

Association for Information Systems

AIS Electronic Library (AISeL)

ICIS 2022 Proceedings

IS Implementation and Adoption

Dec 12th, 12:00 AM

Assimilation of Flexible Information Technologies

Raheleh Barkhordari

Queens University, raheleh.barkhordari@queensu.ca

Brent Gallupe

Queen's University, brent.gallupe@queensu.ca

Follow this and additional works at: <https://aisel.aisnet.org/icis2022>

Recommended Citation

Barkhordari, Raheleh and Gallupe, Brent, "Assimilation of Flexible Information Technologies" (2022). *ICIS 2022 Proceedings*. 11.

https://aisel.aisnet.org/icis2022/is_implement/is_implement/11

This material is brought to you by the International Conference on Information Systems (ICIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICIS 2022 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Assimilation of Flexible Information Technologies

Short Paper

Raheleh Barkhordari

The Stephen J.R. Smith School of
Business - Queen's University
Goodes Hall, 143 Union St, Kingston,
ON K7L 3N6
Raheleh.barkhordari@queensu.ca

Brent Gallupe

The Stephen J.R. Smith School of
Business - Queen's University
Goodes Hall, 143 Union St, Kingston,
ON K7L3N6
brent.gallupe@queensu.ca

Abstract

This research focuses on the process of how flexible information technologies assimilate into work processes and become routinized in an organization's activities. The success of this post-implementation phase is essential if organizations are to reap the benefits of their investments in these technologies. However, many organizations struggle to integrate them with their processes and consequently, do not fully realize the benefits and value of those technologies. We attempt to study IS assimilation using the grounded theory approach to respond to the call for researchers to take the sociomaterial nature of the IS phenomenon into account. To develop a better understanding of the sociomaterial findings of this research, we view these findings through the lens of the Imbrication concept in order to better explain how technology assimilates into organizational practices through gradual interactions of technological and social elements. Several implications for research and practice are discussed.

Keywords: Information system (IS) assimilation, flexible information system, flexible technology, imbrication process, imbrication concept, grounded theory, grounded case-study

Introduction

The potential business value of Information Systems (IS) is fully realized when the given technology is woven into an organization's business practices. IS Success depends on how well organizations are able to assimilate IS and leverage the capabilities of the technology (Armstrong and Sambamurthy, 1999; Liang et al., 2007; Purvis et al., 2001). IS assimilation is part of the post-implementation phase of the IS lifecycle, and is defined as the extent to which technology use is diffused across the organizational work processes and routinized in the activities of those processes (Purvis et al., 2001). Assimilation of IS is an ongoing and incremental process, it continues after technology design and implementation (Markus and Tanis, 2000; McGinnis and Huang, 2007) and, involves the mutual adaptation of organizational practices and technology (Leonard-Barton, 1988; Mu et al., 2015). Despite its importance, further research is needed to provide a deeper understanding of the IS assimilation process and the mechanisms through which this process unfolds.

The scope of information technologies is broad. Prior research has usually focused on inflexible information technologies that are difficult to adapt or change (e.g., large, tightly integrated ERP systems) (Boudreau and Robey, 2005; Lehrig et al., 2015). But many contemporary technological developments such as Cloud-computing, AI, Blockchain, etc. promise a greater information technology flexibility with improved capacity to adaptation (Lehrig et al., 2015; Leonardi, 2011; Taj et al., 2019; Tallon and Pinsonneault, 2011). To focus

this study, we use Leonardi's (2011) conceptualization of modern technologies in this paper. He assumes that information technologies are emerging and consist of a set of flexible features. Leonardi (2011) defines flexible technologies as a set of flexible material which is embedded in a social context and can be modified to fit the needs of users. People can change the material features of an emerging, flexible technology so that the technology does new things. This conceptualization of technology offers the possibility of examining the emergent nature of material/technology and allows change in the materiality of technologies. In this study, we focus on flexible information technologies (e.g., Salesforce CRM) to develop a deeper understanding of the IS assimilation process.

