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Research Note

# Digital innovation & enterprise in the sharing economy: An action research agenda

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ABSTRACT

In this digital era, Digital Innovation & Enterprise have emerged as a possible prescription in the sharing economy. Scholars have noted that digital innovation is transforming the technological landscape, entrepreneurial practices, and the behaviours, attitudes, and beliefs of consumers across the globe. This research note serves three purposes. First, it introduces digital innovation and enterprise as a fruitful area of research in the sharing economy. Second, it extends the agenda set by Yoo, Henfridsson, and Lyytinen (2010) on "new organising logics of Digital Innovation" to propose contemporary research questions for scholarly collaboration. Third, it attempts to move forward research in digital business from B2B, B2C, mobile-social contexts to emerging eco-systems that address current socio-economic trends. In proposing such a digital business research agenda, the authors reason why Action Design Research studies may be particularly suited for the iterative development, replication and sharing of findings in the form of artefacts such as use-cases.

(See Fig. 1.)

## 1. Introduction

The digital innovation & enterprise (DI&E) is the leveraging of digital technologies *in the process of* and *as the result of* product and service innovation using digital technologies. (Hevner, vom Brocke, and Maedche, 2019, p. 19) believe that DI&E is "rapidly becoming a dominant topic and research focus in the fields of innovation, entrepreneurship, strategic management, organisational design, and information systems." Whereas *innovation* already implies the commercialisation of new ideas in the marketplace, for emphasis, we add *enterprise* to underscore the requirement that such commercialisation must sustainable as a viable business concern.

About the end-user interest in accessing and using the digital technologies, systems, and applications, digitalisation has changed how end users communicate and interact with their surroundings (Nasiri, Ukko, Saunila, & Rantala, 2020). Sometimes, unprecedented situations such as COVID-19 pandemic could also accelerate and transform producers' and consumers' choices for remote and online services. As a result, many industries have accelerated and incorporated digital innovation as an integral component of their business and marketing strategies. Nonetheless, these digital advancements also create significant consequences. For example, technological advancements and freely downloadable mobile applications have facilitated the development and deployment of innovative solutions that can be accessed and used by anyone, anytime and anywhere, thereby infusing widespread societal changes; digital innovations are lowering barriers to entry and creating value for small but innovative entrepreneurs and start-ups to disrupt established incumbent businesses digitally. The well-known examples include bitcoin and popular sharing platforms such as Spotify, Upwork, Uber, and Airbnb. Nonetheless, through such DI&E platforms, a more level playing field of opportunities brings about a net gain to society.

Especially about the sharing economy, a shared or collaborative consumption phenomenon is fast-changing the values and behaviour of consumers. Consequently, these developments are quickly disrupting the less environmental friendly capital-intensive industry as well as other sub-sectors of the economy. Hence, business models for the sharing economy are fast becoming the cornerstone of the 4th Industrial Revolution (4IR), digitalisation, entrepreneurship, investment, environment protection, consumer choice, and regulation. Undoubtedly, the digital era affords a new eco-system for DI&E.

Despite a decade or more of interest in digital innovation research among information systems and marketing scholars (cf. Yoo, Henfridsson, & Lyytinen, 2010), there is much scope for moving the field further with a research agenda. A fundamental understanding in this research note is that digital innovations are embedded in complex, socio-technical systems whose development requires multiple entrepreneurial roles, processes, platform features and strategies (Sarker, Chatterjee, Xiao, & Elbanna,

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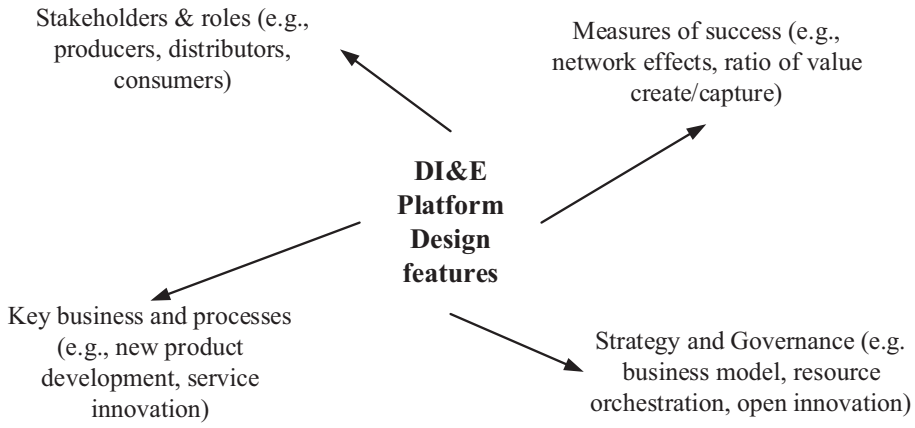


