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Abstract

The importance of information systems and information technology (IS/IT) is growing constantly, reaching top positions on agendas of CEOs, which is fueled by current discussions about digitization and digital transformation. To gain or maintain competitive advantages, many organizations have started conducting systematic IS/IT innovation management. Empirical research has shown that current initiatives are still immature and unsuccessful. An analysis of the obstacles shows that a missing or inadequate organizational structure is one of the main challenges. Nevertheless, research on this issue is still scarce. This gap motivates our research, which aims to develop a design theory for institutionalizing IS/IT innovation management. To derive our results, we conducted an exploratory interview study, comprising ten expert interviews. We identified eight meta-requirements for a successful institutionalization. We also found that there is no "one-fits-all solution", therefore we present six design variants and formulate propositions about the implications of each variant for the fulfillment of the meta-requirements. As a next research step, we will initiate an evaluation cycle to increase our theory's validity and utility. Our design theory helps practitioners to find the right variant for institutionalizing IS/IT innovation management and contributes to the nascent body of knowledge on IS/IT innovation management.

Keywords: IS/IT innovation, IS/IT innovation management, digitization, digital transformation, organizational design.

1 Introduction

Information systems and information technology (IS/IT) are an essential part of every modern organization (Nevo & Wade, 2010, p. 163) and as such every industry is spending billions of dollars every year on digital technology, even sectors that are typically considered as non-IT-intensive, such as agriculture and mining (Brynjolfsson & McAfee, 2012). Recent studies show that the importance of the topic is growing constantly, reaching top positions on the agendas of CEOs (e.g. Haas et al., 2009, p. 3; Morgan & Newton, 2012, p. 7; PwC, 2015, pp. 19–23). The influence of IS/IT developments on organizations is currently heavily discussed by using labels like "digitization" and "digital transformation" by researchers (e.g. Berman, 2012; Yoo, Henfridsson, & Lyytinen, 2010) and practitioners (e.g. Capgemini, 2011; IBM, 2011; RolandBerger, 2015). These transformations of how we live and how organizations work are "tightly related to digital innovation, in that digital innovation is the means by which these transformations occur" (Fichman, Dos Santos, & Zheng, 2014).

Despite this relevance, research that is addressing the specific characteristics of IS/IT innovations is still scarce (Kießling, Wilke, & Kolbe, 2011, p. 4). Some (mostly exploratory) studies have started shedding light on this issue through investigating current initiatives in practice. Some of these studies have identified various obstacles that organizations face when addressing IS/IT innovations (Berbner & Bechtold, 2010, p. 264; Cash, Earl, & Morison, 2008, pp. 3–4; Drews, Morisse, & Zimmermann, 2013, pp. 3–4). An analysis of these obstacles shows that a high portion of the problems can be related to an insufficient organizational anchoring of the topic, e.g. unclear role definitions, missing integration with other functions, or missing structures.

As the organizational anchoring of IS/IT innovation management is a highly relevant challenge for practitioners and additionally is still not well-explored by researchers, this paper aims to give recommendations regarding institutionalizing IS/IT innovation management. To this end, we perform a design science approach similar to that of Gregor and Jones (2007). To achieve this objective, we conducted an exploratory interview study in which we spoke to representatives of ten organizations. In doing so, we inductively derive eight meta-requirements (Walls et al., 1992) and six archetypical forms of institutionalization, labelled design variants, encompassing testable propositions. By presenting this design theory, we intend to help organizations identify, understand, and correct flaws in their institutionalization of IS/IT innovation management and to contribute to the nascent body of knowledge in this discipline.

The remainder of this paper is structured as follows: Section 2 presents relevant foundations with regard to IS/IT innovations itself and with regard to the organizational anchoring of the IS/IT innovation management function. The research method is outlined in Section 3. In Section 4, we describe the components of our design theory, comprising a set of meta-requirements, alternative design variants, and testable propositions. In Section 5, we discuss our findings to date, address some limitations, and outline the next steps of the research project.

