACH

INTRODUCTION

— In the history of technological revolutions, there is a moment in each revolutionary surge of development when the wild period of Schumpeterian creative destruction subsides, and the future promised by the new technologies looks uncertain. We are at this juncture today – when something must occur to foster investment, employment and innovation. The saviour in the past has been demand. And the source of that demand? A change in lifestyle: an aspiration to a new “good life”, underpinned by the new technology and fostered by government policy.

In this essay we look at why this is the case, and examine the lifestyle shifts that have occurred in previous technological revolutions. We examine the legacy of the mass consumption *American Way of Life*, which is still with us today, and argue that a new smart and green way of living is slowly replacing it. And we conclude with the claim that Europe is in a unique position to adopt this way of life as its own, and play a formative role in creating a global golden age in the years to come.

TECHNOLOGICAL
REVOLUTIONS &
SOCIAL CHANGE

Strong regularities are apparent when one analyses the way in which technological revolutions are assimilated into the economy and across society. According to our periodisation, five technological revolutions have occurred since the first “industrial revolution”, each driving a *great surge of development* that brings profound and qualitative shifts across society (see Figure 1). These surges, driven by a powerful cluster of interdependent new and dynamic industries and infrastructures, usher in major structural changes in production, finance, distribution, communication and consumption, transforming the whole economy and providing a new techno-economic paradigm – or common sense best-practice – for all activities. (Perez, 2002)

Yet these recurrent changes are also unique. The recurring patterns have their causal explanations in how major surges of technical change are assimilated; their uniqueness is due both to the particular characteristics of the new technologies and to the historical, political and cultural context. Thus, while each revolution brings a paradigm shift in the direction of innovation and the general criteria for competitiveness, it is ultimately the social forces and their institutions that define what part of that new opportunity space will be deployed and how.

Fig. 1 // THE HISTORICAL RECORD REVEALS
A REGULAR PATTERN OF DIFFUSION

The process by which these revolutions propagate is broken into two markedly different periods: *installation*, which is the early financialised and turbulent period of Schumpeterian “creative destruction” as the new industries and infrastructures become established; and *deployment*, the later years, in which the installed potential spreads across the whole economy bringing greater social benefits. Installation is led by finance; deployment by production. A bubble followed by a major financial collapse marks the beginning of the role switch. The recession that follows these bubbles is a time when the installed potential is ready to transform the rest of the economy, but the government must provide the policies that bring what have been called the “Golden Ages” of prosperity.

The transition period that follows the crash is what we are experiencing now (the last equivalent period was in the 1930s, after the crash of 1929). Our current revolution, which began roughly in 1971, the year Intel’s microprocessor was launched, is only half way through its diffusion path. If history is a guide, it has 20 to 30 years of deployment ahead. In the past, those years have typically been a positive-sum game between business and society, thanks to government providing a common *direction* for convergent innovation and profitable investment, based on dynamic and sufficient demand.

Innovation cannot be promoted for itself; it is not an economic panacea. Innovation scholars point to the importance of clustering innovation systems for success (OECD, 2015): the productive and profitable synergies that occur due to the interdependence of a group of industries with one or more infrastructural networks and multiple common services and skills. The spread of a new technological era requires such synergies on a societal scale: the establishment of a whole network of interconnected services including a new infrastructure, specialised suppliers, distribution channels, appropriate skills and maintenance capabilities. It involves a vast learning process from producers through to consumers, and a raft of institutional enablers: new rules and regulations, standards, supervisory bodies, financial innovations, specialised training and education, and so on. Thus, the successful realisation of technological potential involves innovation of multiple sorts: products, processes, services, organisations, institutions and policies.

It also requires a shift in *lifestyle*. These new ways of living, which become possible due to technical change, are often overlooked as simply a by-product of “progress” – yet they are key. With each major technological change, it is the new lifestyles that shape demand for new products and services, and those products and services become the major source of new jobs and well-being. Understanding this aspect of each paradigm shift – and the role that government has and must now play in enabling it – is the main object of this chapter.

NEW PRODUCTS, NEW LIFESTYLES, NEW JOBS

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In the early days of each great surge of development, each revolution provides a new interrelated set of life-shaping goods and services, which emerge initially in niche form. As there is an overlap between the early installation phase of each revolution and the late maturity phase of the previous one, these initial experiments with new technologies and ways of living are not necessarily obvious game-changers at the start. Typically, such changes to the status quo begin either at the top of the income scale and/or in niche groups seen as radical outliers (Geels, 2012). New products and services that are initially expensive are adopted by the elite

as “conspicuous consumption” (Veblen, 1899) becoming an aspirational lifestyle for those less affluent, and, since the shift occurs in times of income polarisation, those products become the preferred innovation trajectory for business. However, such lifestyle innovations, which are often next adopted (and modified) by the young, are still perceived as “novel” and may be considered either unacceptable or out of reach for the majorities. Indeed, much of the resistance to each surge of development can be witnessed in the evolution of lifestyles. What is desirable to one generation can seem odd but tolerable to the one preceding it, yet intolerable and/or bizarre to those who have lived their entire lives in a previous paradigm.

It is a pattern that echoes the way that radical new products spread: the first iPhone was expensive and became a status symbol, but within a few years prices and multiple imitators had made the smartphone accessible to the majority, as much of a “must-have” as the automobile had become in the mid-20th century. The radical becomes the standard; the novel taken for granted. Disposable plastics were the norm from the 1950s, but unimaginable at the turn of the century: brittle coal-based Bakelite was available, but not to be wasted. Disposable Gillette steel razor blades, introduced in 1904, were inconceivable half a century before, when steel for the barber’s sharpened blades was as precious as platinum is now. Personal computers seen as indispensable today (and even incorporated into our mobile phones) were at first only terminals in big company offices.

It is the coupling of these new innovative products with new innovative ways of living that is key to the lifestyle shift. Their production methods also change applying new technologies, at the same time as the gradual increase in demand results in economies of scale, bringing prices down in a virtuous spiral. As this new lifestyle slowly becomes the model of “the good life”, it shapes the aspirational desires of the majority, guiding innovation trajectories as it gradually spreads across society.

This interconnection of products and lifestyles leads to systemic change, affecting the service economy as well as the production economy. The car as both status symbol and practical mode of transport, for example, needs not just the innovation of the automobile, but petrol stations, mechanics, car insurance and traffic reports. Gardening as a hobby, to give an example not immediately associated with “innovation”, resulted from the practical reality of suddenly having one’s own yard – or conversely, no longer having servants – and required the development of seed catalogues, commercial nurseries and garden centres, implements and chemicals. In fact, it is this systemic innovation around new lifestyles that ultimately provides the majority of employment growth for each new technological age. In each period of creative destruction, there has been a focus on the job-destroying effects of the new technologies – from the Luddites to those now warning of a robot takeover. However, these fears are misplaced. For it is not the new industries that are key to most employment, although they are responsible for increasing productivity. It is the demand for new services and supplies around the new way of life that creates massive numbers of new jobs across the economic spectrum (see Figure 2).

If such demand is encouraged by the setting of a synergistic direction for the appropriate context, this systemic change happens faster and more dramatically. Without direction and context, innovators act at high risk. There were many “failed” experiments in the installation years, when – within the potential inherent in the new technology – everything was still up in the air and the “common sense” of the previous paradigm was still

Fig. 2 //

EMPLOYMENT BY SECTOR DURING THE AGE OF STEAM & RAIL

Male labour force by groups of occupations during the second surge
(UK 1841-1871)

EMPLOYMENT BY SECTOR DURING THE AGE OF MASS PRODUCTION

Evolution of non-agricultural employment by sector
(US 1921-1970)

dominant. Nobody today (other than collectors) is using a Sinclair C5. An electric tricycle marketed in the 1980s as an alternative to users of cars or bicycles, it appealed to neither; it was wrong for the physical context of its time (a cold and rainy Britain dominated by petrol-based cars). Yet it was an early pioneer of today's flourishing electric car market, now underpinned by sustainability concerns and related legislation.

Once these changes have spread sufficiently from their niche beginnings, the new way of living becomes so natural as to appear indispensable, universal and eternal. However, this process takes time. The first automobiles looked like horse-driven carriages (see Figures 3a and 3b). The driver sat as if holding reins, the engine was measured in horse-power and the other parts were made by the same workshops that made the carriages. It takes decades to arrive at a design that is consistent with the essence of the new technology; in the case of the automobile, the first affordable model produced along lines that we would recognise today was the Model-T Ford, first released in 1908 but mass produced from 1913. Only 8,000 cars were in use in the US in 1900, owned by the very wealthy; by 1913, aided by emerging credit system, 485,000 of the world's 606,124 automobiles were sold in the US.¹ And it would take yet another 30 years before demand for a car (or two) in every garage was created by the last major lifestyle shift: the suburban lifestyle of standardised mass consumption which, together with the Cold War, fuelled the post-war boom of the 20th century.

A century earlier, in the age of steam, coal, iron and railways, the shift was to city-based Victorian living. This aspirational model was a very different way of life from that associated with the country-based aristocracy. The new British industrial and commercial classes established an urban lifestyle, which spread to elites around the globe. Isolated mansions in the middle of vast estates were eschewed in favour of tall, narrow houses situated next to each other on expensive land. Cities became as crowded with people as the homes were cluttered with decorative objects. Comfort and consumption depended on the many domestic, commercial and professional services provided for the new way of living. With the shared use of public facilities and the maintenance of public health in such crowded conditions issues that cut across all classes, responsibility for the provision of adequate streets, lighting, water and sewerage systems fell to city authorities – who also implemented early welfare measures around education, health and poverty, in keeping with the aspirational ideology of scientific knowledge and self-improvement. Businesses, large and small, found inexhaustible demand in the growing numbers of city dwellers, who, in turn, served as test bed for export markets.

At the turn of the 19th century, in the age of steel and heavy engineering, the Belle Époque in Europe (in parallel with the Progressive Era in the US) encapsulated the good life of the day. During this first period of globalisation, the upper and burgeoning “professional” classes of the West established a cosmopolitan lifestyle which spread to the upper classes of the world. It was a time of transcontinental travel, a taste for the exotic and of intense flows of information. Newspapers, magazines, pamphlets and book publishing flourished, as did the theatre, opera, museums, galleries and other forms of entertainment. Cities grew upward: multi-story buildings housed offices, apartments and hotels, lit by electricity and connected by telephone. However, although a significant layer of skilled workers was able to participate in at least some elements of

¹ Gordon, Robert (2017): *The Rise and Fall of American Growth*. Princeton and Oxfordshire: Princeton University Press.

Fig. 3a //

From the first automobiles ...

this “good life”, and the period saw the rise of municipal government and proliferation of some elements of welfare provision (in public health and housing, education and labour regulations, for example), there was still a significant portion of the unskilled working population practically excluded. It was not until the mass-production boom that the aspirational lifestyle of the *American Way of Life* spread to the whole of the working classes of the advanced countries and to the aspirational middle classes of the developing world.

THE LAST LIFESTYLE SHIFT: THE AMERICAN WAY OF LIFE

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To have an idea of the depth of change involved in each of these transitions and the key role that lifestyle plays, we shall examine this last shift more closely. This is the lifestyle that dominated the 20th century, which remains the norm today and is still being copied in the emerging markets. The underlying shift was in energy, going from expensive and scarce to cheap and seemingly unlimited. This appeared in three primary forms: electricity, which powered lighting and home appliances; fuels for automobiles, airplanes and shipping; and materials in the form of cheap petrochemical plastics for all purposes. Previously, electricity was expensive, kerosene and oil were fire prone and uncomfortable, and materials were dear and not as universally easy to shape and use as the new plastics.

This shift changed almost every aspect of life: from

trains, horses, carriages, stage coaches, ships and bicycles

to automobiles, buses, trucks, airplanes and motorcycles;

from local newspapers, posters, theatres and parties to mass media, radio, movies and television; from ice boxes and coal stoves to refrigerators and central heating; from housework done by hand to household appliances; from the use of natural materials (cotton, wool, leather, silk) to synthetic materials; from paper, cardboard, wood and glass packaging to disposable plastics of all sorts; from fresh food bought daily from specialised suppliers to refrigerated, frozen or preserved food bought periodically in supermarkets; and from urban or country living and working to suburban living separate from work.

Fig. 3b //

... to the mass-produced Ford Model-T

But these changes took time. While the potential inherent in the combination of oil, oil-derived plastics, electricity and the automobile was present in the first decades of the 20th century, the Roaring Twenties were archetypal years of creative destruction, witnessing a glut of unregulated investment (much in construction) eventually turning on itself. Stock prices advanced in a few years as much as they had in the previous three decades, finally crashing in 1929 and initiating the years of the Great Depression. Fears of “secular stagnation” and of structural unemployment due to labour displacement by the newly installed mass production systems became as widespread as the fears of low growth and robotics are now (Hansen, 1938). As the queues grew for soup kitchens in the 1930s, the idea that within 20 years blue-collar workers would have lifetime jobs and fully equipped suburban homes with cars at the door would have seemed lunacy.

Then, as now, the problem was not a shortage of innovation potential nor potential demand. At this *turning point* in the cycle the problem lies in imaginative and financial constraints, with both investors and politicians still stuck trying to get back to the “business as usual” of the previous “market-led” prosperity, brushing aside the fact that it was a bubble. It is precisely at this point that the state can step in to play a decisive role: encouraging patient, long-term investment, and supporting a mission-oriented direction for innovation that can best unleash the potential of the new technologies and infrastructures to create a positive-sum game for business and society. In the 1930s, Keynes (1938) and Roosevelt looked to investment in suburban housing to provide a new basis for the economy: the newly-affordable automobile and the growing highway system meant that cheap, out-of-town land became suitable for commuter living. However, in the US as elsewhere in the West, the case for greater change in the societal structures and policy framework only succeeded after the experience of World War II. War procurement demonstrated the power of mass production techniques for decreasing costs with increasing production quantities and, therefore, the advantage of counting on massive and constant demand.

The post-war boom that followed was a result of a synergistic combination of institutional changes, technological potential and investment. Firms adopted the organisational innovations of Fordism for assembled products, and of continuous processing in the chemicals and food industries. Operating economies of scale, they promoted disposability and, later, planned obsolescence, underpinned by advertising on the new home radios and televisions. Such strategies were aided by the creation of international institutions to support stability and global market expansion, such as the World Bank, IMF and the Marshall Plan. But on the demand side, much of the huge economic growth witnessed in the third quarter of the 20th century was engendered by another key element of the new “good life”: the institutional innovations of the welfare state. The credit system, unemployment and mortgage insurance, labour-union secured salaries, free or subsidised education and health care, and a progressive tax-system all allowed consumers to buy into this new aspirational lifestyle without great risk of personal default. Hence, increasing well-being for the majorities underpinned investment and innovation in mass consumer products and services.

And the economy boomed. While the new high productivity technology in mass manufacturing and mechanised agriculture did destroy many of the jobs from the previous paradigm,² it also created new jobs requiring different skills and demand for new

² In the US, jobs in agriculture went from 25 percent of the employed population in 1920 to a mere 6 percent in 1970 (US Department of Commerce. Historical Statistics)

supplies and services that increased employment in complementary sectors and activities. But it was the change in lifestyles, based on home ownership, which created the massive numbers of new jobs across the economic spectrum, from construction to retail trade (see Figure 2). At the same time, inequality was partially reversed. While in the 1920s in the US, the top 1 percent of taxpayers received 25 percent of all declared income – typical of installation periods – their share dropped massively to 10 percent (See Figure 4), with the low-employment but high-productivity industries driving wages up across all sectors and the welfare state providing short and long-term security for – almost – all. To pay for such conditions, taxes were high across the advanced world; in the US in the 1950s, the top rate of income tax was 90 percent.

But the advent of a new lifestyle that will lead to a Golden Age is not automatic, nor is it determined by the technologies, although it depends on the range of options they facilitate. The ultimate outcome will be defined by the socio-political choices made to shape them.

THE EMERGENT LIFESTYLE SHIFT TODAY

— In the early 1970s, when the ICT revolution was beginning, “going back to nature” was seen as the province of hippies and other outliers. At the time, that particular niche lifestyle was considered almost the opposite of the emerging digital future, one propelled by computer “nerds” and filled with shiny high-tech gadgets. Yet since then, digital technology has decreased in price and spread across the globe, becoming integral to the lifestyle of the majority. And at the same time, awareness of increasing and converging environmental pressures – resource scarcity, environmental degradation and climate change – has seen support for so-called “green” living grow. Far from being oppositional, this aspiration to “green” combined with the technologies of ICT has in fact resulted in the gradual emergence of what we call a “smart green” lifestyle.

This new way of life is marked by the desire to reduce pollution and toxicity, to protect the environment and to promote health, to purchase experiences over products and to adopt sharing or rented services rather than permanent ownership of goods, and to aspire to “networked” creative and collaborative work rather than joining pyramidal hierarchies. Such new practices and new values can already be observed among the educated, the wealthy and the young.³ Good health is a central aspiration, reflected in the rapidly growing market for organic, locally-sourced fresh foods, the surging popularity of cycling as a mode of city transport, and the increasing abundance of exercise apps, personal trainers, physiotherapists, and all other aspects of preventive self-care. Solar panels, “living” roofs and environmentally friendly architecture are showpieces for the elite, and no longer reserved for those “living off the grid”; electric/hybrid cars and energy-efficient appliances are sold at the top of their respective ranges, while those who can’t afford the new technology are seen to make do with “old-fashioned” polluters.

Given the lessons of previous lifestyle adoptions, we believe that enabling, promoting and accelerating this smart green lifestyle as a *direction* for innovation could be the

³ Given the current “elitist” nature of what could eventually become everybody’s way of living, Currid-Halkett (2017) presents the whole lifestyle shift at the top in the same way as Veblen did in the 1920s with “conspicuous consumption”.

most suitable way to bring about a successful deployment of the ICT age. Currently, “green”, or “green growth”, is used most often to refer to replacing most fossil fuels with renewables, or to the development of more “environmentally friendly” products. But the notion of “green” as a systemic policy *direction* is not limited to the energy sector or to a few segments of the economy, just as the suburbanisation/mass consumption direction was not aimed at a single industry or set of industries. As a direction for innovation and investment, it encompasses a significant shift in lifestyles and modes of consumption, leading to a shift in materials and product design, and, in this instance, the increasing replacement of tangible goods with services.

Already, we see systemic results of ICT-driven green living: the emergence of a whole range of new jobs, products and processes in personal services, health, education, training, coaching, “quality of life” goods and services, creative industries, information intermediation, maintenance, rental services, energy conservation, recycling and other climate and resource related activities in the green direction. Although it seems paradoxical, this technology which transgresses spatial borders is enabling a burgeoning demand for the local and the “traditional” (i.e. not mass produced), particularly in food production and consumption – small-herd cheese, artisan bread, microbrews and so on. In turn, this is generating a whole new layer of production and distribution associated with health, nutrition and – up to a point – community values, which have the potential to multiply geographically. And although the traditional capitalist modes of exchange are likely to prevail (as seen with the rise of Uber and Airbnb), the fact that many of the new local industries are flourishing due to collaborative action and the sharing economy should not be underestimated.

Increasingly, the manufacturers that are trying out sustainable strategies and catering to this emerging market are discovering, in the process, that they are more profitable. Recent surveys by Eurobarometer show that it is a combination of lifestyle adoption and product development that creates a direction for production: they found that the choice of firms to produce green products was mainly – and increasingly – moved by demand, at the same time as adopting resource efficiency was primarily being driven by cost savings.⁴ At a time of slow aggregate growth in Europe and of widespread high unemployment, the eco-industries have globally grown 15 percent on average (European Commission, 2016, p. 7).

THE INTERPLAY OF MARKETS & LIFESTYLE CHANGES

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While many economists continue to see environmental issues, and sustainability legislation as costly externalities, we argue that enabling the smart green lifestyle is actually the key to economic growth today, with the potential not only to address the environmental degradation of the globe, but to increase jobs and welfare, decrease inequality and drive economic growth.

But as with previous revolutions, this lifestyle needs to be nurtured. The green “good life” is not yet the aspiration of the world’s majorities. The behaviours and ideals of the mass consumption era linger on, even though it is now widely recognised that there are simply not enough resources on the planet – raw materials, water, air, land

⁴ See Figures 2 and 3, European Commission (2016)

Fig. 4 // **PERCENT OF INCOME EARNED BY TOP 1% OF TAXPAYERS (INCLUDING CAPITAL GAINS)**

USA 1915–2010

– to support that old model across the world.⁵ The global middle class is expected to increase from 1.8 billion in 2009 to 3.2 billion by 2020 and 4.9 billion by 2030 (Pezzini, 2012) yet even if only the two currently most dynamic emerging countries – China and India – were to reach full development in the next couple of decades, they could not do so by adopting the old energy and materials-intensive *American way of life*. Not only is environmental degradation and resource scarcity causing quality of life issues across the planet, but – at the purely practical financial level – scarcity, pollution and waste disposal are already increasing prices, making cost a further obstacle.

On the supply side, mass production disposability and high use of energy and materials are still prevalent. The technologies of the ICT revolution have intrinsic characteristics that enable moving society from the logic of cheap energy (oil) to the logic of cheap information; from tangible products and disposability to services and intangible value; from unthinking use of energy and materials to huge savings in energy and materials. So why does the old consumerist model still prevail?

The broad answer is that “the market” cannot operate in policy isolation to make the required radical shift. The full deployment of the enormous wealth-creating potential brought forth by each technological revolution requires, each time, significant socio-institutional recomposition. What is needed is a systemically aligned institutional

⁵ Rockström, Johan et al. (2009): “Planetary boundaries: exploring the safe operating space for humanity.” *Ecology and Society*, 14 (2): 32.

framework that facilitates interactions between innovations, favours a coherent direction underpinned by the new lifestyle, and eliminates the obstacles to following it. The existing framework, established to handle growth based on the previous set of technologies, is no longer suitable; changes are required in the regulatory framework, along with the redesign of a whole range of institutions, from government through financial regulation to education; and modifications of social behaviours and ideas.

We have already discussed the radical institutional innovations that brought about the post-war prosperity. The Victorian boom (see Figure 1) did not fully materialise until two decades after the invention of the steam engine, after a network of railroads had been installed and had brought about a mania that led to a financial panic. Prosperity was unleashed by a whole set of new institutions that ordered national markets, regulated banking and finance, and enabled the continued expansion of the railway network and the increasing number of steam-powered factories. The Belle Époque, with its truly international markets, required worldwide regulation (from the general acceptance of the London-based gold standard to universal agreements on measurement, patents, insurance, transport, communications and shipping practices), while structural changes in production were facilitated by deep educational reforms and social legislation.

It is true that we are on an almost unavoidable path that will eventually force at least a partial adoption of this lifestyle direction in any case. Resource- and fossil-fuel-energy-intensive consumption will result in rising prices, from raw materials to production and distribution, while the environmental impact of globalised growth is already leading to increasing costs, from health hazards to risk insurance premia. Such increases are likely to result in the geographic relocation and respecialisation of physical production into optimal local, regional and global networks, and in a shift from tangible to intangibles in the composition of world production. This would imply a redefinition of consumption patterns – exactly what the smart green lifestyle adopters are already doing.