We review the literature on various theoretical frameworks used to study technology assimilation into the work life of organizations. We focus on frameworks that consider both social and technical aspects of this process. From this set of frameworks, this study proposes that the concept of imbrication introduced by Leonardi (2011) is an appropriate lens that considers the simultaneous and recursive interaction of the technology and human agencies. Thus, the purpose of this study is to develop a better understanding of assimilation of flexible technologies through the imbrication framework lens. We also, seek to elaborate and extend the imbrication framework. Specifically, the research question we aim to answer is: How can the imbrication concept be used to develop insights into the assimilation process of flexible information technologies?

Literature Review

IS Assimilation

This study focuses on the post-implementation phase of the IS lifecycle. Various IS researchers have used different terms to describe this stage, but in general, they are referring to similar processes. Kwon and Zmud, (1987) describe what they call "routinization and infusion". Swanson and Ramiller (2004) label this stage as "assimilation" (the term we use in this study). In the context of enterprise systems (ES) (Ross and Vitale, 2000) propose a lifecycle model that ends with "stabilization, continuous improvement, and transformation". IS scholars recognize that success in post-implementation phases play a crucial role in moving the adoption and implementation of information systems beyond their technical implementation to realizing their value to support, shape, and enable business goals and activities. However, organizations may or may not be able to integrate IS into business practices as they differ in their ability to assimilate the technology (Armstrong and Sambamurthy, 1999; Brynjolfsson and Hitt, 1995; McGinnis and Huang, 2007; Mu et al., 2015).

Assimilation denotes the integration and diffusion of IT innovation into the work life of the organization. In this study, assimilation is defined as an incremental and ongoing process that continues after technology implementation (Markus and Tanis, 2000; McGinnis and Huang, 2007). It involves the continuous improvement (Ross and Vitale, 2000) and mutual adaptation of organizational processes and technology functionalities (Leonard-Barton, 1988; Mu et al., 2015) until the technology is routinized in daily use (Kwon and Zmud, 1987) and perhaps in innovative ways (Shao et al., 2012). At this stage the organization begins to realize the IS benefits (Swanson and Ramiller, 2004).

Research that uses theory focused approaches to understand IS assimilation is limited (Gattiker and Goodhue, 2005; Liang et al., 2007). Early IS research mostly relied on the Diffusion of Innovation model (Rogers, 1984) to examine the assimilation of technology in organizations. This stream of research attempts to develop models explaining the overall technology diffusion process and/or examines factors influencing diffusion (e.g., Cooper and Zmud, 1990; Kumar et al., 2002). However, some work has been done integrating technical and social contexts to explain diffusion of IS in organizations. While a large body of research focuses on technology at the expense of social context (Bostrom et al., 2009; Holland, 2003), others focus on social processes and fail to address the technical role of technology as an artifact (Benbasat and Zmud, 2003).

To temper this limitation, researchers have developed integrative frameworks that consider both social and technical aspects of technology adoption and diffusion to describe the process by which organizations and people incorporate technologies into their work routines (e.g., structural symbolic interaction theory (Saunders and Jones, 1990), adaptive structuration theory (DeSanctis and Poole, 1994), practice lens (Orlikowski, 2000), etc.). This line of research has been criticized for offering an overly socialized view of

technology. Although technology is the object of inquiry it is often a peripheral player that is subject to the whims of their users (Leonardi, 2013). Additionally, in most of these studies, technology is assumed as an inflexible material. While people's perception of what a technology can or cannot do changes, the technological artifact does not change. This view, however does not represent the reality of many modern workplaces where highly configurable and customizable technologies are used (Leonardi, 2011). As a result, research opportunities to understand how technologies assimilate in work practices through gradual adaptation of evolving technological capabilities and emerging organizational needs may be missed.

The Imbrication of Human and Technology Elements

To address the above mentioned shortcomings, Leonardi (2011) introduced the concept of imbrication to IS literature. Sociologists and organizational scientists such as Taylor (2001, 2011), Ciborra (2006); Sassen (2002) use the metaphor of imbrication to describe the simultaneous interdependent, dynamic, interweaving relationship between human and non-human elements. In Taylor's (2001, p.276) words: "to be imbricated means to be tiled, like the shingles on a roof, the foliage on a tree, or the scales on a fish: arranged in a regular way... to form a single articulated roof, or foliage, or skin." The outcome of this process is an integrated structure or a durable pattern (e.g., organizational structure (Taylor, 2011) or a roof (in tiling example)). Such structure is produced when human and non-human are joined together but each maintains its distinct character (Sassen, 2006). The produced infrastructure has staying power (they are durable) and provides the means and context for organizing (Leonardi, 2011). Also, imbrication implies accumulation. That is: past human and non-human imbrication will influence the way they imbricate in the future (Ciborra, 2006; Leonardi, 2011). Thus, imbrication is not a cause-effect relationship, nor it is a deterministic or predictive approach (Leonardi, 2011).

