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Proposing an Entrepreneurial Process for the Co-creation of IT Value

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Abstract: Co-creation of IT value has received substantial focus from the IS research community over the past years. However, few if any have studied this phenomenon from a process perspective, and our understanding of the processes leading to successful co-creation is therefore limited. To address this shortcoming, we studied a complex, e-government case involving 38 government agencies intending to co-create value from a common IT platform. We used a mixed method approach, involving both qualitative and quantitative data. Data analysis was guided by two strands of theory, namely the theory of institutional entrepreneurship and the co-creation of IT value. Our findings suggest that neither theory is sufficient to provide a processual understanding of co-creation. Consequently, we propose a novel process for the entrepreneurial co-creation of IT value.

Keywords: IT value, co-creation of value, institutional entrepreneurship.

1 Introduction

The importance of realizing benefits from IT investments has been acknowledged by the IS community for many years [e.g., 1, 2] and a strand of IS research has explicitly focused on the mechanisms behind the realization of such benefits. Most of this research has examined the relationship between investment and organizational outcome in one single firm. Given the centrality of the IT value question, researchers have expanded the agenda to also include the co-creation of IT value in multiple organizations [e.g., 3, 4]. In a special issue of *MIS Quarterly* on co-creating IT value, Grover and Kohli [3, p. 231] state that “co-creation represents one of the most important streams in the IT value research area that will gain greater importance as firms expand collaborative relationships with other firms.” The idea of co-creation is intuitive and simple; i.e., integrating IT in the end-user environment to support inter-organizational work processes, improve end-user performance, and enhance overall organizational effectiveness in direct support of goals and strategies. Despite this, the process through which firms can successfully implement it is likely to pose several challenges, e.g., partner selection, evolving relationships, and stages that need to be followed to co-create IT value.

Theoretical accounts of institutional entrepreneurship can be traced back to 1988 and the work by DiMaggio [5]. Stevenson and Jarillo [6, p. 23] define corporate en-

trepreneurship as “*a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control.*” Recent advancements in institutional entrepreneurship suggest a theory in the form of a phase model to explain the “*process of institutional entrepreneurship from the emergence of institutional entrepreneurs to their implementation of change*” [7]. Battilana et al. suggest a three-phase model where a set of enabling conditions for institutional entrepreneurship leads to divergent change implementation that in turn results in institutional change. In this research, enabling conditions for the co-creation of IT innovations leads to co-creative change implementation that in turn results in the co-creation of IT value.

Contemporary public sector interoperability environments involve IT investments that are being made by multiple agencies that are cooperative, platform-based and relational arrangements, and where the objective is, e.g., to improve public services, promote democratic participation and improve public policy making (commonly referred to as e-government). The purpose is, according to Scholl and Klischewski [8] to achieve agility, customer focus, accountability, visibility and efficiency in public services. In order to create increased value, interoperability between independent information systems is essential. Information technology and systems have little or no intrinsic value, and therefore the introduction of technology must be done in the context of organizational development. New effects can arise when technology enables new ways of working. Hence, horizontal and vertical interoperability are regarded as one of the keys to realize the potential benefits. However, a recent review of the interoperability literature found that evaluations of such efforts are scarce, and that there is a need to develop a better understanding of the causes, behavior and effects of interoperability [9]. Thus, we have selected a public sector interoperability setting as the research base for our study.

Although the bureaucratic system has many positive aspects, it is not adapted to today’s expectations for effective services, and it may be inadequate in relation to facilitating the necessary interoperability. Thus, there is a need to increase our understanding of what interoperability means in practice, how to improve it and what benefits increased interoperability can provide. To address these issues, this paper investigates the following research question: *How can organizations co-create IT value?*

In building our argument, we first review the literature on the co-creation of IT value and institutional entrepreneurship, focusing on the process perspective. Then, we present and analyze a revelatory case study concerning public sector interoperability, which serves as a basis for our conceptual framework. In the discussion section, we explore the theoretical and practical implications of our findings. The paper concludes with limitations and avenues for further research.