In short, environmental risks – even disasters – could play the role that war and depression did in the previous turning point: the final straws that force the state to act. Indeed, we have seen portents of the latter in the last decade, with global unrest and the rise of both left and right populism. This turmoil is typical of the turning point years. The irony is that, at present, all the conditions are there for unleashing a truly global golden age of growth. The installation period has left a powerful legacy: the new paradigm has been learned by both producers and consumers, and the new infrastructure (the Internet) has widened and deepened access to consumers and suppliers. The profile of the smart green dynamics of demand can now shape a future “golden age” – if governments are prepared to tilt the playing field in that direction.

A EUROPEAN WAY OF LIFE?

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resource limits. EU citizens are culturally acclimatised to environmental concerns and, at the same time, more or less used to regulatory, socially democratic states. Particularly in the Nordics, where the latter is most true, and in Germany, where the Greens have been very influential politically since reunification, we already see significant legislation in favour of

The EU is in a key position to promote future investment and well-being in a smart green direction. With a long history of industrial development, the European nations have already found themselves pushed up against land and other

this shift, from local transport programmes to the *Energiewende*, the energy transition considered an integral part of Germany's overall economic strategy.⁶

Such national practices are augmented by Europe-wide “best practice” sustainability directives, such as the WEEE directive on recycling or the Waste Framework and Landfill Directives. The Italian legislation created to meet this directive is a great example of the successful combination of new technologies, the growth of a formally “niche” lifestyle and the willingness of supranational and national governments to tilt the playing field to encourage industrial synergies. The legislation, which restricts consumers to a choice of long-life reusable carrier bags or biodegradable, compostable bags, has resulted in a 50 percent reduction of disposable bag use and a 30 percent decrease of greenhouse gas emissions – while creating jobs along the value chain (from agriculture and chemistry to waste management). As the Expert Group on Green Growth and Jobs for the EU put it:

Perhaps most crucially, [the carrier bag legislation] has tapped into prevailing public sentiments and supported lifestyle change by providing an easily-adoptable, transitional product choice: 94% of the Italians support the law, demonstrating that consumers are ready to change their habits quickly in order to adopt more sustainable behaviours, when they know that they have a positive impact on the environment and it is easy for them to do so. (European Commission, 2016, p. 21)

The fact that consumers are willing and able to try out such lifestyle changes is one reason why Europe can become a test bed for smart green innovation. The middle classes in the emerging countries are currently following the *American Way of Life* because it remains the dominant model of the good life. Europe could provide an alternative model to follow: a *European Way of Life*, a new, sustainable ideal for middle-class aspirations that is both exciting and anxiety-alleviating, because it addresses worrying environmental issues while turning them into opportunities for innovation and profitable growth.

At the same time, promoting a direction for smart green lifestyles now would position the EU to take the lead as the markets of the future inevitably move in that direction. On average and together, the European countries have sufficient scientific knowledge, technological know-how, and innovation capabilities to realise that transformation. The region is low in material resources but already high in knowledge, creativity and in the service-intensity of its economy. Home to many of the world's most innovative companies and currently the world leader in environmental technologies, the EU is leading the global market in smart green fields such as health, food, renewable energies, biotechnologies, environmental technologies and transport (European Commission, 2013).

A smart green direction therefore would make the most of the European technological capacities by increasing productivity and the durability of its limited resources. It is already well positioned to play a major export role as globalisation leads to increasing demands for the development of sustainable equipment and infrastructure adapted to the needs of the rising developing world; international data illustrate that the number of young and rapidly growing companies in these new markets is larger in the EU than else-

⁶ Both energy and the economy, traditionally treated as separate government concerns, are now overseen by the same department in Germany: the Federal Ministry for Economic Affairs and Energy (<http://www.bmwi.de/>).

where (European Commission, 2016; Figure 5, p. 12). Thus adopting policies with the explicit aim of branding “Made in Europe” products and services as a sign of aspirational good living – products that are healthy, safe, environmentally friendly, sustainable (reusable, recyclable), use the most advanced technology and production standards – would attract companies to use the EU as test bed for smart, green products and services. And as the new smart green lifestyles increasingly entice the new millions joining the middle classes across the world, Europe would have the competitive edge in the production of innovative and premium products and services to cater to this new lifestyle.

CONCLUSION The role of lifestyle change in the unleashing of innovation and economic growth should not be underestimated. The patterns of history suggest that the golden age of our current technological revolution is yet to come, and that its potential will be shaped not only by business strategies and government policies, but by consumer values. To bring about a golden age the three must be: (a) consistent with the potential of the technological paradigm; (b) mutually compatible and reinforcing; and (c) a positive-sum game for all participants.

The way to achieve this is to provide a systemically coherent policy framework that will strengthen and accelerate the production and lifestyle changes that are already underway; for the state to set a smart green direction for production and investment, broadly understood as one that leads to a circular low-waste economy, focuses on preventive care and healthy lives, increases the productivity of energy and resources, multiplies the creative industries, and encourages a move from possession to access, and from material goods to intangibles.

Realigning EU policies towards smart and green would provide a driver for growth and jobs and unleash a wave of investment that cannot be achieved with isolated policies within the old framework. Due to the globalising and diversifying nature of digital technologies, the policy space cannot just be at the national level. The state must be operational at the local, national, regional and global levels. Currently, the EU has the edge on the supranational, and is forging ahead of those who would rather bet on the past. We believe that while the past holds lessons, it teaches us that boldly moving forward is the only strategy that has ever really worked. —

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FIGURES

Fig. 1 // Perez (2002 and 2009)

Fig. 2 // Mitchell (1988) *British Historical Statistics*. Cambridge: Cambridge University Press. Table II-2 based on 1911 Census categories (our period indications)
US– Dept. of Commerce. *Historical Statistics* (our period indications)

Figs. 3a & 3b // L. De Vries (1972) *Reproduction Ford Model-T* (1914)

Fig. 4 // Piketty and Saez (2010); our period indication

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Ideas ahead

Innovation & entrepreneurship in Europe

JOHANN FÜLLER

Founding start-ups is in vogue and innovation has become a fixed element of our language, as well as in our professional and private everyday lives. Inspired by Silicon Valley, people today speak of the Spree Valley, the Danube Valley or even Holland as the new Silicon Valley. The term “valley” has come to stand for the epitome of innovative and cutting-edge technology-oriented centres that significantly shape our future, symbolising prosperity, high employment and customer value.

But where do we stand with regard to innovative power and entrepreneurial spirit in Europe? And what is the situation in the individual Member States of the EU, such as Austria? Current highly praised start-up hubs such as Tel Aviv, San Francisco and Singapore are setting new standards, inspiring the entire world and therefore also Europe and individual EU states.

It is very likely that these currently over-hyped and therefore increasingly expensive hot spots will lose influence, and that innovation and entrepreneurship centres in several European countries will perform well in at least certain niches, even surpassing established regions. It is becoming more and more evident that successful start-ups and therefore also start-up regions depend on access to the best resources.

When it comes to creativity, the power of innovation and the knowledge of young people, Europe is in a fundamentally good position. Many European countries offer a broad education and an educational system that gives every inhabitant at least a theoretical chance of gathering valuable knowledge. As a result of their history, many Europeans are committed to a tradition of thought.

In Europe, a passion for bringing ideas and knowledge into one's own company and pursuing the dream of becoming one's own boss is gaining ground. This trend is not least reflected in the popularity of start-up shows such as the *Start up!* format on SAT1 or the *2 minutes-2 million* show on the Austrian private broadcaster Puls4.

Many skills and ideas can be found in Europe. However, there is often still very little experience with scaling companies, establishing a dominant market position and

thus playing an important role in the global economy. Of course, the starting position is somewhat different in different Member States, but this assessment especially applies to the situation in Austria. For example, here the starting position is sub-optimal for achieving a globally effective market position; in Austria it is effectively impossible to create a hit by generating unicorns – that is, start-ups with a minimum valuation of 1 billion euros.

Reasons for this are a lack of investment, a small domestic market, a low preparedness to take risks and much too small-scale thinking. Let me elaborate on these barriers.

LACK OF INVESTMENT

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There are enough financially strong persons, families, and companies in Austria, and banks could also invest free assets. Nevertheless, these players are generally not prepared to take a real risk and invest several million euros in a start-up. It is quite easy to get start-up financing of

100,000 to 500,000 euros for the construction of a marketable prototype. However, tens or even hundreds of millions, which is the minimum for a dominant market position today, are virtually impossible. In contrast, there are venture capital funds in the US with a volume of several billion US dollars.¹ The Japanese recently floated a volume of USD 100 billion with a minimum investment of more than USD 300 million per start-up (The Economist, 2018, p. 13, p. 23ff).

SMALL DOMESTIC MARKET

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In order to gain entrepreneurial importance, start-ups have to win over a large number of users and customers as quickly as they can. This requires a certain proximity to the market and knowledge of customers. Start-ups in large domestic markets therefore have an advantage over start-ups in small markets because of their specific

knowledge and experience. US start-ups in a domestic market of 325 million and Chinese start-ups in a domestic market of more than 1 billion potential customers act on a completely different scale than local start-ups in a market of 8 million Austrians. Indeed, one could consider the domestic market to be Europe with 511 million inhabitants; however, it quickly becomes clear in this case that the various national requirements, laws, regulations and, last but not least, different languages present a real complexity that must be overcome (Röhl, 2016). Significantly higher costs are incurred, which are difficult for a start-up to manage before one can even speak of a relevant (market) position.

LOW PREPAREDNESS TO TAKE RISKS

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It is not a cliché, but lived reality: low preparedness to take risks is verily cultivated in Austria and a tolerance of errors can be sought in vain. You are quickly labelled a loser if you have a business idea, try it out and it fails – in contrast

to countries like the United States, where failure is considered part of a classic career path and part of entrepreneurship. If, on the other hand, a business succeeds, in Austria envy puts it down as caciquism. In the database of the digital magazine gruedenszene.de, one can study the dubious treasure trove of failed companies in a section ominously labelled “Graveyard” – who would want to end up there?

¹ See. https://en.wikipedia.org/wiki/List_of_venture_capital_firms

However, this risk-averse and start-up-hostile culture is hardly surprising, as we are essentially brought up on precision and risk aversion. Who hasn't heard the career advice from concerned parents encouraging their children to become civil servants in order to have a secure job for life? Or proposing that they go to large corporations such as voestalpine, Erste Bank or OMV, because these take care of their employees and offer interesting career prospects. In Austria, we rely too much on the state and large companies, entrusting them to make the right decisions for us and guide our professional development.

Our Catholic faith is much more shaped by the idea of community than the Protestant-Calvinist ethic with its notion that each person is the master of his or her own fate. This absolves us of responsibility for our own destiny. Last but not least, in familial, acquaintanceship and social circles as well as in neighbourhoods there are still very few role models or examples from which we can learn, identify with, or look to as mentors.

SMALL-MINDED THINKING

Even our schools teach children at an early age that they must abide by the rules and conform. Our adolescents perform tasks that are often simply repetitive. Questioning, thinking outside the box and thinking forward is often (mis)interpreted as rebelliousness. A study on the future of Tyrol by the Tyrolean Chamber of Commerce in cooperation with the Chair of Innovation and Entrepreneurship at the University of Innsbruck confirms this (mis)assessment (see Tyrolean Chamber of Commerce, 2015, p. 17).

Free thinking or breaking out of convention is at best not supported, but more often than not punished and sanctioned. Should it then be surprising that willingness to break new ground means overcoming a high inner barrier?

Conformity, straightforwardness and preparation for perfect career entry are taught at school, in professional colleges and even at universities; this does not exactly stimulate big things to happen. A free-thinking mindset, however, is required to take the steps to start a new business and overcome these obstacles. Particularly in the course of digitisation, a time frame has opened up, which we can and must make the most of with care and skill.

These obstacles are of course not limited to Austria, but apply in many other European countries. Innovation stands at the core of *Europe 2020*, the European Commission's growth strategy for the EU. However, although European research is among the most advanced in the world, Europe lags behind its global competitors in terms of introducing and implementing these innovations in the form of new businesses. The EU has institutions and processes for risk assessment and avoidance of unacceptable risks, and regulatory decisions are usually based on the "precautionary principle" designed to prevent situations that could cause serious harm from arising.

And so, compared to the US and Israel, Europe also lags behind in the number of successful start-ups that have the potential to quickly become real market leaders. There is much to suggest that the observed founding scarcity in Europe may also have a cultural dimension. Western Europe has fallen short of expectations in all four measures of Schumpeterian entrepreneurship (see Schumpeter, 1993 [1911]) when compared to the US.

While start-up scenes that combine a strong "can do" ethos with technical expertise and a start-up-friendly environment have been established in New York, Boston or Tel Aviv, these attributes apply to a much lesser extent in European start-up hotspots. In the European context, only London can be considered a leading international start-up centre.

At least Berlin seems to be establishing itself as a new hub in a number of fields: “Over the past few months, German company founders have flocked to the areas of blockchain and crypto. Berlin also plays a role internationally. According to LSP Research estimates, 64 blockchain startups are situated in the German capital. That’s as many companies as in all other German cities combined. The eco-system in Berlin particularly continues to attract new founders.”²

The Economist (2017) recently pointed out that psychology plays a greater role in start-ups than any business training, and raised the question of whether a sense of entrepreneurship is something one is born with or something that can be learned. *Handelsblatt* addressed the question of learning entrepreneurship as early as 2010.³ The aforementioned study on the future of Tyrol also dealt with the challenge of learning to be entrepreneurial. The question of how entrepreneurial thinking can be anchored more strongly in European society than previously indeed seems to be one of the most relevant challenges for Europe.

What could be our stirrup? How could a European solution look?

In any event, it will require the following ingredients:

1. Finding our own way, which also means taking advantage of the small dimensions described above, as this can also generate speed. Because smaller structures allow for faster decisions and shorter paths, iterative processes become more agile.
2. A successful connecting of individual collaborators from education, research, business and non-profits, because fusion result in a certain size that then acts as a market.
3. The bubble in Silicon Valley and resulting unbelievably skyrocketing prices ensure that the best talents and investors come to Europe, where can we offer best resources without their exploitation.
4. That value generated remains in the country. Without in any way adopting nationalist tones: the multinationals and the global financial aristocracy should also pay taxes domestically in the case of corporate profits. These can be used as start-up incentives.
5. A school-based and university-based approach to start-ups and entrepreneurship. The integration of these topics into our education so that each student has the opportunity to understand what being entrepreneurial means and see this as a realistic career choice.
6. An entrepreneurial culture of innovation that is considered an important part of society. This involves an awareness that starting a business requires a high commitment and preparedness to take risks. Only then can we be happy for the successful, instead of shaming or making fun of the unsuccessful, moving away from a culture of envy to a culture of fans, as we know it from sports. Consider football or skiing: everyone is happy about the athletic success of a compatriot; even if we do not actively contribute, we participate in the joy and elation of their success. Such a “culture of pride” is desirable when business start-ups succeed.

² <https://www.gruenderszene.de/fintech/in-welchen-staedten-sitzen-die-deutschen-blockchain-startups> (accessed 7 May 2018).

³ <http://www.handelsblatt.com/unternehmen/mittelstand/studiengaenge-kann-man-unternehmertum-lernen/3751628.html> (accessed 7 May 2018).

7. Extensive networking. Physical meeting places. Various players (industry/universities/associations/politics) must network with start-ups across all branches. Such an entrepreneurial ecosystem can be conceived as a large campus where person-to-person encounters can actually take place – without splitting training institutes into specialisations and functional silos, and instead with a lot of contact, exchange and mutual inspiration. Organisations and people with different skills have to come together! It's not the largest/richest/oldest who should have the say. Rather, it should be about a transfer of experience to the young, passionate and even partly starry-eyed. Start-ups with great vision and creative power require good will and support.

If we do not merely postulate these points, but make them a reality, we will create a fertile ground for successful start-ups and strengthen entrepreneurial spirit within Europe, which for many today still seems like a distant phantom.

Certainly, up to now anyone who absolutely wanted to has had the possibility of becoming an entrepreneur, founding a start-up and also leading it to success. Nevertheless, it is difficult to visibly translate success internationally. We are entering a time when only a few, very large platform players will dominate the market, thereby at least partially eroding the success of medium-sized companies.

Regardless of how many start-up success stories we read about in the future, in addition to start-up mania, fundamental changes and adaptations of society and institutions are needed to master the opportunities and challenges of the digitisation that is already under way. Even established companies and organisations must work harder to not only optimise their existing business models, solution offers, products and services, but to reinvent them. They have to adapt established structures, decision paths, processes and functional principles to new requirements so that corresponding potential benefits for education, medicine, mobility, security and care can be profitably exploited.

At the Innsbruck site, InnCubator (www.inncubator.at) has, for example, demonstrated how a successful ecosystem can emerge and grow, in which universities, the Chamber of Commerce and private partnerships push the idea of starting a business. The now-established start-up event Skinnovention (www.skinnovation.at), the Wattens Workshop, the location agency and the Institute for Entrepreneurship Cambridge-Tyrol (IECT) are all contributing significantly to establishing networked entrepreneurship and a lively start-up scene.

A similar constellation gaining increased attention exists in Berlin. Local business angels, inner-corporate and university-based incubators, accelerators and national/international venture capital donors are supporting new entrepreneurs in the start-up phase. Zalando, SoundCloud, Wooga and Delivery Hero have sprung up out of this intensive support. Enterprises like Axel Springer with their Plug and Play act as accelerators and investors in the earliest phase of founding. The Berlin Startup Academy (BSA) operates independently of corporations; the Founders Institute operates on the basis of strictly structured training; Hub:raum sees itself as an accelerator for tech entrepreneurs and labs, like the Porsche Digital Lab, enabling the intensive pursuit of new business or product ideas from within the company.

Entrepreneurship policy is becoming an important political tool for competing in the global economy and ensuring further economic development. The European Union has taken this development into account by proclaiming the Lisbon Strategy and the subsequent *Europe 2020* strategy. In particular, with *Horizon 2020*, the heart of the *Europe 2020* strategy, and a total budget of EUR 80 billion, the European Union wants to accelerate scientific breakthroughs, discoveries and innovations, as well as promote entrepreneurship.

Let's take a look further to the north. As early as 2015, *Forbes* magazine wrote about Holland's potential to become the European Silicon Valley.⁴ Benefiting from an outstanding start-up business climate in the European Union, its well-trained pool of tech-savvy experts and its open culture, the Netherlands has established and developed an outstanding start-up ecosystem. Amsterdam, the start-up capital of Europe and number three city of start-ups and scale-ups in 2016,⁵ is a magnet for tech-savvy talents and growth. The StartupAmsterdam and StartupDelta programmes help start-ups strengthen, connect and grow. Amsterdam also houses the Amsterdam Science Park, a hub for high-quality technical facilities, research institutes, the science and business databases and the Startup Village – a collaborative space for innovative high-tech and science-orientated start-ups. The success of such a start-up ecosystem is measured by its capacity to produce unicorns. The unicorn FinTech company Adyen is now estimated at USD 2.3 billion and offers payment solutions for Netflix, Uber, Spotify and Airbnb.

A development that may turn out to be viral! —

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⁴ <https://www.forbes.com/sites/shelliekarabell/2015/05/20/startupdelta-hollands-alternative-to-silicon-valley/#6478d5a73d4e> (accessed on 4 May 2018).

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Beyond the horiz

Beyond the horizon

Foresight in support of the preparation of the European Union's future policy in research & innovation

ANDREA RICCI &
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THE STRATEGIC TURN IN R&I POLICY: NEW REQUIREMENTS FOR EUROPEAN FRAMEWORK PROGRAMMES

What is the ambition behind European R&I policy? And what should Europe's next framework programme for research and innovation contribute to the well-being of European citizens in an increasingly uncertain global and societal context? Asking these kinds of questions would have been uncommon ten years ago, when policy debates about R&I policy were still dominated by the widely held belief that innovation per se is a goal to strive for, and driven largely by a wide variety of endeavours in fundamental and applied research. This perception has changed in the course of the past decade, and in response to two main driving forces. First of all, there has been a normative (Daimler et al., 2012) or strategic (Weber, 2012) turn in R&I policy since the late 2000s, reflected, for instance, in the design of Horizon 2020, with its strong emphasis on research for tackling societal challenges, and in several national and multilateral research programmes with a similar orientation (e.g. Joint Programming Initiatives). This shift was prepared by strategy papers such as the report by the ERA Rationales high-level group (Georghiou et al., 2008), and further promoted by political debates tied to the Lund Declaration (European Council, 2009), which paved the way for Horizon 2020.

Second, innovation practices have become more multifaceted and open (Leitner et al., 2016). For innovation to be successful, more is needed than good research. It is often driven by demand-side forces: user-inspired impulses, social needs, regulation, etc. Moreover, for research-led innovation to have impact on economy and society, complementary social, organisational and institutional innovations are often needed; a perspective that has given rise to the concept of co-creation of innovations by many different actors. The Aho Report (Aho et al., 2006) promoted this shift in attention to the demand side of innovation at European policy level, and it was backed by complementary scientific research (Edler and Georghiou, 2007).

On top of providing necessary structural conditions for ensuring i) the production of excellent science as a variety-creating mechanism and ii) the uptake and upscaling of innovation as mechanisms to achieve impact, innovation ecosystems must effectively align innovation activities with societal and user needs, but also with political goals. In

other words, establishing a well-functioning innovation ecosystem in Europe, with distributed roles according to policy levels and thematic domains, is the basis on which to pursue more ambitious “strategic” ambitions with the help of R&I.

The still ongoing European framework programme for research and innovation – Horizon 2020 – has started to take this new and strategic take on research and innovation into account. The three pillars of Horizon 2020 have been a major step forward in the design of framework programmes, tied to the ambition of achieving more impact from research and innovation, both in economic and in societal terms. It is complemented by a very successful competitive funding scheme for leading-edge fundamental research, the European Research Council (ERC). The industrial leadership pillar of Horizon 2020 has given industry a strong role in determining how funds shall be used effectively, tied to a significant financial engagement of the private sector (e.g. in strategic partnerships like Joint Technology Initiatives, European Technology Platforms, and other public-private arrangements). The third pillar of H2020 is geared towards tackling major societal challenges, and it has strengthened the orientation of European R&I towards the needs and concerns of citizens. Finally, the European Institute for Innovation and Technology (EIT) has launched a limited number of large-scale initiatives bringing together research, innovation and education actions under a common roof.

However, there are also downsides to the way Horizon 2020 was designed and implemented.¹ While in programmatic terms, the third pillar is clearly a reflection of the aforementioned strategic turn, comparatively little has changed in operational terms, i.e. in the way work programmes are defined and implemented, even if their embedding in multiannual strategic programmes and advisory structures has been a major step forward as compared to past framework programmes.

A first point of criticism concerns the approach of starting from a single overarching vision of how a societal challenge shall be addressed in order to deductively derive a strategic research agenda with rather fine-grained topics. It is questionable whether targeting a single solution to a challenge is appropriate in view of the uncertain nature of many societal challenges. Moreover, the linkages that are constructed between a specific research topic and a societal challenge tend to be superficial and arbitrary, and the ability to assess or evaluate impacts on such higher-order ambitions is very limited. As a consequence, a serious impact assessment, monitoring and evaluation is hardly possible.

Second, in spite of the programmatic recognition that tackling societal challenges requires, integrated social, technological and organisational solutions, the work programmes in Horizon 2020 have tended to maintain their emphasis on technological rather than social or organisational innovations. Impact, however, tends to depend, to a significant extent, on the social and organisational embedding of innovations.