2 Foundations

An innovation can broadly be defined "as the first or early use of an idea by one of a set of organizations with similar goals" (Becker & Whisler, 1967, p. 463). This definition has two important aspects. The first is that a new idea on its own is not an innovation, but has to be put into an application context. The second aspect is about the adoption timing in comparison to relevant competitors, which is relevant as we are interested in innovations that have the potential to bring competitive advantages to the adopting organization. IS/IT innovations and traditional innovations have a lot of things in parallel (Lockett, 1996, p. 122,131), therefore a widespread definition of Swanson (1994) refers to innovations in general to define IS/IT innovations: "Information systems (IS) innovation may be broadly defined as innovation in the organizational application of digital computer and communications technologies".

Besides this definition, Swanson (1994) also developed a typology of IS/IT innovations. The distinctive attribute is the impact of the IS/IT innovation on the business processes of the particular organization. A type 1 innovation has no direct impact on business processes, but is limited to processes of the IT function. Type 2 innovations have an impact on business processes, but this is restricted to administrative processes. Type 3 innovations have the greatest impact on the organization as they might disrupt core business processes, organizational products, or integration with external parties. In our research we were primary interested in type 3 innovations, as these are most relevant in the current discussion with regard to the *digital transformation*, which refers to radical changes in organizational processes, services, products or even business models based on new IT developments (Berman, 2012).

Typically, the process that is needed to create innovations comprises steps like idea generation or collection, assessment, selection, implementation, and finally idea commercialization or application (Kießling, 2012, p. 43; Saren, 1984). The governance and organization of this process can be defined as innovation management (Ortt & van der Duin, 2008). This definition can be adopted for IS/IT innovation management as well, with the only special characteristic that it focuses on IS/IT innovations.

During the analysis of the available literature with regard to the organizational anchoring of the IT/IS innovation management function, we identified two aspects which help to get an understanding of potential institutionalization approaches: (1) a statement about who is responsible for IS/IT innovation management and (2) a certain type of integration into the organizational structure.

With regard to the responsibility, most authors see IS/IT innovation management as an IT topic. Some authors developed various role profiles for the organizational IT function (e.g. Agarwal & Sambamurthy, 2002; Berbner & Bechtold, 2010; Guillemette & Paré, 2012; Whelan et al., 2015). Each publication has at least one role which is associated with IS/IT innovations, which shows that these authors imply that IS/IT innovation management should be executed by the IT function. Drews et al. (2013), Sia et al. (2010), Westermann and Curley (2008), and Wulf et al. (2012) also see IS/IT innovation management as an IT topic, but recommend creating a dedicated sub-team instead of seeing it as a new role of the entire IT function. The other set of authors (e.g. Cash et al., 2008; Hansen et al., 2011; Kießling et al., 2011) emphasizes that the main responsibility cannot be assigned to the IT function, but has to be carried by IT and representatives of various business functions.

Regarding the integration into the organizational structure the discussed mechanisms comprise (a) building a new dedicated unit which focuses exclusively on IS/IT innovation management (Cash et al., 2008; Kießling et al., 2011; Sia et al., 2010; Wulf et al., 2012), (b) using a matrix organization in which employees work in their line function and perform additional innovation-related tasks (e.g. Agarwal & Sambamurthy, 2002; Guillemette & Paré, 2012; Hansen et al., 2011; Steiber & Alänge, 2013; Whelan et al., 2015), and (c) integrating IS/IT innovation management as a sub-unit of an already existing unit (e.g. Drews et al., 2013; Westermann & Curley, 2008; Wulf et al., 2012).

Despite these and other previous endeavors, research on the institutionalization of IT innovation management in the light of the digital transformation is still scarce. Especially, there is no advice available how to choose a design variant out of the different discussed approaches. In this paper, we therefore raise the question of what the constituent characteristics of an effective organizational anchoring of IS/IT innovation management are.

3 Research Method

As our research goal is to provide recommendations on *how to* institutionalize IS/IT innovation management, our research can be classified as design science research (Hevner et al., 2004; March & Smith, 1995). In close accordance with the design theory concept of Gregor and Jones (2007), we present the following components in this paper: The *purpose and scope* of our theory are formulated in the form of meta-requirements which were derived from a qualitative exploratory interview study. Usually, the *principles of form and function* consist of a set of general design principles which prescribe how to do something. However, prior research showed that there are multiple ways for building