Leonardi (2011) builds on this literature to further elaborate how the imbrication of human and technology occurs. He explains that human and material agencies are the building blocks of practices/routines and technologies. Agency is defined as the capacity for action (Giddens, 1984). In Leonardi's (2011, p.165) work human agency is operationalized as "people's ability to form and realize their goals" and material agency is operationalized as "technology's ability to act on its own". He maintains that depending on the flexibility of technologies and routines, people can change technologies and routines as they use or develop them.

To explain how people decide to change routines or technologies and to theorize the imbrication of human and technology, Leonardi uses affordance theory. Leonardi (2011, 2013) argues that people's goals are shaped by their perceptions of what technologies or routines can or cannot do, in turn these perceptions are formed by people's goals. That is: as people (technology users and developers) try to achieve their goals using the materiality of a technology, they develop perceptions of affordances and constraints. As a technology's agency is limited by a set of features (and can only do certain things) people sometimes find technologies constraining their ability to accomplish their goals and other times affording them with opportunities to formulate new ones. Based on what people perceive about a technology they decide to change their technologies or routines (the perception of constraint leads to changes in technologies while the perception of affordance leads to changes in routines). Without affordance or constraint perceptions, people continue to use routines and technologies in inertial ways. When people act on the perceived affordances or constraints, they realize new goals that can be accomplished through the material features of the technology. The outcome of different ways in which material and human agencies imbricate is a new technology or a new routine (Leonardi, 2011).

Although Leonardi's work addresses the limitation of previous research, it does not explain how human agency and technology functionalities become intertwined initially and continue to interlock and eventually create an infrastructure in the form of technologies and routines. The perception of technological affordances and constraints play a central role in imbrication process. It is unclear, however, how actors develop such perceptions. Further, imbrication assumes that human actors change their technologies when they perceive technological constraint, and they change the processes when they perceive technological affordances. Considering that human actors are autonomous and have the possibility to act otherwise, such assumptions seem to be simplistic. There is a dearth of research on examining the mechanisms through which the imbrication process happens and continues. Thus, to answer the main research question articulated above and to extend Leonardi's conceptualization of imbrication, we aim to answer two questions: 1) How do human actors interact with technologies to develop a technological constraint or

affordance perceptions? 2) How and why actors' perceptions translate into changes in technology or/and work practices?

Research Method

This study seeks to produce a conceptual description of how a flexible technology becomes assimilated in organizational work routines overtime. Thus, it is a process study of how things (i.e., technologies and work routines) change over time (Van de Ven, 1992). Further, an ontology of becoming (vs. an ontology of being) is assumed. That is, the process of assimilation is always in a state of flux (vs. being stable). This assumption views organisational change as a dynamic emergence of continuous flows of “connected ideas, actions and outcomes” (Feldman, 2000, p.613) and allows researchers to follow and observe the dynamics of change as they occur.

Research Approach

Given the objective of this research (which is providing deeper insights into mechanisms through which the imbrication happens), we adopted an inductive research design using Grounded Theory (GT) approach (Charmaz, 2006; Strauss and Corbin, 1990). Case study is selected as the preferred methodology for this inductive, qualitative research. Grounded case studies can be used to accomplish various aims including theory development. Reconciling evidence across various types of data and between a case and the literature, and constant juxtaposition of inconsistent realities improves the likelihood of generating novel theories with less researcher bias (Eisenhardt, 1989).

Theoretical sampling and theoretical saturation logics are considered for data collection. Also, we will use coding techniques (open, axial, theoretical coding), constant comparison, and emergence principals to analyze the data. We will try to remain as open as possible to identify concepts and relationships grounded in the data (Klein and Myers, 1999).

