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Special Issue

Expanding the Frontiers of Information Systems Research: Introduction to the Special Issue

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Expanding the Frontiers of Information Systems Research: Introduction to the Special Issue

1. Introduction

Information technologies (IT) are fundamental to the societal transformations that mark the digital age. Over its history, which now spans at least 40 years, the information systems (IS) discipline has attended to IT artifacts in organizational contexts in ways that no other discipline has. Therefore, it is conceivable that IS researchers would be uniquely equipped to deal with the broad transformations that accompany pervasive digitalization of organizational life in a way that no other discipline can. However, information systems researchers have traditionally focused on a handful of issues that center on the organizational development and adoption of business-oriented IT, and the organizational and industrial ramifications of this adoption (Sidorova, Evangelopoulos, Valacich, & Ramakrishnan, 2008). This focus is understandable given the organizational issues that accompany the computerization of organizational tasks: industry needs people who can manage, design, implement, and evaluate IT systems in organizational contexts.

Yet we all know that the impacts of IT are far more sweeping and wider than is typically recognized in the IS literature. IT has become increasingly central to all organizations—not just the large for-profit corporations that are typically studied—and IT is implicated in a variety of broader domains, which include new forms of social activity, leisure, community, and nation building (Sawyer & Winter, 2011). Simply expresed, IT has a primary role in shaping contemporary society. Furthermore, IT now comes in so many forms that extend well beyond the corporate back-office IT and productivity tools of the 70s and 80s; such forms include embedded systems, mobile applications, “smart” infrastructures, immersive graphical collaborative environments, artificial forms of intelligence, ambient presence, augmented reality, robotics, and a host of others. The IS discipline’s depth and intellectual breadth can be broadened to include such contexts and related disciplinary discourses. As a result, IS researchers are positioned to influence disciplines such as psychology, anthropology, sociology, political science, media studies, industrial economics, several fields of engineering, management, marketing, and philosophy. In a sense, the “boundaries” of the IS discipline can be expanded.

This special issue of the *Journal of the Association for Information Systems* (*JAIS*) explores and pushes the boundaries of IS research. It seeks to challenge members of our discipline to take the discipline’s core ideas and methods and apply them creatively to the challenging problems in other domains, across more diverse contexts, and toward broader goals. This requires us, however, to ask what the IS discipline actually has to offer to other disciplines from a research perspective and what contributions we have made that form a foundation for such pursuits. This special issue is an invitation to critically reflect on issues such as:

- How can information systems theory inform other disciplines as a reference discipline?
- What areas of information systems research have informed other disciplines in the past?
- How can we pursue genres of information systems research that have the potential to inform other disciplines?

The remainder of this introductory piece briefly addresses each of these questions in order to serve as a foray in the debate. This paper—and the special issue in general—does not necessarily answer these questions (we do not even think they can be answered permanently); rather, it sets new directions for the community and encourage IS researchers to “expand the frontiers” of their thinking beyond the current boundaries of the discipline. We hope that this will help IS scholars to better realize the power of IS theories at this moment and appreciate the future potential of our work, with any eye toward impacting everbroader and wider-ranging discourses.

2. How Can Information Systems Theory Inform Other Disciplines?

The revolutionary transformations born out of digital technologies in the last half century (or so) are dramatically impacting virtually every walk of human life. The IS discipline is one of the few scholarly fields that has attended to the digital revolution from the start. Throughout these decades, IS, as a small and diverse community, has attempted to include both IT artifacts and their human contexts simultaneously in its research. However, do we have anything to contribute to other disciplines that consider either IT or humans in isolation and have not directly involved both elements in their research domain?

Our answer is yes. Along with the contributing authors to this special issue, we believe the IS discipline has garnered specific insights that can offer other scholarly disciplines some intellectual contribution (see Table 1 – listed in the order in which they are discussed below). Note that the list is not intended to be exhaustive in any way; rather, it represents a limited inquiry into this topic. Tracking this table, we describe some potential ways that IS can contribute to other fields. We then briefly analyze which areas of IS research may generally be more cited outside of IS journals, and we conclude with some ideas for moving forward.