effective organizational designs, depending on certain contextual factors (Khandwalla, 1973). DeSanctis et al. (2002), who investigated how to incorporate the R&D function into the organizational structure, concluded that there is no single solution that is superior to all others, but that there are multiple design variants with certain advantages and disadvantages. We think this argument is also true for the institutionalization of IS/IT innovation management, therefore we will present a set of alternative design variants instead of general design principles. A design variant describes which organizational units are responsible for the IS/IT innovation management, which tasks they assume, and which interfaces they have to other organizational units. Each variant has implications for the fulfillment of the various meta-requirements. These relationships between a certain design variant and our meta-requirements serve as our *testable propositions.* To facilitate the selection, we also present contextual factors that should be considered during the selection process. We think that this approach addresses the challenge of formulating generally valid design principles and additionally increases our theory's applicability as it is easier to derive concrete actions from this artifact in comparison to general design principles. Our *justificatory knowledge* consists of the theoretical insights gained from a literature review and from empirical insights gained in an exploratory interview study.

As introduced in Section 2, many organizations are still facing problems with properly institutionalizing IS/IT management. We therefore decided on a theoretical sampling approach to ensure that we only pick cases that help us to gain understanding and theoretical insights (Eisenhardt & Graebner, 2007). To identify such cases, we searched for articles that dealt with IS/IT innovation or digitization initiatives. Where an article named specific contact persons, we approached them directly. Otherwise, we used professional networking platforms to identify suitable representatives. The final sample consisted of 10 interviews with subject matter experts from various industries. The set comprises two CIOs, one partner of a consulting firm, four heads of IS/IT innovation management, and three innovation managers. Each of the semi-structured interviews lasted around 60 minutes and was supported by an interview guide, which assured that all interviews followed a comparable schema to simplify cross-case analysis.

To facilitate data analysis, all interviews were audiotaped and transcribed, which led to a transcript collection of 126 pages. The information from the interviews was coded according to the possible organizational anchoring of the IT/IS innovation management, meta-requirements that were derived from the literature and which emerged during the interviews, and the interdependency between each of these variables (Weston et al., 2001). After the single transcripts were analyzed, we conducted a cross-case analysis to detect common patterns and differences among the cases, which helped to increase the internal validity of the developed theory (Eisenhardt, 1989; Miles & Huberman, 1994). For the construction of the design theory, we followed the approach proposed by Gregor and Jones (2007). Therefore, our theory consists of meta-requirements which describe the class of goals to which the theory applies, the design variants, which are hypothesized artefacts that meet the meta-requirements, and testable propositions which can be used to verify whether the design theory satisfies the meta-requirements. In the next step of our ongoing research project, we will approach more subject matter experts for a subsequent evaluation cycle, which will be used to refine the design theory to increase its utility and validity (Hevner et al., 2004; March & Smith, 1995; Markus et al., 2002).

4 The Design Theory

Table 4-1 presents an overview of the meta-requirements, based on the analysis of our data from the exploratory interview study. The requirements are divided into three groups. The first group captures requirements that will help to create an environment which fosters IS/IT innovations. Such an environment, has an innovation-friendly culture (MR1), assures that affected employees are motivated (MR2) and brings together business and IT knowledge (MR3). When talking about obstacles, several of our interviewees reported that they suffer from an inefficient IS/IT innovation process (group 2). The main reasons for this inefficiency are slow decision processes (MR4) and lack of resources (MR5). The third group comprises meta-requirements that describe relations to other internal and ex-

ternal units or functions. The institutionalization should assure that the function is open toward various sources (MR8) and it should facilitate the transition from an innovation to regular operations (MR6). From an organizational perspective it is also important that a high resource utilization is assured (MR7).

