Appendix 5 – Table A2 Profile of Twenty-Five Benchmark Smart Cities

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
First place **Amsterdam (NL)** In 1994: Virtual Digital City (De Digital Stad-DDS) Since 2009: Amsterdam Smart City Program In 2015: IBM Smart City Challenge (SCC) Winner Since 2019: Amsterdam Climate Neutral2050 RoadMap Local Government and Private Sector	D: Not found. Phase 1: 2009 – 2011 focused on **energy efficiency**. Phase 2: 2012 – 2014 focused on **energy efficiency** and **internet-related applications** (Capra 2014, p. 40). V1: In 2020, Amsterdam will be one of the **most sustainable cities** in the world (Osieck, 2011 p. 155) T: **Open Innovation Platform**. V2: An **open innovation platform** that brings together **innovation** professionals from **government, companies, knowledge institutions, and civil society organizations** to shape the **city** and region of the future. (Amsterdam Smart City, 2022)	Fields: Economy, Environment, Living, Governance, People Goal: Efficiency, QoL, Sustainability TA: Technology Other: Apps, Open Innovation, Stakeholders Digital Platforms to Engage Citizens: Amsterdam Smart City Platform, Amsterdam Participatie, Amsterdam Smart Citizens Lab, CityData, Smart Health Amsterdam site, Budgetmonitoring, Amsterdam Smart City Living Lab, GVB app, LEAP, MyCleanCity app, Amsterdam Data Platform data.amsterdam.nl/	Amsterdam Energy City Lab Circle Lab Amsterdam Smart Citizens Lab FabLab Amsterdam Living Lab Circular Buiksloterham, Living Lab Sloterdijk III Waag Research Labs

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
Second place Singapore 1986: National IT Plan 2006: Wireless@SG 2011: eGov2015 Master Plan 2012: Jurong Lake District won IBM SCC Since 2014: Smart Nation Initiative National, Local, Private	D**:** Not found, but it is pioneering in the concept of Smart Nation (Quélin and Smadja, 2021 p. 18) **T: Digital Society**, **Economy**, and **Government**. V: Smart Nation is a transformed Singapore where **people** will be more empowered to **live** meaningful and fulfilled **lives, seamlessly** enabled by **technology**, that offers exciting opportunities for all. It is where **businesses** can be more productive and take advantage of new opportunities in the **digital economy**. (Singapore Government, 2018)	Fields: Economy, People, Living, Governance Goal: Efficiency, QoL TA: Technology Others: Business, Digital Economy, Society, Government, Collaboration Digital Platforms to Engage Citizens: Smart Nation Platform, My Info, SingPass, Health Hub, Hello Lump Posts, SGSecure App, eCitizen, OneService App, CityLab Singapore Data Gov https://data.gov.sg/	Sustainable Living Lab (SL2) MPA Living Lab PSA Living Lab Jurong Port Living Lab NTU Smart Nation Translation Lab
Third Place London (UK) Since 2013: Smarter London Plan Won the ODI Annual Open Data Award 2015 Since 2018: Smarter London Together Roadmap	D: The general term used to discuss how cities across the globe are **sharing information** and making use of **technology** to work more **efficiently** (Greater London Authority, 2013 p. 58). T1: **Smart** V1: A city that uses the creative power of **data** and **new technologies** to serve London and improve **Londoners' lives** (Greater London Authority, 2013 p. 13; 2016 p. 10) T2: **Collaborative**, **Connected,** and **Responsive city**.	Fields: Economy, Env., Gov., Living, People Goal: Efficiency, Sustainability, QoL TA: Connection, Technology, Information Others: Collaborative, Responsive, Data, City, Digital, Resilient Digital platforms: Talk London, Citymapper, Report It, London Living Streets, City Lab, Live Park, Citizen Lab, Safe & The City App,	CitizenLab Smart Mobility Living Lab (SMLL) Energy Systems Catapult Living Lab University of