Generally, GT refers to a set of techniques through which theory is developed via the concurrent data collection and data analysis (Glaser and Strauss, 1967). The main objective of such simultaneous efforts is to generate theories that are deeply rooted (or grounded) in the data. The GT approach is increasingly popular among management scholars (Corley, 2015; Murphy et al., 2017; Suddaby, 2006; Walsh et al., 2015) and is believed to be one of the best approaches for understanding the complexities of the modern organizations (Corley, 2015). GT is also used to fuse new observations with existing theories to support novel perspectives that better explain a certain phenomenon. As such, GT can be used as a theory elaborating technique (Murphy et al., 2017) that is appropriate to be employed when the research questions focus on a process (Creswell, 2013; Strauss and Corbin, 1990). Further, GT is well suited to [elaborate] theories in response to fresh, formerly unaddressed research questions, such as questions that come up when organizations and people adapt to new changes in their environment (Bansal and Corley, 2011). For example, more and more organizations use flexible technologies that can be customized to adapt to the needs of users and organizations (Leonardi, 2011) and employ individuals who have the skills to modify technologies (Pollock et al., 2007).

GT techniques would be specifically useful for understanding how people interact with these new technologies, how the technologies change over time and assimilate in the work life of organizations. Additionally, GT allows incorporation of different types of data into the theory elaboration process (e.g., interview, observational, archival, etc.) and therefore satisfy the requirements of combining the data that will be collected for this proposal. Considering the research questions, using GT technique to discover emerging patterns in the data and gaining further insight through comparison and theoretical sampling can help us better understand how and why the imbrication process happens. Further employing GT technique to analyze data enlightens how and why the imbrication process is intimately connected with the contexts of IS assimilation.

Research Methodology

For this study, one longitudinal explanatory case study will be conducted. Case studies are the preferred method when “how” and “why” questions are being asked and when the focus is on an ongoing phenomenon while the researcher has no or little control over events (Yin, 2009). A [grounded] single case study design is appropriate here because this study attempts to extend a formulated framework (e.g., the concept of

imbrication) (Yin, 2009). The imbrication concept specifies the circumstances within which the imbrication process happens. For example, it explains that modern organizations use flexible technologies which offer certain capabilities (e.g., programmability, customizability) that allow people with certain skills to make changes in their functionalities. People (strategic actors) can make the decision to change the technologies (or the processes). Within these circumstances when people develop a constraint perception of a technology, they change the technology so that it supports their goals. When people develop an affordance perception of a technology, they change the routines to be able to leverage the technology capabilities to achieve their goals.

A grounded single case that meets these conditions can be used to further elaborate Leonardi's conceptualization of imbrication process. That is: whether the process of imbrication occurs as explained under said conditions or some alternative explanations or conditions might be more relevant. In this manner, the single case can offer a significant contribution to theory-building and knowledge (Yin, 2009). We have identified two eligible research sites that meet the requirements for the implementation of this research (a local hospital and a government department). An eligible site should have implemented a flexible technology that allows incremental improvements and modifications to its features post-implementation. Further, the technology should be implemented and rolled out recently. Also, the technology should be in its post-implementation stage and being assimilated. That is: major customizations (such as process reengineering and major technology developments) are complete, and the technology is rolled out and ready for daily use but not yet routinized in daily activities. At this stage, further fine-tuning, and improvements (to the whole or parts of the system) are required until most technology users are comfortable using the technology daily to accomplish their tasks. As such, two single case studies of two different flexible technologies (an enterprise resource management and an enterprise data visualization system) in two government entities in North America will be conducted. Both technologies are in post-implementation phase and the organizations are trying to integrate the functionalities of the technologies into business processes (i.e., to assimilate them).

To conduct each case study, we will rely on the following sources of evidence: 1) In-depth interviews with the users and developers of the technology, 2) archival material related to the technology functionalities and use (e.g., technology specification sheet, user guide/manual, developers'/designers' notes, etc.). 3) direct observation to follow the use of the technology (Barley, 1990), and trace changes made to the technology and/or work routines. During the observation, we will shadow users of the technology to understand how they interact with the technology (e.g., how do they use the features of the technology to do their work, whether they use a parallel technology to complete their work, how do they act when they face difficulties using the technology, etc.). Also, we will take note of how the features are used, whether users use a parallel technology to complete their work, whether users get help with the technology to complete their work, how do they talk about/comment about using the technology to do their work with others, how/whether do they communicate their frustrations with the technology, and how/whether they talk about novel ways of working with the technology with their co-workers.