Meta-requirement	Description
Innovative environment	
MR1: The organizational anchoring of the IS/IT innovation management function should help to establish an entrepreneurial, creative, and innovative culture, which is open toward IT innovations.	Interviewees reported that it requires a certain culture if an organization wants to be successful with IS/IT innovation management. In such a culture, change and innovations are fostered (see also Steiber & Alänge, 2013) and IT is seen as a source of innovation (see also Hansen et al., 2011).
MR2: The organizational anchoring of the IS/IT innovation management function should ensure a high motivation of affected employees.	Interviewees described successful innovation as dependent on the motivation and passion of involved employees. They agreed that there are people who are predestined to work on innovations, as they have a natural interest in it.
MR3: The organizational anchoring of the IS/IT innovation management function should assure the availability of business and IT knowledge.	Both literature (e.g. Whelan et al., 2015) and our interview analysis provide evidence that it requires business and IT expertise if an organization wants to produce IS/IT innovations with an impact on business processes, products or even business models.
Innovation process efficiency	
MR4: The organizational anchoring of the IS/IT innovation management function should enable the organization to make fast decisions regarding innovation projects.	One challenge that our interviewees mentioned quite often was the pace of the innovation process. We also know from literature that time is a crucial factor for realizing competitive advantages with IS/IT innovations (Swanson, 1994).
MR5: The organizational anchoring of the IS/IT innovation management function should ensure that necessary resources are available.	One of the most frequently mentioned obstacles to IS/IT innovation is a lack of resources, comprising time and budget (see also Mohr, 1969).
Relations to other functions	
MR6: The organizational anchoring of the IS/IT innovation management function should enable a smooth transition of the developed innovation concepts to the main organization.	Due to the definition, an innovation needs an application context. Therefore it is important that the organizational anchoring fosters the transition of the innovation to the regular operation. Obstacles that were identified are acceptance and technical integration problems.
MR 7: The organizational anchoring of the IS/IT innovation management function should result in a high utilization of available resources.	Whereas interviewees that were involved in operative innovation management claimed it would be beneficial to get more resources like time and budget, executive board members are often unsure about this, as they are interested in a high utilization of available resources (see also Frese, Graumann, & Theuvsen, 2012, pp. 507–508).
MR 8: The organizational anchoring of the IS/IT innovation management function should enable the organization to be sensitive and open to ideas from various sources.	Our interviewees reported that there are structural ways of anchoring which have a negative impact on the idea generation/idea collection processes, as they limit the search space of IS/IT innovations through neglecting certain perspectives or excluding certain input sources.

Table 4-1 Meta-requirements

As mentioned in Section 3, we think it is difficult to define a way of institutionalization that is the best solution for all organizations. In the following, we will therefore present six major variants that we identified during our interview study and discuss how these variants meet the meta-requirements.

As we saw in our literature review, some authors position IS/IT innovation management in the IT function and others position it next to the IT function, as they see it as a topic with shared responsibilities. We could also observe these two approaches during our interview study. Variant 1 (*"**Task of IT**"*) and 2 *("**Sub-unit of IT**"*) pertain to the first category, as they have in common that the topic is

located in the IT function. In variant 1, the task of IS/IT innovation management is just one of many tasks that has to be fulfilled by IT employees, which means that it has to be executed next to the daily business. In contrast, variant 2 is about building a dedicated sub-team that deals with IS/IT innovations exclusively. In both variants, the function is mainly responsible for the idea collection and a preliminary assessment. A final selection and the following implementation are not possible without finding a sponsor from a business unit. As both variants are integrated into the existing IT function, they will be heavily influenced by the existing culture, even though the creation of the sub-team provides the opportunity to create a unique team culture. The motivation of employees to work on IS/IT innovations in variant 1 is likely to be low or moderate. One reason is that resources are usually scarce and problems of the daily business will be more urgent than innovation work. Another factor that our interviewees mentioned is that innovative people have certain personality traits that lead to a natural interest in innovative topics. In recent years, many IT functions faced totally different requirements, namely delivering high quality services as cheaply as possible. The concern is if people who are technically trained and orientated toward efficient service delivery, are the same ones who like to work on innovations or are naturally creative. In contrast, variant 2 allows staffing the sub-unit with employees who have a fitting profile and who consciously choose the positon. On its own, both variants do not fulfill MR3. The fulfillment is dependent on the design of an appropriate interface to relevant business functions. This distribution of responsibilities among multiple sub-units leads to a coordination effort (Galbraith, 1977), which is one reason why both variants do not fulfill MR4 appropriately. Next to the coordination effort with regard to idea assessments and selection, there is also the challenge of finding business sponsors to get monetary resources, which brings us to MR5. Especially in variant 1, we observed that time becomes scarce. Variant 2 solves the time problem, but usually not the budget challenge. Both variants have two important advantages with regard to MR6. As the topic is located in the IT function, it is possible to recognize architectural implications from the beginning. The second advantage relates to the acceptance of the innovations by business functions. As business and IT have to collaborate quite early in the innovation process, the business participates in the development of the solution, which will have a positive effect on the later acceptance (Lines, 2004). The fulfillment of MR8 is not only dependent on the chosen design variant, but also on considered, internal or external, sources of ideas. However, an inherent weakness of both variants is that the search radar might be limited. One reason for this is the background of the people, which might result in a too high focus on technological factors. On the other hand, the small distance to the daily business might lead to a certain mindset that is focused on solving daily business problems through process improvements only.