Local, Private, National	V2: Integrates **digital technologies** and uses **city-wide data** to the needs of respond to our **citizens** (Greater London Authority, 2018)	London Datastore data.london.gov.uk/ Transport For London (TfL) Open Data http://bit.ly/3EMB7SJ	Greenwich Living Lab
Fourth place New York (USA) Since 2007: PlanNYC Since 2011: Digital City Roadmap NYP Since 2015: OneNYC Since 2022: OneNYC 2050 OTI Strategic Plan Local initiative	D1: Any **local government** that leverages **technology** solutions to promote public health, safety and welfare, and improves **quality of life** for the **residents** of the **municipality**, especially traditionally underserved and under-resourced communities (NY State, 2020). D2: A **local government** that uses **technology** and **planning practices** to generate better outcomes for its **residents** through the use of **data**. (NYC (2021) T1: Digital City; V1: be recognized as the world's top-ranked **Digital City**, based on indices of **Internet** access, **Open Government**, **citizen engagement**, and **digital industry** growth (NYC, 2011) T2: Connected City; V2: Ensure **all New Yorkers** have access to effectively engage with the **digital economy** and **society** (NYC OTI, 2022 p. 10)	Fields: Economy, Environment, Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: Connection, Technology Others: Data, Digital City, Digital Industry, Digital Economy, Open Government. Digital platforms: NYC Engage, NYC Open Data, NYC 311, Participatory Budgeting, Urban Innovation Lab, Cowlines App, Nextdoor App, Mytown App, NYC Open Data https://opendata.cityofnewyork.us/data/	NYCx Co-Lab Urban Future Lab Urban Innovation Lab

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
Fifth place Helsinki (Fi) In 2010: Helsinki Region Infoshare Program In 2011: Won IBM SCC: A project to open data to citizens. Since 2012 (?) Helsink Smart Region Since 2014: Smart & Clean Helsinki Metropolitan Area Since 2017: Helsinki City Strategy Local, Private, and Region	Not found Smart City definition. T1: **Living Lab (a platform** for collaborative projects that bring users with their ideas, experiences, and enable the **business community** to develop the products and services that are of the greatest interest to the public) (Hielkema and Hongisto, 2012). V1: Not clear T2: **Platform** for **Smart** and **Clean** Solutions. V2: Turn the Helsinki Metropolitan area into an internationally important reference area for **ecological** and **smart** solutions by 2021 and showcase the **best products and services** of Finnish and international companies. (SITRA, 2015) T3: **Innovation ecosystem** for **Green** and **Digital** Transition. V3: Until 2021, to be the world's most **functional** city. In addition, Helsinki aims to be the city in the world that makes the best use of **Digitalization** (Helsinki, 2017 p. 16). V4: Not clear but focuses on three themes until 2030: **Citizens´s City, Climate Neutrality, and Industrial Modernization**. (Helsink Smart Region, 2022)	Fields: Environment, Governance, Living, People, Economy Goal: Efficiency, Sustainability, QoL TA: Technology Others: Data, Living Lab, Platform, Innovation, City, Industrial Modernization, Digital, Ecosystem Digital Platforms to Engage Citizens: Helsinki Smart Region website Helsinki Regional Infoshare Forum Virium Helsinki Digital Forms Waste Management System FixMyStreet mySMARTLife Open Data Service https://hri.fi/en_gb/	Forum Virium Helsinki Kalasatama Urban Lab Jatkasaari Smart Mobility Lab Helsinki Living Lab Mobility Lab Helsinki

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
6th) Seoul (SK) Since 2011: Smart Seoul 2015 Since 2016: Global Digital Seoul 2020 Master Plan Since 2018: Smart City Strategic Plan In 2019: Magok Smart City Living Lab Since 2021: Smart Seoul Smart City & Digitalization Master Plan Local, Private, National	Not found local definition, but national D1: A **platform** to improve the **quality of life** of **citizens**, enhance the **sustainability** of cities, and foster **new industries** by utilizing **innovative technologies** of the **fourth industrial revolution** era. (South Korea Ministry of Land, Infrastructure and Transport, 2019 p. 5) D2: A **sustainable city** where various city services are provided based on city **infrastructure** constructed by converging and integrating construction **technologies, information and communications technologies**, etc. to enhance its **competitiveness** and **livability** (South Korea MOLIT, 2021). V1: By 2015, Seoul will become a city that best applies Smart **Technologies**, thought which we will make real your slogan, 'Seoul, a city of happy **citizens** and a city beloved by the world' (Seoul Metropolitan City, 2011 p. 2) T1: **Smart Government** V2: By 2020, a **digital** Seoul made by **citizens** for better **economy** lives to become a **global digital** leader (Seoul Metropolitan Government, 2016 p. 5) T2: Connected, Digital	Fields: Economy, Environment, People, Living Goal: Quality of Life, Sustainability TA: Technology, ICT, Others: Digital, Innovation, Platform, Global Digital Platforms to Engage Citizens: Seoul Smart City Platform Safety e-Report Mvoting App and Site Open Data Seoul https://data.seoul.go.kr/	Magok Smart City Living Lab (MLL) Living Lab in Seoul Innovation Park Seongdaegol Living Lab Yonsei University´s Information System Lab

