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## USING DIGITAL CO-CREATION FOR INNOVATION DEVELOPMENT

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*The role of digitalisation in people's daily lives appear to be among the most touted stories of the century. It can be also seen that adopting new digital technologies is not easy for everyone. Thus there seems to be a demand for approaches which would support and motivate people in adapting digitalisation. Digital co-creation could be a powerful approach to enhance this adaptation. Yet, there seems to be a very little literature on digital co-creation. Hence, this is a theoretical paper which aims to map the current state of literature on digitalisation, co-creation and digital co-creation resulting a preliminary framework to better understand on how to explore the nature of digital co-creation.*

### **1. Introduction**

The role of digital technologies in people's daily lives appear to be among the most touted stories of the recent century. The advances in digital technologies are considered to form a megatrend with global impacts through the international interconnectivity and the ability of real-time information sharing (Lee *et al.*, 2012). While there is a high variety between countries in terms of adoption of digital technologies (Billon *et al.*, 2010), there seems to be a close link between digitalisation and economic development (Billion *et al.* 2009; Park *et al.*, 2015). It should be also noted that the technical development of information and communications technologies (ICT) can enhance productivity and create new services (Park *et al.*, 2015). Furthermore, it seems that the integration of ICT help businesses to remain competitiveness in digitalisation.

Companies tend to be keen on investing in the process of finding new ideas and technologies that enhance digitalisation. Additionally new technology can provide promising solutions. However, it can be seen that adopting new digital solutions is not easy for everyone and there seems to be certain kind of inequality how people are able to use digital solutions. Co-creation might offer an effective approach when creating and implementing new technology to develop for example new business models (Chesbrough, 2010). Co-creation seems to enhance the understanding and motivation of a digital business development as it allows stakeholders not only to collaborate but also learn while collaborating. Additionally, while increasing the organisation's understanding about their digital business development co-creation activities seem to bring new insights in the process of innovation. (Hakanen, 2014).

Moreover, looking from a face-to-face co-creation perspective user participation in a global context and with several stakeholders is a particular challenge but digital tools can offer promising solutions. (Friedrich, 2013; Sawhney *et al.*, 2005). Additionally, digital business development can be supported with inspiring physical or virtual co-creation spaces where users, designers and other stakeholders can meet formally/informally and as partners (Friedrich, 2013). Thus digital co-creation tools do not substitute face-to-face methods, but they could to complement them by enabling more constant interaction with users and lowering certain users' participation thresholds (Friedrich, 2013).

Furthermore, it seems that digitalisation and co-creation together could strengthen many business activities including innovation. Based on literature it seems that an increasing body of literature exists around digitalisation and co-creation. However, there seems to be a very little literature combining these areas of research. Hence the aim of this paper is first briefly to discuss digitalisation and co-creation literature to understand what is meant by digitalisation and co-creation, secondly to map the current state of literature on digital co-creation, and thirdly to present a preliminary framework to better understand on how to explore the nature of digital co-creation.

This paper is a part of on-going USCO research project between 2016-2018 (Using Digital Co-creation for Business Development) funded by TEKES (The Finnish Funding Agency for Innovation). The main research partners of this project are Laurea University of Applied Sciences and the University of Tampere, School of Management. USCO project focuses on digital business development, co-creation tools and innovation having eight Finnish service organisations as project partners. More specifically USCO project aims to understand what kind of: a) leadership, b) organizational culture, c) management practices, and d) co-creation processes digitalisation require. Thus the researchers of this paper have been familiarising themselves already earlier with wider perspective on digitalisation and co-creation and based on this interest combined with the interest of Finnish service organisations USCO project was built.

This paper is organized as follows. First, the definitions of digitalisation and co-creation on how they are understood in USCO research project are clarified. Secondly the literature on digital co-creation is discussed. And thirdly a preliminary framework on how to better understand the nature of digital co-creation is presented and conclusions are drawn.

## 2. Digitalisation

There seems to be no uniform definition for what the concept of digitalisation stands for, and in research articles digitalisation is often bound to a certain field of business or to an individual process. Different definitions vary in their scope from defining digitalisation as a global megatrend (Lee *et al.*, 2012, 818-819) to narrowing the term down as a the “digital representation of signals, information, and objects in binary code” (Stein, 2015, 2). Ilmarinen and Koskela (2012) note that instead of defining the concept of digitalisation itself, the term it is often described through examples.