In contrast to variant 1 and 2, the IS/IT innovation management function is not positioned within the IT function in variant 3 (*"**Dedicated unit**"*) and 4 *("**Dedicated unit + decentral elements**"*). These two variants differ only in one component, so we will focus on the similarities first. The core element of both variants is a dedicated unit that is staffed with business and IT people who can exclusively deal with IS/IT innovation management. This unit is positioned close to top management and is responsible for idea collection, assessment, pre-selection, and developing prototypes or pilot projects. The final selection is done by the management board, based on the preparations of the innovation unit. Both variants foster the creation of an innovative environment, which is reflected in a high fulfillment of the first three meta-requirements. As a completely new unit is created, the team culture can be formed by a purposeful selection and socialization process (Chatman, 1989). With regard to the motivational factors, we have the same arguments as in variant 2. Because the unit is staffed with employees from business and IT, MR3 is fulfilled inherently. Due to the close distance to top management, which is often characterized by a direct reporting line, the speed of decisions is drastically increased. These variants also ensure that there are sufficient human resources and time. As the creation of prototypes is usually part of the task portfolio, these units typically have a reasonable budget for first steps too. The factor that differentiates the two variants is the degree of isolation. In variant 3, the unit acts relatively autonomous, which means that there is a conscious separation from the daily business. In variant 4, which is similar to the research of Kießling et al. (2011), there are links to existing business units, implemented through employees of the respective units who work part-time for the IS/IT innovation unit

and in the rest of their time for their actual unit. With regard to the transition of the innovation concepts to the core organization, variant 3 might face the problem of a "not invented here" syndrome, due to missing communication between the sub-groups (Katz & Allen, 1982).

Variant 5 (*"**Dedicated legal entity**"*) can be seen as an extreme form of variant 3. Instead of building a sub-unit, the IS/IT innovation management function is institutionalized in a dedicated legal entity. Through the similarities to variant 3, a lot of arguments are identical. However, some of the advantages might become even stronger, but this is also true for some of the disadvantages. With regard to an innovative culture, the possibilities are even greater, as it can be completely set up from scratch and the influence of the existing culture and corporate policies is minimized. On the other hand, the stronger separation can make the transition to the core organization even harder. Resource utilization will also be lower, as in all other variants, because nearly all resources, including administrative staff, facilities and so forth, will be needed for this new entity as well.

Variant 6 (*"**Innovation committee**"*) is a mixed team approach, like variants 3 and 4. However, no dedicated unit is formed, but an innovation committee that encompasses representatives from IT, from the various business units and from top management (von Bechtolsheim & Dömer, 2006). The idea collection is done decentralized by the representatives in their units. The task of the committee is to discuss and coordinate the various initiatives. As all members of the committee are members of certain business units, the existing culture will be adopted. Due to the double affiliation time is likely to become scarce which can have a negative impact on the motivation for engaging in innovation initiatives. Additionally, all members will represent the interests of their business units, which might lead to discussions that are irrelevant to a large portion of the board (Hansen et al., 2011, p. 182).

Table 4-2 provides an overview of the proposed relationships between a certain design variant and its implications for the fulfillment of the meta-requirements. A plus indicates a positive, a minus a negative, and a circle a neutral influence. To specify the impact more gradually, we also applied intermediate stages (*o/+* and *-/o*). An example for a proposition derived from the overview would be: "Assigning the IS/IT innovation management function to the original IT function (Variant 1) will have a negative influence on the pace of IS/IT innovation related decisions (MR 4)."