**Fig. 1.** Digital innovation & enterprise (DI&E) ecosystem

2019). Since our understanding of the term 'digital innovation and enterprise or entrepreneurship' straddles the intersection of innovative technologies with traditional entrepreneurship and innovation processes (Berger, von Briel, Davidsson, & Kuckertz, 2019), this research note also attempts to uncover business models, procedures, compliance controls and measures for "success" in the form of "use cases". In the parlance of information systems research, use-cases provide a qualitative narrative of how a platform or system may be deployed effectively.

In the remainder of this article, the following research questions are further examined.

RQ1: How might we design DI&E eco-systems for the sharing economy?

RQ2: What are generalisable "use cases" for best-practices and lessons-learnt that may be constructed from empirical research?

The test of research impact is that expected findings could contribute to knowledge about a valid design theory for "effective strategy and platform interventions" for a DI&E eco-system that could be well-published and cited. The objective of examining the above two RQs would be for such seminal publications in *Digital Business* that withstand the test of time.

## 2. Motivation and research gap

Five global trends motivate this article. *First*, the current pandemic is fast reshaping the technological landscape, entrepreneurial practices, and the behaviours, attitudes, and beliefs of the consumers. Nowhere is this more apparent than in the way societies all over the world cope with imposed restrictions. *Second*, previous research has mostly ignored empirical studies in DI&E in terms of theories and methodologies. This gap provides ample opportunity to contribute to this innovative yet least examined field. Nonetheless, considering the significance of this newly emerging field of study, some established journals such as the *Journal of Business Research* have launched special issues examining DI&E in various contexts that explore the emergence of dedicated research streams. *Third*, with the backdrop of the most pressing environmental and social challenges faced today including climate resilience, technology addiction, and social isolation (Hamari, Sjoklint, & Ukkonen, 2016), the need for sharing resources occupies a significant position. However, despite its significance, research on sharing, collaborative or gig economies is still at a nascent stage (Hamari et al., 2016); firms that operate in the sharing economy are mostly de-novo. Eco-systems for sharing services with alternative methods of production and consumption are at the start of the S curve with limited empirical research that attests to their utility (Wallenstein & Shelat, 2017). This indicates that DI&E in sharing economies is an emerging field with significant research potential.

*Fourth*, a steady pipeline of digital innovations and increasing penetration of mobile, Internet devices and apps (because they require basic literacy to use) in the most densely populated yet emerging markets have provided a strong launchpad for sharing services (Wallenstein & Shelat, 2017). *Fifth*, having undertaken an extensive review of the area, Kohli and Melville (quoted in Hevner & Gregor, 2020) lament that "design science is a long-standing research tradition in IS that has recently gained renewed momentum but has traditionally not been considered a research stream within digital innovation." The development of a user-centric, empathic-design approach to developing a DI&E eco-system for the sharing economy and a set of validated design artefact for sustainable implementation is critically lacking. Consequently, the practical design of a DI&E eco-system that addresses the above research gap is the purpose of this research note.