Third, the framework programmes have been characterised by a great deal of path-dependency, over the past decades. There are too few novel and surprising areas of research, and there is too much thematic continuity. Given the volatility of the global environment, Horizon 2020 lacks the necessary diversity to address uncertainty.

In recognition of these flaws, the preparation of the 9th Framework Programme (FP 9) draws for the first time explicitly on a dedicated foresight activity as one of the main

¹ See the interim evaluation of Horizon 2020 (European Commission, 2017), but in particular also the many national position papers prepared in advance of FP 9.

inputs to programme design.² The Commission-funded project BOHEMIA (Beyond the Horizon: Foresight in Support of the EC's Future Policy on Research and Innovation) aimed at:³

- Exploring the global and societal environment for future European R&I by way of context scenarios;
- Proposing an overarching normative orientation for the framework programme to be beneficial to European society, against the backdrop of a promising development path for Europe in the global context;
- Identifying candidate areas for future R&I, which should strike a balance between novelty and continuity, and with a granularity may fit with the currently discussed “missions”.

In this contribution, we look specifically at the context scenarios and their resulting normative implications, and with less emphasis on the more specific areas for future R&I, which have equally been identified by the BOHEMIA project. These two aspects in focus can be regarded as the normative and the analytical compass for future European R&I.

In this essay, we will briefly explain the exploratory and normative dimensions of scenario development (Section “The normative and exploratory frame of reference”). Subsequently, we sketch the exploratory context scenarios developed by the BOHEMIA project (Section “The exploratory frame: seven pairs of context scenarios”), and explain how they can help in defining a normative orientation for government policy against the backdrop of higher-order political goals (Section “The normative frame: four transitions”). These normative orientations, formulated as transition processes, also provide the context for the 19 targeted scenarios or “missions” that could help promote these transitions. Finally, the Section “Policy implications” discusses some strategic implications for the future governance of FP 9.

THE NORMATIVE & EXPLORATORY FRAME OF REFERENCE

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European research and innovation policy is confronted with two main types of uncertainty, which need to be taken into account if a truly strategic policy response to future global challenges shall be given. The first type of uncertainty is rooted in the volatility of developments in the context of R&I systems, i.e. uncertainties tied to geopolitical and socio-economic developments, and in emerging developments in science, technology and innovation. The second type of uncertainty is related to a lack of clarity about the overarching purpose of R&I, or, in other words, a lack of agreement about the societal and political ambitions to which R&I is expected to contribute. These two types of uncertainty are of course not entirely independent of each other. In the BOHEMIA project, we have addressed them explicitly by exploring two frames of reference in a sequential manner: an exploratory frame and a normative frame.

In order to deal with future uncertainty related to the context of R&I, the explor-

² See the overview by Reillon (2018) for a review of the process leading to the Commission's proposal for FP 9. It positions foresight next to the interim evaluation of Horizon 2020 and the modelling work on the economic rationale behind research and innovation as the third main building block in the preparation of the Commission's proposal.

³ The different reports of the BOHEMIA project are available at: https://ec.europa.eu/info/research-and-innovation/strategy/support-policy-making/support-eu-research-and-innovation-policy-making/foresight/activities/current/bohemia_en.

atory frame inspired the development of contrasting perseverance and change scenarios as sketched in the section “The exploratory frame: seven pairs of context scenarios”. In particular, this step allowed capturing the main global and socioeconomic uncertainties that future R&I will need to tackle. The normative frame is based on overarching political ambitions to which Europe and its Member States have subscribed, and which provide an orientation for future R&I directions. More specifically, these overarching goals refer to the UN Sustainable Development Goals (SDG), and to the desire to maintain and strengthen of Europe’s role in the world in times of declining economic and demographic weight. The latter can be interpreted as a broadening of the well-established competitiveness goal that guided European R&I policy over the past decades. These two ambitions were developed in close cooperation with Commission staff, and they serve as points of reference and orientation for navigating an uncertain future landscape.

In concrete terms, these two types of uncertainty are not just abstract categories, but are core to the key challenges that sociotechnical systems, such as health, mobility or energy supply, are facing. By developing and assessing possible future context scenarios for R&I in these areas, a better understanding is achieved of how these systems could possibly evolve in the future. Which development paths to pursue is then a question of confronting these context scenarios with the normative orientations. Against this backdrop, emerging scientific-technological as well as social innovation opportunities can be assessed in terms their potential significance for moving on to these preferred development paths, and thus provide the foundation for informed priority setting. Of course, the fundamental openness of the future needs to be taken into account in this process and requires continuous monitoring and adaptation. In what follows, we first present the exploratory frame by way of sketching seven pairs of context scenarios, before looking into the normative frame.

THE EXPLORATORY FRAME: SEVEN PAIRS OF CONTEXT SCENARIOS

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As previously mentioned, one of the weaknesses of the R&I programming so far has been the lack of a genuine transformative drive. In the BOHEMIA project, this limitation has been addressed by developing two clearly contrasted sets of context scenarios:⁴

- “*Perseverance scenarios*”, in which the future is driven by megatrends and the basic principles and structures of the operation of our economies and societies remain stable; inequalities keep growing, also as a result of population ageing, immigration pressures and the decrease in working force; the emergence of new diseases and epidemics contribute to widen the rich/poor divide also in the health sector; urbanisation proceeds unabated, with sprawl, air pollution and congestion feeding each other; fast technological progress drives the global economy, while SMEs struggle with the “gig” paradigm; green commitments amount to little more than lip service, and as a result climate change effects are increasingly visible, notably through the emergence of critical shortages. Inequality is the key word here – and the failure of our leaders to make the right choices, develop the right technologies, and work together within Europe and across the globe.

⁴ This section is based on the BOHEMIA Context Scenarios Report, see Ricci et al. (2017).

- “*Change scenarios*”, in which the EU is at the forefront of the transformations towards “the future we want”, one that combines a stronger leading ambition of Europe in the global context with the commitment to pursue the attainment of the SDGs; forceful and swift decarbonisation – together with the widespread implementation of the circular economy – help mitigate climate change; the shift from the ownership paradigm to a shared economy provides a strong impulse to sustainability; a new social contract, with a social budget for all, enables an effective combination of holistic healthcare and regulation, leading to longer healthier lives and a new work/life balance; productivity-enhancing technologies are harnessed to develop new work opportunities and thriving digital job markets; cities become laboratories of good governance, notably relying on efficient transport systems, while security intrinsically increases. Fairness is the key word here – and the ability of our leaders to make the right choices, develop the right technologies, and work together within Europe and across the globe.

To develop exploratory narratives illustrating these two contrasting future pathways, seven main areas have been selected, starting from the analysis of large scale changes (megatrends) that affect science, technology and innovation in a variety of areas, but also macro phenomena such as globalisation, the evolving role of states, demography, economy, jobs and productivity, health and well-being, and societal needs and aspirations in general. BOHEMIA has accordingly developed seven scenario pairs that deal with:

1. Global political and socioeconomic context
2. Climate and energy
3. Environment and ecosystems resources and services
4. Health
5. Security and resilience
6. Accelerating innovation: people/technology convergence
7. Urbanisation: towards a world of cities

Each of these seven pairs tackles key sociotechnical systems, which in turn pose serious challenges. Although this selection does not claim to guarantee the full coverage of all possible transitions, or of all forces at play, it allows for a highly aggregated representation of future developments, capturing the main sets of future risks and opportunities, and enables us to think about important transitions for the future in Europe and the world in a small number of narratives.

Global political and socioeconomic context

The perseverance scenario “*Turbulent transitions ahead*” sketches the continuation of currently observed demographic developments (ageing, youth bulges, migration pressure), combined with the growing awareness of resource scarcity, poor education and insufficient employment opportunities, trigger increasingly severe intergenerational conflicts. At the same time, untamed digitisation, and the hyper-scalability it entails, dramatically intensify competition and amplify the risk of structural unemployment, as the acceleration of technological change outpaces all policies and strategies.

In fact, joint efforts to develop common solutions are weighed down by the fierce competition for resource access and by security concerns, while power shifts tend to marginalise the role of Europe in the global arena, and the effectiveness in addressing urgent systemic risks (energy, environment, urban resilience) is hampered by global tensions and the subsequent risk of severe military conflicts.

In contrast, the change scenario “*Transforming the world for the better*” projects that innovation ecosystems become highly performant, thanks to the combination of inclusive digitisation strategies and the development of new welfare models, driven by the overarching goal of leaving nobody behind. The cumulative effects of digitisation and decarbonisation enhance the sustainability of production-consumption systems, making the most of technological change that converges at fast pace. In a multipolar world, strengthened global governance is inspired by shared global goals that serve as soft coordination devices, supporting cooperation and convergence. Overall, global priorities reflect the quest for cohesion and the closure of intra-EU and global divides, superseding the traditional growth mantra.

Climate change

“*Climate calamity*” is the title of the perseverance scenario on climate change. As the title suggests, mitigation policies have had limited success, and only a relative decoupling has been achieved: renewable energy sources contribute to a 30 percent decarbonisation of the power sector, and fossil sources overall still represent 75 percent of energy consumption in 2030. As a result, the envisaged CO₂ path has been missed, with global warming attested in the range of 2.6 to 3.0°C. Sea levels will rise by 0.5 to 1m by 2100, accompanied by severe heatwaves, extreme rainfall and ecosystem disruptions, but investments in adaptation measures have not kept up with the pace of natural and built environment deterioration. New solutions prove costly, and are insufficiently exploited as global agreements, including COP 21, lag behind. World leaders focus on governing incremental changes and Europe’s leadership is not strong enough to have a serious global impacts.

In the corresponding change scenario “*The low carbon transition*”, the scope, scale and severity of global warming are fully acknowledged, leading to the implementation of comprehensive mitigation packages for the enforcement of the Paris Agreement. Renewable energy sources are mainstreamed, thanks to the innovation in enabling technologies (storage, smart grids), and major contributions to decarbonisation are achieved through afforestation programmes, CCS (carbon capture and storage) solutions and the continuing emphasis on energy efficiency measures. As a result, GHG emissions are cut by up to 70 percent by 2050, when low carbon electricity reaches a penetration of 80 percent. SDGs as shared orientation boost the search for better solutions, leading to an accelerated exploitation of new knowledge. As a result, extreme weather events and environmental catastrophes are counteracted by forceful adaptation measures and by building system resilience. The EU takes a leading position in governing the transition, advancing joint agendas and innovative solutions and fostering more sustainable business models that achieve the “triple bottom line” (social, environmental and economic).

Environment and ecosystems resources and services

In a nutshell, the perseverance scenario with regard to environmental issues can be characterised in a straightforward manner as “*The age of over-exploitation*”. The overall

degradation of the environment continues unabated: land use conversion and soil and ocean degradation are compounded by unsustainable agricultural and industrial models, leading to increased nitrogen and phosphorus concentrations, along with growing toxic chemical pollution and exposure. Feeding a growing world population has become a formidable challenge, constrained by severe water shortages and rising food and nutrition insecurity. Raw materials are in ever higher demand, and their rising consumption leads to dramatic increases in commodity prices.

Key to the change scenarios “*Towards a new well-being*” are major improvements in resource efficiency and the shift to a circular economy, which triggers significant positive externalities and paves the way to the absolute decoupling of economic growth from material consumption. Technology has played a fundamental role in this change process, notably with the exploitation of nano-, bio-, materials and IC technologies for “green” purposes, and with the development of systemic solutions (networks, automation, new production models) that enable zero marginal cost services. On the demand side, new consumption practices go hand in hand with institutional changes that favours sharing over ownership, and local over global circulation of goods and materials.

Health

Health is THE emblematic area of social concern. The perseverance scenario “*Health divide*” is characterised by persistent and deepening inequalities, with access to advanced healthcare increasingly constrained by income inequalities, social status, place of residence and country of origin. The advantages of smart and healthy cities with health and longevity benefits are priced into property markets, further contributing to widen the health divide. Better health technologies are becoming available due to advances in a range of medical and digital research fields, but at a cost not affordable by all. In fact, more and more individuals enjoy important health and performance enhancements (prostheses, genetic treatments) but the increased health risks suffered by those who cannot afford them breed their discontent and the subsequent threat of health-related riots.

The contrasting change scenario “*Towards health for all*” equally exploits new scientific and technological advances, but here, equity principles are forcefully pursued, once personalised health services, nutrition advice and treatments become widely available. The gap between life expectancy and healthy life expectancy is reduced. Major breakthroughs are achieved in the treatment of genetic diseases, and antimicrobial resistance is defeated notably with the systematic adoption of personalised vaccination. The ever increasing emphasis on prevention and healthier lifestyles leads to health-cost savings. On the other hand, big data applications enable dynamic healthcare system learning, leading to decreasing costs of clinical trials. Altogether, public health budgets become sustainable. In turn, this allows for enhanced R&I investments, with the EU leading in prevention technologies, fostering health equity globally and the emergence of new business models in the pharmaceutical and medical industries, supported by strictest health norms for industry (air and water pollutants, endocrine disruptors).

Security and resilience

Security and resilience have evolved in major societal concerns. In the perseverance scenario “*Security race*”, the increased pressure from continuing migration waves, combined with

the intensification of terrorist attacks have prompted considerable investments in security technology, with cyber security at the top of priorities, and huge spending in security research. Governments have sought and implemented close cooperation with industry but the reactive nature of policies and strategies, along with the lack of a common European approach, do not succeed in curbing the radicalisation process: cultural and value gaps in society keep widening as increasingly tight controls do not favour societal resilience.

In the change scenario “*Building societal security*” the response is different. At both global and EU level, security is understood as a cross-cutting policy concern. Beyond the threat-response approach, insecurity is tackled by recognising and addressing social and cultural cleavages as its main causes, prompting a policy emphasis on societal and environmental resilience, not least also in those countries that have been major sources of migration. The ultimate goal is to achieve “*Security by design*” at system level, to complement military and civil security technology, and calling for enhanced stakeholder engagement, joint efforts of governments, companies and NGOs to foster resilience, and the design and enforcement of strong and coherent policies for cyber security. Ultimately, this societal resilience approach contributes to the reinforcement of democracy and to the reduction of inequalities.

Accelerating innovation: Convergence of technology and people

The massive acceleration of innovation is the key driver behind these two scenarios. The perseverance scenario “*Losing the race against the machine*” favours global frontier firms that are in a position to harness the power of digitisation, as major network externalities foster concentration, and contribute to widen the productivity gap. Winners take all in this game as they can rely on platforms and the protection of intellectual property (IP) to ensure control over their platforms and networks. IP on agricultural organisms is introduced, as precision farming and integrated services in Agro-industry 4.0 develop, with multinational retail chains closely tied to agro-industrial cluster. Europe struggles to take leadership in this “hyper-scalable” economy, as higher volatility makes infrastructure investments risky and mega-multinationals increasingly take control over new firms in Europe.

In contrast, in the change scenario “*The innovation revolution for everyone*”, Europe fully recognises the urgent need to harness the massive acceleration of innovation, and unleashes major investments in RTI and smart infrastructures, combined with targeted adjustments of the regulatory and standardisation system, putting Europe in a path-breaking role worldwide. The adoption of inclusiveness and social solidarity as guiding principles drives the increasing openness of the R&I system, and thus enables a broader engagement in R&I activities, with research facilities attracting the highly skilled. Fast-growing European start-ups compete with leading firms worldwide in key technology fields. Innovations in social and economic policy (basic income models, lifetime social budgets), notably allow for the creation of a Grand Coalition for Digital Jobs, resulting in widespread social and economic benefits and a reduction of social disparities.

Urbanisation: Towards a world of cities

Cities are the focal points where several transformative developments come together and unleash complex development dynamics. In the perseverance scenario “*Urban jam*” global urbanisation proceeds unabated, and increasingly affects low income groups, with the

subsequent multiplication of urban slums. The aggravation of the sprawl phenomenon results in overstretched infrastructure, which, combined with extreme weather events, fails to ensure adequate accessibility. Air pollution aggravates due to congestion and car emissions, leading to overall urban decay. Insecurity, disease and social unrest feed each other in a vicious circle, as investments are polarised by the development of megacities, with limited innovation for improved livelihood. Altogether, cities fail to propel the engine of growth and employment. The transition to automated vehicles is driven by technology alone, with no radical change in mobility paradigm and business models. Having overestimated its reliance on technological progress alone, the traditional transport market proves to be unfit: the EU transport industry suffers, its world leadership at risk, as decisive innovations (e.g. ICT, big data and AI) are set by new entrants.

The change scenario “*New models of urban development*” is in stark contrast with “Urban jam”. The success of smart cities lies in their capability to morph into fully interconnected systems, with ICT, sensors and the Internet of Things enabling near-zero maintenance infrastructure. This is made possible by a collaborative economy model where strategies are designed and implemented through integrated multi-stakeholder engagement. Compact cities, interconnected with high speed, high efficiency transport such as hyperloops, deliver productivity gains, better accessibility and carbon efficiency. By 2050, urban sprawl in Europe is reduced by up to 30,000 km². Technological progress is primarily driven by behavioural changes and social innovation: connected and autonomous vehicles are boosted by a new mobility paradigm that embraces the principles and practice of the shared economy. Growing sustainability concerns trigger the systematic internalisation of negative externalities, which in combination with the virtualisation of freight movements yields a 50 percent reduction of emissions by 2030 and the almost total decarbonisation of transport by 2050. The EU experience informs urban space planning and reinforces its competitiveness and leadership worldwide.

Lessons learned from the context scenarios

Overall, in the perseverance scenarios of turbulent transitions the world will be characterised by major environmental, economic and security risks, and Europe will be affected by them. A volatile hyper-competitive global economy, in which hyper-scalable business grow and fail fast in a short lived winner-takes-all mode, would require brave economic decisions by firms and governments and scale and scope to go with it.

The perseverance scenario may not be negative on all accounts, but in a more optimistic outlook in line with the different change scenarios, a sustainable transformation would be realised in the world, and it would offer favourable conditions for Europe to achieve a globally leading position in important areas of future promise.

Science, technology and innovation have been the basis of many of Europe’s greatest achievements in the past, and continue to be fundamental to its performance in the world. Whichever scenario prevails, we will need strong universities, laboratories and technology-based companies. That will require a step-change in the levels of investment we deploy; the EU has yet to hit its oft-stated goal of spending at least 3 percent of GDP on R&D (we have been stuck below 2 percent for years). As we invest, we should continue betting on R&D with the greatest potential impact, but also recognise that is affected by the framework conditions: market regulation, the skill of the workforce, the supply of

capital and more. And as we invest, the scientific and technical community must be sure that what it does is, and is seen as, responsible – for society at large.

THE NORMATIVE FRAME: FOUR TRANSITIONS

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years to come. However, they do not tell us much about the pathways and strategies to pursue. As a complementary element, normative goals are needed which serve as a “compass” for strategic choices to be made.

In the course of the BOHEMIA project, and in cooperation with Commission services, two overarching political ambitions were formulated, to the achievement of which all European policies, including R&I policy should contribute to, namely

- the *Sustainable Development Goals*, to which EU Member States as well as the European Union as a whole have subscribed to. While some may regard these goals as overly ambitious and optimistic, more and more stakeholders from economy and society are subscribing to them as the only way forward of global development in an increasingly interconnected world.
- the preservation or even *strengthening of Europe’s global influence in economic and political terms*. In view of the declining demographic and economic weight of Europe, it is only by leadership in selected political and economic areas that Europe can maintain its role in shaping global agendas and commitments, which ultimately ensure the welfare and security of its citizens.

These two ambitions help navigate the uncertain future landscape of context scenarios. When mapping the change and perseverance scenarios against the backdrop of these overarching political ambitions, it turns out that these ambitions can only be achieved jointly if the change scenarios unfold. In other words, the exploratory frame (context scenarios) in conjunction with normative frame (political ambitions) indicates that the change scenarios, rather than the perseverance scenarios, are what we should aim for. Having said that, we must be aware that the future development path will not only depend on Europe’s ambitions and strategies, but also on choices made elsewhere in the world. Europe’s (and thus also its Member States’) foreign policies should therefore equally strive to make the change scenarios happen, and in essence this argument holds equally for a range of other policies with an international dimension.

As the change scenarios are focused on specific areas and share several common principles,⁵ they can be reframed in a more generalised way, to serve as reference points also for other policy areas than those addressed by the seven pairs of context scenarios. We have therefore condensed them into four wider “transitions”, i.e. transformation processes that “entail the simultaneous occurrence of far-reaching institutional, organisational, technical, social and political changes in and of sociotechnical systems”.⁶ In other words, these transitions require more than just incremental adjustments of current

⁵ Schot and Kanger (2018) call the common principles “meta-rules”. An example is the principle of fairness that is highlighted in the change scenarios.

⁶ Adapted from Markard et al. (2012).

institutions, but major organisational and institutional changes in order to stimulate and manage such transitions, both in the EU and globally. Continuing along established institutional and structural paths would lead to a downward spiral with sub-optimal outcomes in terms of both SDGs and Europe's ability to play a significant role in shaping global futures. The four domains of key transitions, which will be explained from the perspective of the year 2035, are the following ones:⁷

- *Social needs: providing for the needs of people*, to ensure a better life for all;
- *The biosphere: safeguarding a hospitable planet*, to ensure the survival of the species;
- *Innovation: harnessing the forces of change*, to improve change and the mechanisms that bring change;
- *Governance: joining forces for a better world*, to establish the conditions for successfully managing transitions.

Transition “Social needs: providing for the needs of people”

This first transition concerns the changes that are necessary to improve the quality of people's lives, to provide access to fundamental public services and to substantially reduce inequalities of various kinds. This transition depends on a combination of technological, institutional, organisational and social innovations, which – taken together – represent a complex challenge. Distinctive for this transition area is the key role played by basic, often public, services, including guarantees for access to food, lodging, health systems, water supply, safety/security, social security, infrastructure, etc. One characteristic of those needs is that they are personal and perceived by individual people. Accordingly, their fulfilment is strongly dependent on behavioural changes at the individual level.

The paradigmatic changes associated to this transition are exemplified by looking at the two areas of health and security. The main challenges in the health area result from demographic trends, on the one hand, in particular, related to the ageing of the population and migration, and on the other hand, from new technological opportunities. Together they could give rise to major tensions in terms of who has access to the new opportunities arising from new technology, and how the balance is struck between a preventative and a curative approach to healthcare. This outlook puts priority on promoting healthy lifestyles, preventing illness and curing promptly while supporting vulnerable people, enabling social participation and equitable access to health services and treatments (RIVM, 2014). Citizens are encouraged and empowered to move towards healthy lifestyles, also enabled by digital health solutions to manage, track and potentially improve their own health, and supported by information and continuous public monitoring. This shift represents a major challenge for health systems and health policies, which could be tackled as part of a package of major reforms of social security systems.

A similar paradigmatic shift takes place in relation to security matters. It recognises that the rise in insecurity experienced in Europe around the mid-2010s was partly due to problems of inequality and lack of social integration in Europe itself, and partly to crises in other regions of the world that could have been avoided. In response, a movement for a broader approach to societal security gains momentum. Going beyond an “end of

⁷ The subsequent detailed descriptions of the four transitions draw largely on the BOHEMIA Final Report, see Weber et al (2018).

the pipeline” mindset, security policies have also started to address the deeper causes of insecurity – in combination with active policies in other areas to mitigate social and environmental challenges – and not only the effects. As a consequence, emphasis is put on system level “security by design” and resilience-centric initiatives in relation to essential (infrastructure) systems, involving users in participatory processes co-designing security solutions in a consistent way as well as preemptive measures, such as the smart design of cities and localities in order to strengthen the (real and perceived) level of security. Overall, this shift in security policies has led to a significant widening of its scope, and addresses broader concerns about equality, employment, education (training) and resource security.