2 Conceptual foundations

2.1 Co-creation of IT value

Co-creation is the process during which consumers take an active role and create value together with the company [10]. By this view, the locus of co-creating value is at the firm level.

In a relational view firms establish inter-organizational relationships to co-create relational value that cannot be created on their own. Dyer and Singh [11] defined relational value as mutual benefits that are jointly co-created by two or more firms. Thus, the relational view focuses on dyad/network routines and processes as an important unit of analysis for understanding the competitive advantage of partnerships. The relational view posits four determinants of relational value: relationship-specific assets, knowledge-sharing routines, complementary resources and capabilities, and effective governance [3, 11].

According to Kohli and Grover [12] the co-creation of value can be accomplished through two distinctive mechanisms: IT-based, and non-IT-based, value co-creation. In IT-based value co-creation, IT is used as the main tool for creating value, while in non-IT-based value co-creation firms collaborate in creating business value with less explicit attention to IT. Gnyawali et al [13] follow the distinction of IT-based and non-IT-based co-creation. They use the term co-development actions when firms undertake IT-based actions for the development of various applications based on core platform. They use the term relational actions when firms undertake non-IT-based actions to expand the breadth and depth of service offerings to the users.

2.2 Research perspectives on the co-creation of IT value

According to Webster and Watson [14], a literature review is a sensible way of enabling theoretical progress and establishing a firm foundation for an emerging field. Webster and Watson not only suggest that more literature reviews should be published, they provide detailed guidelines for the practical work. In this study, we adopted their guidelines with the purpose of enhancing our understanding of and identify research gap on the co-creation of IT value. Major contributions are likely to be found in established journals. Consequently, we focused our first search on leading IS journals, i.e., the eight Senior Scholars' Basket of Journals¹. We used the ISI web of science, as well as databases like EBSCOhost. We applied the phrases "cocreation," "co-creation," "cocreating," and "co-creating" in all over searches. Then, we performed a backward search by reviewing the citations for the articles identified, and a forward search by using the Web of Science to identify articles citing the key articles identified in the previous steps.

The literature search in the journals resulted in 16 promising articles, which we checked manually for relevance. We sorted out papers that did not match our under-

¹ V. Venkatesh, "Rankings based on AIS Senior Scholars' Basket of Journals",
online:<http://vvenkatesh.com/isranking/>.

standing of the above search terms. This procedure led us to base our analysis on a set of 13 articles.

All studies undertake actions characterized as IT-based value co-creation. The loci of co-creating values are at the firm level (five) and the relational level (nine). One of the studies is of public sector organizations. Different theoretical perspectives are used, but for the purpose of this study the relational view seems interesting. The issue of value co-creation from interoperability in the public sector undertakes co-development actions (common platform) and relational actions (new services to end-users).

The framework by Grover and Kohli [3] can be characterized as a descriptive integrative view of co-creation layers: relationship-specific assets, knowledge-sharing routines, complementary resources and capabilities, and effective governance. Sarker et al [4] identified alliance governance, collective strengths, and politics as the important mechanisms underlying value co-creation. Gnyawali et al [13] found that the engagement of third-party developers in their technology platform and formation of strategic alliances enhances their performance. Interfirm IT capability profiles of higher sophistication help co-create greater relational value [15]. Hadaya et al [16] demonstrates that the greater the partner-specific IT investments made by the firm, the greater its use of collaborative systems with those partners, the greater its benefits, through the generation of relational rents.

Dyer and Singh [11, p. 662] define *relational rent* as a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation, and can only be created through the joint idiosyncratic contributions of the specific alliance partners. We consider the logic of relational rent useful in the public sector context as well, but found it necessary to adapt two of Dyer and Singh's (1998) concepts to fit the new context. The term "profit" is replaced with the term "benefits" as public organizations do not exist to make profit. The term "firm" is replaced with "organization" as this is less context dependent.