MR Variant	1: Culture	2: Motivation	3: Business/ IT knowledge	4: Decisions	5: Resources	6: Integration	7: Utilization	8: Idea openness
1: Task of IT	-	-/o	o	-	-	o/+	+	o
2: Sub-unit of IT	o	o/+	o	-	o	o/+	o	o
3: Dedicated unit	+	+	+	+	+	-/o	o	+
4: Dedicated unit + decentral elements	o/+	+	+	o/+	+	+	o	+
5: Dedicated legal entity	+	+	+	+	+	-	-	+
6: Innovation committee	-	-/o	+	+	-	+	+	o/+

Table 4-2 Overview of design variants and propositions

It becomes apparent that the respective design variants have different implications for the fulfillment of the meta-requirements. As there is no model which is superior to all other models with regard to all meta-requirements, the organization has to cope with trade-offs when making the decision. Additionally, there are three contextual factors that should be considered. One important factor is the culture in the core organization. One of our interview partners put it as follows: *"If you have an organizational culture that is open toward innovations, you can place the topic within this structure. But if you have a*

culture that is detrimental to innovation, your only option will be isolation." The current role of the IT function is also important. If IT is seen as a cost center or a service provider (Whelan et al., 2015), it will be difficult to initiate innovation projects with an impact on business processes, products, or services out of the IT function. The innovation strategy is the last important factor, as it specifies fundamental parameters like the intended performance level (high performance, presence, or observation) and the innovation timing (pioneer strategy, early adopter, or late adopter) (Hagenhoff, 2008, p. 26), which will have an influence on the importance of various meta-requirements.

5 Discussion, Limitations, and Outlook

Empirical studies on IS/IT innovation management show that many practitioners struggle with problems related to insufficient organizational anchoring of IS/IT innovation management, but research on this topic is still scarce. Therefore, we conducted an exploratory interview study to develop a design theory for choosing an appropriate variant for institutionalization. Our research showed that it is not possible to give a general recommendation, but that it is necessary to consider various tradeoffs and contextual factors. As there is no one-fits-all solution, we presented different design variants. The IS/IT innovation unit that is described through these design variants is mainly responsible for internal steps of the innovation process, which are idea collection, idea assessment and idea selection. In contrast, idea creation and idea implementation do not belong to the scope of our design as ideas might generally be created anywhere in the organization and the implementation is usually done in the form of established project processes. Our proposed relationships between our design variants and our meta-requirements serve form the basis for the testable proposition of our theory. Which design variant a company decides to choose is also influenced by contextual factors – the organizational culture, the current role of the IT function, and the innovation strategy. These factors will have an influence on how the different meta-requirements are weighted and therefore on the final decision about a specific design variant. Moreover, it is important to stress that innovations are no longer just developed from within the boundaries of a single organization. Instead, innovations are nowadays "co-created" from networks consisting of suppliers, competitors, customers, and independent inventors (Lusch & Nambisan, 2015). Hence, future research may consider inter-organizational forms of innovation processes and structures. The contribution of our results is twofold: First, we give practitioners a useful tool to steer their decision regarding how to position the IS/IT innovation management function. As empirical research has shown that many organizations suffer from an insufficient organizational anchoring of their IS/IT innovation management function, the general meta-requirements can be used to identify and understand flaws in current institutionalization variants. If an organization wants to overcome these flaws, the concrete design variants can serve as a starting point for restructuring initiatives. The relating propositions help to understand the implications of design choices and therefore enable organizations to make better decisions in consideration of existing trade-offs and their specific contextual factors. Second, we contribute to the body of knowledge on IS/IT innovation management as we developed a new design theory, consisting of eight meta-requirements, six design variants, and 48 testable propositions. Even though prior research has identified the relevance of an appropriate institutionalization, research on how to solve this challenge was scarce. The main limitation of our work is that we have not run through an evaluation cycle, as our research is not completed yet. As a next step , we will address this through conducting interviews with additional subject matter experts to further improve our theory's utility and validity (Hevner et al., 2004). Additionally, we will strive for a theoretical integration of our findings, by comparing our results with theories from other fields of research. Finally, a larger number of cases should be used to test our propositions and design variants. Next, we will also employ other perspective, e. g. a process or strategy perspective, in order to get a holistic understanding of IS/IT innovation management.

References

Agarwal, R. S., & Sambamurthy, V. (2002). Principles and Models for Organizing the IT Function. *MIS Quarterly Executive*, *1*(1), 1–16.

