VALUE CO-CREATING PRACTICES IN ERP IMPLEMENTATION: A CASE OF BUSINESS TO BUSINESS CONTEXT

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Abstract

Implementation process of Enterprise Resource Planning is highly socio-technical factors dependent. ERP implementation management is highly knowledge intensive which makes its implementation a highly complex and interactive process. In view of this complexity ERP implementation is outsourced to ERP consultants. However, the client firms are called upon to participate as a strategic partner during this partnership. This study presents partnership practices of one case organization where consultants and clients firms co-create value through specific behavioral factors. The value co-creating behaviors identified are critical in strengthening the outsourcing partnership and determining the level of success of ERP implementation and value delivery of such projects. Researchers took an interpretive approach to conduct this study and found that an effective experience of value-co-creating behaviors of participants in ERP implementation outsourcing have the potential of transforming value chain of technology adoption process into high or low business value co-created from client's and vendor's partnership. It would result in ERP system quality. It is contingent upon the personality trait of self-development of participating individuals. It is likely to motivate partners to contribute in interactive interdependencies like ERP implementation. The author further propose that when organizational, technical, individual and social factors complement each other, they are likely to result in system quality which is very important value delivery of such partnerships. Hence, value co-creation behaviors are of great relevance to interactive relationships in B2B context and play an important role in moving partners beyond task performance to extra role behavior. Considering the external factors of motivation of such behaviors, top management support and governance mechanism can also be focused in future studies as determinant of participants' motivation and ultimate differential performance in resource management in B2B outsourcing context and augmented value co-creating behaviors of consultant and client firms' employees.

Keywords: ERP implementation, transformation, value co-creation behaviors, outsourcing

1. INTRODUCTION

Organizations are shifting towards value creation strategies (Cox 1999 in Dapiran & Kam, 2017; Wamba, Gunasekaran, Akter,, Ren, Dubey & Childe, 2017) as a measure of competitive performance. The concept of value is a transformed form of cost-oriented view and is inclusive of "tangible and intangible' benefits in product/ service exchanges. Literature from the fields of industrial marketing (Anderson and Narus, 1998;

Grönroos and Voima, 2013) and supply chain management (Hammervoll, 2009; Lusch, 2011) has produced ample evidence (see Dapiran and Kam, 2017) of this transformation. The research on the value-oriented view of business exchanges in the B2B context of outsourcing for complex technology adoption is still inadequate. Enter Resource Planning (ERP) implementation complexity, invited a plenty of publications regarding ERP adoption, implementation and critical success and failure factors of ERP implementation (Mihailescu, 2018).

IT outsourcing for complex technology adoption like ERP as a service provided by technical experts who reduce the "learning burden of client firms" (Chou, Lin, Lu, Chang, & Chou, 2014) becomes a suitable social context for value co-creation. It demonstrates the importance of integration of knowledge of business needs and technological expertise of client and consultants respectively. Besides the knowledge imbalance, the behaviors of participants in this interactive relationship need to justify their roles in view of this interdependence (Sun, Chen & Wu, 2017). It is likely to lead to "outsourcing satisfaction"; it requires the participating firms to follow a transformational approach for implementing ERP (Mani &Barua, 2015).

Following the Schumpeterian definition of innovation, Service-dominant (S-D) logic becomes appropriate frame work (Ordanini and Parasuraman, 2011) where customers and businesses function as value co-creating actors. Their interacting behaviors create a social context of service system which can lead partner firms to explore "new and better ways" to capitulate values for all participants (Edvardsson &Tronvoll, 2013).

Value co-creation is conditional on a system approach augmenting the understanding of interdependence between client and vendors as a means to achieve mutual goals through interactive learning during outsourced project execution. This approach highlights the significance of studying the interaction of learning behaviors of participants in complex technology adoption projects like ERP to build insight into how they affect the intermediary outcomes, proximal and distal outcomes.