Table 1. Potential Contributions of the Information Systems Discipline to Other Disciplines

Section	Authors	Discipline	Areas for potential contributions
3	King	Computer science	**The human side of systems:** Requirements, social computing, large-scale systems
4	Slaughter & Kirsch	Cyber projects	**Software project management:** Development methods, dealing with conflict, project success
5	Nambisan	Product design & development	**Conceptualizing digital artifacts**: IT as operant & operand
6	Yoo	Technology & innovation management	**Complex digitally-intensive product systems:** Layered architectures, generativity, sociomateriality
7	Pigneur & Osterwalder	Strategy	**Business modeling** Strategic management objects, strategy as design, design support systems
8	Parsons & Wand	Natural science	**Information modeling:** Principles of classes, classification systems
9	Grover	Reference disciplines	**Strong theorizing:** Pluralistic, integrating, genre expanding, topical

3. The Human Side of Systems

One example contribution involves the "socio-technical" tradition. Rooted in the fundamental insight of the Tavistock studies (see Trist, 1981, for a review), this oeuvre arose as a critical response to the dominant worldview of the time. The prevailing worldview tended to treat technologies solely as exogenous to the organization, group, or individual, and sought to explain their effects on organizational structure and behaviors (Lawrence & Lorsch, 1967; Leavitt & Whisler, 1958; Woodward, 1965). According to the socio-technical view, however, neither technology nor human activity deserves a privileged position in shaping ongoing practice: it is the interplay between the two that matters. The socio-technical view underlies much of IS research systems where the human and the technical must each be considered in relation to any IT-enabled change. This view is foundational to the uniquely human-centered system development traditions in IS scholarship (Bostrom & Heinen, 1977; see Hirschheim, Klein, & Lyytinen, 1995) that were decades ahead of computer science and software engineering in their attention to the context of systems (e.g., Beath & Orlikowski, 1994). According to John Leslie King (2013, this special issue), the lessons from IS development research can still do much to inform computer science, particularly in the areas of requirements, social computing, and large-scale systems. Each of these areas has multiple strong streams of research that can inform other disciplines, such as research into enterprise systems (Pollock & Williams, 2009), infrastructures (Tilson, Lyytinen, & Sørenson, 2010), and open-source software (Crowston, Wei, Howison, & Wiggins, 2012). One particular area where the focus of IS researchers has been minimal is the particular large-scale endeavours described as "cyber-projects", which we discuss in Section 4..

4. Software Project Management

IS researchers have also addressed a wide variety of ideas associated with complex (software) development projects (see Kirsch, 2000). Software projects are different from many other design and development projects because of the particularly abstract, logical, and digital nature of software assets (Turner, 1987; Yoo, Henfridsson, & Lyytinen, 2010). Because artifacts of all sorts are increasingly made up of digital components (Lyytinen & Yoo, 2002; Yoo, 2010), the lessons from software development project research are becoming increasingly important to a broader domain of product development projects. IS research into software projects has also addressed a wide variety of project management issues, such as those relating to the mix of knowledge and competencies in software projects (Bassallier & Benbasat, 2004; Tiwana, 2012), project risk (Lyytinen, Mathiassen, & Ropponen, 1998; Wallace, Keil, & Rai, 2004), virtual software teams (Jarvenpaa & Leidner, 1998), software outsourcing (Lacity, Willcocks, & Khan, 2011), tools for software development (Banker, Datar, & Kemerer, 1991; Iivari, 1996), user participation (Kirsch & Beath, 1996), and outcomes associated with software projects (DeLone & McLean, 1992, 2003). Sandra Slaughter and Laurie Kirsch (2013, this special issue) argue that this tradition of research can inform other areas of inquiry – in particular, a domain that they refer to as "cyber projects". Cyber projects are complex infrastructural projects that support large-scale computationally-intensive science. Such projects are incredibly complex technically as well as socially, in part because they are dramatically distributed geographically, across organizations, and over time. Although a variety of scholars have researched such projects from multiple angles, there is ample opportunity to affect research and practice by applying research perspectives from IS. These perspectives include the IS theories associated with managing conflict, identifying appropriate development methodologies, and understanding project success (Slaughter & Kirsch, 2013, this special issue). Beyond cyber projects, an IS project perspective can inform inquiry into projects of all sorts, such as large-scale projects in aerospace, disaster recovery, construction management, and various other project contexts (Majchrzak, Rice, Malhotra, King, & Ba, 2000; Majchrzak, Jarvenpaa, & Hollingshead, 2007; Berente, Baxter, & Lyytinen, 2010). Any contemporary innovative effort is increasingly enabled by digital technologies. In Section 5, we describe ways we might conceive of digital artifacts in innovative contexts, followed by a particular theoretical lens for conceptualizing complex products in general.