Research literature also use terms “digitalisation” and “digitisation” interchangeably, and give both a number of definitions. Lipiäinen (2014, 20) defines the term digitisation as a social phenomenon in which everyday communication channels are pivoting from traditional forms towards their digital counterparts. While Lipiäinen (2014) refers to digitisation as the context of communications, the focus of the definition is on the social phenomena, not on the technical process of transforming information to binary form. Tilson *et al.*, (2010, 749) take contradicting stance in stating that digitisation refers to a technical process, whereas digitalisation would be the proper term to use when the context is more of a social nature.

Definitions of both digitisation and digitalisation feature the same key component of transition from analog to digital. Digitisation, defined as moving conversion from analog to digital, is identified as a key driver for enhancing digitalisation (Ilmarinen and Koskela, 2015, 21). Aside from a transformation from analog to digital, the definition of the term appears to be highly contextual. Gartner’s IT glossary (2016) defines digitalisation on a broad level and adopts a business transformation viewpoint; “Digitalisation is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business”. While research in digitalisation is available in vast quantities, the numerous ways digitalisation is defined and interchanged with the term digitisation sets requirements to understand in which context the term is presented in research articles. This paper agrees mainly with Gartner’s definition on digitalisation adding that the process of moving to a digital business should be seen also as a social phenomenon where stakeholders are involved.

### 3. Co-creation

Co-creation offers a powerful approach to foster innovations (e.g. Ramaswamy and Gouillart, 2010). The power of co-creation in innovation is its capability to combine the knowledge of stakeholders from different perspectives (Keränen, 2015). Grönroos and Voima (2013, 141) see that interactions “form a platform for co-creation of value” meaning that there needs to be certain kind of interactions in order to co-create value. Keränen (2015, 218) introduces a co-creation framework which focus is on face-to-face and B2B co-creation in service companies and continues that there are certain kind of characteristics in co-creation, which she calls pre-conditions and co-design manners, that seem to foster co-creation of value. Moreover, Keränen (2015) indicates that co-creation creates certain potentiality for strategic thinking and triggers are needed to enhance co-creation activities. The pre-conditions are two-way communication, orientation towards a long term relationship, trust, knowing in person, transparency, and ubiquitous interaction (Keränen, 2015). The co-design manners are sharing knowledge, listening and learning together, developing together, testing together, proactive attitude and focusing on value network. The potentiality for strategic thinking includes a good knowledge of each other’s businesses, better understanding of value-in-use, better planning of future business activities, emerge of new ideas, and releasing resources from the selling activities. (Keränen, 2015.)

In Keränen’s (2015) PhD research on co-creation there can be found a deep theoretical and empirical discussion about the nature of co-creation in the fields of service marketing and management, service design, and service innovation. Thus Keränen’s research combines three fields of research related to co-creation. Based on Keränen (2015) co-creation can be defined in a following way: co-creation is a joint value creation process (Grönroos & Voima 2013) of developing solutions (e.g. Aarikka-Stenroos & Jaakkola 2012; Hakanen & Jaakkola 2012), facilitating innovations (e.g. Kristensson et al. 2008), and creating strategic potentiality through co-design manners for the stakeholders involved (Keränen 2015, 222). As USCO’s projects partners are all service organisations and one of the objectives in USCO’s research is to focus on co-creation in relation to digitalisation Keränen’s (2015) definition and framework seem to serve the preliminary understanding of co-creation for USCO’s research project. For definitions see Figure 1 and for co-creation framework see Figure 3.

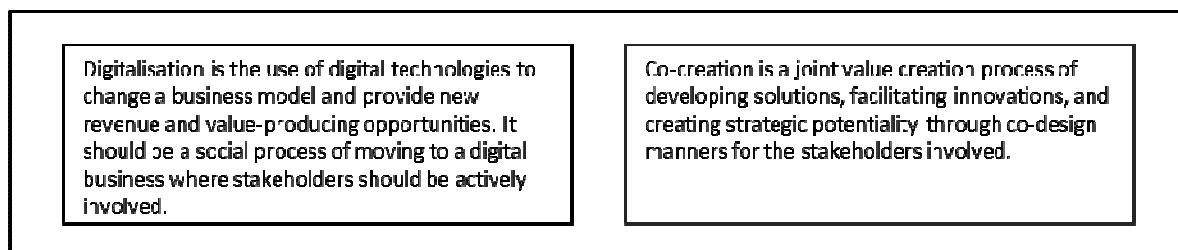


Figure 1. Definitions of the digitalisation and co-creation

## 4. Digital co-creation

To understand the current state of literature on digital co-creation a literature search was conducted. For this literature search as a primary source Science Direct was used and complementing searches were made using the references of the articles detected from Science Direct. During the first round the searches were limited to peer-reviewed articles having following words together in their title, abstract or keywords a) digitalisation/ digitalization/ digitisation/ digitization, and b) co-creation/ co-creation. The findings directed the authors to do complementary searches with the keywords ICT and co-creation/ cocreation. As a result of this search only a handful of articles were detected.