Potential Contributions

Research Contributions

This study aims to understand how the process of IS assimilation unfolds when an organization deploys a flexible technology. The results potentially contribute to the theory in several ways. First, adopting a sociomaterial perspective that explains how human, and technology interweave to create a durable infrastructure can advance our understanding of IS assimilation as a complex technical and social phenomenon. Further, this approach responds to the research call for developing and extending theoretical frameworks that consider both social and technical aspects of IS phenomenon without focusing excessively on one aspect at the expense of the other. Second, this research attempts to address the neglect of technology (i.e., missing IT artefact challenge) in IS literature. Conceptualizing technology as a flexible set of materials allows considering the materiality of IT without resorting to deterministic approaches. The role of generative materiality and the emergent view of technology are highlighted. Third, the imbrication literature addresses some of the limitations of previous research but does not explain the mechanisms by which imbrication occurs. This study offers deeper insights into imbrication mechanisms by conducting an inductive examination of imbrication process in flexible IS assimilation. It is expected that the findings of

this research will potentially contribute to IS literature by extending the imbrication literature and explaining how technology assimilates in organizational practices through gradual interactions of technological and social elements. Finally, this study applies the grounded theory approach to respond to the call for IS researchers to take the sociomaterial nature of the IS phenomenon into account. Adopting an integrative view of IS requires applying a research approach and methodology that consider technology as an actor at the same conceptual level as human actors. GT approach allows studying actors in their context and as a result an integrative view is likely to emerge naturally as intrinsic part of this conceptualization.

Practice Contributions

The results potentially will contribute to practice. Many organizations do not fully realize the potential business value of a technology because they fail to assimilate the technology into organization's business practices. Unfortunately, many executives view IS success as successful technical implementation of technologies and do not recognise that IS success requires significant organizational change efforts. Understanding the mechanisms through which an IS integrates into business processes can help managers: a) improve the process of assimilation of technologies into processes, b) identify the bottlenecks of the assimilation process, c) increase the probability of IS success, and d) realize the benefits of IS.

Limitations

Studies of single cases occur throughout various research fields, however such studies are commonly criticized for being difficult to generalize from, because statistical techniques do not apply.

Generalizability refers to the extent to which the account of a particular phenomenon can be extended to other situations and settings than those directly studied (Maxwell, 1992). In qualitative research, generalization takes place through developing a theory that makes sense of the situations studied and illustrates how the same process can lead to different results, in different situations (Becker, 1990; Maxwell, 1992). In other words, generalizability is based on the assumption that the developed theory will be useful in explaining similar situations, rather than on drawing a conclusion about a particular population through a sampling process and statistical inference (Yin, 1984). Such generalization is referred to as analytical generalization (Yin, 2003). The intent of this study is to further develop insights and the theorization of imbrication concept to help make sense of the assimilation process. Relying on this logic, the potential outcome of this research contributes to a general theory of human-technology imbrication.

Another limitation is that using intensive empirical evidence can generate overly complex theory. Working with rich grounded case data can create a temptation to try to build a theory that captures everything. As a result, the generated theory can be very rich in detail, but lacks parsimony. Nonetheless, developing theory from grounded case study have important strengths like novelty and empirical validity that arises from being grounded in empirical evidence (Eisenhardt, 1989).

Lastly, using the grounded theory approach is usually perceived as challenging and requires lots of resources to execute. In IS research, there is limited prescriptions and guidelines to be followed and we still need to develop clear criteria to judge the rigour of the research based on this approach (Matavire & Brown, 2013). Also, we do acknowledge that the grounded theory approach is broad so capturing all we look for may be challenging. However, researchers have made calls for theory development in IS, rather than borrowing theories from other disciplines (Truex et al, 2006). The grounded theory approach offers a powerful means of realizing this goal (Matavire & Brown, 2013) by helping researchers generate new theories grounded in context-based and process-oriented explanations of IS phenomena (Urquhart et al., 2010).