	V3: Seoul, Leading the Future of **Digital** Transformation as a **Global Smart City** (Seoul Metropolitan Government, 2021)		
7th) Copenhagen (DK) In 2012: CPH 2025 climate plan In 2013: Won IBM SCC Denmark Digital Growth Since 2013: Copenhagen Connecting Greater Copenhagen Smart City (?) Local & Private	D1: not found, but the smart city initiatives focused on **environmental** issues that are related to the commitment to **carbon neutrality** (Quélin and Smadja, 2021 p. 14) T1: **Carbon Neutral** V1: Make the city **carbon neutral** by 2025, and in doing creating a **greener**, more **sustainable**, and more **livable** capital city, as well as supporting growth (C40 Knowledge, 2017; Quélin and Smadja, 2021). D2: not found; T2: Connected; V2: Be the best **urban environment** and a unique **urban life**. Goals related to Green and Blue Capital, World best city for cyclists, carbon neutral capital, clean and healthy city. Almanac (n.d.); Holm Carlsen (2014). D3: A **living laboratory** for testing smart **technologies** to address the challenges of **urbanization** and **climate change**. Unique access to **data** and **efficient public-private** sector **partnerships** to attract many multinationals. (Copenhagen Capacity, n.d.) T3: **Living Lab** V3: not found.	Fields: Environment, Governance, Living, People Goal: Efficiency, Sustainability, Quality of Life TA: Technology, Connection Other: Living Laboratory, Data, PPP, Stakeholders Digital Platforms to Engage Citizens: Copenhagen Solutions Lab Copenhagen Citizen Service Copenhagen City Data Exchange WeSolve Better Together site and App Open Data DK Opendata.dk/ City-of-copenhagen	Copenhagen Solutions Lab Copenhagen Living Lab Copenhagen Street Lab DOLL Living Lab EnergyLab Nordhavn Energy & Water - Greater Copenhagen Living Lab Living Lab Strandvejen

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
8th) Oslo (NO) (?) Not found organized information	D: An **urban area** that has become more **efficient** and/or more **environmentally** friendly and/or more socially **inclusive** using **digital technologies** (Nordic Smart City Network, 2021 p. 6) T: **Open, Connected, Sustainable, and Innovative** V: It is **an urban development vision** to improve the **lives of citizens** by being **open, connected, sustainable, and innovative**. (Nordic Smart City Network, n.d.)	Fields: Economy, Environment, Living, People. Goal: Efficiency, Sust., QoL TA: Connection, Tec. Others: Open, Innovation, Digital. Digital platforms: Futurebuilt, Urban Sharing, Oslo Toll Ring Smart Oslo Accelerator Oslo Statistics Bank statistikkbanken.oslo.kommune.no/webview/	Living Lab Vollebekk Oslo Living Lab Smart Security Lab
9th) Vienna (AT) Since 2011: The Big Smart City Wien Initiative Since 2014: Smart City Wien Framework Strategy Reviewed 2022: Smart Climate City Strategy Vienna Local	D1: A **city** that faces the challenges in the wake of decreasing **resource** consumption combined with rising **demands** (Stadt Wien, 2015 p. 6). T1: **Livable** City; V1: In 2050, Vienna is a **vibrant metropolis** and one of Europe's most **attractive cities**. Goals: To offer optimum **quality of life**, combined with the highest possible preservation of resources, to all **citizens**. This can be achieved through comprehensive **innovations**. (Stadt Wien, 2015 p. 16 and p. 19). D2: The smart city never loses sight of the "**human dimension**"; a city that places the focus on the needs of the **local people**. The development of a	Fields: Environment, Living, People Goal: Sustainability, QoL TA: Technologies Others: Resource Conservation, Social Innovation, Technical Innovation Digital platforms: The Smart City Wien websi+B24te junges.wien.gv.at	Aspern Smart City Living Lab Siemens Living Lab Process Industries Smart City Lab