ERP implementation is "socio-technical" and "technical" factors dependent (Shah, Bokhari, Hassan, Shah, & Shah, 2011) and entails an agency risk due to knowledge disparity of the client and consultants (Chen al, 2013). Firms establish outsourcing relationships to take advantage of operant resources - skills and knowledge - of outsourcing partners and benefit from the complementary skills of vendors/ consultants (Smuts, van der Merwe, Kotzé, &Loock, 2010). Organizations going on board on ERP transformations need to develop a multitude of other specialized skill sets which are difficult for any organization to develop internally. The implementation process of ERP is stage-based (Jagoda & Samaranayake, 2017) and requires a specific set of knowledge, skills and abilities from client firms to keep a control on the value delivery outcomes on each stage (Li, Chang & Yen, 2017).This control in turn calls for justifying the respective roles of the individuals involved in this process. A recent meta-analysis study has concluded that "there is a relationship between ERP success and individuals who confidently understand their roles" (Li et al., 2017). Accordingly, present study suggests that moving beyond understanding respective roles, an execution of respective roles in the capacity of a value co-creator individual, is likely to unfold new insight into how the performance of respective roles and responsibilities reduce the agency risks and augment business value delivery through value co-creation. Therefore, it is important to identify and recognize new frameworks beyond critical success factors that inform the management of outsourcing relationship between client and consultant firms as a transformation-based business frame-work and a new value proposition. The participants from client firm need to justify their new role of value co-creator by establishing social structures which facilitate integrated configuration of resources and effective interactive collaboration in ERP implementation and its business value delivery.

In view of this resource dependency discussed above, it is viable to examine the interactive outsourcing relationship from service dominant logic perspective. It is likely to demonstrate how far application of S-D logic can augment the effectiveness of outsourcing relationships in achieving mutual goals (Siemieniako & Gębarowski, 2017) and reduce the failure rate associated with outsourcing (Rizzuto, Schwarz & Schwarz, 2014). Studies moving beyond client firm's boundaries for ERP implementation and considering consultant and client's new role of value co-creators interacting in the social context of value systems of S-D logic are few (Wu, Kung &Lin, 2017).

A major focus of ERP research has been on examining the critical success and failure factors (Chen, Chen & Wang, 2016). The studies undertaken in developing countries like India, Saudi Arabia, China, Tunisia, Malaysia, Jordan, Oman and Sri Lanka, have also examined "critical failure factors" (Amid, Moalagh & Ravasan, 2012). In Pakistan, the research on ERP is not substantial. Shad, Chen &Azeem (2012) have examined performance enhance factors of ERP in an exploratory study in a public sector organization of Telecommunication. Nizamani, Khoumbati, Ismaili&Nizamani (2014) have proposed a conceptual framework of critical success factors in higher education sector of Pakistan as a less focused area. Ijaz, Malik, Lodhi,

Habiba&Irfan (2014) have conducted a qualitative study to identify critical success factors in the pre-implementation, implementation and post implementation phases of ERP system. Recently, Ahmed, Shaikh, & Sarim (2017) have conducted an exploratory study to identify CSFs that affect ERP implementation in SMEs of Pakistan. It shows that ERP implementation is an understudied area in the context of Pakistan from the interactive process perspective of value co-creation.

Internationally, studies have started examining post implementation stage of ERP assimilation (see Shen, Chen & Wang, 2016).Nudurupati and Tasker (2010) examined the capabilities of the client and supplier in a B2B context. However, there are still few studies which have focused on ERP implementation lifecycle in B2B context from S-D logic stance.

This research study is expected to make important theoretical contributions. Form value co-creation perspective (VCC), it will extend the scope of this concept (Maglio & Spohrer, 2008) as an augmenting factor in ERP implementation success and making B2B alliance/ contracts another opportunity of value co-creation (Driessen and Hillebrand, 2013).

Practically, it is important in the context of emerging economies to understand how ERP vendors, who are selling highly functional technology, are managing the process of value co-creation through creating superior value proposition for their targeted customers and establishing their loyal customer base. It clarifies the relevance of this frame in this context as a strategy of differential performance or continued competitive advantage for the participants in B2B alliance / contract.