Next Steps to Complete the Paper

We acknowledge that both sites are non-profit organizations and the process of assimilation in these organizations may be different from that in another context. To clarify this, the process of assimilation should be studied in for-profit organizations. Comparing the findings in these two settings can help us understand whether and how the goal to realize the monetary return on investment in technologies plays a role in successful IS assimilation. Although this is a valuable insight it is outside of the scope of this research.

Interviews, archival data, and direct observations will be main data sources of this study. For initial analysis, we will aim to interview multiple technology users and technical developers. Also, we will consult the technology specification datasheet document. We will also shadow the interviewees while working for two workdays. We will conduct interviews in batches of 10- 15 at a time to allow data to speak before moving on to the next informants. This approach offers the flexibility to adjust sampling strategies and interview questions. After collecting the initial data, we will transcribe and code the data using open coding technique which involves reading through each transcript and attaching codes or labels to segments of the text to capture a general meaning of that segment. It is important to look for new, emergent codes that appear in the data (Charmaz, 2006). We will use constant comparison to cross examine the responses from various participants and group answers relevant to common codes. This technique will help us analyze different perspectives on emerging codes (Strauss and Corbin, 1990).

As a result of this initial coding, different unsaturated categories of concepts and groups may emerge. The produced codes will be further grouped to create major categories. These categories will be further developed in terms of underlying concepts and properties. Finally, relationships among categories will be identified (Strauss and Corbin, 1990). Then, using theoretical sampling logic will dictate the requirements for the next round of data collection. Data collection and analysis will stop when emerging theoretical categories are saturated. This means that the emergent categories are thorough and comprehensive in scope and depth and no additional new dimensions need to be added to the model. Saturation suggests that the emergent data/patterns are complete and rich, and no new properties of these patterns emerge (Charmaz, 2014).

To present the findings, we will follow Pratt's (2009) advice on writing up qualitative research. He suggests using story telling to describe emerged themes and how those themes fit together. He explains that thinking of each theme as a character in a story and describing who the main character is, what obstacles the character faces, and what the character hopes to accomplish can be an effective narrative way to organize findings (Pratt, 2009). Further, he recommends using figures to demonstrate the chain of evidence in data. We specifically think Gioia et al (2013) effectively and clearly use figures to present data structure. Finally, to tell a process story, we will depict the emerged imbrication process to clarify the relational dynamics among the emergent concepts and enable the possibility of theoretical insights (Gioia et al., 2013).

References

- Armstrong, C. P., & Sambamurthy, V. 1999. "Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures", *Information Systems Research* (10:4), pp. 304–327.
- Barley, S. R. 1990. "Images of Imaging: Notes on Doing Longitudinal Field Work", *Organization Science* (1:2), pp. 220–247.
- Bansal, P., & Corley, K. G. 2011. "From the Editors: The Coming Age for Qualitative Research: Embracing the Diversity of Qualitative Methods", *Academy of Management Journal* (54:2), pp. 233–237.
- Becker, H. S. 1990. *Generalizing from Case Studies. Qualitative Inquiry in Education: The Continuing Debate*, pp. 233, 242.
- Benbasat, I., & Zmud, R. W. 2003. "The Identity Crisis Within the IS Discipline: Defining and Communicating the Discipline's Core Properties", *MIS Quarterly*, pp. 183–194.
- Bostrom, R. P., Gupta, S., & Thomas, D. 2009. "A Meta-theory for Understanding Information Systems Within Sociotechnical Systems", *Journal of Management Information Systems* (26:1), pp. 17–48.
- Boudreau, M. C. & Robey, D. 2005. "Enacting Integrated Information Technology: A Human Agency Perspective", *Organization Science* (16:1), pp. 3-18.
- Brynjolfsson, E., & Hitt, L. 1995. "The Productive Keep Producing—Successful Companies Support Good Business Plans with Right Information Technologies", *Information Week* (18), pp. 38–43.
- Charmaz, K. 2006. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. Sage Publications Limited.
- Charmaz, K. 2014. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. (2nd ed.). Sage Publications Limited.
- Ciborra, C. 2006. "Imbrication of Representations: Risk and Digital Technologies", *Journal of Management Studies* (43:6), pp. 1339–1356.
- Cooper, R. B., & Zmud, R. W. 1990. "Information Technology Implementation Research: A Technological Diffusion Approach", *Management Science* (36:2), pp. 123–139.