	sustainable and livable city is only successful if everyone benefits, and everyone is able to play their part. T2: **Sustainable, Livable** City V2: a city where **life** is good, but not at the **expense** of the **environment** and thus of **future generations**. Vienna uses the opportunities that **social innovations** and **new technologies** bring with them actively and prudently to achieve the goals. (Stadt Wien, 2020; 2022p 21)	ALBin Project Digital School project The Vienna City Bike System MA 48 Waste App Open Government Data (OGD) Wien Platform digitales.wien.gv.at/open-data/	
10th) Washington, D.C. (USA) Since 2016: Smart DC Initiative National	D: One in which **information and communication technology** facilitates improved insight into and control over the various **systems** that affect the **lives of residents**. (Cuddy et al., 2014). T: **Connected** City V: A **city** to **connect** its **communities**, build **economic** strength, protect the natural **environment**, and maintain the safety and security of its **infrastructure.** Goal**:** to become a **connected** city that benefits all components of the **transportation systems–agencies, users**, and infrastructure–and that the transportation systems support the district' systems and broader goals (Washington District Department of Transportation, 2016 p. 1 and p. 25)	Fields: Economy, Environment, Mobility, People. Goal: Efficiency, Sustainability TA: Connection, ICT Other: Infrastructure, Transportation System Digital Platforms to Engage Citizens: OCTO website 311DC App My DC Water App Washington Open Data https://data.wa.gov/	The Lab @ DC UrbanPlan Virginia Tech Urban Living Lab

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
11th) Zurich (ZH) Since 2018: Strategic Smart City Zürich Local Initiative	D: A city that **connects people, organizations,** and **infrastructure** in such a way that **social, ecological, and economic** added value is created. The **networking** of **data, sensors, and applications** allows new and more **efficient solutions** for the **users** of urban infrastructures, as well as for those who operate them. Good **networking** with the **population** strengthens opportunities for **participation** and contact with the **administration** (Zurich City, 2018 p. 4) T: **Connected, Collaborative, and Digital** City V: Not found.	Fields: Economy, Env., Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: Connection, ICT, Technology Other: Applications, Data, Stakeholders, Networking, Sensor, Collaborative Digital platforms: The Smart City Zurich website, City Lab, The Zurich Pedestrian Navigation System, Pikmi on-demand transport service, ZüriMobil app, My account, Zurich Open Data data.stadt-zuerich.ch/	Reallabor Hunziker Areal Hunziker Areal Living Lab Smart City Lab
12th) Berlin (DE) Since 2015: Smart City Strategy Berlin 2017: Launch of Smart City Charter: Making Digital Transformation at the local level sustainable	D1**: Cities** which achieve a significantly higher or stable **quality of life** while using the same or a lower level of **resources**. This can only be achieved by means of an **urban management** which, by using **innovative information and communication technologies**… T1: Smart Administration, E-Government	Fields: Economy, Environment, Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: Connection, ICT, Technology Other: Digital, Integration, Network, Resources, Urban Management, Innovation, Cooperative, Resilient, Open,	CityLAB Berlin, Citizens Create Climate Knowledge Climate Art Lab EUREF Campus My-Co Place

2021 Strategic framework Smart City Berlin Since 2022: Digital Together: Berlin Strategy UE, Private and Local Initiatives	**V1 (?): Smart Berlin is b**oth a place to **live** and an **economic** area which develops **sustainably** through the systematic and **intermodal** deployment of **innovative technologies**, **materials,** and services… (Berlin Senate Department for Urban Development and the Environment, 2015 p. 5) D2: Smart city is **Livable, Lovable, Diverse, Open, Participatory, Inclusive, Climate neutral, Resource efficient, Competitive, Open-Minded, Innovative, Responsive, Sensitive, Safe, and freedom enhancing** city. (BBSR and BMUB, 2017 p. 25) D3: "smart" means tackling challenges **sustainably**, with a focus on the common good and working **collaboratively,** and all the while shaping change processes in a **resilient** manner. T2: **Livable, Digital** V2: A **sustainable, community-oriented, resilient and cooperative** city (Berlin State, n.d; 2022)	Inclusive Digital Platforms to Engage Citizens: Berlin.de Berlin App Berlin Citizen Participation Platform Berlin Living Lab Open Data Berlin https://daten.berlin.de/	SAI-Lab