While health and security are two very important social needs involved in this transition area, there are a number of other social needs that are just as important: guarantees of basic human rights, fairness and equality, access to food and sanitation, employment and fulfilling lives, all combine public services with personal necessities and aspirations. Many of these issues are strongly related to the other transition areas, as some depend on the provisions of the biosphere, some relate to governance and agreed forms of social organisation, and of course they all aspire to improvements that become possible through innovation. Yet, they are important for the human condition, strongly dependent on public services and guarantees, and felt as needs by all individuals in society.

Transition “The Biosphere: safeguarding a hospitable planet”

This second transition has its roots in the debates about the environmental sustainability of our economic model, which builds on the (over-)exploitation of natural resources and seriously damages our natural environment. At its core, the paradigmatic change involved in this transition is reflected in changing basic principles of our economic systems in order to provide the incentives and create the structures necessary to respect the ecological boundaries of our planet and in order to ensure the possibility of living in a hospitable world also in the future. In particular, a shift towards an effective internalisation of the long-term and external costs of economic activities, and the stringent application of the “users pay” principle are important triggers to fight climate change and environmental over-exploitation effectively. They enable combinations of technological and organisational innovations (e.g. in the context of a circular economy or regenerative bio-economy). One of the main barriers to this transition is the absence of a global system of common rules, principles and commitments, in order to help overcome global price competition at the cost of the environment.

At its core, the transition related to the biosphere focuses on the nexus of energy, climate, and ecosystems and resources. The economic argument about the long-term costs of climate change is a strong driver of the transition towards safeguarding a hospitable planet, but it is not alone. Stringent mitigation programmes, such as those for renewable and low-carbon electricity supply (from 30 percent in 2015 towards a target of more than 80 percent for the year 2050), may have some impact on climate change, but alone they are not enough. While major technological advances are essential, organisational, behavioural and institutional changes are equally needed (e.g. in relation to mobility). Furthermore, in spite of these advances, major adaptation measures are necessary to cope with extreme weather events, raising the importance of adaptation capabilities and resilience across the globe.

Climate change is also part of the concern with the environment and life- and prosperity-enhancing ecosystems resources and services. Ecosystem resources and services are fundamental for a number of important social needs, such as food and personal health. The bio-economy, the circular economy, on land and in water, and bio-diversity and land management are all important parts of the transition to safeguard a hospitable planet. An important contribution to this transition can be made through regulatory processes that factor external diseconomies into the prices of goods and services. However, this is extremely challenging to implement, and on its own not sufficient for the transition. Innovations in design, manufacture and organisation are needed that build on the potential restorative powers of natural systems, combined with strategies to reduce overall demand for resources.⁸ This move in both OECD and non-OECD countries towards a resource-efficient economy and the decoupling of material consumption from economic growth is further supported by networked service provision at “zero marginal cost”, advanced automation and new materials contributing to new consumption and production models (including, e.g. sharing models)⁹ and the emergence of new services and business models for repair, re-use, re-distribution, re-manufacture and recycling of products, and sustainable finance models such as impact investments and valuation of natural capital. “Green” approaches benefit from advances in nanotechnology, biotechnology, advance materials and information and communication technologies, as well as from improvements of extraction technologies for those resources that cannot be fully supplied through circular material flows.

Transition “Innovation: harnessing the forces of change”

This third transition is about a fundamental change in how societies relate to innovation. Individuals, organisations and society at large increasingly accumulate and use knowledge to introduce purposeful change. The resulting acceleration in science, technology and innovation challenges social, economic and political institutions, and creates contradictions that result in loss of control, crises and stark ethical dilemmas. Recent examples are digitisation and automation, with their consequences for labour and work, the perception that artificial intelligence is taking over, or the emerging possibilities and risks associated to synthetic biology. The challenge lies with the ambivalence of these developments, which offer an enormous potential, but at the same time entail social (e.g. in terms of inequality), economic (e.g. in terms of dependence on single global players) and ethical (e.g. in terms of privacy) challenges. There is a strong need to learn how to harness these dynamics of change and devise processes to quickly learn how to best exploit their potential to the benefit of society.

The dynamics behind the acceleration of innovation are particularly strong for digital technologies and cities as spaces where these dynamics unfold their shaping power. The 2020s witnesses a strong acceleration of innovation. The data-driven digital economy, automation and artificial intelligence could drive this development disrupting

⁸ See Perez et al (2016), who see a huge competitive opportunity for Europe to ride this “green” trajectory and turn environmental problems into solutions for promoting investment and jobs. Such a green direction implies the use of technological capacities (which the EU has) in order to drastically increase the productivity of energy and material resources (which the EU only has in limited quantities). New “green” lifestyles are creating new markets domestically and will gradually entice the new millions joining the middle classes across the world.

⁹ See Rifkin (2014) or Mason (2015) for further empirical evidence on these developments.

further established businesses and markets. Education is of paramount importance for creating and harnessing innovation, and at the same time its institutions are challenged by innovation across Europe and around the world. Industry is at the heart of change, the force introducing much of the innovation in people's lives. At the same time industry is challenged by the volatility introduced by the pace of change. They are creating new economic activities, and new types of jobs are emerging alongside with new forms of entrepreneurial activity. Change is perceived as a threat and at the same time as an improvement. This is particularly true for European energy-intensive industries (e.g. chemicals and steel) that need technological breakthroughs to face the challenge of global competitiveness and “hospitable planet”.

The EU can embrace the innovation revolution, by nurturing research and social as well as technological innovation. An open system for science and innovation across Europe makes it possible that all actors can become active in that system. Openness in this broad sense contributes to empowering European citizens in relation to R&I activities. Accelerating innovation and openness entails uncertainty, and Europe needs to provide appropriate regulatory and institutional frames. This is an important “bet” for Europe in relation to the future. Intelligent regulation can spur technological developments into sustainable directions and give competitive advantages. Appropriate institutional frames need to be timely and flexible, and to steer efforts in the right direction. In such an environment, fast-growing European start-ups could out-compete American and Chinese companies in key global sectors. Misplaced regulatory frameworks could be massive burdens for Europe's innovators. It is urgent to find appropriate governance models for innovation, and this cannot be a piecemeal exercise. Experimentation is paramount.

Economic success in the emerging competitive environment of accelerating change brings massive, though ephemeral, rewards. Losses of failure can be amortized by a system of insurance and transfers. Through an effective grounding of Responsible Research and Innovation (RRI) practices paired with responsible investments, a shared ownership of the innovation revolution can be achieved in the EU. Collective fostering of innovation can bring economic benefits, better services and products, and the social benefit of more cohesion, where citizens are able to shape the future of rapid change together. Emphasis on inclusiveness, cooperation and solidarity could include promoting continuous education, training and skills development, while addressing the risks of volatility and inequality in earnings in labour markets through social and tax policies.

Cities are the hubs where the different ingredients of innovation come together to unleash social and economic dynamics. They are also important laboratories in which to harness the forces of change and to learn how to establish new collective learning mechanisms in the face of fast and disruptive change. Such truly “smart” cities can build on advances in sensors and their connectivity through high-performance computing and the Internet of Things. But smartness is not restricted to technology. It is primarily driven by processes of collective learning and inclusive planning. These help to rethink the way the cities are built, managed, and provide the living environment for an increasing share of the European urbanised population. Truly smart cities can become laboratories for the study of new models of urban development, as well as for innovation and for harnessing the forces of change through drawing together cooperation with committed partners, relevant stakeholders, and urban actors at all levels, including industry, knowledge institutions and government.

Transition “Governance: joining forces for a better world”

The three previous transitions depend to a significant extent on the ability to build global governance systems through which common rules are established to frame the change processes ahead. The core of this transition is to move from a governance system that builds on the pursuit of national and organisational interests to a system where cooperation and collective global values effectively underpin major political choices. This takes place in an environment of shifting global tectonics, where power spreads towards the south and the east, and from state actors to a much broader variety of actors and stakeholders. The main ambition of this transition is to tackle truly global challenges that require coordinated action, such as climate change, economic disparities and under-development, military and security conflicts, and global diseases.

If the overarching global ambition of reaching the SDGs were to be largely achieved in the course of the 2030s, this success would require coherence of actors’ strategies at different scales from a global to a local level, in a context of major global socioeconomic and political shifts. Nation states and international institutions are joined by a range of new types of players that shape the global governance arenas. Next to already established multinationals, NGOs and philanthropists, digital platforms and networks constitute new entities that reach beyond traditional regulatory and governance arrangements. The transition to a better world needs a transition to better governance, based on a global system that best fits the sustainability visions and targets.

The EU could be a core regional actor on the global governance scene. It could lead in setting the standards in environmental and social performance worldwide, whilst building its economic, technological, political and cultural leadership on the advantages offered by living sustainably. Progress down the path of SDGs involves a lessening of the differences between Europe and other parts of the world, creating the conditions for a more open EU in a more open world (or, to say it differently, a less fragmented EU in a less fragmented world). The path involves changes in living standards, technologies, infrastructures and a host of other conditions, which, in order to take place, requires economic activities, investment, production, consumption, and opportunities for innovation, competitiveness, benefit and income. A now strong EU leadership will safeguard the long term prosperity of EU citizens, providing important economic opportunities for European players in the world economy.

Policies should not be about quick fixes and ad hoc solutions but should be based on reflexive, participatory and anticipatory governance models. Part of the recipe is to understand that policy alone is not enough to achieve the transformation required. A truly new system requires changes in individuals’ behaviour and preferences, which are beyond the control of policy makers. Political leaders, economic actors and societies must understand the need to share the planet. New purpose-based business models and economic principles that consider the longer term should become profitable. Sustainable and inclusive globalisation management needs to lead to widespread opportunities and benefits. The financial system needs to become more sustainable with a strong focus on the long term and with investments supporting transitions. People empowerment and social safety nets could be building blocks for the co-created future human society. This new mode of governance of complex global challenges can be supported by a wise use of powerful artificial intelligence tools, allowing better modelling of complex phenomena

to join other evidence that feed into political decision-making. The appropriate governance of complex global challenges is a key framework condition for the other three transitions to be realised.

Targeted scenarios in the context of the four transitions

The brief outlook on the four transitions raises the question how they might be realised in more concrete terms, and what the role and contribution of R&I activities might be. Nineteen targeted scenarios have been developed in the BOHEMIA project in order to populate the transition spaces with more tangible, but nevertheless ambitious projections of R&I “missions”, together with the requirements that these projections would raise with regard to sectoral policies. The development of these targeted scenarios was based on a sophisticated methodology involving “bottom-up” consultations with R&I actor and stakeholder communities, as well as several rounds of discussion with European Commission services.¹⁰

The targeted scenarios are formulated at a level of granularity corresponding to that of the “missions” as suggested in the Lamy report (Lamy et al., 2017) and the Mazzucato paper (Mazzucato, 2018). In this light, they are meant as an input to the upcoming debates of future priorities to be addressed by the next European framework programme (see Table 1).

Tab. 1 //

TARGETED (2040) SCENARIOS IN A NUTSHELL

Targeted Scenario	Summary	It is now 2040
Assisted Living	In the ageing populations of Europe, but also abroad, the demand for assistance in daily living has more than tripled over the last 25 years. New service concepts combining automation, robotic assistance, digital helpers, virtual trainers and small exoskeletons have transformed care, assistance and the relevant industries.	
Bio-economy	The bio-economy promises to be a major contributor to European economic growth and reinvention with impacts on all sectors. Technological advances are set out to replace finite resources and conventional industrial processes, with processes and components that are biologically derived. In the long term, bio-economy will be a major contributor to climate mitigation and to the transition to a circular economy.	
Cheap Renewable Energy	Renewable energy is available at competitive prices. More than half the electricity used for transport, housing and industry comes from renewable sources. A pan-European smart grid coupled with local micro-grids, with adequate storage facilities, ensures reliability of electricity supply. Hydrogen and biofuels complement the system. The sector is expanding to novel cultivations, such as algae and bacteria.	
Continuous Cyberware	With the rapid growth of Internet of Things, cybersecurity hacks proliferate, putting citizens and infrastructures at risk. EU governments strengthen collaboration with citizens and industries to build up a response based on both social participation and cutting-edge technologies.	
Decisionmaking Supported by Open Expert Systems	There is an abundance of advice based on collected experience, using simulations, data analytics and learning systems. With just-in-time data available all around, expert systems are used routinely in the prediction and management of complex situations, as well as for organisational and individual activity.	

¹⁰ Methodological details are explained in Weber et al. (2018) and Gheorghiu et al. (2017).

Defeating Communicable Diseases

Communicable diseases (viral infections as well as biotic diseases) that reduce the quality of life of people and cause huge economic losses are being defeated. The number of people dying from communicable diseases is steadily decreasing. New approaches, including replacing antibiotics and ways to avoid infections have been developed in international collaboration.

Emotional Intelligence Online

With emotional markers from diverse sources widely available, and "emotionally transparent generation" has been ushered in. The flow of emotions is woven into the social, economic and political fabric. Governments aim to learn continuously from feedback gathered from the flow of emotions – as do corporations and individuals. Techno-pessimistic and techno-optimistic ideologies clash around the question of the future prospects of the "emotional generation".

Human Organ Replacement

Most human organs and tissues can be replaced. The majority of organs and tissues are bio-printed, produced by additive manufacturing or breeding (e.g. organoids). Human organ or tissue replacement is accessible and affordable for all European citizens so that the average life expectancy increases.

ICT-Based Security & Defense

Globalisation and ICT solutions have changed the nature of threats faced by the EU. A combination of preventive and response measures are implemented in coordination with security and defence forces with the aid of computers. The role of the anticipatory crime units is rising, together with the diffusion of unmanned aerial vehicles and military robots with Artificial Intelligence features. These are used in external military actions as well as to secure national territories in cooperation with security units.

Low Carbon Economy

The EU has slashed the release of greenhouse gases in the atmosphere, invested heavily in carbon sinks and has become carbon neutral including for energy intensive industries like steelmaking. Energy and transport sectors have radically changed through low carbon electricity, cities' sustainable mobility and CO₂ storage opportunities. Carbon capture technologies, together with renewed environmental actions, enlarge artificial and natural carbon sink, reversing carbon emission trends.

Material Resource

Sustainable consumption patterns, truly circular production-consumption networks, and shifts to less harmful, often renewable resources have made Europe less dependent on natural resources, more self-sufficient and more competitive in its industries. In addition, environmental degradation has been reversed.

Nano-to-Macro Integral Manufacturing

Mature 3D printing technologies have become one of the main modes of production of finished goods. Aided by advances in nanotechnology, additive manufacturing has entered many high-value added markets. Changes in product design have rendered it possible for whole products to be made with fewer or no intermediate goods. As a result, traditional global value chains have been disrupted in terms of both geographic span and density.

Nature Valued

Overexploitation of natural environments, intensive agriculture, and climate change have triggered further declines in wildlife with dramatic impacts on biodiversity, while also causing pollution, erosion and other forms of harm. In response, there was a change in the economic policy paradigm promoting sustainable business and consumption patterns that respect planetary boundaries, and more generally makes a case for the importance of biodiversity and nature-based solutions.

Precision Medicine

Individualised precision medicine combining mass data analyses, genetic engineering, epigenetics, and knowledge about the personal microbiome and the biotic environments helps anticipate and cure illnesses. Human enhancement is an issue of ethical and regulatory concern.

Reframing Work

Digitisation has turned our understanding of work all around. Full time paid jobs are the exception rather than the norm. Working time, family time, education time, social time and leisure are all mixed. Work is framed as purposeful activity, and people work for the sense of purpose it brings. Basic income guarantees satisfy essential human needs. Retirement age is by and large flexible and self-defined.

Smart Sustainable Mobility

A new cultural and business model has emerged: half of EU citizens do not own a car but rely on seamless intermodal mobility services. Passenger vehicles are increasingly automated and run on electricity, while freight transport also benefits from automation, with a massive use of drones for last-mile delivery, and high-performance power storage systems for trucks.

The Electrosphere of Sensors

As energy-harvesting technology makes substantial leaps and sensors are further miniaturised, self-sufficient micro-sensors flood public spaces as well as individual and corporate premises. Valuable data are constantly generated, but personal and organisational environments are exposed to predatory information-gathering practices.

Towards a More Diverse Food Supply System

Major efforts during the 2020s succeed in making our food supply systems more sustainable, secure, efficient, healthy and inclusive. Still, in view of a growing world population and environmental pressures on land and water, these efforts are not sufficient. A second pillar of food supply, based on a range of novel types of food production methods, complements the prevailing food supply system in the course of the 2030s.

Towards a New Knowledge System

Ubiquitous digitisation has transformed science, technology, research and education to a new integrated knowledge system. Abundant data, real-time and historical, are easily accessible through AI devices. Education makes extensive use of the digital tools. It empowers young and older people to make effective use of data, information and knowledge for social and economic ends. As knowledge becomes pervasive people lead more productive fulfilling lives. But established institutions are challenged to adapt.

POLICY IMPLICATIONS

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The results of the BOHEMIA project have a number of benefits for policy making, in particular in terms of providing transparent normative orientations for the long-term positioning of the next framework programme for research and innovation. The combination of exploratory future context conditions with regard to Europe in general and for R&I in particular, in conjunction with a clarification of the expected role of R&I for the longer-term development of the EU points to the need to embark on ambitious transition policies that will affect R&I policy, but also raise important implications for other policy areas. As a key message for European and national policy emanating from this exploratory work, there are strong normative imperatives, according to which only an effort to strive for major and interrelated transitions will allow Europe to meet its two overarching ambitions, namely to maintain and strengthen a leading global role, and to spearhead to tackling of Sustainable Development Goals.

R&I has an important role to play for realising these transitions, and the results of BOHEMIA highlight a number of mission-type trajectories or targeted scenarios, which would allow to promote this endeavour. An effective and efficient European R&I ecosystem is a precondition for this kind of strategically oriented R&I policy, aiming to target R&I investment to major endeavour and harmonise these with coherent impulses on the demand side of innovation (e.g. regulation, public procurement) and sectoral policy strategies. In terms of R&I agendas, the transitions-based approach will require the management and integration of a portfolio of R&I activities of different kinds: fundamental research to improve our understanding of novel phenomena, solution-oriented R&I, innovation activities to foster upscaling and social/organisational change, and research in support of regulation and policy making.

This new approach also raises new requirements with regard to the governance of R&I policy and beyond. The ambitious and long-term nature of transitions and targeted scenarios have the potential to serve as orientating and thus coordinating devices for the efforts of public, private and third sector agents, but it requires special efforts to enable these benefits to arise. First of all, the harmonisation in time of R&I policies on the one hand and sectoral and regulatory policies on the other, further enhanced by distributed responsibilities at different policy levels, points to the need for new coordination processes and possibly also different organisational structures. Agencies and network-type, public-to-public or public-to-private partnerships may be better suited for achieving the necessary level of coordination than clearly separated ministries and directorates general. Alternatively, the distribution of responsibilities in the executive branch of government may need to be rethought.

Second, in terms of implementation, R&I agendas around targeted scenarios will require changes to programme design, and in a way that put a combination of selection and upscaling of the most promising out of a portfolio of projects at the heart of the intervention logic, rather than a project-by-project funding model that gives limited thought only to the application, scaling and diffusion opportunities of R&I. This, in turn, will also require a much stronger strategic guidance and integration from programme management than what is common in most European R&I programmes and initiatives. —

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TABLES

Tab. 1 // Weber et al., 2018

www.heart

Will software eat the state?

*Lessons from Estonia for
the future of Europe*

WOLFGANG DRECHSLER

INTRODUCTION

When discussing the future of Europe in 2018, and being prompted to think Europe anew, one of the first vital issues that should come to mind and does is the actual future of the unit and its parts under discussion. The actual members of the European Union are states, and one can make a career just out of studying whether the EU itself is one as well or just an institution *sui generis* with a lot of state-like characteristics (lawyers will lean towards the latter, those studying governance and administration, towards the former). Yet the future of the state has been called into question.

The principal unit of power, organisation and even identity for centuries, the state is dying, either being killed or fading away, or so recent pronouncements will have us believe (Skinner, 2017, 10–14). These are generally not statements made by fundamentalists, or conspiracy theorists, but rather by fashionable guys at the height of today's mainstream discourse. But who killed the state? The culprit, or the dragon-slayer, as this is often seen as a good thing altogether, is the main techno-economic paradigm of our time, Information and Communication Technology (ICT), or more specifically, software, which is

transforming what used to be the state from a tired 19th century bureaucratic rubbish heap into an open, agile, sharing, digital platform, compatible with today's lifestyle, citizens' needs and demands, and the general teleportation of ourselves into our smart-phones.

And this “unrelenting digitisation of our day-to-day lives doesn't seem to be stopping anytime soon ... It's the future, and experts say that there's no reason to think that running a government won't inevitably be yet another task that fully ends up on the internet, too. That's why it could be one of the biggest ideas of the 21st Century ...

“Amazon is just a website, right? When you think of Amazon, you don't think of buildings. Do you think of buildings when you think of government? You probably don't,” says [Oxford professor Helen] Margetts. ‘Government is just a website, really, going forward.’” (Lufkin, 2017, “in association with MorganStanley”)

Actually, I (also) do think of buildings when I think of government, as many people do who primarily associate images, rather than concepts. The same is even true of Amazon, which is often illustrated in presentations by warehouse pictures, visualising its core distribution innovation very directly – Amazon does not mainly sell digital goods, it just sells them digitally. But the main point is not that it is a website, but that it is a for-profit company. What, then, is government?

There is one place where steps towards government “websitisation” and state cancellation are actually being taken, justified, and indeed presented for adoption, in light of an *inevitable* future, to the EU. That is the Republic of Estonia, which made the digitisation agenda the core of its EU presidency during the second half of 2017.

THE ESTONIAN ARGUMENT

– Estonia is the (European) role model for the digital transformation of the state today, more so than any other, perhaps, and also a leader – often pronounced *the* leader – in what used to be called e-government or e-governance and what is now mostly referred to as digital(-era) governance; we will still say e-Gov here.¹ Situated south of Finland across the Gulf, east of Sweden, and bordering, to its east, on Russia (to both of which it belonged for centuries) and to its south on Latvia, is a country of 1.3 million, dominated by the half-million capital of Tallinn, that boasts a very liberal economic regime (for instance, a flat income tax), the euro, and many great ranking positions. It was famous as the technological origin of Skype, at one time Europe's only significant Internet platform, before it cornered the market for e-Gov, in the media mind first with paperless cabinet meetings, then with the first truly successful e-elections, and finally with the overall transformation of the country in a digital way.

“Believe the hype,” as they say – Estonia, Estonian e-Gov, and the Estonian digitisation of contemporary life are really as cool and almost as real as propagated, such as in an article in the 2017 Christmas *New Yorker* by Nathan Heller (2017).² It is indeed so that Estonia is countering annoying delays in daily life that seem to be held over from the past

¹ In none of the four generally used, overall e-Gov indicators (Waseda-IAC at http://iacio.org/pdf/2017_Digital-Government_Ranking_Press_Release.pdf, UN-EGDI at <http://workspace.unpan.org/sites/Internet/Documents/UNPAN97453.pdf>, DESI at <https://ec.europa.eu/digital-single-market/en/desi> and the 2017 EU e-Government Benchmark Report at http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=48587) is Estonia actually number one, but it is often in the top five; the global crown goes to Singapore.