- Corley, K. G. 2015. "A Commentary on What Grounded Theory Is...: Engaging a Phenomenon from the Perspective of Those Living It", *Organizational Research Methods* (18:14), pp. 600–605.
- Creswell, J. W. 2013. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.
- DeSanctis, G., & Poole, M. S. 1994. "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory", *Organization Science* (5: 2), pp. 121-147.
- Eisenhardt, K. M. 1989. "Building Theories from Case Study Research", *Academy of Management Review* (14:4), pp. 532-550.
- Feldman, M. S. 2000. "Organizational Routines as a Source of Continuous Change", *Organization Science* (11:6), pp. 611-629.
- Gattiker, T. F., & Goodhue, D. 2005. "What Happens After ERP Implementation: Understanding the Impact of Interdependence and Differentiation on Plant-Level Outcomes", *MIS Quarterly* (29:3), pp. 559-585.
- Giddens, A. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. University of California Press.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. 2013. "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology", *Organizational Research Methods* (16:1), pp. 15-31.
- Glaser, B. G., & Strauss, A. L. 1967. *The Discovery of Grounded Theory: Strategies for Grounded Theory*, New Brunswick und London: Aldine Transaction.
- Holland, C. P. 2003. "The IS Core-X: Information Systems Research and Practice: IT Artifact or a Multidisciplinary Subject?", *Communications of the Association for Information Systems* (12:1), pp. 40.
- Klein, H. K., & Myers, M. D. 1999. "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems", *MIS Quarterly*, pp. 67-93.
- Kumar, V., Maheshwari, B., & Kumar, U. 2002. "Enterprise Resource Planning Systems Adoption Process: A Survey of Canadian Organizations", *International Journal of Production Research* (40:3), pp. 509-523.
- Kwon, T. H., & Zmud, R. W. 1987. "Unifying the Fragmented Models of Information Systems Implementation", in *Critical Issues in Information Systems Research*, pp. 227-251.
- Lehrig, T., Krancher, O., & Dibbern, J. 2015. "The Evolution of Routines Under Flexible Information Technology", in *Proceedings of the 23rd European Conference on Information Systems (ECIS)*, Münster, Germany.
- Leonard-Barton, D. 1988. "Implementation as Mutual Adaptation of Technology and Organization", *Research Policy* (17:5), pp.251–267.
- Leonardi, P. M. 2011. "When Flexible Routines Meet Flexible Technologies: Affordance, Constraint, and the Imbrication of Human and Material Agencies", *MIS Quarterly*, pp. 147-167.
- Leonardi, P. M. 2013. "Theoretical Foundations for the Study of Sociomateriality", *Information and Organization* (23:2), pp. 59–76.
- Liang, H., Saraf, N., Hu, Q., & Xue, Y. 2007. "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management", *MIS Quarterly*, pp. 59–87.
- Markus, M. L., & Tanis, C. 2000. "The Enterprise Systems Experience: From Adoption to Success", in *Framing the Domains of IT Research: Projecting the Future Through the Past*, Pinnaflex Educational Resources, pp. 713–270.
- Maxwell, J. 1992. "Understanding and Validity in Qualitative Research", *Harvard educational review* (62:3), pp. 279-301.
- McGinnis, T. C., & Huang, Z. 2007. "Rethinking ERP Success: A New Perspective from Knowledge Management and Continuous Improvement", *Information Management* (44: 7), pp. 626–634.
- Matavire, R., & Brown, I. 2013. "Profiling grounded theory approaches in information systems research", *European Journal of Information Systems*, (22:1), pp. 119-129.
- Mu, E., Kirsch, L. J., & Butler, B. S. 2015. "The Assimilation of Enterprise Information System: An Interpretation Systems Perspective", *Information & Management* (52:3), pp. 359–370.
- Murphy, C., Klotz, A. C., & Kreiner, G. E. 2017. "Blue Skies and Black Boxes: The Promise (and Practice) of Grounded Theory in Human Resource Management Research", *Human Resource Management Review* (27:2), pp. 291–305.
- Orlikowski, W. J. 2000. "Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations", *Organization Science* (11:4), pp. 404–428.
- Pollock, N., Williams, R., & D'Adderio, L. 2007. "Global Software and Its Provenance: Generification Work in the Production of Organizational Software Packages", *Social Studies of Science* (37:2), pp. 254–280.