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
13th) Sydney (AU) Since 2020: Smart City Strategy Framework Digital strategy Local Initiative	D: Is one that uses **information** and **communications technology** to enhance its **livability, workability, and sustainability**. (City of Sydney, 2020 p. 55; Bane, 2022) T1: **Dynamic, Digital, Responsive** V1: Its vision is a **dynamic, responsive city**, harnessing **technology** and **data** to enable **collaborative innovation** and create a thriving, **inclusive,** and **resilient** future for all. (City of Sydney, 2020a p. 12) T2: **Innovative, Livable** V2: Sydney to continue to be one of the most **innovative** and **livable** cities in the world. (City of Sydney, 2020b)	Fields: Governance, Living, Economy, Environment Goal: Sustainability QoL TA: ICT. Technology Other: Data, Collaborative, Resilient, Innovation, Work Digital platforms: Sydney Your Say website, City of Sydney Data hub, The City of Sydney App, cityofsydney.nsw.gov.au City of Sydney Data Hub data.cityofsydney.nsw.gov.au	Intergener8 Living Lab Infosys Sydney Living Lab Sydney Science Park Living CSIRO Urban Living Lab
14th) Taipei (Taiwan) In 2008: The Institute for Information Policy established Living Lab In 2013: Won IBM SCC Since 2016: Taipei Smart City	D: **Government** as a **Platform**; **City** as a **Living Lab,** focusing on one core vision **(Livable+Sustainable)** plus seven fields: Smart **Security, Building, Transportation, Education, Health, Environment, and Economy**. (Taipei City Government, n.d.) T: **Platform, Living Lab** V: As part of National Vision: Smart **technologies** are applied to solve the pain points of **local government**	Fields: Economy, Environment, Governance, Living, Mobility, People. Goal: Efficiency, Sustainability, QoL TA: Information, Technology Other: Innovation, Stakeholders (PPP), Security, Living Lab, Platform Digital platforms: Living Lab, Tapei Navi, Taipei CooC-Cloud, The Taipei Smart Parking System, Smart Taipei	Fablab Dynamic Taipei Smart City Living Lab JCA Living Lab

Project Management Office Since: 2020 Taipei Smart City 1+7 Framework National, Local and Private Initiative	and **civilians,** boost cross-domain **industry collaboration,** and achieve local and industrial **innovation**. (Taiwan Ministry of Digital Affairs, n.d.)	website, Open Platform for Government Information of the New Taipei City. https://data.ntpc.gov.tw/ Taipei City Data Big Platform https://data.taipei/	Living Lab +
15th) Barcelona (ES) Since 2000: 22@Barcelona Project 2008Urban Lab Since 2011: IT Strategy aligned to EU Horizon Strategy Smart City Strategy Smart City Expo and World Congress Since 2015: Barcelona Digital City Plan EU, Local, and Private	D1 and V1: 'To become a **self-sufficient city** of **productive neighborhoods** at **human** speed, within a hyper-**connected zero emissions** metropolitan area' (Olivella, 2012; Ferrer, 2017 p. 73; T. Miao and Phelps, 2019 p. 14) T1: Self-sufficient, hyperconnected, urban lab D: Not found T2: **Digital, Sovereing City** V2: not clear, but there is this declaration: Barcelona aspires to evolve the Smart City Agenda towards becoming a **digital sovereign** city, empowering **citizens** to discuss and articulate their own priorities, set direction, and decide upon ethical uses of **technological innovations** with clear **social** impact and **public** return. (Ajuntament Barcelona, 2019 p. 5).	Fields: Economy, Governance, People, Environment Goal: Efficiency, Sustainability, QoL TA: Connection, Technology Others: Innovation, City, Stakeholders Digital platforms: Aplicaciones.bcn Barcelona in your pocket Decidim Barcelona Governance Model Participa.barcelona Wesolve – Better Together app Open Data BCN	City Lab Barcelona Fab City Hub Barcelona Fab Lab Barcelona Data City Lab 22@LIVING Lab The Healthcare Living Lab Catalonia (HCLLC) The Library Living Lab – Barcelona (L3)