Hence based on the literature search it seems that digital co-creation is a largely unexplored area of research (Breidbach and Maglio; 2016, Rai and Sambamurthy, 2006; Vargo *et al.*, 2008). The articles detected are focusing on opportunities and challenges (Soule *et al.*, 2014), consumers role in co-creating experiences in tourism (Neuhofer *et al.*, 2012), collaboration platforms (Mačiulienė and Skaržauskienė, 2016), motivating social participation using technology (Preece and Shneiderman, 2009), and using digitalisation to collaborate during meetings (Fast-Berglund *et al.*, 2015).

Soule *et al.* (2014) argued that having solid digital capabilities provide organisations flexibility to operate and to position themselves more effectively in their value network, enabling them to confront the possible challenges in generating financial value in digitalisation. Additionally, technology/ digitalisation can be a source of innovation in co-creation of services where consumers are enabled to play an active role by sharing their experiences (Neuhofer *et al.*, 2012). Digitalisation offers tools for co-creation of personal service experiences (Mačiulienė and Skaržauskienė, 2016), and users are empowered with technology to co-create whenever and wherever (Buhalis, 2003).

Additionally, digitalisation seems to open up possibilities for people to accomplish their aims together where individuals or single organisation could not do it alone (Preece and Shneiderman, 2009).

Moreover, the use of digitalisation in management has been a good way to work with and through others and to promote organisational learning (Fast-Berglund *et al.*, 2015). Digital co-creation in management can be effective in filtering and sharing information for example during online meetings. Furthermore, the use of digital tools can save time and allow to co-create with other employers (Preece and Shneiderman, 2009). Mačiulienė and Skaržauskienė (2016) state that new digital channels of communication enable innovative involvement for managers to collaborate with employers in shorter time. However, how to create digital surroundings, how to enhance collaboration and how to share knowledge with others might be challenging (Fast-

Berglund et al., 2015). Additionally, it seems that another challenge in digital co-creation is collaboration among different actors in different organisations (Mačiulienė and Skaržauskienė, 2016). Furthermore, Fast-Berglund *et al.* (2015) have noticed that collecting data with the help of digitalisation does not necessarily give better information for business development. The challenge is how to use the collected data as there might be plenty of it.

Digital platforms seem to differ in terms of purpose, but they have some common characteristics for example: mass participation which allows greater intellectual capabilities, amount of ideas and use of ICT in technologies in creation of new knowledge (Mačiulienė and Skaržauskienė, 2016). Especially digital platforms seem to enable more effective co-creation than face-to-face co-creation (Hienerth, 2011). Digital platforms might also allow organisations to map new business potentiality in integrating users in the business development process (Hienerth, 2011). The ideal result could be the constant flow of new ideas and innovative involvement of people (Neuhofner *et al.*, 2012).

To conclude, there seems to be already some amount of digital co-creation platforms and some other methods which enable stakeholders to co-create and co-creation platforms are seen as a source of innovation. Digital capabilities seem also to support organisations in competition. Additionally, digital co-creation can offer tools for managers to connect and work more effectively with their personnel. Moreover, digital co-creation enables multiple stakeholders to co-create wherever and whenever. Then again there seems to be some challenges on how to create and manage digital co-creation and furthermore how to use the outcomes of the digital co-creation activities.

## **5. Discussion and conclusion**

As the role of digital technologies in people's daily lives both in private and in work seems to be among the most touted stories of the century, and the advances in ICT seem to create possibilities to stay connected 24/7 the capabilities in adopting new digital technologies have become increasingly important. To keep up with the competition organisations seem to need more and more employers who can not only to use digital solutions but also develop them. Additionally, the digital skills of users need to be supported. Also, it can be seen that adopting new digital technologies is not easy for everyone. On the other hand, it has been stated that face-to-face co-creation can be a powerful approach not only to foster innovations but also to motivate stakeholders involved in co-creation process. Thus co-creation approach could lower the threshold of adopting new things such as digitalisation.