2. BACKGROUND ASSUMPTIONS

Adopting a new IT innovation entails a "learning burden" for a firm adopting ERP (Attewell, 1992 in Infinedo, 2011) as well as a quality burden for their effective participation in the implementation process (Ağaoğlu, Yurtkoru, & Ekmekçi, 2015). In view of ERP implementation complexity, external knowledgeable experts are unavoidable for smooth adoption and effective implementation of ERP (Infinedo, 2011 in Chang, Wang, Jiang and Klein, 2013). ERP adopting organizations hire external consultants to overcome this barrier (Chang et al, 2013). ERP adopting client-vendor/consultants partnership is a key success factor influencing ERP implementation success (Kähkönen, Smolander, & Maglyas, 2017) in terms of quality of installation (Hong and Kim, 2002 in Ha and Ahn, 2013). Some studies have reported failures despite involving consultants in the implementation of ERP (Rajan, &Baral, 2015). Such studies highlight that firms need to make sure that consultants work in the interest of the implementing firm as it would reduce the risks associated with outsourcing (Dawson, 2011 in Chang et al, 2013) in the form of misalignment (Rajan, & Baral, 2015), a mismatch (Chang et al, 2013), a rigid solution (Newell, Swan & Galliers, 2000) or making client work unrealistically more than required (Wenrich, & Ahmad, 2009). It can also reduce the knowledge load that complex technology like ERP can bring to the adopting firm (Infinedo, 2011) and "quality burden" from client firm's participants. Attewell's (1992) theory of technology diffusion and learning has focused on the role of external expertise in reducing the knowledge gap in ERP implimentation process (Wang, Shih, Jiang, & Klein, 2008 in Infinedo, 2011).

Previous studies focusing on the role of consultants have been undertaken from the perspective of control theory or agency theory (Basu & Lederer, 2004; Flamholtz, Das, &Tsui, 1985). The former proposes mechanisms which maximize the attainment of organizational goals while the latter highlights how conflicting interests of involved agents can lead to agency risks. In case of ERP, consultants assist the clients to configure a suitable ERP system as per agreed upon specifications and train them to utilize the deployed technology (Wang and Chen, 2006). The quality of the input provided by the internal stakeholders has an equal importance in considering the influence of their interactive "efforts" on the intermediary and final outcomes of ERP implementation; this highlights the need of an inquisitive observation of this phenomenon.

The successful transfer of knowledge in ERP implementation from external expertise to ERP adopting firm depends on relationship management among the external experts and clients (Wang et al, 2008). These relationships are manifestation of growing "alliances" in business to business (B2B) and demonstrate the recognition of 'co-creation of value' (Gulati, et al, 2009, p. 1213). These alliances are expected to augment firms' value (Kale and Sing, 2009). They bound the partners to work together for the effective execution of their agreements and thereby, create value (Prahalad and Ramaswamy, 2004). Participant firms today need such value driving strategies that give them long terms competitive advantage. Quality of participant's interaction from value co-creation perspective is considered one such initiative (Joshi & Chebbiyyam, 2011). Studies on such interactive outsourcing relationship in ERP implementation context are scant.

Identification of the needs of customers and customizing products accordingly drive the development of markets (Bharti et al. 2014). It also needs specific capability in the main actors which can facilitate strategic

alignment (Joshi &Chebbiyyam, 2011). It can be realized through interactive and participative business models which are likely to lead to value co-creation (Bharti et al. 2014).

S-D logic is a customer-oriented perspective where value is co-created through interaction (Komulainen, 2014). S-D logic from services science literature defines service as delivered when one entity uses its competencies (knowledge and skills) to bring value to other entities (Vargo et al, 2008**).** Hence interaction and exchange of competencies becomes a locus of 'value co-creation and value extraction (Prahalad and Ramaswamy, 2004) among participants.

In business to business relationship ERP vendors facilitate value coordinated activities, mutual capabilities and resources as means for clients to create value (Joshi, 2010). Client's capabilities being equally important in value creation process in such relationships, vendors face the challenge of engaging client firms in this process. In order to stay competitive firms need to move beyond operational efficiency to strategic value creation in order to build competitive advantage (Joshi & Chebbiyyam, 2011). Partnership for co-creating value is considered such a value driver (Lamber, 2012).