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
16th) Toronto (CA) In 2016: TRBoT created the Smart Cities Working Group In 2017, the Canada Government launched the Smart City Challenge In 2018: Toronto Smart City Challenge Submission Connected Community Smart City Project (?) National & Local	D: Is a **city** that improves access to **information** and **data**, to help it become an **economically, socially, and environmentally connected community**. (City of Toronto, 2017). T: **Connected Community** V: not found	Fields: Economy, People, Environment Goal: Efficiency, Sustainability, QoL TA: Connection, Information Other: City, Data Digital platforms: ConnectTO program The City of Toronto website, the Trip Planner app, The MyWaterToronto Portal, The 311 Toronto App, Cowlines App, Cycle Now app, Garbage Day App, Transit App, Toronto Open Data https://open.toronto.ca/ Open Data Master Plan 2018-2022	Future Living Lab Google Quayside Sidewalk Toronto University of Toronto Living Lab
17th) Paris (FR) Since 2010: Urban Lab Since 2015: Paris Smart and Sustainable Plan – Looking ahead to 2020&Beyond	D: A City that develops common services, **applications,** and **goods** that meet the **basic needs** of its **inhabitants** and their quest for **well-being**. It is an **innovative** approach based on a medium and long-term global and systemic vision of the city to **improve the quality of life** by leveraging three	Fields: Economy, People, Environment, Governance, Living Goal: Sustainability, QoL TA: Connection, Technology	Agrilink 3E-Paris Periurban Lab La Fabrique du Futur

Local and Private Initiative	major catalysts to transform **urban life**: deepening social ties and **creating value**, rethinking **urban infrastructures**, and capitalizing on **technological** revolutions, especially **digital technologies**. (Mairie de Paris, 2015 p. 5) T: **Connected, Open, Sustainable** City V: Our vision of **Smart and Sustainable** Paris is based on three major pillars: the **open city,**, the **connected city** and the **sustainable city**. Each one of these brings value and resources to the comprehensive approach that will help develop the new trajectory of this 21st-century metropolis. **Data** use and **governance** will also influence these three dimensions for the city of tomorrow. (Mairie de Paris, 2015 p. 25)	Other: Open City, Applications, Data Digital Platforms to Engage Citizens: Budget Participatif Data.gouv.fr Réinventer Paris Open Data Paris https://opendata.paris.fr/	Liberté Living Lab Le Rosa Lab – Fabrique de La Ville Creative et Durable Universcience Living Lab
18th) Madrid (ES) Since 2015: Madrid Intelligence Project (MiNT) Since 2022: Madrid Digital Capital - Transformation Strategy for the	D: Holistic vision of a **city** that applies **ICTs** to improve the **quality of life** and accessibility of its **inhabitants** and ensures **sustainable economic, social and environmental development** in permanent improvement. (MINETAD, 2015 p. 3) In partnership with IBM, in 2015, Madrid Intelligence Project (MiNT) was implemented to improve **urban services** and the **quality of citizens'**	Fields: Economy, People, Environment, Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: ICTs, Technology Other: Open, Inclusive, Digital Transformation	Madrid International Lab The Internet of Things Laboratory of the City of Madrid (IoTMADLab) Madrid Urban Lab