² Reading almost like a comped influencer piece, this is about the only *New Yorker* article I know in which only people who financially or politically profit from the narrative of the story are quoted.

elsewhere and just remain propped up by path-dependencies and special interests. Uber is better for normal people; nobody wants or needs to go to public offices and fill out forms in triplicate; the life of many middle-class Europeans has become internationalised via travel and work. Estonia is catering to those needs or at least desires, and this is a success story – for Estonia, for its e-Gov leaders, and for the consumer citizen as well. That success has a dark social underbelly, one that is not sufficiently topicalised and discussed, almost never in Estonia (except when that is in line with certain vested interests). But that is not our topic here.

What is the topic is that the current official message from Estonia – the *government* message, one that was used as the key note in the literal sense during the EU presidency, as we will see below – is that the (nation) state, the Western, *our* state is dying and – somehow therefore – must fall if Europe wants to stay on top of things. So this is indeed centrally topical for us – it is a direct, and (as it is told) very well received recommendation for the EU’s future and certainly a central narrative for thinking Europe anew.³ Behind that narrative is the following equation:

1. The state as such is “bad”;
2. The state’s task is service provision only;
3. Service provision can now be done without the state; thus,
4. The state is or will be dead, or should be.

Kaspar Korjus, one of the leading protagonists of e-Estonia and, within this, of the end of the state, the managing director of the e-Residency program who has been headlined as “Estonia’s Top Futurist [who] Explains How Tech will Make Countries Obsolete” (Browne, 2017), is described as “fascinated by the idea of disrupting the governments to become service providers like any other company” (Korjus, 2016). In a post called “The next big industry to face digital disruption will be our nations – Children born today will grow up with a radically different understanding of how governments should serve them” (Korjus, 2017a), he argues:

This is where we are now – a very small period in human history in which the world’s population has been restrained by geographic boundaries. A nation is assigned to us at birth and then it usually stays with us for life. This random allocation of the world’s population determines our life opportunities more than almost any other single factor. ... Our nations are now undergoing a digital revolution, which will radically reshape them once again – this time into borderless online communities with services that can be accessed anywhere there is an internet connection. ... we have built a digital society and so can you. This digital development is good for everyone, everywhere because it will improve the quality of governance globally if people can freely choose which nation they want to access e-services from. ... Governments can [in the future] earn their main source of income by selling their services globally in the form of monthly subscriptions – much like how Netflix currently delivers its service.

³ Estonian feedback on this argument has often been that e-Estonia is more multifaceted than that, and that there are many e-Gov protagonists, engineers and others who are highly critical of this simple narrative. This is, to some extent, true, but that attitude hardly ever enters the international discourse, and our concern here is the impact the message has on the future of Europe – and that message is rather streamlined.

His former boss, Taavi Kotka, the former CEO of Nortal, one of Estonia's prime software firms, was Government CIO between 2013 and 2017. He is generally credited with the creation – with others – of both e-residency and the digital embassies, the last of Estonia's key e-Gov features. His paper, "Estonian e-Residency: Redefining the Nation-State in the Digital Era" (written with Carlos Vargas and Korjus) already makes this claim in the title, although it goes well beyond redefinition. "Like other pioneering developments in the Estonian 'e-state', the e-Residency project challenges traditional notions of residency, citizenship, territoriality, and globalisation – with potentially profound implications for social theories of the state and citizen networks in the modern era." (Kotka et al., 2015, 1) Kotka clearly states the disruptive nature as well:

There is a natural pool of prospective e-residents – from both the industrialised and the developing worlds – among people who are oppressed by their territorial home nations. E-residents from these nations may now enjoy a new level of belonging to an emergent, transparent, and privacy-first globalised world. For this group, the decision to become e-residents is a fundamental choice to break free from conventional restrictions of citizenship and territoriality. [...] More fundamentally, the e-Residency project may lead to the redefinition of the nation-state itself. Perhaps individual identity should be based less on one's place of physical birth or residence and more on intangible values and senses of belonging. In time, the e-Residency project may radically alter the perception of belonging so that it is no longer anchored to the territorial nation-state. In this way, e-Residency challenges prevailing theories of the state. (Kotka et al., 2015, 9, 13)

In these pronouncements and writings, one can notice an absence of any specific theory or reference regarding the state and its alleged many faults on the one hand, and rather expansive speculations about the immediate future of humankind, and a quite radical utopianism, on the other.

Digital transformation of the state, prompted significantly by the president of Estonia, Kersti Kaljulaid, was the main theme of the Estonian EU presidency in 2017. Heller narrates a speech of hers during this time as follows:

*'I am President to a digital society,' she declared in her address. The leaders of Europe were arrayed in folding chairs, with Angela Merkel, in front, slumped wearily in a red leather jacket. ... 'Our citizens will be global soon,' [Kaljulaid] said. ... Citizens had to remain connected, she said, as the French President, Emmanuel Macron, began nodding vigorously and whispering to an associate. When Kaljulaid finished, Merkel came up to the podium. – 'You're so much further than we are,' she said. Later, the E.U. member states announced an agreement to work toward digital government.'*⁴ (Heller, 2017)

A very similar, key publication of Kaljulaid's was an article in *The Telegraph* with the title, "Our citizens are going digital and global. If the state doesn't keep up it will become obsolete" (Kaljulaid, 2017). This op-ed opens:

⁴ This agreement is called the "Tallinn Declaration on eGovernment" (for details see: https://www.mkm.ee/sites/default/files/tallinn_egov_declaration_with_signatures.pdf); however, there are no references here to the abolition of the nation-state.

As the President of Estonia, I represent the only truly digital society which actually has a state; almost all our citizens' interactions with the government, including voting, can be done securely online, and our 'e-residents' can incorporate and run their businesses in Estonia without ever having to set foot here. Seeing this digital revolution up close has made me question whether the state as we know it today is fit for the 21st century.

As in the previous texts, while in the president's argument, the headline point is updating, rather than abolishing the state, in the first sentences, both time, in a reversal of the classic (Continental) European idea of a state above and beyond society, the president goes back to the notion of a society (however digital or not) that controls, indeed that owns the state. As we will see, this may be the key to why from such a perspective, Estonian-style e-Gov may work in Estonia, but nowhere else.

THE STATE

But to go one step back, what is the state? Everyone talks about it, it seems; nobody – in this discourse – defines it. First of all, what do we mean by “nation-state”, and how does it differentiate from “state”? Let's go with the lowest common, but very digital, denominator, the Wikipedia definition:

A nation state or nation-state is a type of state that joins the political entity of a state to the cultural entity of a nation, from which it aims to derive its political legitimacy to rule and potentially its status as a sovereign state. A state is specifically a political and geopolitical entity, whilst a nation is a cultural or ethnic one. The term “nation state” implies that the two coincide, in that a state has chosen to adopt and endorse a specific cultural group as associated with it. (https://en.wikipedia.org/wiki/Nation_state)

A classic and still powerful definition is the convenient German definition by Georg Jellinek, according to whose “three-elements theory”, a state is denoted by an area, a specific citizenry living there, and exclusive state power – via government – over those two. As so often, Jellinek himself does not make this definition clearly, but in the context of a highly relativised, very lengthy deliberation (Jellinek, 1900) from which this has been abstracted. Government is, Wikipedia is right again, “the system or group of people governing an organized community, often a state” (<https://en.wikipedia.org/wiki/Government>). Obversely, if there is no government, there is, then, no state either.

As we saw already from the quotes, in the Estonian discourse, the current state, the Estonian Republic, and the concept of nation-state are closely related. I think it is fair to say that even most of the protagonists do not have or make a differentiation between the two. In fact, again, the e-Estonian statements of the future of the state are – at least in our samples – devoid of any concrete or even indirect references to theories and empirical developments; in Korjus, sometimes it appears that some pop science shines through, such as Harari's *Sapiens* (2014), and there are perhaps some rings of Barlow (1996), but this may be coincidence. So, where does this aversion to the state, if it doesn't even need to be annotated, come from?

Quentin Skinner has nicely summed up what brought the state on this defensive during the last decades in a series of publications: Multinationals and international

organisations weakened the state's powers; conservatives hated the welfare state and Marxists the state as a tool of the ruling class. "Recently, a growing neo-liberal consensus" promoted "open contempt towards the state. We are invited to see democratic states ... as agents of bureaucratic inefficiency and economic waste. Rather than using the power of governments to form our societies, we are asked to breed 'systems of Governance'", Skinner noticing here the "medieval terminology" (Skinner, 2017, 10-11). This anti-state lyricism currently comes in the disguise of hip, modern, inevitable "fixing the state" rhetoric.

To expand a bit, yet in all brevity, we can argue with Hannah Arendt that any form of human living-together must face the facts that we are not God, yet dwell together in one world (Arendt, 1963). We therefore need a structure to live with, in, and by as a group that makes this possible, and that is the most basic definition of the state. The state is the one place that makes sure that it is not egotism and the accidents of wealth and power that decide things, nor religion or ethnicity. Again, the state is, ideally speaking, above and beyond society, which is a place of particular interests (this is the key to Hegelian state thinking as mentioned before; see Hegel, 1820, III.3) and thus cannot be replaced, ever, or at least with the humans we have, by a form of social arrangement that would not, in essence, be a state, as long as we want to be equal and free as citizens, whatever this may mean *in concreto*.

And as far as the economic sphere is concerned, private property, the basis of it all, is a state creation to begin with, precisely through the state's monopoly on power – something is only mine if nobody can take it away with impunity. The only reason it cannot be taken is that the state prevents this (Wagner, 1948) – against enemies from the inside via the police, and against those from the outside via walls and soldiers. And anyway, "No State, No Citizens, No Market" (Centeno, 2007, 71). Moreover, if the private-property market state, i.e. capitalism, recedes along the lines of Commons-Based Peer Production, i.e. the creation and distribution of goods and value for other motives than material profit as in William Morris's *News from Nowhere* – and there are still utopian but concrete indications that this may be the case (Kostakis and Drechsler, 2018) – at least a "partner state" (Kostakis, 2011) would still be needed.

In fact, the state (if one may equate it with *polis* for the moment) comes into existence so that we can survive, and it stays in existence so that we can have a good life (Arist. Pol. I.2. 1252 b). It defends us inside against criminals and outside against conquerors, which is necessary of life, given the realities – something that should be particularly important in Estonia, and that is certainly part of the national rhetoric, down to the digital aspect of cyberdefence. A stateless world would require a level of goodness, love of all others on the part of every human, that is, other than in visions of heavenly paradise, so utopian that it would be reckless to assume it to work even for a peer-to-peer-based, basically non-hierarchical world, blockchain or not (Kostakis et al., 2017).

Globalisation (commercial and otherwise) and ICT in general do not make the state irrelevant at all; to the exact contrary, the move of important decisions on levels not covered by the state means that it somehow must assert its ordering function to these realms, because – remembering the non-divinity of humans – there is no reason whatsoever to believe that these things will happen in an acceptable way if they are just let go. Of course we can call for a "new definition" of ethics for the global ICT age, but redefining ethics means to abolish them, and just because technologies or economic streams are

there does not mean that they are right and good. It is indeed a challenge for the state to assert itself in both spheres, but that does not mean it does not have to be done (Habermas, 2001). Giving up is hardly an option.

Finally, doesn't the European Union challenge the state? Yes and no. What the EU challenges is the nation-state, but not the state. The reason why this is not always seen clearly is the dominance of the European discourse by lawyers – and for lawyers, again, their strict definitions of state may or may not include the EU, making the answer to the question very murky. But if it looks like a state, walks like a state, and talks like a state, it is functionally a state – functionally, the EU is doubtlessly a state. A short sojourn, with open eyes (*pace* Margetts), to the respective quarters of Brussels and Strasbourg clearly show the built, consciously ugly trappings of a 1970s-type state, and that is what the EU is. And while it is true that sovereign power does not exclusively rest with the old nation-states anymore, this does not imply the end of the concept. The EU easily can move in, and has done so.

It is in fact true that even the best states develop ethically indefensible elements, because one cannot balance out human interests, the interests of often flawed humans, only in a kind and friendly way. The state has an ugly side to it, by necessity, and to keep this under control is one of the key features of genuinely successful states. There is a constant struggle here that no protagonist of the state can deny; there is only no genuine alternative to this struggle.

In sum, human life cannot be envisioned outside the framework of what we call a state; the state, for our (form of) existence at least, is primordial. The question, for now and for the thinkable future, is how to have a good state, not whether to have a state at all. The state continues to be about survival and then the good life; nothing has changed in this respect over the last 2,500 years, a non-incidental part of human existence as we more or less know it. “To talk, under these circumstances, about the state and its institutions ‘fading into a shadow’, seems one-sided and in the end just ignorant” (Skinner, 2017, 13). Calls rallying against the state as such, rather than against the flaws of concrete states or for genuine “modernisation” with a perspective beyond hard techno-determinism, should be questioned concerning the *cui bono* perspective.

ESTONIAN SPECIFICS

Estonia vs. the Republic of Estonia

Even in the diverse context of European states, Estonia is, while not unique, certainly very specific as regards the attitude towards the state. In some sense, even or especially conservative Estonians are friends of Estonia, but not so much of the Estonian Republic, i.e. of the state.

Estonia has been a *nation*-state in any real-existing sense only for half a century (1918-1940 and 1990-2018 maximally; Taagepera, 1993, for the survey). Until then, in modern history, Estonians were colonised from all directions, and mostly they had little connection to state and government (Drechsler and Kattel, 2000). And they lived in villages, whereas the cities in Estonia were essentially foreign, most of them gaining an Estonian majority only in the late-mid-19th century – Tallinn, *taani linn*, the city of Danes, is a capital city that even in name belongs to “others”.

This is an issue here that I addressed in a speech on occasion of the birthday of then-Estonian president, Lennart Meri, the last state thinker in that office, almost 20

years ago (Drechsler, 1999): 2018 is the hundredth anniversary of the Republic of Estonia, but only if one starts in 1918 and blends out, which legally one doubtlessly can (Drechsler and Annus, 2002), the times when there was just a legal-fictional state and in reality a Soviet Republic. But as Aristotle states, “when the type of government changes and becomes different ... the state no longer is the same” (Arist. Pol. III 1276b).

Apart from legal reasoning, this may already give an indication that “Estonia” is in principle not even a nation-state, but a small, ethnically homogeneous, conversant unit, a tribe, really – and the modern nation-state within which it exists is something that is owed to the world order we have but not something to which Estonians have any closer relation. The hundredth anniversary of the Estonian Republic is thus a celebration that 100 years ago (and there is magic in numbers), for the first time (or at least again after several hundreds of years), the Estonian nation, as in people or tribe, was able to govern itself in the international political context. But it is not the core of one’s identity to the degree that “Estonia” is.

The state as an institution, both as Soviet legacy and over the centuries if not millennia, was always suspect – in Estonian history, the state was evil, society was good; society was us, the state was them (Drechsler, 1995; 1999). It has often been claimed that this is also at the basis of the already mentioned, really crucial neoliberal consensus of Estonia politically, where even the Social Democrats are neoliberals of sorts (Drechsler and Madise, 2004; the party with which the president is often linked, IRL, has at its basis a cognitive-dissonant combination of neoliberalism and nationalism), which means that the respect for the state is low – also, of course, the fear of one’s (own) state. Hence a much bigger confidence than in most other countries that for instance in e-health, nothing negative can be done by the state (added to the fact that familiarity with the entire community does also increase trust).

Finally, an emphasis on the Estonian Republic would also mean greater power and importance for the Russian(-speaking) population, still about 30 percent and not counted into Estonia in the sense of Estonian society by “Estonian Estonians”. One cannot define a republic exclusively on ethnic-nationalist grounds – but no matter what the external rhetoric, for most ethnic Estonians, the Estonian Republic is ideally an ethnically homogeneous nation-state (Aidarov and Drechsler, 2011; 2013). It can be argued that Estonian e-Gov is actually part of that kind of nation-state building (Björklund, 2016).

The Rise of e-Estonia

Normally, the protagonists of e-Estonia stress the organic, state-led development of e-Estonia since 1991 or even earlier, and the creation of an e-ecosystem of which all elements are a part (e.g. Kotka et al., 2015). Sometimes, this development is even narrated as based on the Estonian independence movement from the Soviet Union, i.e. the creation of an ID number from which the digitalisation took off was meant to register ethnic Estonians. This, however, forgets or de-emphasises the much more important Soviet techno-legacy that arguably made the technical side of e-Gov in Estonia possible.

This is not the place to detail the rise of e-Estonia, because, while the story is quite linear and the arsenal of players very limited, such a history has, amazingly, not yet been written – the first attempt (Mergel and Kattel, 2017) is in nascent form, although it has widely circled in manuscript. In the briefest of ways, I would say that in the early 1990s,

the idea to technologically leap ahead, present Estonia as technologically advanced, and do “modernist positioning” in order to look Western and not post-Soviet was developed; the point was originally, and still is, PR, i.e. actual solutions were positive spill-overs.

But there were these, and with time, they became more and more important – it is too dismissive to say that Estonia unwittingly stumbled upon the truth, but there was an effect along these lines. The credit here goes to Prime Minister Mart Laar, the genuine father of e-Gov in Estonia, and his visionary e-advisor Linnar Viik, whom he just let do things (Mergel and Kattel, 2017). Arguably, their main interest was both in state modernisation in a constructive way and in modernist positioning for PR purposes, which however soon took, kept, and later expanded, centre stage.

The second, much more applied layer is sometimes associated with Toomas-Hendrik Ilves and Jaak Aaviksoo with education strategies, etc. (Mergel and Kattel, 2017), and the diffusion of e-banking and the success of Skype created positive feedback loops. Then comes a third generation, associated with e-voting and the beginnings of “paperless governance” and then the fourth, a group of people with a social style that makes the term “Bitcoin Bros” (Hu, 2017) quite applicable and who do not aim for acceptance but dominance; who see Estonia as e-leading and indeed e-ruling; and who are set to make a lot of prestige and money from that as well; perhaps more than any of the previous generations, they are decoupled from actual problem-solving.

e-Estonians today usually emphasise that they are not prescribing anyone to follow them, such as during the EU presidency, but then, any divergence from the mantra is an implicit critique of the e-Estonian e-takeover and is typically answered rather aggressively. When confronted with Finland’s decision, in January 2018, to continue keeping their presidential elections analogue, Marten Kaevats, the government’s digital advisor, called “the Finnish train of thought ‘absurd’”. “There is a working case study that Estonia represents. There is significant research how safe it is, the dynamics and everything. There are numbers to prove it” (Macdougall, 2018). In fact, while there is indeed plenty of scholarship that is in favour of e-voting, there is as much that is against it (Drechsler and Madise, 2004 as an older reference). But why should Estonia mind if Finland, which is truly and not for nothing one of the best-ranked countries in the world according to almost all indicators, not only in e-Gov, decides for itself to stay on the usual European way? As former prime minister Taavi Rõivas said in a recent op-ed that clearly pushed further e-Estonia “solutions” for the sake of novelty positioning, “At the beginning of 2018, we are the best in the world as the undisputed e-state. Our success has been based on smart, audacious choices and the intolerable slowness of other countries” (Rõivas, 2018). Intolerable for whom?

E-Cases – For or against the state?

The currently relevant projects that make the e-State in Estonia are, in all brevity again, the following (they do not correspond to the usual Estonian narrative that would, e.g., emphasise the ID card, the X-road, and e-health much more, all of which are successes), as follows:

1. e-voting (Drechsler and Madise, 2004): It was e-voting that zoomed Estonia to the forefront of global consciousness as an e-leader, and it worked and works remarkably well; security dangers are all potential and not actual. But no matter what its protagonists say – among other issues, e-voting does change the

results, here and everywhere, as long as there is a digital gap that is mirrored in party affinity, and amazingly, it has not increased voter turnout, the original promise, to an appreciable extent. It is a plain and direct state function that has no influence on state theory as such.

2. Deliberative Democracy: The *Rahvakogu* (Käsper and Drechsler, 2014), an attempt to channel James Fishkin's concept of "Deliberative Democracy" (Fishkin, 2009) into real politics and to stall a protest movement (and to render more power to the theoretically figure-heading president), a peoples' assembly to bypass the power structure that be and let people "on the street" decide. The *Rahvakogu* was a dismal failure regarding what it was supposed to do (a small, non-representative sample of the people that came up with very minor suggestions only), but its protagonists still have praised it ("at least it somehow worked"). It is actually the biggest failure in this context – and it is the only example of e-collaboration or peer-to-peer; all success stories come essentially from the field of state control.
3. e-Residency: Since 2014, "e-Residency represents the latest in this explosive succession of e-government innovations" (Kotka et al., 2015, 4), or almost. This rather brilliant and much-hyped idea to give foreigners upon application an Estonian ID card (not valid for travel or physical residency) so that they can partake in Estonian public (and also private) services has made e-Estonia the darling of the global e-community. The Estonian intention, as we have seen, is actually not designed at all for "new technologies to expand the global reach of a nation-state" (Orgad, 2018), but ironically, especially if we use the term "state", that is the actual effect that e-Residency has had. Consultant Eric Schnurer has written: "Americans might soon choose to get their ... tax rates from Estonia... How soon? Virtually any day now" (Schnurer, 2015). Non-virtually, it is a bit difficult to envision the US Government, or any, agreeing with this, but e-Residency is a phenomenon to watch. The key to remember is that e-Residency only works as a supplement, not substitute, of classical nation-state citizenship.
4. And finally, Digital Embassies (Kotka et al., 2016; Kotka and Liiv, 2015): transferring the state information into a cloud, servers in Estonian embassies in friendly countries, and commercial clouds, specifically Microsoft Azure (part of their big e-Gov initiative), so that if Estonia is conquered, it can continue to exist: "A solution needs to be developed for situations, admittedly improbable, during which the Estonian state might need to operate some services outside its current borders" (Kotka et al., 2016, 104). Or "that will preserve the core records of government to allow the country to essentially continue to operate even in the face of physical occupation or destruction." Or, as one advisor put it, "we will be the first country in the world that can exist without physical land" (Leetaru, 2017). Or, the most recent Kotka again: "Another driving factor [for e-Estonia's success] was Russia's invasion of Crimea. Estonia has been occupied every century in our history. Russia occupied us just 80 years ago. What if Russia invaded again? Can we become a virtual country?" (High, 2018). The question is, where do the physical people go for the time being after such a conquest if there is no country left?

**“GETTING
WITH IT”**

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When Estonians travel or work abroad, they get easily annoyed by the amount of bureaucracy that is needed to carry out everyday tasks, with endless queuing, pointless paperwork, and tons of papers to sign with blue ink in three copies. Anyone who has lived even a single day as an e-Estonian, would find this irritating, time consuming and wasteful. Thanks to new technologies and universal internet penetration, public services could be made more effective and simpler and that is something that is not a dream, but everyday reality in Estonia, a country which has declared access to the internet as a basic human right. (Siil, 2017)

There is a kernel of truth here. Convenience is at the core of technology’s non-coercive distribution (Jünger, 2010)⁵; e-Gov does mean catering to the new needs of citizen customers as perceived by themselves, and it is nice to know when the bus will really arrive. With some luck, as in the cases of postmodernism and orientalism, the e-Estonian discourse on the abolition of the state will be good for lesson-drawing, and the scenario of a state-less life will serve as a heuristic utopia at best, not one to be pursued (Drechsler, 2002). Since this discourse is the discourse of our times, paradoxically, the “killing-the-nation-state” rhetoric by e-Estonia has actually legitimised the Estonian one among its peers – the Estonian *Republic* is stronger and prouder than ever globally. The projects of e-Gov in Estonia, at least the successes, have not made the state weaker, let alone obsolete – not by contents, but rather by being there.

