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## An initial framework for open service innovation adopting digital co-creation

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**Abstract:** The aim of this paper is to build an initial framework to support an enhancement of organisations' open service innovation by adopting digital co-creation activities. In order to do so, this paper first discusses the nature of the open innovation (OI) and service innovation. Secondly, the question of how digital co-creation might be helpful for organisations in service innovation with an OI approach will be introduced. Thirdly, the paper synthesises OI and service innovation into Open Service Innovation (OSI) after which the research method and research results are presented: eight case studies of Finnish service organisations which led to an initial framework. The main findings are: (1) A systematic process is an enabler to OI and in co-creation, (2) A barrier to OI and co-creation is traditionally-operating model/closed innovation culture.

**Keywords:** Open Innovation; Service Innovation; Co-Creation; Open Service Innovation; Digital Co-Creation

## 1 Introduction

The current landscape is driving many organisations to transform their business towards a more open service business approach (Chesbrough, 2011a). Open service innovation (OSI) enables organisations to involve their stakeholders in the process of innovating new service solutions (Chesbrough, 2011a). When innovating new service solutions, customers and other stakeholders are not seen as passive objects of an action, but rather as active co-creators who co-create (new) service solutions (Keränen, 2015), and co-creation is seen as a joint value creation process of facilitating innovations, developing solutions and creating strategic advantages for the stakeholders involved (Keränen 2015, 222).

Research indicates that organisations should engage both inside-out and outside-in thinking, meaning an active engagement with all stakeholders (Chesbrough, 2011a). Moreover, current digital technologies enable digital co-creation platforms which are seen in this research as networks that provide the interface for bringing together organisations' stakeholders (Xu *et al.*, 2014). Digital co-creation platforms can offer stakeholders an open online space in a global context enabling innovative solutions (Brunswick, Bertino and Matei, 2015b). Thus, successful organisations need to cooperate and exchange knowledge with all stakeholders in order to be competitive in the future (Gassmann, Enkel and Chesbrough, 2010).

The present paper is organised as follows: a brief overview of OI, service innovation, digital co-creation and OSI. The research framework and the methodology are explained and the case study research results are given. Finally, the findings are discussed and the conclusions are drawn.

## 2 Literature

### *Open Innovation*

Chesbrough's definition of OI is the most commonly used in the literature. He states that “open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology” (Chesbrough, 2003 p. XXIV). His definition is broad and highlights the fact that valuable ideas emerge and can be commercialised from inside or outside an organisation (Dahlander and Gann, 2010). Chesbrough's (2003) definition has developed over the years. In 2006, he stated that “open innovation is the use of purposive inflows and out-flows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (Chesbrough, 2016, p. 1). He also explains that OI is becoming wide-ranging; “the future of open innovation will be more extensive, more collaborative, and more engaged with a wider variety of participants” (Chesbrough, 2017). OI is an approach that enhances an organisation's innovativeness by ensuring that valuable ideas can come from inside or outside the organisation and can go to the market from inside or outside the organisation as well (Gassmann and Enkel, 2004).

In contrast to OI, closed innovation (CI) implies that successful innovation requires control (Chesbrough, 2003). In the CI approach, organisations control the creation and management of ideas. Often, CI paradigms are set equal to the ‘not invented here’ syndrome: everything coming from outside is suspicious and unreliable (Chesbrough, 2003). Organisations should find the right balance between openness and a closed approach (Dahlander & Gann 2010) as OI activities can be more or less open (Huizingh, 2011).

In summary, OI is an approach that enhances an organisation’s innovativeness by ensuring that valuable ideas can come from inside or outside the organisation and can go to the market from inside or outside the company as well (Gassmann & Enkel, 2004). The definition that will be used in this research is “open innovation is the use of purposive inflows and out-flows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (Chesbrough 2006, p.1). As a definition of OI has been clarified, attention is now turned to exploring service innovation.