City of Madrid Private, Local and UE	**services,** to make the city more **sustainable** (IBM, 2014). T: An **Open, Inclusive, Digital**, and **Sustainable** City V: a strategy to continue being a city benchmark in the **digital** field, designed for all **people** and **companies** that are part of Madrid, for its neighborhoods and districts, and for the City Council itself, as a key driver of the **digital transformation** of the capital (Ayuntamiento de Madrid, 2022 p. 4-7)	Digital Platforms to Engage Citizens: Decide Madrid Getafe Participa SmartAppCity Open Data Madrid Portal datos.madrid.es/portal/site/egob/	Observatorio de La Ciudad The Madrid Smart Lab
19th) Busan (SK) In 2017: won IBM SCC Since 2018: Busan Eco Delta City: A National Smart City Project Local, Private, National	Not found a local definition, but national. D1: A **platform** to improve the **quality of life** for **citizens**, enhance the **sustainability** of cities, and foster **new industries** by utilizing **innovative technologies** of the **4th Industrial Revolution** era. (South Korea Ministry of Land, Infrastructure and Transport, 2019 p. 5) T: **Digital, Augmented, and Robotic** City (Busan Metropolitan City, n.d.) Definition of the project: Three (**Digital, Augmented, and Robot City**) future city operation platforms, where all **citizens** will benefit from balanced opportunities and **inclusive growth** as a mecca of the **future industry** and improve the **quality of**	Fields: Economy, Environment, Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: Technology Other: Platform, Innovation, Digital, Augmented, Robot, 4th Industrial Revolution, International Leadership Digital Platforms to Engage Citizens: Busan Eco Delta Smart City Portal www.busan.go.kr/eng/	Busan Innovation Fab Lab Busan EDC Village Busan's IoT Living Lab Busan Network of Living Lab (BNoLL)

	life of **citizens,** including **education, culture, safety, and environment** (South Korea Ministry of Land, Infrastructure, and Transport, 2021). V: a place of **innovative** and **international leadership** for future **living** where **nature, people and technology** come together.	ecodelta01 Busan Open Data Portal data.busan.go.kr/ Busan Metropolitan City Big Data Platform bigdata.busan.go.kr/ City-Bot	
20th) Dublin (IE) Since 2012: Intel Labs Europe, Dublin City Council and Trinity College start Sustainable Connected Cities In 2014: Won IBM Smart City Challenge Since 2016: Smart Dublin Program Local and Private Initiatives	D: A **real-time, connected, and data-driven city.** (Smart Dublin, n.d. p. 3) T: **Open, Connected, and Engaged** City. **Open** to promote **economic development** through **open data**, **open government,** and **open innovation**. **Connected** to drive **efficiencies** through connected **networks**, connected **infrastructure,** and connected **city region**. Engaged to **engage** with **entrepreneurs, citizens, researchers, and business** to solve city region challenges. (Dublin City Council, n.d. p. 2) V: To be a world leading **open, connected, and engaged Smart City Region** to **live in, work in and visit**. (Smart Dublin, n.d. p. 6)	Fields: Economy, Governance, Living, People Goal: Efficiency, QoL TA: Connection, Data, Innovation Other: Real-time, Data Driven, Open, Engage Digital Platforms to Engage Citizens: Smart Dublin website Dublin Dashboard Smart Dublin Public Trello Board See.Sense Smart Dublin Challenges Open Data Dublinlinked data.smartdublin.ie/	I-CHANGE Dublin Living Lab University College Dublin (UCD) iSCAPE Dublin Living Lab Dublin Coastal City Living Lab

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
21st) Melbourne (AU) In 2015: Won IBM Smart City Challenge In 2021: Economic Development Strategy 2031 Community Engagement Policy Melbourne neighborhood planning framework Local & Private	D: Not found. T: City as a **System** (ARUP, 2010 p. 12). A **City Lab** (City of Melbourne, n.d.) V: To enhance the aspects of our **city** that make us **uniquely** Melbourne, and **intelligently** prepare for the changing needs of the **community**, the **environment,** and the **economy**. (City of Melbourne, n.d.) T2: **Digitally Connected** City, adapting to connectivity as a **knowledge-enabled Smart City** V2: By 2031 the City of Melbourne will be a **global leader** in creating **jobs** and **enterprises** that focus on the needs of the future. City of Melbourne (2021 p. 6)	Fields: Economy, Environment, People Goal: Efficiency, Sustainability, QoL TA: Technology, Connected Other: City, Innovation, Open Data, System Digital platforms: Participedia, CityLab FreeWifi, Melbourne Conversations, Neighborhood Portals http://bit.ly/3YgrXoz Melbourne Open Data data.melbourne.vic.gov.au/pages/home/	Future Self and Design Living Lab Infosys Melbourne Living Lab RMIT Healthy Liveable Cities Lab Swinburne Living Lab
22nd) Los Angeles (USA) Since 2020 SmartLA 2028 strategy Local and Private Initiative	D: Is one that **efficiently** and **ethically** uses secure **technologies, data, & resources** to improve **quality of life** and **sustainability** for **residents, businesses, and visitors**. T: **Digital, and Connected City** V: The City of Los Angeles envisions a high **digital** and **connected city** in 2028. City of Los Angeles (2020 p. 3; p. 5)	Fields: Economy, Environment, Governance, Living, People Goal: Efficiency, Sustainability, QoL TA: Connection, Technology, Data, Other: Stakeholders, Resources Digital platforms: MyLA311, LA Metro Transit app, Vision Zero LA, Open Data Portal,	Urban Movement Lab UCLA CityLAB