All of that in spite of the Republic of Estonia’s inner antagonists, who, like their international brothers in spirit, would vehemently deny that label and point out that they only want to transform the state, never mind their explicit anti-state-ments, and make Estonia fit for the future, cool, open, and participatory. And indeed, there is a variety, a gradation of views, between and within the key protagonists and their texts, some more anti-state than others, as we have seen. But it is important to emphasise the clear state-ments and the logic of the powerful recommendations of the fourth generation of the Estonian e-Gov protagonists for Europe: clad in the discourse of inevitable policy recommendations, they actually lead to a veritable state-free dystopia in direct consequence.

Furthermore, as we saw, because of the special nature of the Estonian state and because of the lack of almost any theoretical groundedness of the discourse within the e-narrative, all this is highly context-specific, and so detached from the basics of any serious discussion of the nature of state and nation within and without Europe, that it has no, or should have no, influence on the future of Europe. The EU and its member states are also about service provision, but not only, and not even primarily – less so now, even, than just five years ago. It may happen that this narrative will be appropriated for political means, or misunderstood as inevitable, or that fashion, which e-Estonia does ride, creates such a tsunami that all resistance is futile. But otherwise, thinking Europe anew for the nearer future means coming back to recognising the state’s central role for our survival, and our living a good life – certainly updated, and in sync with digital pos-

⁵ Kotka, 2018, argues for the opposite however, claiming, “Estonians are very rational people. We didn’t ask [if they wanted ID cards]. We just forced it. Innovation through pain has always been a key element of change. If the engineers say you have to do it this way – it’s not a question for debate.”

sibilities and necessities, but not abolished. That, and hints about what to digitise and what, perhaps, to not, are the true lessons from the Estonian presidency.

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Using digital momentum for Europe

SABINE HERLITSCHKA

TECHNICAL LEADERSHIP: A QUESTION OF OPENNESS, INTELLIGENCE & COURAGE

How will life in Europe look in the year 2050? In my vision, Europe will be characterised by three things: democracy, diversity and dynamism. These are the cornerstones that render possible the European model of the social market economy, and that are constantly recreated through the freedom of economy on a basis of social and ecological standards. In their combination, democracy, diversity and dynamism point to the fact that we take responsibility for our way of life, use diversity as a creative resource and understand the will to change as an engine of progress. In my opinion, the real advantage of an open society above all lies in the recognition that there are no preconceived recipes in it, but that we have to work out innovative solutions by first facing up to these tasks with openness, intelligence and courage. Thinking about the future, we need to think about how we can increase the resilience of this model of success. We need to be clear about what is changing and how we can actively shape and, above all, influence the diverse, global processes in Europe. The key to this is innovation.

We are facing a fundamental paradox: never before has it been this difficult to design a larger picture for the future, as changes are taking place at a rapid rate. At the same time, there have never before been so many concrete ways of anticipating individual decisions using technology. Digitisation, big data and artificial intelligence (AI) on the one hand, and smart homes, smart cars, smart factories, smart grids and smart cities on the other, are creating a digital ecosystem whose potential is currently unpredictable.

One thing is undisputed: we are in the midst of a fundamental transformation. The decisions that need to be made are best described by a well-known Chinese proverb: “When the storm comes, some build walls and others build windmills.” As strange as it may sound, there are currently strong tendencies towards building walls. But we in Europe are well advised to focus on the windmills.

NEXT TO NOTHING IS AS IT WILL BE

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Numerous analyses of the current economic upheavals – usually summarised in the slogan “the consequences of digitisation”¹ – manifest themselves in publicly effective alarmism, resulting in the impression that radical change is a kind of singular event in human history. And this event is taking place right now. However, this is far from the case, and therefore a preliminary observation: the consequences of the industrial revolution at the beginning of the 19th century were at least as dramatic as the consequences that are currently being treated as the worst-case scenario of the digital revolution. Thus, since the year 1800, 90 percent of jobs have been lost in agriculture, this primary sector was the livelihood of 70 to 80 percent of the population in Western Europe at the beginning of the 19th century. The mere introduction of steam-powered threshing machines suddenly put an end to 30 percent of agricultural jobs in Germany (Kucklick, 2014, p. 77ff). In this context, however, it is mostly left out how much new work and social prosperity became possible in the first place as a result. In 1820, 94.4 percent of the world’s population lived in extreme poverty, compared to just under 10 percent in 2015.² The changes brought about by digitisation and automation will, however, without exaggeration, cost jobs across Europe – according to a recent study around 10 percent of jobs (Arntz et al., 2016). What is completely new, however, and makes the current situation so peculiar is the tremendous pace of change.

At the same time, the inflationary use of labels brings with it the risk that they may lose their effect. Within this threat of devaluation, the concept of “digitisation” is not immune. Precisely for this reason it is important to point out that the dynamics of change resulting from digital transformation can hardly be underestimated. After all, the transformation that we are currently witnessing in its infancy is bound to affect all areas of society, the economy and life.

Digitisation, however, represents only one – albeit key – development in a series of global challenges that are transforming our world in a sustainable way:

- In light of the rapid growth of the world population to just under 10 billion by 2050, we will face demographic and social change. At the same time, the increasingly ageing and shrinking populations in Europe will put existing social security systems to the test, above all in terms of quality (see UN, 2017).
- Climate change will further aggravate the existing push factors³ of global migration movements and drive urbanisation.
- Security issues will become increasingly important at the personal (privacy, civil rights) and societal level (“freedom vs. security,” preventive and preemptive security strategies).
- In response to a decades-long phase of global free trade, political counter-movements are emerging that emphasise the sovereignty of states and national eco-

¹ As an example, the most cited study contains the following sentence: “According to our estimates, about 47 percent of total US employment is at risk.” In Frey, Carl Benedikt and Osborne, Michael A. (2013): “The future of employment: How susceptible are jobs to computerisation?”, Oxford, https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf.

² The indicator “Number of people not in extreme poverty” stems from World Bank (2016) “Our world in data”, cf. Bourguignon and Morisson (2002).

³ According to Everett S. Lee, the push factors are founded in factors that are socio-economic (hunger, poverty, lack of perspectives, limited land or over-population), political (war, discrimination, persecution or dictatorship) as well as ecological (environmental disasters and scarcity of resources); see also Lee, Everett S. (1966).

conomic interests (such as “America First”), thereby influencing the competition of economic areas in a new quality.

Digitisation plays a special role in this development, as it will completely reshape the economies of the advanced countries.

“Digital Disruption” is the cumbersome umbrella term for a development that promises not gradual, but radical change. It’s not about the piecemeal transformation of production, distribution or consumption models, but about their reinvention. Disruptive innovations mean that the destruction of established markets is accompanied by the implementation of completely new products and processes (Staab, 2016, pos 445).

The scenarios that are currently being drawn for this only vaguely reflect the full extent of the change. These include:

- The Internet of Things: we are on our way to an “internet of everything.” Everything that can be linked is being connected, even if currently only 1 percent of all things are connected that will co-operate in a coordinated manner in the future.⁴
- Artificial intelligence will increasingly influence everyday work and everyday life. This not only concerns routine activities but also more complex requirements. Dynamic adaptive systems lead to individual solutions becoming the new standard.
- This gives systems a higher degree of self-coordination, such as autonomous vehicles or so-called “smart factories”, and adapts dynamically and above all individually to rapidly changing situations.⁵

Digital transformation is, on the one hand, driven by the needs and wishes of consumers, and better use of sales potential. The digitisation of products and services, processes and decisions, and, above all, business models, opens up the possibilities of combining these two essential influencing factors and making them dynamic in a positive feedback loop.

The term “Industry 4.0” encompasses the immense potential of digital transformation in industrial production. Here, research and development are closely linked to manufacturing in order to accelerate innovation, increase flexibility, and improve productivity and quality. In one study, McKinsey estimates a faster time to market of up to 50 percent (see McKinsey, 2015). As a central element of Industry 4.0, the “smart factory” will become an integral part of an intelligent environment in which the entire value chain is optimised in real time. New parameters such as changed customer requirements or changed raw material availability are automatically taken into account.

THE MOMENTUM OF ARTIFICIAL INTELLIGENCE & BIG DATA

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Along with digitisation, research, innovation and industrial production are becoming geopolitically strategic factors. China and the US are massively engaged in not only maintaining but also strengthening key enabling technolo-

gies. But where is Europe? In the last century, in his essay “Helpless Europe”, Robert

⁴ Contrast Ernst & Young Consulting GmbH, 2016/17.

⁵ A spectacular example of this can be found in the robots of Boston Dynamics, <http://www.spiegel.de/video/boston-dynamics-hun-de-roboter-kann-jetzt-tueren-oeffnen-video-99013415.html>.

Musil unequivocally stated: “This is what world history looks like from up close; you can see nothing.” (Musil, 1922). This title and quotation aptly describe the present situation, because, on the one hand, drastic events in world history are hardly perceived as such, and on the other hand, Europe is facing a tremendous challenge. If it is not possible to achieve an independent and strong position in the current innovation competition, a downgrade to an extended workbench of the “big players” the US and China is possible. In the face of an authoritarian-ruled China and an increasingly egocentrically acting United States, this limited ability to act also jeopardises the previously emphasised European qualities of democracy, diversity and dynamism.

In discussing events that fundamentally shape the course of history, you would not necessarily include an incident of a player losing at a board game. But what happened in May 2017 has the great potential to become an elementary event in the history books. In the showdown between the Chinese player Ke Jie, number one in the world at the time, and a software program called AlphaGo, the result was three to zero for AlphaGo.⁶

The outcome of this Go game can be interpreted as China’s “sputnik shock”⁷ in the context of artificial intelligence and suggests possible far-reaching consequences for the further development of the global economy (and global security policy). The term “sputnik shock” dates back to the year 1957, when the world’s public was “caught on the wrong foot” because the USSR completely surprisingly managed to send the first artificial satellite “Sputnik 1” into orbit around the earth. Above all, the US responded to this event with massive efforts to regain technological supremacy. The best-known institutional heirs of these prior events are the NASA Space Agency and the Defense Advanced Research Projects Agency (DARPA).⁸

The Chinese reaction is more than comparable to US activities at the time: “On 18 July 2017, less than two months after the Go defeat, the State Council of the People’s Republic of China passed a 12-year plan with the declared goal to make the country a ‘leading and global innovation centre for artificial intelligence’.”⁹ To do this, the Chinese state is investing in the construction of state-of-the-art infrastructure which is strongly based on the US DARPA model and which relies on close cooperation between private companies and governmental organisations. The activities range from the development of a conventional supercomputer to the application research of highly secure quantum information and encryption systems.¹⁰ Russia’s President Vladimir Putin does not doubt the strategic importance of AI for the future: “Whoever leads the field in this area will rule the world.”¹¹

⁶ AlphaGo was developed by DeepMind (previously: Google DeepMind). <https://de.wikipedia.org/wiki/DeepMind>. In the year before, AlphaGo had already triumphed over the 18-time Go world champion, the South Korean Lee Sedol. The number of possible moves in the board game Go surpasses the number of all atoms in space. [https://de.wikipedia.org/wiki/Go_\(Spiel\)](https://de.wikipedia.org/wiki/Go_(Spiel)).

⁷ <https://www.nytimes.com/2017/05/23/business/google-deepmind-alphago-go-champion-defeat.html>.

⁸ Originally it was called the Organisation Advanced Research Project Agency (ARPA). The Internet was developed from the computer network Arpanet.

⁹ https://www.nzz.ch/meinung/die-verwandlung-der-utopie-in-waffentechnologie-ld.1339796?kid=_2017-12-27&mktcid=nled&mktcval=107.

¹⁰ See Barnes, Julian E. and Chin, Josh (2018): “The New Arms Race in AI”, The Wall Street Journal, 2 March 2018, <https://www.wsj.com/articles/the-new-arms-race-in-ai-1520009261>.

¹¹ https://www.nzz.ch/meinung/die-verwandlung-der-utopie-in-waffentechnologie-ld.1339796?kid=_2017-12-27&mktcid=nled&mktcval=107.

Apart from military consequences, which are not dealt with here, it is possible to deduce, based on the experience of the US, the level of innovation and the private-sector spin-off of such institutions as DARPA. In her book *The Capital of the State*, taking the example of the iPhone, Mariana Mazzucato has impressively demonstrated how much US companies profit from innovation results and close cooperation within the state-industrial complex (Mazzucato, 2014).

Closely linked to the AI offensive, another plan by the Chinese government has also attracted worldwide attention: by 2020, a system called “social credit” is to be implemented in China. (see, among others, Mau, 2017, p. 9ff.). This social credit system, which is already being tested in some cities, captures the online and offline activities of all citizens in as much detail as possible and evaluates these via an individual points account. This account balance will influence the professional career, purchase of housing, creditworthiness and educational possibilities of the children. With this, the Chinese government wants to “... reward the sincerity of its citizens and sanction dishonesty. The project aims ... at the creation of social trust, a ‘mentality of honesty’ – with the means of total social control.” (Mau, 2017, p. 9). With the system of “social credit”, all of China is suddenly transformed into a huge, “big data” real-time laboratory, in which data volumes of unknown magnitude are generated, collected, analysed and evaluated, as well as in the further actions and thus in the way of life of the Chinese citizens. The data comes from sources as diverse as shopping on platforms such as “Alibaba”, traffic camera imagery, assessments by supervisors and teachers, and the behaviour of children all form part of this social credit.

The amount of personal information collected by no means exceeds that which is being collected, analysed, evaluated and stored at any moment in the US or Europe. As an example of this, we can take the first big data election campaign in history, which resulted in the reelection of Barack Obama to the president of the US in 2012. It is now believed that the Democrats’ campaigners had “around 10,000 to 20,000 data points for each of the 166 million voters.” (Kucklick, 2014, p. 33 f.). Specially programmed algorithms used the data set to determine individual “persuasions scores”, i.e. the probability of someone being an Obama voter or not. To put it briefly: these big data analyses enabled the targeting of relevant voter segments in the disputed states and became crucial to the later election victory of the Democratic candidate.

These examples from China and the US show that the collection, processing, evaluation and storage of data are taking place on a large scale on a daily basis. In 2017, there were around 3.6 billion Internet users¹² worldwide, and the global data volume will increase tenfold in the ten years between 2016 and 2025 to 163 zettabytes (around 179.22 trillion gigabytes).¹³ Data giants like BlueKai are now sorting 300 million American citizens into 30,000 different categories to increase advertising accuracy and avoid wastage (Kucklick, 2014, S. 33f.). Big Data is one of the fundamentals on which our world is currently being re-measured and built. Or, in the words of Wang Yongqing, a high-ranking official of the Chinese Communist Party: “Big Data reveals the future” and therefore the party should create “a complete collection of basic information about all places, all things, all matters and all people: about the trends and information on what they eat, how they

¹² <https://de.statista.com/themen/42/internet/>.

¹³ <https://www.mittelstand-heute.com/2018/03/09/5-mythen-big-data/>

live, where they travel and what they consume.”¹⁴ Which brings us back to social credit.

All this impressively underlines what has long been certain: Data has become the “oil of the 21st century”, with the blatant blemish that the global players of the big data market are all situated outside of Europe! While debates at the European level are primarily about the undoubtedly important protection of privacy and civil liberties, other global players are acting, with far-reaching economic and social consequences. Of course, concerns over all-encompassing transparency, constant monitoring and the potential of the algorithms are justified. But it is precisely here that the European model of an “open society” can establish the necessary legal and political guidelines. Democratic control, rule of law, security and freedom must be guaranteed and at the same time it must be ensured that Europe has the necessary economic and technological possibilities to exploit the potential of change.

Europe does not suffer from too little know-how – on the contrary, today there are (still) more professional programmers on our continent than in the US.¹⁵ What is urgently needed, and still lacking today, are technological value chains strategically designed to build a sovereign global economic pole in competition with the US and China.

TECHNOLOGY AS THE KEY TO GEOPOLITICAL LEADERSHIP

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The economy and (parts of) policy in Europe have, of course, long recognised these challenges. In light of the previously outlined global developments, the importance of the

so-called key enabling technologies is increasing and, associated with this, that of industrial production as a critical geo-strategic factor in creating and sustainably securing jobs and prosperity in Europe on the basis of the qualities of “democracy, diversity and dynamics” defined above.

As early as 2009 the European Commission identified six key enabling technologies (KETs) as strategically central to the continental economy and global growth trends: nanotechnology, micro- and nano-electronics, photonics, advanced materials, biotechnology and advanced manufacturing technologies (High-Level Strategy Group, 2018, p.9). This focus on industrial policy has certainly had an impact in recent years: 65 percent of all EU regions and 15 Member States have meanwhile defined one of the six KETs “as a smart specialisation priority.” However, in the midst of all the euphoria one should look at the other side of the coin. This can be found in a significant EU export deficit for high-tech and KET-based products, which amounted to 63.5 billion euros in 2015, with the biggest imbalance in trade with China (*ibid.*, p. 12).

At the European level, the definition of a new generation of key enabling technologies, which focus on six KETs in three major clusters – production technologies, digital and cyber technologies – is currently being intensively discussed (*ibid.*, p. 16). These include advanced materials and nanotechnology, life-science technologies, micro- and nano-electronics and photonics, security and connectivity as well as artificial intelligence.

Especially in light of the described activities in the field of artificial intelligence, which have already begun in the US and China, the impression has arisen that Europe

¹⁴ <https://www.nzz.ch/meinung/die-abschaffung-des-buergers-wie-wir-ihn-kannten-ld.1319342>

¹⁵ <https://www.brandeins.de/magazine/brand-eins-wirtschaftsmagazin/2017/lernen/die-welt-in-zahlen>

is reacting too slowly to these changes and subsequently losing the opportunity to play a pioneering role. There is a real danger that, although excellent strategy papers are being developed, Europe will effectively have less and less strategic technology competence and potential for economic realisation (research, innovation, production, jobs, etc.).

THE SIGNIFICANCE OF THE SEMICONDUCTOR INDUSTRY IN CHINA, THE US & THE EU

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“enabler” for current global megatrends: from the Internet of Things to e-mobility, autonomous driving, energy efficiency and the health sector. For 2018, the sales volume of the worldwide semiconductor market is estimated at around 430 billion US dollars. Because of their leverage effect, since 1985 microchips have enabled up to 45 percent of productivity gains within the OECD and 80 percent of automotive innovation.¹⁶

The strategic assessment of the semiconductor industry as a key area and, above all, the resulting actions are significantly different in the US and China than in Europe. The US and China have recognised their economic and strategic significance – and are acting. In 2013 the value of semiconductors imported into China for the first time exceeded the value of crude oil imported into China.¹⁷ The degree of self-sufficiency of China with products defined as “core semiconductors” is typically in the low, single-digit percentage range.¹⁸ In 2014 China announced “Guidelines for the Advancement of the Integrated Circuit Industry.” The goal is to build world-leading competencies in all key areas of the semiconductor industry by 2030 in China. As previously mentioned, China is investing heavily: for the next 10 years, a fund of state-controlled financing worth 150 billion US dollars will be available. This is to subsidise investments and make possible company or technology acquisitions.

Already under the Obama administration, the US responded to Chinese activity with the report to US President published in January 2017 titled “Ensuring Long-Term Leadership in Semiconductors.”¹⁹ It calls for a combination of measures against China’s innovation-inhibiting industrial policy, an improvement of business conditions for US-based semiconductor manufacturers, and the targeted promotion of “transformative” semiconductor innovations over the next decade. Meanwhile, the Committee on Foreign Investments in the United States (CFIUS) is significantly hampering the purchase and ownership of US-based semiconductor companies by non-US organisations, such as the US government’s blocking of the efforts of the Singapore-based competitor semiconductor company Broadcom to take over the US company Qualcomm in March 2018.²⁰ In addition, there is pronounced protectionism on the part of the ruling Trump

¹⁶ Infineon, IHS Markit 2017.

¹⁷ China Semiconductor Industry Association.

¹⁸ Tsinghua University, China IC Investment Forum 2017.

¹⁹ https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_ensuring_long-term_us_leadership_in_semiconductors.pdf.

²⁰ <https://www.reuters.com/article/us-qualcomm-m-a-broadcom-merger/president-trump-halts-broadcom-takeover-of-qualcomm-idUSKCN1G01Q4>.

administration, such as in the current trade dispute over US punitive tariffs under the label “America First.”

And what about Europe? Of the twenty largest semiconductor manufacturers in the world, nine originate from the US and eight from Asia. In Europe three semiconductor companies remain on this scale: Infineon, the Dutch company NXP Semiconductors and the French-Italian group ST Microelectronics. However, key aspects of European competitiveness are built on semiconductors: according to current estimates, the semiconductor industry alone will contribute 30 to 45 percent of Europe’s gross domestic product in the priority sectors Smart Car, Industry 4.0 and Mobile Infrastructure in 2020.²¹ Within these developments, Europe needs to strategically position itself more clearly and invest much more in strategic know-how and innovation. Therefore, the following action strategy is of particular importance:

- The establishment of a European system of accountability that, like CFIUS, can examine and approve or reject the strategic relevance of corporate consolidation/acquisitions for Europe. This topic could result in a difficult discussion with individual Member States, while at the same time Europe lacks this pan-European strategic role.
- Takeover protection of EU-based companies against foreign companies is currently only granted within the EU to safeguard state security. There are broader protection regulations (Article 64 (2) or (3) TFEU), which also take greater account of the industrial-political interests of the EU.
- The stimulation of investments in the EU can be pursued through Article 107, paragraph 3b (Important Project of Common European Interest – IPCEI). Some EU Member States have been trying to establish a corresponding semiconductor project in the EU for three years, but the administrative hurdles are great. Against this background, the Commission’s communication “Criteria for assessing the compatibility of State aid to promote the execution of major projects of common European interest with the internal market” (2014/ C 188/02) should be further developed and made more manageable.
- The EU budget needs to be significantly restructured for the new financial framework in order to respond to changing geopolitical conditions. Specifically, it is necessary to focus on innovation and innovation-driven competitiveness, building on globally strategically relevant fields of expertise and European strengths.
- Pre-competitive research collaborations at the EU level (EU Research Framework Programs) are predominantly based on co-financing by the EU Commission and the Member States. In preparation of the ninth Research and Innovation Framework Program, the course must be aligned with the mission of these programs to strengthen Europe’s knowledge-based competitiveness and reflect geopolitical developments. It is about the concrete focus on the strategically important topics for Europe in global competition (e.g., the development of European value added clusters for energy management, sustainable mobility, etc.), an adequate budget increase, and the retention of the eligibility and adequate support intensity of enterprises as essential innovation drivers.

²¹ Infineon, IHS Markit 2017.

Above all, in Europe – thinking of the key term “dynamism” – an active and proactive creative will is required to succeed globally as a competitive knowledge society and knowledge economy. This requires courage and determination using positive images that formulate digitisation as a “desired future” that can make tangible improvements a reality.