### *Service Innovation*

The services sector has grown over the years to dominate economic activity in most advanced industrial economies (Chesbrough and Spohrer, 2006). Nevertheless, the focus on service innovation is relatively new and the concept in itself is poorly understood (Antons and Breidbach, 2018; Patrício, Gustafsson and Fisk, 2018). Historically, innovation literature has primarily focused on products and technical innovations rather than services (Tuzovic et al., 2018). Nevertheless, over the last decade, research on service innovation has grown (Lusch and Nambisan, 2018). Services are increasingly recognised as being much more important for building a competitive advantage (Amirforoughi, Noraishahbuang and Zizahchesenik, 2015).

Service innovation involves a new process or service offering that creates value for one or more actors in a service network (Patrício et al., 2018). Co-design and user involvement are key principles (Patrício et al., 2018). Through users, organisations can receive in-depth understanding in service innovation (Patrício, Gustafsson and Fisk, 2018). User-centred innovation and customer integration is highlighted in service innovation (Von Hippel, 2001). Some organisations empower their customers to become co-creators of new innovations (Sjödin and Kristensson, 2012). Customers, users and consumers can be stimulated to share their experiences and knowledge through OI projects (Chesbrough, 2003).

Service innovation creates value for customers, employees, business owners, alliance partners and communities through new and/or improved service offerings, service processes and service business models (Ostrom et al., 2015). Toivonen and Tuominen (2009 p. 893) suggest: “service innovation is a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organization that has developed it; the benefit usually derives from the added value that the renewal provides the

customers". A common theme in the literature is that service innovation often refers to collaboration with customers for the purpose of innovation (Kristensson, Matthing and Johansson, 2008). On the whole, definitions of service innovation seem to be rather general and are inadequate for identifying service innovation in practice (Snyder et al., 2016).

For the purposes of this research, we use the Toivonen & Tuominen (2009) definition as shown hereinabove. Thus, their definition's strength is that they explain that service innovation can be not only a new service but also an improved existing service that is put into the market. Compared to other definitions, their definition gives practical perspectives. In addition, the customer is not central in their definition, but they still mention that customer should be the one to receive added value from service innovation. This paper adds to their definition that service innovation process is the whole process of service development (Zeithaml, 2009).

### *Digital co-creation*

Digitalisation can be compared to an industrial revolution when looking at changes in organisations' and people's daily lives (Kenney, Rouvinen and Zysman, 2015). However, for organisations digitalisation seems to be quite unclear, and major players find it difficult to draw up their digitalisation strategies (Rodrigues, Chimenti and Nogueira, 2011). It seems that organisations understand that there are new digital technologies available which could support in developing their business activities, but they are largely unable to use them. With digital technologies we mean technologies that enable physical and digital worlds to be merged (Department for Business Energy & Industrial Strategy, 2017).

Co-creation suggests that value is generated jointly between the customer and organisation (Maglio et al., 2009). Within the co-creation paradigm, the customer is always the co-creator of value (Vargo and Lusch, 2008). Co-creation is a collaborative process of at least two entities (Maglio et al., 2009). Co-creation highlights that customers do not merely passively accept products and services; they play a role strengthening innovation and creating value (Hoyer et al., 2010).

Digital technologies enable digital co-creation platforms which are seen in this paper as networks that provide the interface for bringing together organisations' stakeholders (Xu *et al.*, 2014). Digital co-creation platforms can offer stakeholders in a global context an open online space enabling innovative solutions (Brunswick, Bertino and Matei, 2015a). Thus, successful organisations need to cooperate and exchange knowledge with all stakeholders in order to be competitive in the future (Enkel, Gassmann and Chesbrough, 2009b).

Organisations need to effectively adapt to market needs and this will be possible with the effective use of internal and external knowledge resources (Enkel, Gassmann and Chesbrough, 2009a). To support this requirement, digital co-creation platforms can offer a powerful approach (Mačiulienė and Skaržauskienė, 2016). Particularly, digital co-creation platforms seem to enable multiple partners to co-create solutions (Buhalis and Law, 2008). In OI and Service innovation various partners are co-creating. Thus, one could argue that digital co-creation might offer tools to enhance them as the previous chapter supports this statement.