		Cowlines App, LA Open Data - https://data.lacity.org/	
23rd) San Francisco (USA) Since 2016: San Francisco Smart City Challenge National and Local Project	D: a **framework** for using **data**, **digital technology**, civic and policy **innovation** to enhance the **quality of life** for **all residents**, making cities more **effective, efficient, equitable and responsive (**City and County of San Francisco, n.d., p. 4) T: **Connected** and **Shared** City. V: to make more **shared choices** available so that **people** of all backgrounds can easily get around without needing to own a car. By promoting shared options, we will ensure that more **people** can access **affordable, safe, clean, and reliable transportation** than ever before. (City and Council of San Francisco, 2016)	Fields: Economy, Environment, Living, Mobility, People Goal: Efficiency, Sustainability, QoL TA: Connected, Technology Other: Framework, Data, Digital, Culture of Sharing, EV, Autonomous Vehicles Digital Platforms to Engage Citizens: San Francisco Smart City website SF311 app, SFWifi, SFPark, Cowlines App, Nextdoor app, OpenDataSF datasf.org/opendata/	Create + Build San Francisco Smart City Institute The Urban Prototyping Lab
24th) HK (China) Since 2018: HK Smart City Blueprint 1.0 Since 2021: HK Smart City Blueprint 2.0 Local	D: **People** Centric. It should be built upon the needs of the **people,** and the benefits should be seen and felt by **residents** and **visitors** (HK Innovation and Technology Bureau, 2017 p.2) T: **World-class** smart city. V: Embrace **innovation and technology** to build a **world-famed** Smart HK characterized by strong **economy** and high **quality of life.** (HK Innovation and Technology Bureau, 2017 p.3; 2020 p. 3)	Fields: Economy, Living, People Goal: Efficiency, QoL TA: Technology Other: Innovation Digital Platforms to Engage Citizens: Smart City Dashboard, iMSmart App, Geospatial Lab, MyObservatory, HKSmart City website. Open Data HK https://data.gov.hk/en/	CMASS iSPACE HKUST Sustainable Smart Campus, Geospatial Lab

Rank and Initiatives	Smart City Definition (D), Type (T), and Vision(V)	Terms and Digital Platforms	Fab, Living or Urban Labs
25th) Montreal (CA) Since 2014: Montreal Smart and Digital City Strategy Local and Private	The Strategy mentioned two definitions according to Ville de Montréal (2015 p. 10) and Open North (2018 p. 40) D1: Effective **integration** of **physical, digital,** and **human** systems in the built **environment** to deliver a **sustainable**, **prosperous,** and **inclusive** future for its **citizens** (BSI, 2014). D2: Systems of **people** interacting with and using flows of energy, materials, services, and financing to catalyze **sustainable economic** development, **resilience,** and high **quality of life**; these flows and interactions become smart through making strategic use of **information** and **communication** (European Innovation Partnership on Smart Cities and Communities, 2013). T: **Smart and Digital City** V: By 2017, Montreal will be the world´s leading smart city.	Fields: Economy, Environment, Governance, Living, People Goal: Efficiency, Sustainability, and QoL TA: ICT, Information Other: Digital, System, Integration, Communication, resilience. Digital platforms: Montreal Smart City website, Je fais Mtl Civic Tech Montréal, MTL Connect. Montreal BIXI app, Montreal Open Data donnees.montreal.ca/	Living Lab de Montréal Cité-ID Liv-ing Lab Concordia University's Creative engAGE Living Lab (ELL) Rehabilitation Living Lab in the mall (RehabMaLL)