THE FUTURE IS A QUESTION OF INTELLIGENCE

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The key resource in the 21st century is know-how. The transformation of industrially advanced economies into knowledge economies is long taking place. What is undisputed is the fast pace of change. There is also no doubt that existing forms of work and activities will change. The OECD study quoted at the beginning comes to the conclusion that about 12 percent of jobs in Austria and Germany are at risk due to automation (see Arntz et al, 2016). This development can be met with fear and uncertainty, but these reaction patterns are as understandable as they are wrong.

Vulnerable jobs are offset by positive job effects from new job descriptions, higher skill levels, increased productivity, and the development of new markets. In light of digital transformation, it is even more important to focus on innovation as an opportunity in global competition, regionally, nationally and internationally. The crucial question must therefore be: how many jobs will we lose if we do not rely on digitisation?

The competencies of the future will be characterised by rapid decisions within flat organisations, the cross-process automation of routines, and the ongoing flexibility of activities and content. Expertise in the areas of technology, IT and digitisation are just as in demand as are so-called soft skills and leadership competencies. A “culture of learning” that uses digital formats for training and further education is essential in this work environment.

The changes that are currently taking place as a result of digitisation are having a direct impact on our education system in the form of new concepts of mediation and changed demands of “Generation Y”, as a recent study by the Austrian Council for Research and Technology Development (RFTE) shows. In order to better understand the expectations of university students, in May 2017, together with the partners Ludwig Boltzmann Association and Winnovation, nearly 100,000 students were interviewed in order to assess their perspectives, hopes and future expectations (Austrian Council for Research and Technology Development, RFTE, 2018).

The demands of students at the colleges of the future are very understandable. An example would be a “healthy” fusion of real and virtual learning on a physical campus with greater use of digital media for large-scale courses and personalised learning formats in small groups. Here, it is up to the universities to develop adequate and contemporary learning environments and to use them in their broader context. These can be virtual as well as more strongly interactive learning formats. Thus, studies can be made more flexible through local or time-independently usable online offers. On the other hand, universities have the opportunity to create new scopes in terms of resources. Using digitisation, universities will become more individual and even more global in the future. Knowledge is limitless and this will be a benefit at the universities of the future. And it will take place more quickly than we can all imagine – these changes are happening exponentially, while thinking and acting at the level of education policies still often follows linear patterns.

Interest, openness and curiosity are therefore the driving forces behind future developments. As a high-wage and tax-deductible region, in the foreseeable future the comparative advantages of Europe cannot be found in the area of cheap labour, but in value-creating, creative and innovative intelligence. The prerequisite for this is – as already mentioned – the European success model of the social market economy. The basis for this is a free market, which enables a functioning welfare state – whose task is both to support and place demands. At the same time, there is a need for highly skilled jobs with adequately paid employees, who are also always consumers. Education, income levels, political interest and political competence are, in turn, considered to be key influencing factors²² of democratic participation, driving democracy, diversity and dynamism in a positive feedback loop.

A key location factor for Europe's quantitative and qualitative growth can be found in its cultural, political and social diversity, which acts as a creative magnet and resource pool. In his studies, US economist Richard Florida clarifies the reasons for this: "Creativity requires diversity: it is the great leveler, annihilating the social categories we have imposed ... This is why the places that are the most open-minded gain the deepest economic advantages ... What creatives look for are abundantly high quality amenities and experiences, and openness to diversity ..." (Florida, 2012, p. IX; p. 186).

CONCLUSION 1 **DIGITISATION IS** **A SMART ENGINE** **FOR GROWTH**

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Europe needs smart growth, where digitisation acts as a fundamental job engine, securing high-quality, knowledge-based jobs on our continent. The opportunities that are opening up for Europe should not be underestimated, because it is no longer low labour costs that make the difference, but rather know-how. And it is precisely

here that the European Union must apply leverage in active interaction of the Member States with the European institutions.

The solution approaches can be found in three different and mutually complementary digitisation impulses (for the following passages, see High-Level Strategy Group 2018, p 21.). On the one hand, it is about greater efficiency: lower consumption of resources with increasing productivity and, along with this, more highly qualified work combined with decreasing product costs. This will give more people access to cheap consumer goods and wealth. On the other hand, evolution-driven digitisation is taking place wherever the further development of already established products contributes to higher-quality work with a stable use of resources and manpower. But most of all there will be market-driven digital growth. Free competition creates new business models, products, services and jobs.

If there is no strong focus on research, technology and innovation at the EU level, one should not entertain any illusions. What is at stake is nothing less than the continued existence of the European model of success. If industrial focal areas, skills and know-how migrate to other regions, they will be lost in the long term, along with the basis for our prosperity economies.

²² "Soziale und politische Beteiligung: Alternativen, Ergänzungen oder Zwillinge?", https://www.gesis.org/fileadmin/upload/forschung/publikationen/gesis_reihen/Blickpunkt/6/vanDeth.pdf.

CONCLUSION 2
COMMITMENT TO
MORE EUROPEAN
SOVEREIGNTY

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We need a common commitment to a “European way”. Europe has to drive its own solutions in order to have an impact at eye-level as one of the three global economic and innovation areas. To do this, Europe needs a clear strategic focus: this is about the promotion of innovation, research and development as well as industrial production, but also about the willingness to act as an innovation player in competition with China and the US. Europe requires a powerful, pragmatic and differentiated optimism on the part of policy and the economy, but also on the part of its citizens.

CONCLUSION 3
USING INTELLIGENCE
TO SHAPE AN
OPEN FUTURE

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Let us return to the initial vision of a “democratic, diverse and dynamic Europe 2050.” This vision focuses on a vanishing point in an open future. This open future is virtually the hallmark of an open society – and is thus inseparable from Europe after 1945 or after 1989. It is a prerequisite for the fact that we always face new challenges, which we have to handle with new, innovative and diverse solutions. This is the imposition of a democratic, diverse and dynamic society; it puts us in a permanent position of responsibility and calls on us to actively support the continued existence of these pillars, in order to protect them from tendencies to shut them down. It does not tolerate comfort zones, timidity or stagnation in seemingly secure niches. On the contrary, it requires a willingness to constantly evolve, learn new things and be willing to part with the obsolete. We have to face a simple truth: as long as the future remains uncertain, we can still shape it according to our ideas.

In order to guarantee the openness of our future, every day we must recreate the economic, technological and democratic foundations that enable us to sustain our free action as individuals, businesses, an economic area and a political community. AI researcher Alex Wissner-Gross points out that this is above all a strategic question which has a lot to do with intelligence: “Intelligence is a force that acts so as to maximise future freedom of action.”²³

So let's remain intelligent. —

²³ See Wissner-Gross, Alex, “Intelligence is a force that acts so as to maximize future freedom of action”: https://www.ted.com/talks/alex_wissner_gross_a_new_equation_for_intelligence/transcript, from 4:25 minutes.

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Envisioning our future with robots & AI

Opportunities & challenges for Europe

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SABINE T. KÖSZEGI &
MARK COECKELBERGH

INTRODUCTION

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Robots and AI are considered game changers and key drivers of economic growth and wealth in the coming decades. However, critical voices emphasise that these technologies are also accompanied by ethical and legal challenges and forecast fundamental changes in society. But not only experts, also citizens are ambivalent about robotics and AI. The 2017 Eurobarometer survey reveals that 72 percent of EU citizens fear that robots will take their jobs.¹ A representative public opinion poll on robotics and AI in Austria found that one half of citizens have a positive attitude towards robotics, while the other half are sceptical or worried about it (see Glantschnigg and Hacker, 2017). The majority of people think that robots should be used to take over dangerous work like exploring space, and many of us would use robots to clean our flats, but only a minority think that robots should take care of our elderly and our children. California, one of the first US states to allow fully autonomous cars on its streets, has recently experienced “robo-rages” in which humans attack self-driving cars on the street.² The recent fatal incident with a self-driving car in Arizona further fuels people’s concerns.

¹ Special Eurobarometer 460: “Attitudes towards the impact of digitisation and automation on daily life”: European Commission, May 2017.

² Sabur, Rozina (2018): “Robo-rage: Humans reported to be attacking self-driving cars in California”, The Telegraph, 6 March 2018

Attitudes towards robots differ across cultures, and are much more positive in countries like Japan and South Korea. In Europe, people are worried that robots will take over their jobs and that they will be left alone with machines when they get older and need help.

In stark contrast to these worries, the strategy and policy papers of the world's leading economies, including the US, Japan, and the European Commission,³ associate robotics and AI with economic growth, an improved quality of life and the empowerment of people. Japan's government hopes that four in five long-term care recipients will accept having some support provided by robots by 2020.⁴

Where does this difference in expectations come from? What needs to be done to address people's anxieties and concerns about robotics and AI? How can we ensure that European citizens will benefit from these new technologies? And how can we ensure that human rights and human dignity remain safeguarded at all times?

These are the questions this essay sets out to address. However, before delving into these topics, we first need to clarify some key terminology and explain what we mean when we talk about robotics and AI. The problem is that there are no widely accepted definitions of robotics and AI, which is also recognised by policy makers. It is very popular these days to speak more generally about cyber-physical systems. A study by the European Parliamentary Research Service⁵ defines such systems as “intelligent robotics systems linked with the Internet of Things” or “technical systems of networked computers, robots and artificial intelligence that interact with the physical world.” Thus, robotic systems incorporate artificial intelligence (AI). The EU's European Economic and Social Committee Report⁶ provides the following definition of AI:

The central aim of AI research and development is (...) to automate intelligent behaviour such as reasoning, the gathering of information, planning, learning, communicating, manipulating, detecting and even creating, dreaming and perceiving. AI is broadly divided into narrow AI and general AI. Narrow AI is capable of carrying out specific tasks. General AI is capable of carrying out any mental task that can be carried out by a human being.

These two definitions show that there is no clear delineation between robotics, cyber-physical systems and AI. This essay will deal with all possible forms of embodiment of artificial intelligence, considering humanoid robots and intelligent software bots alike.

In the subsequent sections of this essay, we sketch two potential scenarios for Europe's future in 2050, envisioning robots and AI as an integral part of our society. Comparing the two scenarios will unmask the ethical, legal, socio-cultural and economic challenges associated with these technologies.

The first scenario is a utopian one, in which we imagine the best of all possible worlds when it comes to robotics and AI. It is based on at least two implicit value prop-

³ Draft Version 15 of the European Commission on: *Maximising the benefits of Artificial Intelligence*, 27 February 2018

⁴ The headquarters for Japan's Economic Revitalization (2015): *New Robot Strategy*, http://www.meti.go.jp/english/press/2015/pdf/0123_01b.pdf, accessed 28 March 2018

⁵ EPRS | European Parliamentary Research Service (2016): *A Scientific Foresight Study on Ethical Aspects of Cyber-Physical Systems*, Brussels, © European Union

⁶ Muller, Catelijne (2016): “Artificial intelligence – The consequences of artificial intelligence on the (digital) single market, production, consumption, employment and society, (own-initiative opinion)” report, European Economic and Social Committee

ositions that need to be addressed here, as they are – of course – disputable. First of all, work (paid labour) can be – and for many of us is – a meaningful and valuable part of our lives: Paid labour contributes considerably to an individual’s social identity, and provides possibilities for self-actualisation, social inclusion and appreciation. Thus, a world without paid labour would not be utopian. Second, a maximisation of human well-being is to be favoured over a maximisation of wealth. There are also disputable suggestions in the scenario, such as the view that universal basic income is a possible solution to future work challenges. We might have picked up other suggestions for our scenario but we decided to use the ones that have been discussed extensively in the public or have been implemented in practice – at least as a field experiment – by policymakers.

On the other hand, the contrasting dystopian scenario incorporates issues that have been raised in the critical literature. Below, we describe the two contrasting scenarios. The opportunities and challenges raised, such data security, safety and liability, malicious and dual use, employment and wealth distributed not discussed in any systematic order, nor should they be considered exhaustive.

TWO CONTRASTING SCENARIOS FOR OUR FUTURE

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The two scenarios outlined below describe what our future with robotics and AI might look like 30 years from now, thus adopting the idea of this book of envisioning our future. They will provide the basis for an analysis of the challenges and obstacles we may face in the future and may allow us to identify critical turning points that will determine whether our journey leads us in one or the other direction. They are written from the perspective of 2050, looking back.

The utopian scenario

Thirty-five years ago (i.e. in 2015), the United Nations defined 17 Sustainable Development Goals⁷ reflecting the fundamental challenges to the physical, biological, psychological, social and cultural systems that maintained humanity at that time. The urgency and complexity of these challenges inspired the European Commission to launch a large Technology Flagship Program on Robotics and AI in 2019, which has funded and guided research and innovation since then. Although Europe was placed at the centre of these researchers’ and policymakers’ approach, they recognised that the challenges confronting the citizens of Europe are intimately coupled with those faced by humanity in general. Within a period of 20 years and through joint efforts, interdisciplinary researchers succeeded in developing a humanitarian Artificial General Intelligence (AGI) in the service of humanity, thus “recognizing the intimate coupling of human socio-economic-cultural systems with bio- and earth-systems forming an intricate multi-scale network of networks” (cf. Prescott et al., 2018).

Since then, through the development of a completely new generation of robots and humanitarian AGI applications, Europe is on a clear path to achieving the UN Sustainable Development Goals. Most importantly, dirty, heavy, monotonous and dangerous work has been taken over by robots. The freed-up human resources have been directed to

⁷ <http://www.un.org/sustainabledevelopment/development-agenda/>

meaningful, creative, social and innovative areas, allowing European citizens to develop and deploy their individual capabilities and passions in their work environments. Work is shared among European men and women, and no citizen has to work more than 20 hours per week for pay, leaving enough time for leisure, recreation, and social and political work. A universal basic income provided by governments to their people is financed via the substantial gains in productivity due to robotics and AI, which are shared fairly among employers, employees and nation-states, without exploiting our ecosystems and environmental resources.

Disruptive innovations in healthcare have substantially improved people's quality of life and well-being: first there was a period of transition, which has caused some social-economic problems, but soon overall well-being increased dramatically. Today, strong AI makes possible the fast and accurate diagnosis and treatment of debilitating diseases as well as safe robotic surgeries using minimally invasive systems such as nano-bots. Assistive ambient living systems increase the autonomy and well-being of elderly people and people with disabilities. AGI and robots have been and continue to be used to clean up the environment from damage caused in previous centuries.

People live in safe cities and communities. By completely replacing traditional vehicles with autonomous self-driving vehicles, the number of accidents and injuries to humans has been reduced to (virtually) zero, and is incomparably low when considering the number of accidents in the old system. Social robots support educators and instructors in developing children's individual capabilities and giving everyone access to information, education and life-long learning.

People enjoy their smart homes and personal assistive systems, which make the organisation of daily life much easier. Since even children have their own AI assistants, they are educated from nursery school onwards to become responsible users of AI technology. Most citizens are aware of and can deftly handle the potential threats associated with this technology, e.g. privacy issues or becoming addicted.

We could go on embellishing this scenario with further details demonstrating how robotics and AI may increase human well-being and wealth. Below, however, we contrast this scenario with a dystopian scenario. The details developed in this story are not fictitious in the sense of science fiction. Rather, they are based on contemporary factual and anecdotal evidence, threaded together and further developed into a possible scenario we could well face if current developments tip to the wrong side.

The dystopian scenario

Thirty years ago, in the thaw following the AI winter in the first decade of this century, a handful of corporations (the G5, named after the G7, the world's most powerful states economically) had collected substantial amounts of data from and about the population. These companies offered allegedly free services to consumers, which were actually paid for by providing personal data. With the help of machine learning and AI algorithms, these companies capitalised on this data, increasing their economic power year after year in order to eventually reach the dominant position they have today in the world's AI and robotics landscape. Although the European Union has repeatedly tried to reclaim control over robotics and AI technologies through policies and regulations, policymakers cannot keep pace with the unprecedented rate of AI and robotics inventions and applications

introduced on the market. Despite their promises to adhere to ethical standards in their corporate social responsibility strategies, the G5 companies are recklessly maximizing economic profits. The liability issues of their products and services still remain largely unresolved: accountability for defective services and products is currently distributed in a “network of responsibility” encompassing programmers, producers, sellers and users, leaving the victims of robots and autonomous AI products and services out in the cold.

This economic power has also translated into increased political power. The European Union, for example, can hardly implement a policy that goes against the interests of the big companies, let alone that nation-states can pursue their own course. Today it is often said by both experts and citizens that the world is ruled by the G5.

Another worrying issue is the G5 companies’ collaboration with dictatorial and rogue nations as well as the weapons industry to develop AI technologies for military purposes. Even technologies that were originally developed for civilian purposes have been adapted for military applications by terrorist groups and exploited for their malicious goals. For instance, the international press has reported countless attacks by “toy drones” outfitted with explosives in the past decade, resulting in terrorist attacks and murders.

Another alarming fact is the sale of private data to national governments. G5 companies provide access to historical and current data collected from the users of their service platforms in exchange for tax benefits. This personal data is now being used to nudge citizens into conformity with “ideal citizen” profiles. Citizens who buy healthy baby food, book online education and training courses, and subscribe to websites endorsing government opinions are awarded so-called “citizen points”, which grant them access to university programs and tax reductions. Meanwhile, points are deducted from citizens who watch too much pornographic material or subscribe to critical blogs and websites. The effect is that the big companies decide what it means to be a good citizen and a good person.

Automatisation and robotic technologies have cut the number of jobs by more than 50 percent since 2020. Only well-educated people with specific skills in computer science, mechatronics, engineering, data analytics and the like have access to well-paid jobs and decent careers. This group can also afford access to excellent health care systems, with technologies that allow for the early diagnosis and treatment of severe diseases as well as safe robotic surgeries. Elderly members of the privileged social classes enjoy assistive healthcare systems allowing them to live autonomous lives in their homes. The rich can also afford human care and human services. The majority of Europeans, however, either work under precarious conditions with zero-hour contracts or are dependent on public welfare programs, without prospects of finding a job or receiving training and education. Social inequality has increased tremendously within the last 30 years, leaving the majority of Europe’s citizens without prospects for the future. They also have to do with inferior products and services, offered by less intelligent machines.

Another development is also worrying policy makers: Social scientists warn that European citizens’ ubiquitous exposure to highly patterned interactions with social robots have degenerated their human interaction repertoires and led to an erosion of personal relations within the society. People forgot how it was to deal with each other in a human way. Furthermore, the simulated emotions and symbolic actions of robot companions

hold the prospect of controllable personal relations. This has led to human personal relations being replaced with personal relations to robots, especially among vulnerable groups in the population. Together with a lack of economic prospects, this deterioration of the social fabric has increased people's willingness to engage in violence and riots.

Again, we could add more details to this scenario without changing the main message: robotics and AI are accompanied by many challenges.

ETHICAL CHALLENGES

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As the scenarios above show, current developments raise a number of ethical and social problems that need to be addressed if we want our future with robotics and AI to develop in a positive direction, towards the utopian scenario.

Let us outline some challenges that are not science fiction but need to be addressed in the near future:

First, at a very fundamental level, the moral status of robots and autonomous devices is not clear. They are clearly agents: they do things. But can they also act as moral agents? Can they think about morality? Some people working in machine ethics are trying to create “moral machines”. But can machines ever be moral? If they cannot, should we ever completely delegate decisions to these machines (give them autonomy) or should humans always be involved in the decision loop? These are questions regarding the moral agency of robots. Furthermore, as robots increasingly become like living beings, we must question whether they are still merely machines or whether we have any moral obligations towards them to treat them well. This question refers to moral patiency. On the one hand, one may reject this line of thinking and say that robots are just tools. On the other hand, the way many people react to autonomous robots in the shape of a human or an animal shows that we at least need to reflect on such robots' status and human behaviour towards them. In this sense, robots and AI call our established moral frameworks into question. Both scenarios picked up on this issue: in the utopian story, reflective and critical education and responsible use of robotics and AI technology did not threaten our society's socio-cultural values. However, the dystopian story sketches a scenario in which deteriorated personal relationships fundamentally threaten our social fabric.

Second, as robots become increasingly autonomous, who should bear ethical or legal responsibility for robots and AI is not clear. As discussed above in the utopian story, we expect many benefits from robotics and AI for society: higher productivity, greater safety on the streets, higher well-being and better health, etc. But who is responsible if autonomous systems fail? For example, if an AI system operates on the financial markets and causes a crash, who is responsible? If a machine harms a worker in an industrial context, is the designer or programmer responsible? If an autonomous car malfunctions and drives into a group of children, is the owner of the car responsible, the seller, or the producer? If a health care robot gives the wrong medication to a patient, is this the human nurse's responsibility? If autonomous weapons with lethal capacities and artificial intelligence kill someone, who is responsible? And is the teacher responsible if a child develops an attachment to an educational robot? These are important moral questions but also very practical legal questions when accidents happen, and whether our current legal frameworks are sufficient to deal with such problems is highly questionable. As outlined in the scenario above, as things currently stand, the victims would be left out in

the cold. This is even more true when taking the economic power of potential defendant parties into account. Therefore, we need more research evaluating in detail how laws and regulations at the national and the EU level can or cannot address these issues. Should self-driving cars be allowed on the streets at all, and if so, which kind of systems? We also have to make very accurate and practical decisions regarding to what extent we want humans to be in control of all these technological practices.

Third, robots and artificially intelligent devices may be developed with paternalistic motives, for example in a health care context. But what if people do not want to be helped by a robot or AI? Does this sufficiently respect human autonomy and human dignity? We need robotics and AI that respect these moral principles. In this sense, we want human-centred (humanitarian) AI. In this context, it is also important that these technologies are safe to use and that the robots also adapt to us, rather than the other way around. Technologies often change our environment and demand specific behaviours of us. To what extent do we want to adapt to these technologies? Can robots be made in a way that centres human needs and human ways of doing things? Another aspect addressed in the scenarios above is the issue of dual use. Even if technologies are developed for civilian purposes and in good faith, they can easily be abused for military purposes. How can we prevent the dual use of civilian technologies? Can this be incorporated into responsible AI and robotics design? How can regulation and European and international laws prevent misuse? For example, should there be a ban on autonomous weapons?

Fourth, like all networked smart devices that are capable of gathering and communicating data, robots and artificially intelligent systems may violate people's privacy, for example in a home context. We may interact with a robot but not know what the robot records and where the data goes. Does it go to the robotics company? Is the data sold to a third party or even governments? The extent of our vulnerability in this respect has been surfacing with regard to social media platforms, in which millions of people grant access to their most intimate spheres. Our online behaviour, i.e. what we search for, what we "like", and what we post, makes us predictable and easy targets for manipulation and deception by both for-profit and political organisations.

Fifth, robots and AI not only raise ethical questions at the individual level; they also have an impact on organisations and society. We want robotics and AI to benefit society. But it is not clear what the impact of robotics, automation, and artificial intelligence will be on the economy, and, for example, the future of work. As sketched out in the dystopian scenario, if the predictions of Ford (2015), Brynjolfsson and MacAfee (2014), Frey and Osborne (2017), and many others prove to be correct, societies will face mass unemployment. Furthermore, we will also face a polarisation effect, as described by David Autor (2015): advances in robotics and AI will create relatively few but highly paid jobs for well-educated people while destroying middle-income, middle-skill jobs and resulting in many more precarious, low-paid jobs requiring little education. Altogether, this will increase social inequality and endanger social peace. However, as of today, it is still unclear what kinds of jobs robots and AI will replace; the precise magnitude of the effect is also disputed. The potential consequence of this transformation is therefore an open question: How will this change working conditions and the experience of work? What will be the delegation and division of tasks among humans and non-humans? How will it influence the social and economic development of societies in Europe? Will it lead

to a more or less inclusive society and more or less social inequality in Europe? And will it endanger the development of a more sustainable economy? The utopian scenario above has outlined some avenues in which policymakers may wish to concentrate their efforts.