- Pratt, M. G. 2009. "From the Editors: For the Lack of a Boilerplate: Tips on Writing Up (and Reviewing) Qualitative Research", *Academy of Management Journal* (52:5), pp. 856–862.
- Purvis, R. L., Sambamurthy, V., & Zmud, R. W. 2001. "The Assimilation of Knowledge Platforms in Organizations: An Empirical Investigation", *Organization Science* (12:2), pp. 117-135.
- Rogers, E. M. 1984. *Diffusion of Innovations* (3rd ed.), The Free Press.
- Ross, J. W., & Vitale, M. R. 2000. "The ERP revolution: Surviving vs. Thriving", *Information Systems Frontiers* (2:2), pp. 233–241.
- Sassen, S. 2002. "Towards a Sociology of Information Technology", *Current Sociology* (50:30), pp. 365–388.
- Sassen, S. (2006). *Territory, Authority, Rights: From Medieval to Global Assemblages*, Princeton.
- Saunders, C., & Jones, J. W. 1990. "Temporal Sequences in Information Acquisition for Decision Making: A Focus on Source and Medium", *Academy of Management Review* (15:1), pp. 29–46.
- Shao, Z., Feng, Y., & Hu, Q. 2012. "How Leadership Styles Impact Enterprise Systems Success Throughout the Lifecycle: A Theoretical Exploration", in *Proceedings of 45th Hawaii International Conference on System Sciences*, pp. 4692-4701.
- Strauss, A., & Corbin, J. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage.
- Suddaby, R. 2006. "From the Editors: What Grounded Theory is Not", *Academy of Management Journal* (49:4), pp. 633–642.
- Swanson, E. B., & Ramiller, N. C. 2004. "Innovating Mindfully with Information Technology", *MIS Quarterly*, pp. 553–583.
- Taj, F., Kautz, K., & Bruno, V. 2019. "The Coevolution of Organizational Routines and IT Systems in IT-enabled Organizational Transformation", in *Proceedings of Australasian Conference on Information Systems*, Perth Western Australia, pp. 275-285.
- Tallon, P. P. & Pinsonneault, A. 2011. "Competing Perspectives on the Link between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model", *MIS Quarterly* (35:2), pp. 463-486.
- Taylor, J. R. 2001. "Toward a Theory of Imbrication and Organizational Communication", *The American Journal of Semiotics* (17:2), pp. 269–297.
- Taylor, J. R. 2011. "Organization as an (Imbricated) Configuring of Transactions", *Organization Studies* (32:9), pp. 1273–1294.
- Truex, D., Holmström, J., & Keil, M. 2006. "Theorizing in information systems research: A reflexive analysis of the adaptation of theory in information systems research", *Journal of the association for information systems* (7:1), pp. 33.
- Urquhart, C., Lehmann, H., & Myers, M. D. 2010. "Putting the 'theory' back into grounded theory: guidelines for grounded theory studies in information systems", *Information systems journal* (20:4), pp. 357-381.
- Van de Ven, A. H. 1992. "Suggestions for Studying Strategy Process: A Research Note", *Strategic Management Journal* (13: 169), pp. 188.
- Walsh, I., Holton, J. A., Bailyn, L., Fernandez, W., Levina, N., & Glaser, B. 2015. "What Grounded Theory Is ... A Critically Reflective Conversation Among Scholars. *Organizational Research Methods* (18:4), pp. 581–599.
- Yin, R. K. 1984. *Case Study Research*, Beverly Hills.
- Yin, R. K. 2003. "Design and Methods", *Case Study Research* (3:9.2).
- Yin, R. K. 2009. *Case Study Research: Design and Methods*, Sage.