The primary objective of the literature reviews was to identify gaps in the literature. We found that research has only investigated the co-creation of IT value to a limited extent, especially with respect to answering questions about how/when/why co-creation occurred. Rather, it addresses the "what" question, e.g., what are the characteristics of e-government interoperability? To address this research gap, we first examine (some) enabling conditions for the co-creation of IT value, and second we try to explore acts and processes of co-creation implementation. Last, we are trying to link antecedents, implementation and outcome. As the co-creation of IT value many times rely on organizational change, we used the theory of institutional entrepreneurship to investigate how the co-development actions and the collaborative actions lead to changes in relational rents.

2.3 Institutional entrepreneurship

Battilana et al [7] propose a model of the process of institutional change. They present three different phases, and highlight challenges faced by the institutional entre-

preneurs who attempt to create, mobilize, and adopt action that breaks with the existing institutions in a particular context.

The first part of the model describes the enabling conditions for institutional change. Different types of field-level conditions, as well as the actor's social position will influence the possible emergence of institutional entrepreneurship. Economic and political crises, technological disruption, competitive discontinuity, and regulatory changes, are examples that might disturb the field-level consensus and invite the introduction of new ideas. An actor's social position, whether they are an organization or an individual, is important because it may affect their perception of a field, as well as their access to the resources needed to engage in institutional entrepreneurship [7].

The second part describes divergent change implementation. Developing a vision encompasses activities undertaken to make the case for change including sharing the vision of the need for change with followers. Mobilization of allies includes activities undertaken to gain others' support for and acceptance of new routines. Implementing change that builds on existing institutions is challenging, but even more challenging if it challenges the existing institutional boundaries or stakeholder interests.

The third part of the model, institutional change, is a highly complex and uncertain process, and thus the outcome is difficult to predict. If one succeeds in implementing divergent change, it is likely that this in turn would influence the field characteristics and actors' social position.

3. Research approach

This research has a mixed method approach with a literature review, an exploratory case study and a confirmatory field study. We covered various stakeholder groups with various techniques. In step 1 we conducted a systematic literature review of co-creating IT value research. In the exploratory case study in step 2, we highlighted the challenges faced by organizations that attempt to co-create, mobilize, and adopt actions that break with existing practices of creating IT value. In step 3, a survey was developed to further investigate the role of the co-creation process, and was followed up with interviews and a workshop.

3.1 Case selection

We focused on a large interoperability project in the Norwegian government, as such projects are inter-organizational (or interagency), involving a number of stakeholders. Second, we were looking for relationships or projects that had an expressed interest in the co-creation of IT value. We selected a case involving 38 agencies which eventually included the association of municipalities.

3.2 Data collection and data analysis

The exploratory case study was conducted through 2011-2013, and had two related parts. First, the important features of the co-creation of IT value in a large interopera-

bility project in the Norwegian government were examined [17]. The second part of the exploratory case study consisted of an examination of how the co-creation of IT value influenced institutional change [18]. Data collection was done through a number of interviews, with questions addressing institutional entrepreneurship such as field level conditions, the actor's social position, vision for divergent change, mobilizing allies, and institutional change [7]. In addition, a large number of informal conversations with people from both the system owner and the two service owning agencies were held, and formal documentation of the benefits realization efforts were collected. See the overview of organizations and interviewees in Table 1.

Organizations	Brief description	Interviewee position/role
Brønnøysund Register Centre	System owner of common infrastructure launched in 2006. Today 38 service owners are operating on the common infrastructure.	10 interviews
Tax Authority	Among the largest service owners and one of the founding partners. Launched its first service back in 2006.	5 interviews
Register of Bankruptcies	Small service owner, which launched its first service in 2013.	5 interviews

Table 1. Organizations and Profiles of the Interviewees

We analyzed the data using two theoretical lenses, namely institutional entrepreneurship and the co-creation of IT-value. The first theoretical perspective allowed us to investigate the phenomenon from a process perspective, whereas the latter emphasized the objective of supernormal benefits as a consequence of collaboration.