### *Open service innovation*

In 2011, Chesbrough wrote a book about open service innovation (OSI) where the focus was a service development with a customer. He gave understanding to the OSI concept (Chesbrough, 2011b). He explained that customers are not passive objects, and that organisations need to co-create with them in order to develop and create services. He highlighted in his book that organisations should invite customers to co-create. Since 2011, when the book was published, the practice and theory has moved forward in open service innovation. However, this is the area that is still largely unresearched. Thus, one could argue that it would be recommended to research OSI with a multidisciplinary research combining service innovation and OI.

The customer's role in innovation has long been recognised, but in today's context the research agenda needs to broaden to address issues about how to manage customers' and partners' collaboration throughout the service innovation process (Ostrom et al., 2015). Involving external entities in the organisation's service innovation process through OI will be one of the key areas for future research (Ostrom et al., 2015). The challenge for service researchers is to move away from traditional disciplines and to conduct research involving multidisciplinary partnerships (Ostrom et al., 2015). Further research is needed to better understand when and how to involve other actors and customers in the service design and innovation process as well as the impact on innovation outcome (Patrício, Gustafsson and Fisk, 2018). Chesbrough (2017) also states that there is a need for further research in open service innovation.

To conclude, the above literature demonstrates that organisations should engage both inside-out and outside-in thinking meaning an active engagement with all stakeholders, and focusing on customer's experience (Chesbrough, 2011). On the whole, organisations should integrate customers and external partners in the service innovation ecosystem (Heiner, Tietze and Carsten, 2017).

### **3 Research Method**

Data was collected from eight Finnish service organisations in 2016. There were 47 semi-structured face-to-face interviews conducted with managers and specialists. In one organisation there were 4 to 8 people who took part in the interviews. To gain a better understanding, not just from one organisation but also from multiple organisations, this research was carried out as a multiple-case study design in an empirical investigation of real life (Yin, 2009). The organisations operated in the following service sectors: finance and banking, taxation, insurance, retail, property management, consultation and HR services. The cases were chosen to have a wide collection of different kinds of organisations. They also varied in size; three organisations were small or medium-sized organisations (SME), and five were large organisations. The research was accomplished in three phases: a) literature review, b) data collection, and c) analysing the data. Each interview was 45 to 90 minutes long.

**Table 1:** The organisations service sectors

Organisation	Service sector
O1	Retail
O2	HR services
O3	Taxation
O4	Insurance
O5	Consultation
O6	Finance and banking
O7	Insurance
O8	Property management

## 4 Research Results

After conducting the interviews, the data was transcribed and analysed. The data was analysed by themes that were raised in the interviews. Based on the level of adaptation of OI and co-creation (see Table 2 & 3), the OI adaption was moderate 3/8, low 4/8 and 1/8 none and the co-creation co-adoption was moderate 3/8, low 4/8 and 1/8 none. It can be seen that the level of adoption among organisations is either moderate, low or none.

**Table 2:** The levels of adaptation of open innovation and co-creation activities

Level of adaptation	Description
High	Open innovation/co-creation activities are regularly used in the organisation's operations and they are embedded in the organisation's main processes
Moderate	Open innovation/co-creation activities are used in the organisation's operations but they are not embedded in the organisation's main processes
Low	Open innovation/ co-creation activities have been used couple of times in the organisation's operations
None	Open innovation/ co-creation activities have not been used in the organisation's operations

**Table 3:** The level of adaption of open innovation and co-creation activities

Organisation	Level of adaptation		Open innovation		Co-creation		Open innovation		Co-creation	
	Open innovation	Co-creation	High	Moderate	Moderate	Low	Low	None	None	
O1						x	x			
O2						x	x			
O3				x	x					
O4						x	x			
O5				x	x					
O6				x	x					
O7								x	x	
O8						x	x			