The extant literature has focused on critical success factors of ERP implementation for their uni-directional impact such as organizational (project management, change management, organizational culture, user participation, communication, training and other associated issues) and technical elements (IT infrastructure, internet, servers and technical skill and expertise) (Strong &Volkoff, 2010; Li et al, 2017) causing ERP implementation failure. In the same stream ERP studies have focused on the impact of vendors' and consultants' support and service quality on ERP performance and value delivery (Tsai, Chou, Leu, Chen, &Tsaur, 2015). Vendors, consultants and clients work together to overcome the road blocks in ERP life cycle (Chakraborty and Sharma, 2007). These roadblocks have been identified as ERP critical success or failure factors (Momoh, Roy, & Shehab, 2010) in terms of organizational (Somers and Nelson, 2001), technological and environmental elements with the addition of people and project management factors (Garg and Cahuhan, 2015). The latter two are considered among critical success factors (Al-Hadi, and Al-Shaibany, 2017). A few researchers went beyond implementation to encompass ERP project life cycle contexts (Liu et al, 2010) and the traditional project management approach to interactive perspective and process perspective of evaluation of ERP implementation. Scholars have recently highlighted these perspectives to be promising for building important insight for managing (Baykasoglu, Golcuk, 2017).

Following this stream, it is therefore assumed that all actors of ERP projects – vendors, consultants and client firms share the responsibility for the successful execution of ERP project across its life cycle. Therefore, it is viable to examine the role performance of all major actors in managing outsourcing relationship in terms of their quality services from the lens of S-D logic. It will help to identify how quality of services of all actors' affects the strength of their interactive relationship. The findings are expected to further refine the status of ERP implementation from various related theories and perspectives (Sarker et al., 2012). It will inform the actors in the concerned area what capabilities they need to develop to co-create value in B2B relationships.

3. EXTENDING VALUE CO-CREATING ACTORS

Maglio & Spohrer (2008) and Driessen & Hillebrand (2013) recommend the inclusion of 'actors' in co-creation; this inclusion is likely to expand co-creation opportunities (Gummesson and Mele, 2010). In B2B context, examining co-creation process through the interaction of multiple actors can build new insights.

4. OBJECTIVES OF THE STUDY

This study intends to examine ERP implementation phenomenon from S-D logic perspective. Initially, an extensive literature review will be conducted to identify critical success factors that influence effective management of outsourcing relationships. It will be followed by empirically examining the current practices of actors working on ERP projects in the market - ERP consultants, client firms' steering committee managers, decision makers and users.

This study will encompass the life cycle of ERP implementation- from pre-implementation to early post implementation stage. Hence, it will also address the second part of the S-D logic that value is created by the customer through the use of the offering (Gronroos, 2008) when "reciprocal promises" of value are realized (Ballantyne and Varey, 2006) through interaction among the actors.

5. RESEARCH QUESTIONS

The broad area of inquiry for this study is:

Q: How do organizational, individual, technical and social factors affect value co-creation during ERP implementation?

The following questions will provide required support for the main question:

1. How do the roles and responsibilities of actors involved in ERP implementation affect value co-created in this process?

2. How far value co-created in these interactive practices determine the effectiveness of ERP implementation?

6. METHOD

The above discussion brought forth some useful insights to guide the research plan of this study. First of all, there is room for qualitatively exploring ERP adoption process, keeping in view the lack of resources and time required to undertake a design science methodology (e.g., Gregor and Hevner., 2004). Therefore, present study has examined ERP implementation through qualitative lens to explore value co-creation behaviors of participants. It extended ERP research beyond an inert view of CSFs to their dynamic interaction in resource management and capability building at the pre and early post implementation level. Their experience is captured through focus groups conducted at the early post implementation stage. This temporal aspect gave participants an advantageous position to interpret their experience of early stages of ERP lifecycle in a reflective manner.

6.1. Case Selection

The phenomena explored in this research focuses on employees' perceptions about value co-creating behaviors of partners of outsourcing ERP implementation. Researcher has followed an interpretive research paradigm and conducted semi-structured focus groups to explore the experience of ERP implementation.

This research has been conducted with a series of three focus groups in a service organization – a higher education institute. Focus groups were comprised of participants belonging to different departments with different field of expertise. The case-wise composition of focus group participants is mentioned in following section.