Becker, S. W., & Whisler, T. L. (1967). The Innovative Organization: A Selective View of Current Theory and Research. *The Journal of Business*, *40*(4), 462–469.

Berbner, R., & Bechtold, J. (2010). Innovationsmanagement als elementarer Bestandteil des IT-Managements. In F. Keuper, M. Schomann, & K. Zimmermann (Eds.), *Innovatives IT-Management* (pp. 259–274). Wiesbaden: Gabler Verlag.

Berman, S. (2012). Digital Transformation: Opportunities to Create New Business Models. *Strategy & Leadership*, *40*(2), 16–24.

Brynjolfsson, E., & McAfee, A. (2012). *Race Against the Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy*. Lexington, MA: Digital Frontier Press.

Capgemini. (2011). *Digital Transformation: A Roadmap for Billion-Dollar Organizations*. Retrieved from https://www.capgemini.com/resource-file-access/resource/pdf/Digital_Transformation__A_Road-Map_for_Billion-Dollar_Organizations.pdf

Cash, J. I., Earl, M. J., & Morison, R. (2008). Teaming Up to Crack Innovation and Enterprise Integration. *Harvard Business Review*, *86*(11), 90–100.

Chatman, J. A. (1989). Matching People and Organizations: Selection and Socialization in Public Accounting Firms. *Academy of Management Proceedings*, *1989*(1), 199–203.

DeSanctis, G., Glass, J. T., & Ensing, I. M. (2002). Organizational Designs for R&D. *The Academy of Management Executive (1993-2005)*, *16*(3), 55–66.

Drews, P., Morisse, M., & Zimmermann, K. (2013). Towards a Concept for Integrating IT Innovation Management into Business IT Management. Presented at the Proceedings of the Nineteenth Americas Conference on Information Systems.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *The Academy of Management Review*, *14*(4), 532–550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory Building From Cases: Opportunities and Challenges. *Academy of Management Journal*, *50*(1), 25–32.

Fichman, R. G., Dos Santos, B. L., & Zheng, Z. (Eric). (2014). Digital Innovation as a Fundamental and Powerful Concept in the Information Systems Curriculum. *MIS Quarterly*, *38*(2), 329–353.

Frese, E., Graumann, M., & Theuvsen, L. (2012). *Grundlagen der Organisation: entscheidungsorientiertes Konzept der Organisationsgestaltung* (10th ed.). Wiesbaden: Gabler.

Galbraith, J. R. (1977). Organization Design: An Information Processing View. *Interfaces*, *4*(3), 28–36.

Gregor, S., & Jones, D. (2007). The anatomy of a design theory. *Journal of the Association for Information Systems*, *8*(5), 312–335.

Guillemette, M. G., & Paré, G. (2012). Toward a New Theory of the Contribution of the It Function in Organizations. *MIS Quarterly*, *36*(2), 529–551.

Haas, B., Hagen, C., Kane, C., Beebe, A., Miller, J., Philip, A., & Sansone, M. (2009). *Delivering Technology Innovation - A.T. Kearny's IT Innovation and Effectiveness Study*. A.T. Kearny. Retrieved from https://www.atkearney.de/documents/10192/628355/Delivering_Technology_Innovation.pdf/8ee101f5-741a-4edf-9c78-1b0f68fae4f3

Hagenhoff, S. (2008). *Innovationsmanagement für Kooperationen: eine instrumentenorientierte Betrachtung*. Universitätsverlag Göttingen.

Hansen, A. M., Kraemmergaard, P., & Mathiassen, L. (2011). Rapid Adaptation in Digital Transformation: A Participatory Process for Engaging IS and Business Leaders. *MIS Quarterly Executive*, *10*(4), 175–185.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly*, *28*(1), 75–105.

IBM. (2011). *Digital Transformation: Creating New Business Models Where Digital Meets Physical*. Retrieved from http://www-07.ibm.com/sg/manufacturing/pdf/manufacturing/Digital-transformation.pdf

Katz, R., & Allen, T. J. (1982). Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R & D Project Groups. *R&D Management*, *12*(1), 7–20.

Khandwalla, P. N. (1973). Viable and Effective Organizational Designs of Firms. *The Academy of Management Journal*, *16*(3), 481–495.

Kießling, M. (2012). *IT-Innovationsmanagement: Gestaltungs- und Steuerungsmöglichkeiten*. Cuviller Verlag, Göttingen.