There seems to be a vast amount of literature on digitalisation and co-creation but very little can be found on digital co-creation. Yet, it seems that digital co-creation could work even better than face-to-face co-creation in enhancing digitalisation. Hence it seemed important to seek the better understanding on digital co-creation.

To continue, digitalisation and co-creation could be seen as complementing to each other (see Figure 2). Digitalisation could enhance face-to-face co-creation in creation of digital co-creation platforms which would allow stakeholders to co-create from anywhere and anytime. Additionally, digital co-creation activities would definitely shape the current understanding on co-creation. The complementing aspect of co-creation to digitalisation could be the involvement of stakeholders in the digital development process. These kind of activities could also lead to innovate totally new solutions. Co-creation allows digitalisation to be a social phenomenon rather than just a technical process which could also be an important motivational factor.

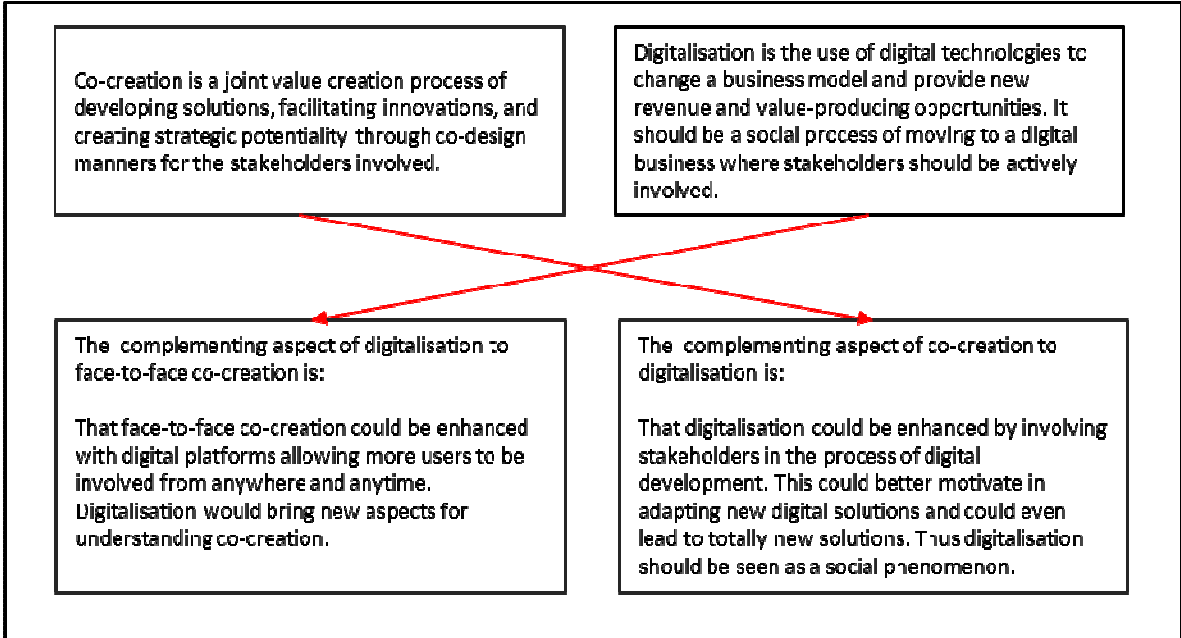


Figure 2. Co-creation and digitalisation complementing each other

Digital co-creation seems to involve a high amount of grey area activities meaning that it seems to be an area with a very little research.

To clarify on what topics the research on digital co-creation should focus on this paper uses the co-creation framework of Keränen (2015) on understanding co-creation (see Figure 3).