Table 4 demonstrates enablers to OI and co-creation. The results indicate that all organisations (8/8) see a need to effectively develop new services/service innovation (E1) as an enabler to both OI and co-creation. Moreover, a systematic process (E2) is an enabler to OI in eight organisations (8/8) and to co-creation in six (6/8) organisation (6/8). Only one organisation (1/8) mentioned that digitalisation (E10) is an enabler for co-creation. It should be noted that the organisations involved with this research do not have experience using digital co-creation. Nevertheless, these organisations are offering some digital services for their customers. Furthermore, five (5/8) organisations said that an enabler to co-creation is regular activity with customers (E3) and four 4/8 mention regular collaboration among personnel (E4).

**Table 4:** Enablers in OI and co-creation

Enablers	Enablers to open innovation	Enablers to co-creation
E1. A need to effectively develop new services	O1 O2 O3 O4 O5 O6 O7 O8	O1 O2 O3 O4 O5 O6 O7 O8
E2. Systematic process	O1 O2 O3 O4 O5 O6 O7 O8	O1 O2 O4 O5 O7 O8
E3. Regular activity with customer	O3 O5	O2 O3 O5 O6 O8
E4. Regular collaboration among personnel		O2 O3 O6 O7
E5. Person responsible for the process	O7 O8	O8
E6. Piloting	O1 O8	O3
E7. Encouraging organisation culture	O3 O4	O2
E8. Process transparency	O6 O8	
E9. Rewarding those involved in process	O2 O7	
E10. Digitalisation		O1
E11. Workshops		O1
E12. Tools		O8
E13. Consultants and other external support	O6	

Table 5 demonstrates barriers to OI and co-creation. The results indicate that organisations homogeneously 8/8 think that a barrier to OI and co-creation is the traditional operational model/closed organisational culture (B1). Four (4/8) organisations state that a barrier to co-creation is that it is not known how to interact deeply with customers (B5). Interviewees also mentioned some other barriers but as the table below shows, there is not more than two organisations which mention the same barriers. Hence, valid conclusions cannot be drawn from the other barriers.



**Table 5: Barriers to OI and co-creation**

Barriers	Barriers to open innovation	Barriers to co-creation
B1. Traditional operating model/ closed organisation culture	O1 O2 O3 O4 O5 O6 O7 O8	O1 O2 O3 O4 O5 O6 O7 O8
B2. Not enough resources, not enough time	O5 O8	O3 O8
B3. Short projects not ongoing activity	O6	O6 O8
B4. Organisation’s capability to react fast enough to changes	O1 O2 O7	O2
B5. No knowledge how to interact deeply with customer		O1 O2 O4 O5
B6. No knowledge on how to interact deeply with personnel	O2	O2
B7. Too many ideas – choosing the most innovative is challenging	O3 O5	
B8. Management is passive		O3

## 5 Conclusion

In this paper, we build an initial framework for open service innovation adopting digital co-creation. First, we introduced the relevant literature and then explained the research results that indicate that organisations see the OI approach and co-creation as an enabler of new service development/service innovations. The research findings show that a systematic process is seen as an enabler to OI and co-creation. Furthermore, organisations equally think a barrier to OI and co-creation is the traditionally-operating model of internally and closed organisational culture.

The literature highlights that the benefit of digital co-creation is that it allows all stakeholders to have open service innovation activities. In contrast, these research results indicate that organisations do not see benefits in digital-co-creation as only one of them mentioned it as an enabler in co-creation. Nevertheless, it should be noted that the organisations involved with this research do not use digital co-creation.

The limitations of this paper are that data was collected only in Finland for eight organisations. Hence, further research should capture data from a wider range of sources covering other national cultural contexts and sectors. Furthermore, while a general literature review was undertaken, the results highlight the need for a deeper exploration of prior research in a number of areas.

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### **Areas for feedback and development**

- What further reading would you recommend in the area of open service innovation?
- Which firms implement successful open service innovation?