## 3. Conceptual background

### 3.1. DI&E eco-system and the sharing economy

Conceptually, the DI&E eco-system comprises a digital platform at the core and a socio-economic context of stakeholders as actors. The design features and characteristics are made up of elements of the technical platform and the data repositories. The platform interacts with stakeholders such as producers, value-added distributors, providers of enabling technical, financial or managerial services, and consumers of products and services. The platform provider and communities of stakeholders (i.e. producers, distributors, consumers) explicitly agree with the set of protocols adopted by the eco-system in key business processes such as the cataloguing and quality assurance of products and services. Data analytics which enables the measurement of performance metrics is the final component. Hence, a DI&E eco-system is socio-technical and whose design requires the joint optimisation of both its social and technical sub-systems (Sarker et al., 2019). In such a context, action research will help discover good practices and lessons learnt from the field experiences of others (cf. Sharma, Iqbal, & Victoriano, 2013). Fig. 1 illustrates what we envision as a DI&E eco-system that could serve the basis of a collaborative research agenda. However, we have noted that DI&E eco-system are socio-technical initiatives. Hence affordances are highly contingent upon the interaction of the platforms' design features with their operating environments: i) stakeholders such as producers, distributors and consumers of shared resources; ii) key business processes such as new product development or service innovation; iii) performance outcomes and measures of success such as economic value-added, network effects and economies of scale, scope; and iv) strategic-governance factors such as regulatory constraints, business models, resource supply-demand bargaining power, open vs closed innovation. The interactive effects of the above four categories with the design features of the DI&E platform (see Fig. 1) results in the eco-system's net affordances or implementation success. In other words, the success of the DI&E platform is determined by the extent to which it enables rather than constraints the key activities of a sharing economy such as product or service innovation, resource allocation, and the alignment of values created and capture.

The DI&E eco-system consists of a wide range of stakeholders such as i) buyers and sellers of products and services, ii) intermediaries who

value-add in terms of aggregation and distribution, and iii) the providers of technical, financial, and certification services. Therefore, a comprehensive regulatory initiative is required to address this heterogeneity. McKinsey & Co (2020) suggest that DI&E eco-system strategies may generate significant value both by leveraging opportunities for sharing scarce resources and by expanding the portfolio into new products and services. Specifically: "*Most global companies are now actively considering the eco-system business model given its value-generation potential: growing the core business, expanding the network and portfolio, and generating revenues from new products and services. The integrated network economy could represent a global revenue pool of $60 trillion in 2025 with a potential increase in total economy share from about 1 to 2 per cent today to approximately 30 per cent by 2025.*"

The policy document entitled "European Innovation Policies for the Digital Shift-EURIPIDIS" released by the European Commission (2017) provides detailed policy guidelines on how digital enterprise could provide value to the European Union (EU) economy. This strategic policy document also assesses the performance of the EU's digital innovation and entrepreneurship and make necessary suggestions for the policymakers on how to make DI&E work better in the EU member countries and beyond. Several recommendations were made to promote digital innovation and entrepreneurship. For one, a recognition that DI&E require: and how a diverse set of both technical and managerial skills; innovation-friendly regulatory environments; resistance to digital innovation will fade away with the changing consumer preference for digital lifestyles with more remote and mobile-based services.

Similarly, mobile phones and downloadable mobile applications have become pervasive globally (Hayes, Cappa, & Le-Khac, 2020). The sharing, gig or collaborative economy with a sharper focus on innovation and enterprise, has disrupted the traditional business models and affected the consumer behaviour toward new, innovative, and affordable services. A sharing economy is defined as an innovative business phenomenon which allows the peer-to-peer exchange of underutilised or idle goods and services (Qian & Ukkusuri, 2017). In the understanding of (Hanafizadeh, Khosravi, & Tabatabaeian, 2020, p-2) the sharing economy is an "economic model" where individuals can borrow or rent assets owned by someone else. The sharing economy is based on the principle that in a world with scarce resources, it is better to share when there is a need than to own and kept idle mostly (Hamari et al., 2016). In any case, the sharing economy enables the transfer of fixed costs out of the balance sheet of firms and into the category of marginal-variable costs.

## 4. Methodology

For reasons elaborated below, we believe that a research agenda on DI&E for the sharing economy should adopt a Design Science Research (DSR) approach in its empirical investigations.

Pioneers of DSR such as Hevner and Gregor (2020) emphatically believe that DSR "in the information systems field is, at its essence, about Digital Innovation." Reibenspiess, Drechsler, Eckhardt, and Wagner (2020), after extensive consultations of scholarly work, further elaborate that "DSR considers technical design aspects and action research is strongly oriented toward social design aspects, in particular the collaboration of stakeholders." Consequently, they apply a combination of DSR and AR in their study." This would balance the "rigour of DSR and the relevance of AR". Specifically, they found that the ADR methodology developed by Sein and his co-workers, was fit for purpose as a "research method for generating prescriptive design knowledge through the building and evaluating of ensemble IT artefacts" (Sein et al., p. 40), while addressing an underlying practical problem. Whereas their use of ADR was targeted to organisations, this research note extends ADR to the level of analysis of a DI&E eco-system.