6.1.1. Case

Focus Group A: Six frequent users of ERP System

Focus Group B: Five middle level users

Focus Group C: Six senior level users

The analysis of focus group data has been based on individual participants' responses and their interaction. Below are given categories Identified from Focus Group Data:

Table 1: Organizational Factors

Group	Coding	Justifications and Association emerged Showing Consensus	Pattern emerged (Performance Indicators of Service System as a social context for value co-creation)
A	Shared vision Project management	Coordinators were not informed about the purpose of ERP implementation but felt a push to use ERP and learn new things. Project Team selection was not effective; it seemed nobody knew respective roles and responsibilities. Project managers didn't maintain a record of mistakes done by the team members and took a late action. Heavy users of system were not consulted at the system development stage.	Effectiveness of **communication** about the purpose of ERP adoption was lacking (**(Edvardsson and Tronvoll, 2013)**; information sharing (Yi & Gong, 2012) **Value co-creation competence (Edvardsson and Tronvoll, 2013) -** project management skills

| B | Users' expectations

Training quality

Monitoring | Users were excited to try a new technology. They believed that its usage would enhance their skill level and positively impact their performance. They remained committed to learn it though faced really tough time during training.
Training sessions were not well managed. The trainers didn't have enough knowledge about the system to guide the new users.
No feedback was taken from users to identify gaps in trainings. | Users' enthusiasm to learn new technology and prospective capacity enhancement was not utilized as a **resource to co-create value** (Edvardsson and Tronvoll, 2013)

Governance structure– feed back to monitor performance of actors was missing as a control **process** in service systems (Yi & Gong, 2012) |
| C | Effective training resources | Batch advisors didn't comprehend the ERP **system manual** provided to them due to difficult SOPs. The performance of the trainers was not monitored. Trainings were not given as per the requirements of different levels. The trainings were focusing more on the working of program coordinators. More training should have been conducted for batch advisors. | Providing effective technological resources to transfer knowledge effective – **responsible behavior** (Yi & Gong, 2012) |

Table 2: Technical Factors

Group	Coding	Justifications and Association emerged Showing Consensus	Pattern emerged (Performance Indicators of Service System as a social context for value co-creation)
A	Shared vision Project management	Coordinators were not informed about the purpose of ERP implementation but felt a push to use ERP and learn new things. Project Team selection was not effective; it seemed nobody knew respective roles and responsibilities. Project managers didn't maintain a record of mistakes done by the team members and took a late action. Heavy users of system were not consulted at the system development stage.	Effectiveness of **communication** about the purpose of ERP adoption was lacking **(Edvardsson and Tronvoll, 2013)**; information sharing (Yi & Gong, 2012) **Value co-creation competence (**Edvardsson and Tronvoll, 2013**) -** project management skills
B	Users' expectations Training quality	Users were excited to try a new technology. They believed that its usage would enhance their skill level and positively impact their performance. They remained committed to learn it though faced really tough time during training. Training sessions were not well	Users' enthusiasm to learn new technology and prospective capacity enhancement was not utilized as a **resource to co-create value** (Edvardsson and Tronvoll, 2013)

	Monitoring	managed. The trainers didn't have enough knowledge about the system to guide the new users. No feedback was taken from users to identify gaps in trainings.	**Governance structure**– feed back to monitor performance of actors was missing as a control **process** in service systems (Yi & Gong, 2012)
C	Effective training resources	Batch advisors didn't comprehend the ERP **system manual** provided to them due to difficult SOPs. The performance of the trainers was not monitored. Trainings were not given as per the requirements of different levels. The trainings were focusing more on the working of program coordinators. More training should have been conducted for batch advisors.	Providing effective technological resources to transfer knowledge effective – **responsible behavior** (Yi & Gong, 2012)

Table 3: Individual Factors

Groups	Coding	Justifications and Association emerged Showing Consensus	Pattern emerged (Performance Indicators)
A	Resource availability	The internal trainers were hard to access due to large number of their tackling issues across the institution. However, coordinators resolved many issues after discussing with each other (within department).	Client's resource integration and activation competence **Helping** (Yi & Gong, 2012):ERP users helped each other to learn the software as informal learning **Managing relational dynamics** ((Dapiran and Kam, 2016)
B		Bad word of mouth about system glitches travelled very fast across the board, which created negative impression in minds of users. A conflict rose between system developers and heavy users of system.	Conflict management competence **Relational dynamics** (Dapiran and Kam, 2016)
C		Quality of technical support by vendor and their trainers was not satisfactory. Users were not ready to accept this switching to new system.	Effective knowledge transfer