4. Results: Case description and analysis

Brønnøysund Register Centre (BRC) was also responsible for coordinating 38 service owners (at the point of our study) that constitute the consortium of service owners using the Altinn platform. BRC had established integrated application architecture, standards, methods and tools for service development. Our study has shown that BRC's actions as an institutional entrepreneur within the Norwegian government to promote the co-creation of IT value has led to institutional change, especially within BRC's own organization, and also to some extent for agencies that currently provide, or want to provide services through the common infrastructure platform.

Battilana et al [7] propose that a set of enabling conditions for institutional entrepreneurship leads to divergent change implementation that in turn results in institutional change. We used the three phases in our case analysis, and we highlighted the challenges faced by case organizations who attempted to create, mobilize, and adopt action that breaks with existing practices and work processes in the government sector in Norway. The process model has a solid theoretical grounding, but seems to lack an empirical grounding.

4.1 Field characteristics

Although the various entities involved in the Altinn federation in isolation appear highly institutionalized, the Altinn federation itself seems less institutionalized. Several issues support this perspective. For instance, the mandate from the Ministry of Commerce to monitor the benefits realization for services between government and industry requires new or additional tasks for BRC and the service owners. The mandate from the ministry in many ways echoes the political attitudes towards public sector IT in Norway; there is a need to document value for money. Further, Altinn has recently been rebuilt using new technology. New functionality will be added to enable more interoperability, and thus more sophisticated services with increased potential for benefits. As stated by a controller at BRC: *“There is an increasing political awareness of the need for effective and efficient services.”* The planned functionality is not yet fully implemented but will enable service owners to develop services with a much higher degree of interoperability than before.

4.2 Actors' social position

The central actor for the co-creation of IT value at Altinn is BRC. BRC is responsible for Altinn and governs the Altinn federation. BRC's formal position is therefore strong. The positive initiatives taken by BRC during the initiation and early years of Altinn also resulted in a strong social status where other agencies trust BRC to manage the federation in the best interest of the involved parties. However, three issues are threatening BRC's social position. First, several delays in the development of the new Altinn platform have resulted in delays in functionality that are critical for the new services for other agencies. Consequently, a number of services are put on hold, and service owners are getting impatient. Second, BRC finds itself in a somewhat delicate position when reporting aggregated benefits delivered through Altinn. As the calculated benefit potential is high (ca. \$ 2,6 billion), both political and public interest is considerable, and although BRC specifically underlines that it is the service owners that generate the benefits, confusion and misunderstandings around this are common. Such misunderstandings may seem trivial, but are certainly not. The popular press contributes to the confusion by publishing superficial stories of how Altinn generates benefits worth billions without describing the contribution of the service owners. Failure to credit the service owners invites at least two problems: 1) service owners are annoyed and less positive towards BRC and 2) service owners have problems when trying to get the necessary funding for service development internally to implement planned services in Altinn. As stated by an executive at BRC: *“Benefits realization in the public sector is a challenge, especially when the costs are taken by one agency, while the benefits are taken in another agency.”* Third, no one questions BRC's role regarding benefits realization in the intersection between government and industry. However, their role is less obvious regarding internal agency and citizen benefits, and BRC is concerned with their legitimacy in these areas.

4.3 Creation of a vision for divergent change

Grover and Kohli [3] are framing the co-creation of IT value through four components: *the assets layer, the complementary capability layer, the knowledge sharing layer, and the governance layer*. In our context of e-government interoperability, each of the four determinants of value present a value creation layer, which is enabled, expanded or created by IT. For instance, the assets layer involves interoperability specific investments in infrastructure, or skills that enhance the relationship of the e-government project. Best practice arenas, common platforms, methods and standards for infrastructure, systems and data exchange can facilitate the knowledge-sharing layer. The complementary capability layer encompasses the unique IT skills shared by the partner organizations to enable common value configuration from cross-agency services for common end-users. Finally, the governance layer provides the effective management of the relationship through IT assets, such as common systems and methods for benefits realization. Considerable efforts were made by BRC to create a vision for change. The structures and processes that in sum constitute benefits realization at Altinn, as described in Section 4, are the results of a two-year effort, formalized in the form of a project. As stated by the project manager: “The project developed an infrastructure for benefits realization, a process model to be used, as well as a revised cost-benefit analysis for Altinn.” Although some aspects of the model need further elaboration and fine-tuning, the vision for the desired change was explicitly and clearly described.