Kießling, M., Wilke, H., & Kolbe, L. M. (2011). An Organizational Model for Managing IT Innovations in Non-IT Companies. In *Proceedings of the 44th Hawaii International Conference on System Sciences* (pp. 1–10).

Lines, R. (2004). Influence of Participation in Strategic Change: Resistance, Organizational Commitment and Change Goal Achievement. *Journal of Change Management*, *4*(3), 193–215.

Lockett, M. (1996). Innovating with Information Technolog. In M. J. Earl (Ed.), *Information Management: The Organizational Dimension*. Clarendon Press.

Lusch, R. F., & Nambisan, S. (2015). Service Innovation: A Service-Dominant Logic Perspective. *MIS Quarterly*, *39*(1), 155–176.

March, S. T., & Smith, G. F. (1995). Design and Natural Science Research on Information Technology. *Decision Support Systems*, *15*(4), 251–266.

Markus, M. L., Majchrzak, A., & Gasser, L. (2002). A Design Theory for Systems that Support Emergent Knowledge Processes. *MIS Quarterly*, *26*(3), 179–212.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis*. Newbury Park, CA, USA: Sage Publications.

Mohr, L. B. (1969). Determinants of Innovation in Organizations. *The American Political Science Review*, *63*(1), 111–126.

Morgan, T., & Newton, C. (2012). *The Future of the Enterprise IT Function*. IBM. Retrieved from https://www-935.ibm.com/services/uk/en/it-services/IBM1222_Future_of_Enterprise_IT_Function_Paper.pdf

Nevo, S., & Wade, M. R. (2010). The Formation and Value of IT-enabled Resources. Antecedents and Consequences of Synergistic Relationships. *MIS Quarterly*, *34*, 163–183.

Ortt, J. R., & van der Duin, P. A. (2008). The Evolution of Innovation Management Towards Contextual Innovation. *European Journal of Innovation Management*, *11*(4), 522–538.

PwC. (2015). *18th Annual Global CEO Survey*. Retrieved from http://www.pwc.com/gx/en/ceo-survey/2015/assets/pwc-18th-annual-global-ceo-survey-jan-2015.pdf

RolandBerger. (2015). *The Digital Transformation of Industry*. Retrieved from http://www.rolandberger.com/media/publications/2015-03-17-rbsc-pub-the_digital_transformation_of_industry.html

Saren, M. A. (1984). A Classification and Review of Models of the Intra-Firm Innovation Process. *R&D Management*, *14*(1), 11–24.

Sia, S. K., Soh, C., & Weill, P. (2010). Global IT Management: Structuring for Scale, Responsiveness, and Innovation. *Communications of the ACM*, *53*(3), 59–64.

Steiber, A., & Alänge, S. (2013). A Corporate System for Continuous Innovation: the Case of Google Inc. *European Journal of Innovation Management*, *16*(2), 243–264.

Swanson, E. B. (1994). Information Systems Innovation among Organizations. *Management Science*, *40*(9), 1069–1092.

von Bechtolsheim, M., & Dömer, F. (2006). IT-Innovationsmanagemen erschließt Optimierungspotenziale. *IT-Fakten Für Manager*, (2).

Westermann, G., & Curley, M. (2008). Building IT-Enabled Innovation Capabilities at Intel. *MIS Quarterly Executive*, *8*(1), 33–48.

Weston, C., Gandell, T., Beauchamp, J., McAlpine, L., Wiseman, C., & Beauchamp, C. (2001). Analyzing interview data: The development and evolution of a coding system. *Qualitative Sociology*, *24*(3), 381–400.

Whelan, E., Anderson, J., van den Hooff, B., & Donnellan, B. (2015). How IT and the Rest of the Business Can Innovate Together. *Communications of the Association for Information Systems*, *36*.

Wulf, J., Winkler, T. J., & Brenner, W. (2012). Organisationsgestaltung der Demand-IT. In *Lecture Notes in Informatics (LNI): Informatik 2012, 4. Workshop IT-Governance in Verteilten Systemen (GVS)* (pp. 746–758). Köllen Druck + Verlag GmbH.

Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). Research Commentary - The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research. *Information Systems Research*, *21*(4), 724–735.