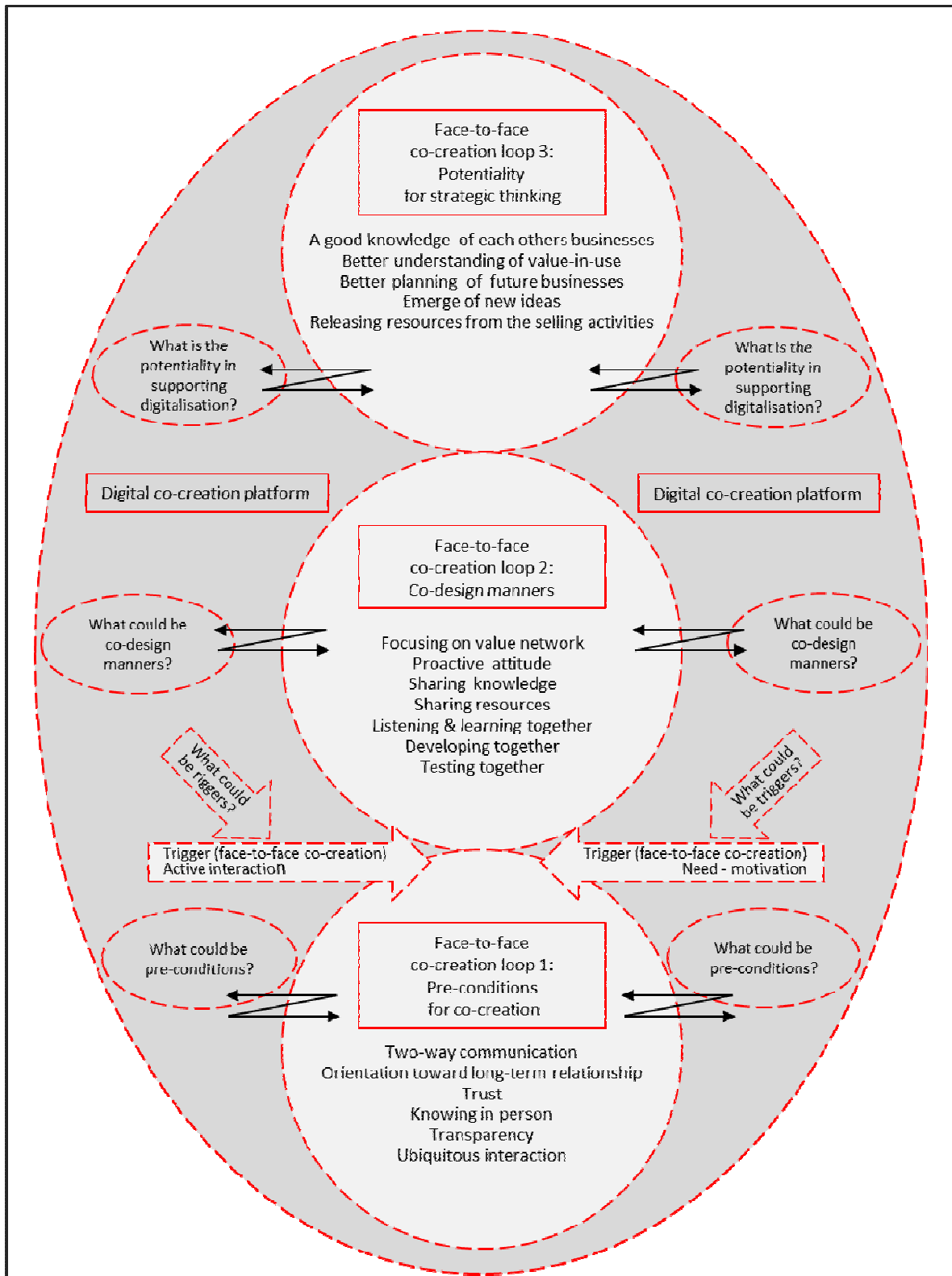


Figure 3: A preliminary framework to better understand on how to explore the nature of digital co-creation

As there seems to be already some amount of digital co-creation platforms the original face-to-face co-creation framework is placed on the top of imaginary digital co-creation platform (grey area). The light round circles include Keränen's (2015) face-to-face co-creation loops one, two, and three which are introducing the characteristics of face-to-face and B2B co-creation. These loops demonstrate: 1) pre-conditions for co-creation, 2) co-design manners in co-creation process, and 3) potentiality that co-creation creates for strategic thinking. As the current literature on digital co-creation demonstrates that there seems to be some challenges on how to create and manage digital co-creation and furthermore how to use the outcomes of the digital co-creation activities Keränen's face-to-face co-creation framework might support in clarifying these aspects.

To conclude, the aim of this paper was first briefly to discuss digitalisation and co-creation literature to understand what is meant by digitalisation and co-creation, secondly to map the current state of literature on digital co-creation, and thirdly to present a preliminary framework to better understand on how to explore the nature of digital co-creation. The future research on digital co-creation could clarify what would be pre-conditions, triggers, and co-design manners for digital co-creation and what kind of potentiality digital co-creation could create for supporting digitalisation (see Figure 3). Then in turn the new understanding could perhaps respond: a) how to better tackle the challenges in digital co-creation, b) how could digital co-creation support in adopting digitalisation, and c) how could digital co-creation enhance innovation.

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