4.4 Mobilization of allies behind the vision

The mobilization of allies is considered critical to ensure the realization of vision. This is certainly the case in a complex effort such as Altinn. Our evidence suggests that BRC has had more success in some areas than others. Internally at BRC, the vision appears to be fairly well disseminated, and to a certain extent embedded in the organizational structure. A new unit within BRC is organized around the benefits realization process. Staff and management in this unit are very much aware of the vision as it is reflected in their daily tasks of facilitating the benefits realization for the service owners. Other agencies and service owners have been informed of the importance of the benefits realization effort. The interview with an account manager from BRC revealed the mobilization of the service owners: “*We contact all, existing and potentially new, service providers and assist them in the process of completing the cost-benefit analysis.*” Although there seems to be a general consensus that benefits realization is sensible, BRC experiences varying degree of practical support. Few, if any, service owners experience that the benefits realization process adds value to them directly. Large agencies perform similar analyses independent of Altinn, and therefore experience the minimal additional administrative burden caused by the benefits realization regime. Smaller agencies, often with less experience with e-government, report an increased administrative burden. Neither reported the benefits of realization activities as directly useful for their agencies.

4.5 Institutional change

The benefits realization process is embedded in the organizational structure of BRC, the governance layer. Thus, we found that there has been considerable institutional change within BRC caused by the ambition of realizing more benefits from e-government investments. Governance structures for Altinn and prioritization schemes are implemented resulting in new modes of operation. Service owners have also been subject to institutional change, as they are now required to follow BRC's procedures for implementing services in Altinn in terms of pre-implementation analyses and post implementation benefits reporting. Although there is cooperation, there is still a ways to go, as stated by a service owner: *"If we want to increase the quality of benefits realization, we need even more assistance from BRC than today."* Finally, BRC experiences an emerging understanding of the mechanisms for benefits realization and the importance of interoperability at the government level. This understanding has yet to materialize itself in actions or organizational structures, but is considered promising. Despite the mentioned accounts of institutional change, planned changes are yet to be institutionalized in several areas. As stated by an executive at BRC: *"There is an ongoing political game of who should be responsible for benefits realization."*

4.6 Confirmatory evidence from the field study

The field study included several types of data collection – a survey among all service owners, a follow-up workshop with a group of service owners, informal interviews and participant observations. Our survey was conducted during April – May, 2013. A questionnaire was sent to the 38 service owners and we received 22 complete answers. We had structured questions about enabling conditions, change implementation, and institutional change. In addition we had open-ended questions about benefits realization management in interoperability projects. We conducted a follow-up workshop with 7 service owners to discuss the results from the survey. In addition we had informal interviews and participant observations.

Results from the survey showed us that services ranged from 8 government-to-government services (G2G), 19 government-to-business services (G2B) and 17 government-to-citizen services (G2C). Service owners indicated an increasing complexity of services, as interoperability must be addressed at several co-creation layers: relationship-specific infrastructure, knowledge exchange, complementary resources and capabilities, and more effective governance structure. BRC's position among service owners was reputable regarding both coordination and mandate.

Related to the implementation of divergent change, service owners had invested in relationship-specific assets, and they had put some emphasis on knowledge-sharing routines. BRC had, to some extent, resources available for service owners with regards to application architecture, standards, methods and tools for new service development. The governance structure of the common platform was not well known or understood. The service owners stated that they were committed to co-create IT value both at the top management and the middle management level.

Change implementation was not very successful, as shown in Table 2. The service owner stated they were only able to create supernormal benefits in terms of improved services, benefits realization, and improved work processes to a small extent. The importance of the “improved entrepreneurial co-creation process” was emphasized.