Sixth, one way AI and robotics interact with societal issues is the question regarding bias. What if AI is trained using data that contains bias in favour of, for example, young white men? Is this a problem of the algorithm or a problem of society, or both? How can we deal with it? And how will robotics and AI influence overall justice and fairness in society and in Europe? Will it primarily benefit the rich, and people and countries that already have more power than others? And is it fine if some people develop intimate relations with machines, have sex with machines and so on? More generally, what will be the impact of robotics and AI on social relations? Concerns about the degeneration of humans' social capabilities, the erosion of personal relationships and deterioration of the social fabric of our societies are substantiated by research on social media exposure and first empirical findings from research on social robots.

Finally, will robotics and AI incur the risks associated with superintelligence, as some scientists and philosophers predict? What happens if machines surpass humans' general intelligence? Will machines and AI save us and our planet, as indicated in the utopian story? What are the very long-term risks for humanity and for the planet? How can individual countries and Europe respond to these potential problems?

HOW FAR IS SCIENCE FROM FICTION?

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The last issue about superintelligence raises an old but fundamental fear of humankind: machines could take over complete control and enslave us. This fear has been addressed in various science fiction movies, including the

very famous *Matrix* trilogy. But how far is science from superintelligence?

Contemporary AI systems fall – without exception – into the category of narrow AI (e.g. Brundage et al., 2018). They perform well on a relatively small portion of the tasks that humans are capable of. However, even now, some systems can outperform humans in very specific tasks, e.g. computer programs have beaten the world's best chess and *GO* players, defeat humans in the television quiz show *Jeopardy*, and surpass the capabilities of humans in image recognition (cf. Brundage et al., 2018). What is more, robots and AI programs today are able to converse in natural language, and with machine-learning capabilities, AI systems are able to learn tasks autonomously from scratch without having to be programmed by a human beforehand. It is very likely that the technological developments will bring disruptive inventions into every single area of our lives. Nevertheless, a chess computer will not be able to win a chess game and then move on to mow the garden and help with tidying up your children's toys while asking you how your day was. According to a group of leading AI researchers, contemporary systems are well-suited for tasks for which “a perfect mathematical model or a simulation of the task exists, if short-term signals of progress are available, and if abundant data on the successful performance of that task by humans is available, or if the solution does not require a broader World-model or ‘common sense’” (Brundage et al., 2018, p. 13).

Therefore, contemporary AI is also labelled weak AI, a term coined by the American philosopher John Searle in 1980. Searle deconstructed computer programs' “cognitive abilities” in the famous “Chinese room argument” (Searle, cf., Cole, 2015):

Imagine a native English speaker who knows no Chinese locked in a room full of boxes of Chinese symbols (a data base) together with a book of instructions for manipulating the symbols (the program). Imagine that people outside the room send in other Chinese symbols which, unknown to the person in the room, are questions in Chinese (the input). And imagine that by following the instructions in the program the man in the room is able to pass out Chinese symbols which are correct answers to the questions (the output). The program enables the person in the room to pass the Turing Test⁸ for understanding Chinese but he does not understand a word of Chinese.

Searle's thought experiment underscores the fact that while a computer program can execute syntactic rules to manipulate symbol strings, according to Searle and many other AI experts, it can never reach an understanding of the meaning of what it processes. To put it simply: computer programs cannot get semantics (meaning) from doing syntax (pragmatics). At best, they can simulate human cognition. Strong AI would require true understanding, consciousness, and intentionality, which, Searle argues, will never be possible for a computer program to achieve. Nevertheless, Searle's Chinese room argument has received many responses, and the debate about whether or not strong AI is possible at all in the foreseeable future has not been definitively decided.

This book aims to imagine Europe in the future, with a horizon of more than 10 or 20 years. In robotics and AI this is a quite long time span for predictions since (disruptive) innovations are taking place at an unprecedented pace. Armstrong and colleagues analysed the errors, insights, and lessons of famous AI predictions of the past and brought astounding findings to light (see e.g. Armstrong et al., 2016): they analysed AI predictions from 1950 (e.g. Alan Turing's prediction in 1950 that AI will pass the Turing Test by 2000) until 2012, coming to the conclusion that "the AI predictions in the database seem little better than random guesses" (p. 44). More precisely, they show that (1) the predictions show no signs of convergence and only little correlation, (2) there is no evidence that expert predictions differ from those of non-experts, and (3) there is a strong tendency to predict the development of AI within 15 to 25 years from when the prediction is made. Their summary statement is that "all predictions were overconfident in their verdicts, and model-based predictions were superior to those founded solely on expert intuition." These findings by Armstrong and colleagues should be a warning to us to refrain from ill-conceived predictions about the future, which may fuel fears unnecessarily and cause undue technological scepticism. Nevertheless, today's (weak) AI systems are efficient, scalable, and exceed human capabilities at least in certain tasks. They will undoubtedly affect labour markets and societies. Furthermore, AI is a dual-use technological field (civilian and military use), amenable to rapid diffusion, and suffers from novel and unresolved vulnerabilities, such as data poisoning or the exploitation of flaws in the design of the autonomous systems' goals (see Brundage, 2018, pp. 16ff). Therefore, policy makers must urgently address the challenges that come along with robotics and AI.

⁸ A famous test developed by Alan Turing in 1950. According to the idea of Alan Turing, a computer program would show intelligence, if it passed for a human in an online chat.

HOW TO REALISE OPPORTUNITIES WHILE MITIGATING CHALLENGES?

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Robotics and AI technologies will undoubtedly shape our future and deeply impact our society. Existing and emerging technologies in the field of robotics and AI clearly present great opportunities for innovators, industry, and citizens in Austria and in Europe. This field will transform countries' economies and lead to interesting new products and services. More smart objects will be deployed in industry but also at work and at home, including robotic and AI systems. This is likely to benefit many people. However, some of these benefits may not be clear yet, and it is essential to address the ethical and societal issues now.

In 2016, the European Parliament called for ethical and legal councils to support national policymakers in the development of appropriate AI and robotics policies. These policies should not only aim to take advantage of the opportunities but also consider ethical and cultural values. The aim should not be to mitigate the harm and negative effects of robots after they have already been introduced into society but instead to proactively take stock of the impact of this technology in advance. In Austria, the Federal Ministry for Transport, Innovation and Technology responded to this call by nominating experts for the Austrian Robotics Council in 2017. Members of this council come from various disciplines, including philosophy, psychology, engineering, computer science, law, the social sciences and economics and also include representatives of the Austrian Chamber of Labour and the Austrian Federation of Industry. The Austrian Robotics Council's mandate is to provide expertise and policy recommendations to the federal minister with regard to the development of an appropriate robotics and AI strategy.

The work of this council builds on various existing international initiatives, including the Foundation for Responsible Robotics;⁹ the IEEE organisation,¹⁰ which published a comprehensive report on ethics and AI at the end of 2017; and the European Initiative for Responsible Research and Innovation.¹¹ Figure 1 summarises some of the key parties that should be involved in responsible robotics and AI. Several recommendations and principles have already been proposed by these international organisations and by academics, aimed at sustainable and responsible technology development. These principles should guide the work of the Austrian Robotics Council.

But responsible technology development in this area is not only a matter of academic experts or people in international organisations talking about principles. The fundamental idea of a responsible robotics and AI strategy is to create an inclusive dialogue among all stakeholders: researchers and educators, business and industry innovators, and civil society organisations and policymakers. Moreover, responsible robotics takes a proactive approach, which already thinks about ethical and societal challenges when and before the technology is developed. The main pillars of a responsible robotics and AI strategy are responsible research, education, law and regulation, and collaboration.

⁹ <https://responsiblerobotics.org/>

¹⁰ <https://www.ieee.org/about/tagline.html>

¹¹ RRI Tools <https://www.rri-tools.eu/>

Fig.1 //
Responsible
Robotics & AI
Main pillars of responsible
robotics & AI

Responsible research

Responsible robotics begins with the well-considered research and development of technology. It includes the development of responsible research and development practices and standards that preemptively consider possible consequences of robotics technology for stakeholders and society as a whole. An essential aspect of this is to already try to counteract potential dual and malicious use during the design stage. A responsible and sustainable robotics and AI strategy therefore requires interdisciplinary research programs drawing upon engineering, the natural und computer sciences, and humanities and social sciences alike.

Education and information

As not all challenges associated with robotics and AI can be addressed adequately at the design stage, we need to make sure that consumers can make informed decisions about their use of robotic and AI technologies. This requires transparency from the industry, but also comprehensive education and training initiatives. A responsible robotics strategy needs to raise awareness and promote public consideration and inclusive dialogue – preferably also with more democratic participation – on issues concerning the development and use of robotics and artificial intelligence in Austria.

Laws and regulations

We need responsible regulations to ensure that robots are implemented in society with due regard to human rights and that social injustice does not arise or become amplified.

When potential negative effects, problems and conflicts of interest cannot be resolved through responsible research and design, we need to protect human rights with clear legal frameworks and the development of standards.

Collaboration

Fourth, many of the problems related to robotics, autonomous systems and artificial intelligence can only be solved through extensive cooperation among the relevant interests and stakeholder groups within each individual country but also within the EU and its institutions. Already, a number of European initiatives are in place that represent a valuable and solid starting point for further collaboration. Nevertheless, the complexity of robotics and AI and what is at stake for all of us will force policymakers to confront some challenges and hurdles.

CHALLENGES & HURDLES FOR POLICYMAKERS ALONG THE WAY

— In order to make robotics and AI more responsible, a number of challenges and hurdles need to be overcome. One of these problems has to do with the nature and different spheres of expertise. The kind of expertise needed to address these challenges is transdisciplinary in at least two senses. First, within academia, it is not enough to only have technical knowledge or only have expertise in the humanities or social sciences. To understand these problems, we need more people operating at the intersections of these fields. Second, we need to connect this academic expertise with what is going on in industry and policy. There is often a wide gap between the two spheres. We need to think about institutional bridges connecting the two.

Another problem is that policymakers at the political level may only be interested in short-term issues and not have a long-term vision for robotics and AI. We need to think about ways to support the development of such a vision. What other actors need to be involved?

This point also relates to the issue of democracy and participation. In order to achieve responsible robotics and AI, it would be best for citizens and other stakeholders to become more involved in decisions about new technologies. But there may be insufficiently strong democratic institutions and political cultures or at least insufficient institutional and structural support for a more participatory decision-making process with regard to new technologies.

Furthermore, policy-making in this area, when it is limited to national contexts, risks trying to reinvent the wheel. Work has already been done on responsible robotics and AI in various contexts, including but not limited to academia, in various countries, and at the level of governmental and non-governmental organisations. The challenge now is to create ways to learn from what already exists.

Given these challenges, we need to think about ways to support transdisciplinary research on robotics and AI and build bridges between academia and industry. We also need to make convincing arguments to policymakers about why they should take a long-term perspective on ethical problems and institutional challenges. This paper is a contribution to this. As mentioned above, we need to institutionalise participatory processes,

rather than having them on an ad hoc basis. Policymakers need to collaborate with academics, civil society, and other stakeholders such as industry to support a more inclusive and participatory decision-making process about the future of robotics and AI. Finally, policymakers could commission studies on ethical and societal aspects of robotics and AI that provide an overview of and draw upon existing work completed in various contexts. Here we have learned from work on responsible robotics.

CONCLUSION

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As societies and as Europe, we must make sure that the future of robotics and AI becomes a success story. It is our view that “success” does not only mean greater economic benefits, but also finding a way to successfully deal with the ethical and societal challenges raised by the new technological developments. We need responsible robotics and AI, in the various meanings discussed in this essay. To achieve this, more support is needed from policymakers and other stakeholders to ensure that enough research and discussion on the ethical and societal issues and the challenges for policy making at the national and European levels takes place.

The Austrian Robotics Council is one example of the instruments we have available for this purpose. It shows once again that it is possible for policy makers to recognise the transformative character of technological developments in robotics and AI, and that one can take effective and practical steps towards working collaboratively on a scenario that is attractive instead of dystopian. We hope that work in the context of the Robotics Council will help the further development of national policy in this area, but also that it may inspire more and similar initiatives in Europe. This international and even global context is crucial. Both the opportunities and the challenges have no borders. More international collaboration is therefore very much needed. The future of robotics and AI in Austria is a question that is very much bound up with the future of these technologies in Europe and in the world. —

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FIGURES

Fig. 1 // own graphic

VISION

Europe of the future

CARLOS MOEDAS

A vision for 2050

Europe of the future

A vision for 2050

CARLOS MOEDAS

EUROPE IN 2050

What will Europe look like in 2050? A lot will have changed, certainly. Falling fertility rates and ageing workforces will shape the developed world. Europe will be the only region in the world with a smaller population than today and 35 percent of it will be over 60 years old.

This seems to predict a gloomy scenario for Europe. However, I also believe that many positive things may happen.

In a utopian vision for Europe in 2050, I would hope to see the successful use of new technologies such as artificial intelligence, blockchain, and others that we still don't even know about. Europe's productivity will have increased, consolidating our position on the world stage. Sustained and inclusive growth will have brought new and better jobs for our citizens. A better quality of life for all of us is evident in several aspects.

In terms of health, for example, medicine will be conducted in a personalised way. New treatments and cures have eradicated plagues of our times such as cancer or Alzheimer's.

In the field of energy, Europe has successfully transitioned into a low-carbon economy. Pollution has dramatically decreased. People live in a multitude of carbon-neutral smart cities, where mobility is fully electrical, connected and automated. Renewable energies are the core energy source. The development of new technologies has brought a fully interconnected horizontal system where people produce their own renewable energy, and trade it to even out supply and demand. The notions of regenerability and circular economy have acquired their full meaning. Europe is a model continent where Sustainable Development Goals have been reached.

Europe also shares its prosperity with poorer regions of the world, helping to create sustainable economies and jobs. As a result, there is widespread brain circulation and migration is mostly legal. Climate change is being reversed.

The EU is a secure place in every sense of the word. New technologies, precision farming and the development of food valleys ensure healthy and plentiful food. Technology and regulation ensure cybersecurity and the protection of our personal data. Countries and regions that join a global coalition against terrorism prosper; the fight against terrorism is being won.

Our leading manufacturing industries have been able to fully uptake new technologies and have maintained their leadership. In the tech scene, Europe is home to global leading companies, distributed among a variety of complementary tech hot spots across all the Member States: in the digital age no country is left out.

The European Union thrives and therefore attracts the best talent, ideas and businesses. Its citizens enjoy the highest standards of living around the globe, because European societies are based on principles of inclusiveness and solidarity.

STRENGTHS

— If we are to come close to this utopia in 2050, we need to make the most of our strengths.

For this 2050 vision to become a reality, it is crucial that Europe get ready for the next wave of transformative innovations, where new technologies will lie at the intersections of different fields of knowledge and sectors, and where the boundaries between the physical and the digital world will fade.

Steve Case identified three waves in the development of the internet. In the first, the infrastructure of the internet was built. In the second, where we still are, apps were built on top of that infrastructure. The third wave, just emerging, is when we bring the internet and the digital to the more traditional “infrastructures”, like health, transport or manufacturing.

In that next wave, fundamental sciences will be ever more at the centre of disruptive technologies. The good news is that Europe’s scientific community is at the forefront of global research. Europe is the world’s largest producer of high-quality scientific knowledge and a leading pole in international scientific collaboration. Its excellence in science is recognised worldwide. European universities are among the best in the world. Europe is home to half of the top ten computer science institutions in the world and accounts for the largest share of top one hundred artificial intelligence research institutions worldwide. Europe has twice more PhDs graduating in STEM (science, technology, engineering and mathematics subjects) than the United States.

In industrial terms, the EU is strong in robotics and has world-leading transport, healthcare and manufacturing sectors. These sectors will need to successfully adopt the incoming new technologies to preserve their leading role.

The 2050 vision also requires a transition to a low-carbon economy. Be it at a political level, with the Union’s commitment and role in the Paris Climate Agreement, or at the level of the private sector, where 40 percent of the world’s patents for renewable technologies belong to European companies, the EU is taking the lead in this transition that is vital for our future.

The prosperous development and use of new technologies can only occur if the right framework regarding data privacy is in place. In the EU, these rules ensure full protection of people’s rights regarding their data and are a reference worldwide.

WEAKNESSES

The strengths of the EU are a sound basis for future developments, but several challenges remain.

One of our biggest drawbacks is the difficulty in translating our excellence in fundamental science to innovation. Europe lacks the kind of disruptive innovation that creates new products and markets, new and better jobs, and eventually leads to economic growth and better quality of life for all of us.

Our venture capital is only one-fifth of the United States' and remains fragmented into small-sized funds. As a result, few of the big tech companies that have emerged in the last decades come from Europe. This hampers Europe's economic stance and its position in shaping the new technologies that are being developed. Another factor that prevents the emergence of European global champions is the fragmentation of our single market. With different requirements across Member States, our companies cannot fully scale up and have a hard time competing globally. In terms of regional development, while Europe has some innovation hot spots, many regions lag behind in innovation capacity, which hinders inclusiveness around the continent.

The lack of disruptive innovation is complemented by an overall lower level of investment in R&D in Europe *vis-à-vis* its main competitors. The EU invests around 2 percent of its GDP in R&D, against China with 2.1 percent, the US with 2.8 percent, Japan with 3.3 percent and South Korea with 4.2 percent. That gap in R&D investment is more striking for private sector investment.

WAY FORWARD

At the European Commission we are working hard to address these challenges. In the areas of Research, Science and Innovation, our current framework program *Horizon 2020* has helped Europe reinforce its status of excellence in science and has supported over 18,000 projects with more than 31 billion euros awarded so far. In terms of new technologies, under *Horizon 2020* we are increasing investments in artificial intelligence to 1.5 billion euros per year for the two years ahead, in order to foster research, development and the uptake of AI in the EU.

In the EU Budget for 2021-2027, the European Commission has proposed a figure of 100 billion euros to be allocated to the next Research, Science and Innovation programme: *Horizon Europe*. This programme will be the largest of its kind. We will create a European Innovation Council (EIC) to turn the EU into a frontrunner in disruptive innovation, by supporting the most innovative start-ups and companies to develop their ideas. The new EIC will help fund fast moving, high-risk/high-gain innovations with a strong potential to create new markets, companies and jobs.

We have also launched a pan-European Venture Capital funds-of-funds programme, called *VentureEU*, aiming to raise up to 2.1 billion euros of public and private investment. In other areas, the Union is pushing to complete other projects such as the Digital Single Market and the Capital Markets Union which would help our SMEs to more easily scale up and compete globally.

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In the future programme we will also introduce new EU-wide research and innovation missions. These "moonshots" will focus on the solving societal challenges of our daily lives. The idea is to bring different stakeholders together by defining clear and ambitious goals, with which everybody can identify themselves. Examples could range from

the fight against cancer to clean transport systems or plastic-free oceans. They will help us achieve the future we want for ourselves through coordinated research and innovation.

All research and innovation data generated by our framework programme will follow an open-access policy, to foster the diffusion of knowledge across stakeholders and sectors, thus helping to create a true knowledge society in Europe.

At the start of the 20th century, Europe was the world leader in technology. Based on their breakthrough innovations, Europe's scientists, inventors, engineers and entrepreneurs created great companies that shaped new markets and transformed living standards. Leaps in economic prosperity were unprecedented.

At the beginning of the 21st century Europe fell behind in digital technologies. Societal challenges such as climate change, limited resources and ageing populations call for innovative solutions and new sources of growth.

I am firmly convinced that the European Union has strong assets that will allow it to regain lost ground, prepare for the incoming wave of new technologies, address its societal challenges and achieve the 2050 utopia that I have sketched above. Over the coming decade, large parts of the economy will be reinvented. Massive opportunities for breakthrough innovations will appear. Economic progress and societal value will increasingly come from innovations that rely heavily on science and engineering where Europe excels. Values that are at the heart of the European project – such as social equality, environmental protection, open rules-based markets, diversity – will be a critical asset.

I believe that together we can seize the challenges of our times, transform them into opportunities and shape Europe's future for the better of its citizens. —

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Ordnung auf dem alten Kontinent. Eine Geschichte des neoliberalen Europa, Frankfurt a.M.: Suhrkamp Verlag, 2014, was awarded the nonfiction book prize at the Leipzig book fair. An English version, titled *Europe since 1989: A history*, was published by Princeton University Press (the book was published in Polish and Czech in 2015 and 2016; Spanish, Ukrainian, Bulgarian and Albanian translations are in progress). Earlier publications include, in English, *The Dark Side of Nation States: Ethnic Cleansing in Modern Europe*, New York: Berghahn Press, 2014 (German 2011, Polish 2012, Czech 2017) and *Center Stage: Operatic Culture and Nation Building in 19th Century Central Europe*, West Lafayette: Purdue University Press, 2014 (Czech 2008). He has published 12 other books and numerous articles in 13 European languages. His latest book, published in 2017, is about refugees and their integration in modern Europe.

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Editorial note

HANNES ANDROSCH &
JOHANNES GADNER

The design concept of this book takes multiple borrowings from Europe's history and present. Thus, the cover picture was inspired by the central founding myth of Europe – the kidnapping of the Phoenician princess by Zeus camouflaged by a bull – and shows the constellation of the bull in a digitally alien way. It symbolises a connection between past, present and future. The stars play a central role in the symbolism of the European flag, as stated in the official explanation of the decision of the European Council from 1955:

Against the blue sky of the Western world, the stars represent the peoples of Europe in a circle, a symbol of unity. Their number shall be invariably set at twelve, the symbol of completeness and perfection. [...] just like the twelve signs of the zodiac represent the whole universe, the twelve gold stars stand for all peoples of Europe - including those who cannot as yet take part in building up Europe in unity and peace.

The blue-coloured pages of this book and the yellow bookmark are references to it and are inspired by the colours of the European Union flag. Blue also stands for the colour of the sea. And hardly any other continent was shaped by the sea to such an extent as Europe. Measured by the length of its coastline and its overall size, no other continent possesses more points of contact with the sea than Europe. This and the fact that Europe's development was fundamentally influenced by the sea is expressed through the recurrent motif of waves framing the book.

Recently, the European Union has been lacking a comprehensive discourse about its future. This strategic deficit has led Europe into a dead end resulting in the Brexit vote or the growing influence of right-wing nationalist movements in several European countries. And yet – opposed to these retrograde tendencies of isolation – openness, creativity, innovation and the ability to reinvent itself are constitutive elements of Europe. Throughout its history, Europe has frequently demonstrated that it is capable of innovative restarts. Today, given the global grand challenges and geopolitical shifts, such a restart seems overdue.

“Re:thinking Europe” is the contribution of the *Austrian Council for Research and Technology Development* to the advancement of the common European project. The articles of this anthology sketch ways for and strategies towards a competitive and dynamic knowledge-based society and economy, which is based on innovation as a growth engine and a successful digital transformation as well as the capability of greater social cohesion and sustainable development. The book provides ideas for the social, economic, digital and ecological renewal of the EU. And it poses the question of which role education, science, research and innovation should play.

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