Table 4: Social Factors

Groups	Coding	Justifications and Association emerged Showing Consensus	Pattern emerged (Performance Indicators)
A	Resource availability	The internal trainers were hard to access due to large number of their tackling issues across the institution. However, coordinators resolved many issues after discussing with each other (within	Client's resource integration and activation competence **Helping** (Yi & Gong, 2012):ERP users helped each other to learn the software as informal learning **Managing relational dynamics** ((Dapiran and Kam, 2016)

		department).	
B		Bad word of mouth about system glitches travelled very fast across the board, which created negative impression in minds of users. A conflict rose between system developers and heavy users of system.	Conflict management competence **Relational dynamics** (Dapiran and Kam, 2016)
C		Quality of technical support by vendor and their trainers was not satisfactory. Users were not ready to accept this switching to new system.	Effective knowledge transfer

7. DISCUSSION

The data in above tables show that behaviors which substantially affect the execution of value co-creation roles from service system perspective are operant's and operand's relationship management, information and knowledge sharing, and information seeking, and managing inter-organizational and intra-organizational conflicts, mobilizing contextually relevant knowledge resources, establishing sound governance mechanisms, showing tolerance for un-met expectations, resource management and resource integration. These multiple elements are grouped under four main factors as organizational, technical, individual and social factors in tabular form. It is proposed that higher quality of value co-creating behaviors is likely to be affected by these factors. These factors are also likely to determine the strength of relational dynamics between client and vendor/consultant which in turn might affect value co-creation outcomes in the form of effective knowledge transfer, successful ERP implementation, user readiness to adopt ERP and continued motivation to use ERP consistently. Service system perspective of value co-creation has undertones of socio-technical theory in the selected research context. It implies that value co-creating behaviors have the potential of creating a fit between technical tools and devices and social sub-systems (knowledge skills, behaviors and values) of organizations which decide to adopt complex technological innovation like ERP systems (Sawyer, and Jarrahi, 2014). Finally, the system quality as an important value delivery or value co-created from the partnership of client firm and consultant has been found less than desired in terms of system reliability (frequent bugs and hang up), system alignment, system response time, adaptability to required uses (see Nelson, Todd, and Wixom , 2005). These facets of system quality will further lead to ERP business value in the form of information quality (Wixom and Todd, 2005) and finally "transactional (i.e., cost reduction), strategic (competitive advantage) and transformational" business value (augmented capacity to perform better) (Gregor et al., 2006).