Enabling conditions		Implementation of change		Outcome
Field	Social position	Creating a vision	Mobilization of resources	
G2G G2B G2C	Coordination (H) Mandate (H)	Effective governance (M) Complementary resources (M) Knowledge-sharing routines (M) Relationship-specific assets (H)	Commitment (H) Service owners (H)	Improved service dev. (L) Increased benefits (L) Improved work proc. (L)

H = high, M = moderate, L = low

Table 2: Antecedents and Consequences

5. An entrepreneurial process for the co-creation of IT value

The model of the process of institutional entrepreneurship [7], has in this research been used as a framework for analyzing public sector interoperability in Norway. Based on our research, we propose a new model of the entrepreneurial process of the co-creation of IT value, as presented in Figure 1.

The first part of the model includes the enabling conditions in terms of system characteristics and the system owners’ social positions. In our research different types of public sector field-level conditions, as well as the agencies’ social positions, will influence the possible emergence of institutional entrepreneurship. Economic and political crises, technological disruption, competitive discontinuity, and regulatory changes are all examples that might disturb the field-level consensus and invite the introduction of new ideas. The system owners’ social positions, whether they are organizations or individuals, are important because they may affect perception of the field. In addition, system owners have access to the resources needed to engage in the co-creation of IT value.

The next part includes the acts and processes that co-create IT value. Developing a vision encompasses the activities undertaken to integrate distinct co-creation layers, e.g., relationship-specific investments, knowledge-sharing routines, complementary resources and capabilities, and effective governance [3]. Mobilizing system owners include activities undertaken to gain others’ support for, and acceptance of, new interoperable routines. Implementing change that builds on existing institutions is challenging, but it is even more challenging if it breaks with existing practices.

The co-creation of IT value is a highly complex and uncertain process, and thus the outcome is difficult to predict. If organizations succeed in co-creation and gain supernormal benefits [11], it is likely that this in turn would influence the field characteristics and the actors’ social positions.

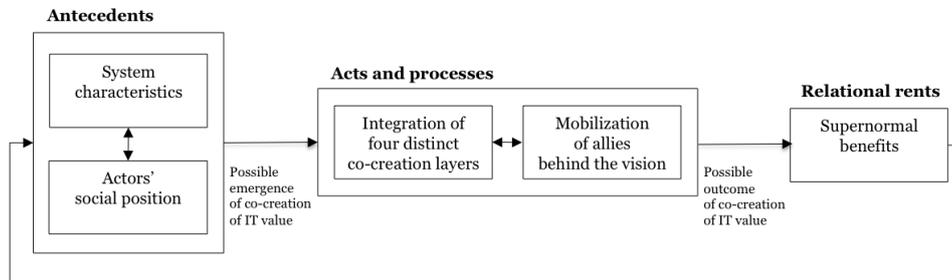


Figure 1. Model of the Entrepreneurial Process for the Co-creation of IT Value, adapted from Battilana et al. [7]

6. Conclusion and Implications

This research was carried out to address the question “How can organizations co-create IT value?” By studying the phenomenon of the co-creation of IT value in a complex, public sector setting, we found that the existing theory was insufficient to provide an adequate analytical lens. Therefore, we adapted elements from two theories, the co-creation of IT value, and institutional entrepreneurship, and proposed a novel model of the entrepreneurial process for the co-creation of IT value.

Our research has several theoretical implications. The proposed model can be used for descriptive purposes when analyzing the complex co-creation of IT value in contexts similar to the one we studied. Further, our model introduces the concept of “supernormal benefits” as the objective of the co-creation efforts. We believe this is an important sensitizing mechanism that emphasizes the vast potential in co-creation versus creating alone.

We also consider our research to have practical implications. The above-mentioned concept of “supernatural benefits” is considered equally important for practice in terms of illustrating the value of joint efforts. Further, our model can give practitioners perspective and normative understanding for how to approach co-creation efforts.

Obviously, our proposed model needs further refinement and validation, and we would welcome studies with such objectives, in a variety of contexts. Further, the nature of supernatural benefits should be further explored and defined.

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