As per the guidelines adopted by Reibenspiess et al. (2020), the DI&E research agenda could be executed in 4 ADR stages: 1) problem formulation, 2) building, intervention and evaluation, 3) reflection and learning, and 4) formalisation of design knowledge for DI&E eco-systems. More specifically, in the pilot-alpha cycle, the ADR could develop and evaluate the conceptual design of the DI&E platform. Based on this cycle's results, researchers would refine the artefacts' design in a production-beta cycle that would be implemented and evaluated by selected stakeholders. In this proposed empirical methodology, one could draw support from Hevner and Gregor (2020) who demonstrated the viability of a novel process model of DI, grounded on the rigorous DSR paradigm that "supports a richer understanding of different types of entrepreneurship for the investment of DI in organisations." Not inconsistent with the ADR stages, Hevner and Gregor's DSR-DI matrix process model will guide and operationalise the product and process feature of design artefacts of the DI&E eco-system.

The intended contributions of this research agenda would include the discovery of best practices and lessons learnt for DI&E through a rigorous empirical methodology, namely ADR. Aside from the formulation of extant theories and artefacts, the knowledge deliverables would be twin-fold: i) Narratives of use-cases of DI&E in multiple sectors such as transportation, health, education, governance etc. using field studies across global economies at various development stages, and ii) Development of an ADR methodology for the design of sustainable DI&E eco-systems. The research contributions of such a DI&E research agenda would also provide a common vocabulary for benchmarking and bench-learning across sharing economies that can be understood and used by diverse stakeholders in digital innovation activities. In particular, it would highlight the multiple entrepreneurial roles required to conceive effectively, design, implement, deploy, and evolve digital innovations in complex socio-technical environments. There is considerable agreement among scholars and policymakers that digital innovation and entrepreneurship are engines of growth, societal development, platforms for establishing new business enterprises, and possibly generating "blue ocean" revenue streams. As a result, the empirical research agenda proposed above will examine the opportunities offered by DI&E platforms and how actors may exploit them to the common benefit. As an added caveat, substantially less attention has been paid to the possible downsides of digitisation (Berger et al., 2019), and consequently worthy of further consideration.

## 5. Research themes and conclusion

Many of the research themes suggested by Yoo et al. (2010) remain unaddressed. Scholarly but practice-oriented research on DI&E for the sharing economy will help design an eco-system for growth in the post-COVID-19 era. Such an ADR program should focus on the technical platform and socio-economic context for optimal benefit to accrue to all stakeholders. Some noteworthy adaptations are listed below.

From a strategy perspective:

- What are the generic strategies of DI&E and core design principles of eco-systems or platforms for those strategies?
- What are the strategic dimensions that determine the relative position of innovative products and services in a framework of the sharing architecture?
- How can industry stakeholders effectively measure performance in DI&E platforms so that the values captured are consistent with their corresponding values created?
- What are the factors that influence strategic choices on DI&E platforms?

From a platform perspective:

- What are the technical characteristics of DI&E eco-systems that support generative and heterogeneous knowledge work in two-sided, sharing economies?
- What are the methodological and technical principles of designing technically-feasible DI&E platforms for the sharing economy?
- What are the socio-economic principles for the development of socially-desirable and economically-viable DI&E platforms?

In addition to the core deliverables in the form of contributing to the extant literature on the subject, another milestone to be achieved from the research agenda proposed in this note is to develop a collaborative, international network with an underlying objective to benefit promising, early-career scholars in research, publications, innovations, mobility, and

exchanges. Also, a strong, active, and diversified network that consists of individuals with varied work experience, expertise, professional background, and publications will provide a rich, inclusive background to the formulation of theories and practice in DI&E. We strongly encourage researchers and practitioners to collaborate to bring about a new avenue for growth and digital business development.

## Declaration of competing interest

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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