8. CONCLUSION

This study focused on ERP implementation lifecycle from value co-creation perspective. Value co-creation behaviors of client and consultant reflect that both participants of ERP implementation process can undergo a transformational execution of ERP implementation process with their respective service systems in place. The joint effect of value co-creating behaviors of both client and consultants will result in successful ERP implementation, reduced risks of misalignment between ERP system and organizational functions and operations, cost and time over run and psychological acceptance of this culturally innovative change. Integrating the results of this study with inter-actionist perspective (see Oreg and Nov, 2006), it can be proposed that value co-creation behaviors reflect the personality trait of self-development of participating individuals which in turn can affect their motivation to contribute in interactive interdependencies like ERP implementation. Deriving from Hars and Ou (2000) it can be further proposed that when organizational, technical, individual and social factors complement each other, they are likely to result in system quality which is very important value delivery of such parternerships. . Hence, value co-creation behaviors are of great relevance to interactive relationships in B2B context and are likely to motivate actors to move beyond task performance to extra role behavior. Considering the external factors of motivation of such behaviors, top management support and governance mechanism can also be focused in future studies as determinant of participants' motivation and ultimate differential performance in resource management in B2B outsourcing context and augmented value co-creating behaviors of consultant and client firms' employees (Figure 1). Future studies might explore the relevance of these findings in different contexts. Future research can also examine factors which act as barriers to value co-creation and lead to value destruction.
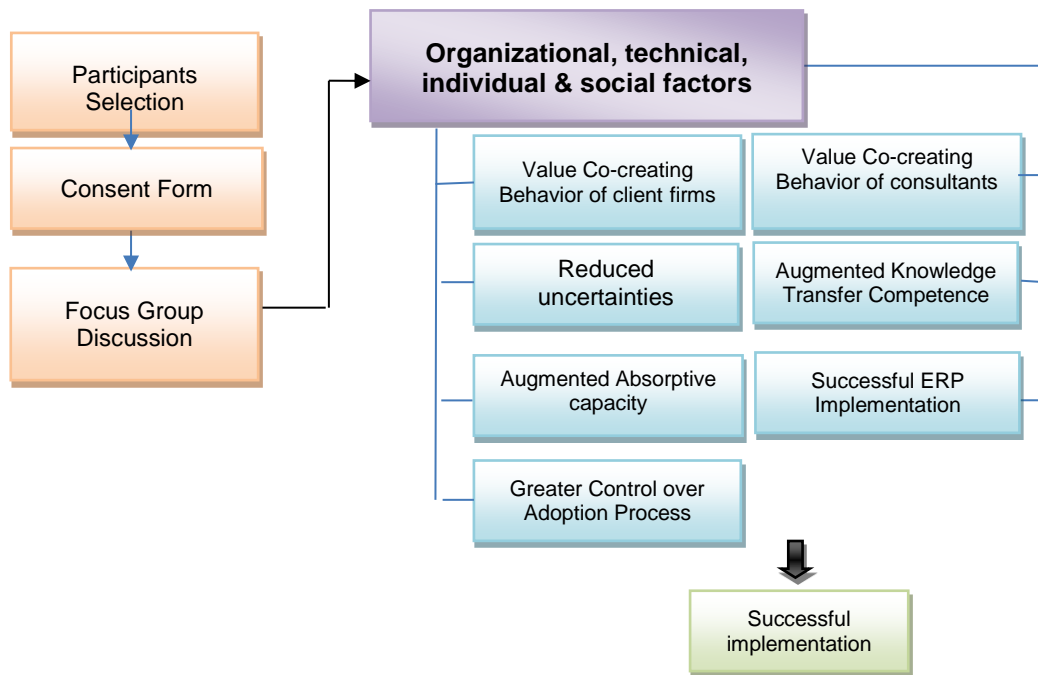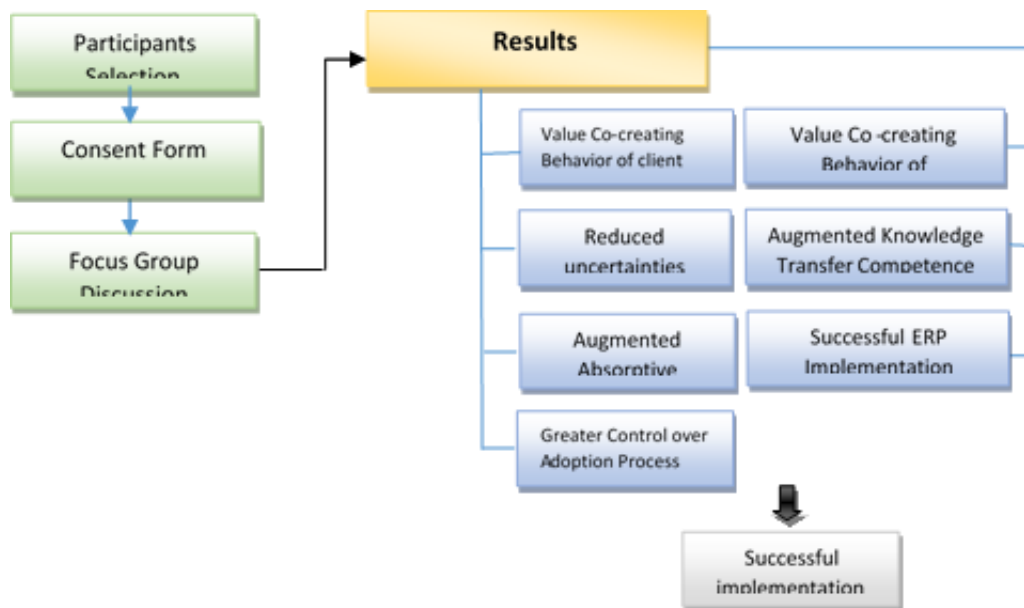
Fig.1

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