5. Conceptualizing Digital Artifacts

Clearly, IT is now a vital element in innovation projects in nearly every industry. The role of IT in innovation is multifaceted: IT can support the initiation and implementation of innovations in a variety of ways. It can also trigger innovation, be a part of the innovation itself, and promote the diffusion and adoption of innovation. For example, there is a good deal of work on tools such as "computer-aided software engineering (CASE) and "computer-aided design (CAD), and the ways these tools are used to support innovation processes (e.g., Boland, Lyytinen, & Yoo, 2007; Orlikowski, 1996). Other IT tools support the collaboration and coordination of innovative groups such as virtual teams (e.g., Majchrzak et al., 2000). Similarly, information technologies can be components of an innovation that enable further innovation, such as digital control systems in cars (Lee & Berente, 2012), or of broader socio-technical systems that enable innovations, such as IT platforms that enable subsequent innovation (Tiwana, Konsynski, & Bush, 2010). Satish Nambisan (2013, this special issue) refers to the IT role in innovation in terms of IT as an "operand" or "operant" with a role of either "enabler" or "trigger". Innovation is central to many fields (including product development, see Nambisan, 2013, this special issue) and IT is central to contemporary innovation. Different streams of IS research characterize IT in different ways, and, as we strive to inform other domains, it is important to be clear about this multifaceted role of IT in innovations of all sorts. IS scholars can offer a language to better capture the unique nature and specific effects of IT on innovation and its outcomes. In Section 6, we describe a particular example of the way we conceive of digital technologies in complex product architectures.

6. Complex Digitally Intensive Product Systems

Many of the research perspectives in this special issue underscore how the world is becoming more digitalized. Other disciplines have begun to notice this, and perhaps the time has arrived for IS scholars to share what we know with them. Youngjin Yoo (2013, this special issue) makes this argument in a compelling way by critically reviewing the prevailing view of complex product architectures in the strategy discourse that focuses on “technology and innovation management” (TIM). TIM scholarship has a tradition of viewing complex products through the lens of modularity and modularity theory. Complex product systems can be more or less modular based on the clarity of the functions of the system and the stability of the system boundaries (among the system’s components and between the system and its environment). This whole idea of modularity revolves around the way in which systems are decomposed into smaller elements in a manner consistent with the knowledge requirements of a system and its components. This principle of decomposition has important implications for how innovative firms organize (see Baldwin & Clark, 2000). Yoo draws on his earlier work (Yoo et al., 2010) to describe how a modularity-focused perspective may be limited in attending to many contemporary digitally intensive complex systems. He argues that, given the generative, layered elements of complex systems, we do not necessarily understand the functional bounds of systems ahead of time, which is what modularity theory implies. For example, it is impossible to foresee the novel combinations that will be achievable with mobile computing platforms. Yoo (2013, this special issue) indicates that, among other things, an explicitly “sociomaterial” perspective may help to make sense of this generativity. He highlights how the sociomaterial perspective has the potential to help TIM scholars navigate the generative forms of innovation that mark the digital era.

In recent years, many IS scholars have increasingly highlighted the sociomaterial nature of practice. This view suggests that practices are inseparable from the technologies that are embedded into them—a view that theorizes IT-based change as endogenous and mutually constitutive with changing practice (not as a foreign object to be inserted into previously stable practice) (Orlikowski, 2007; Leonardi, 2011). This tradition of theorizing from both sides of the IT-human interplay is core to the intellectual DNA of IS scholars, and is a worldview that few other disciplines share. The sociomaterial worldview finds its roots in socio-technical IS research. This tradition theorizes about the “alignment” between technologies and their human contexts in a variety of ways. These include studies on the mutual adaptation view of technology and social context (Leonard-Barton, 1988), the ongoing structuration between technologies and practice (Orlikowski, 1992), IT as an enabler for process improvement (Davenport, 1993), how IT and tasks “fit” together for better or worse (Goodhue & Thompson, 1995), and the idea of strategic alignment between IT capabilities and organizational strategies (Henderson & Venkatraman, 1993). The simultaneous attention to both the technical and the human (social) side of IT in its organizational context is fundamental to IS research and it is precisely this combination that gives IS research its distinctive value. One way that IS research bridges the social with the technical involves modelling in its various forms.

7. Business Modelling

Two generations of IS scholars have specialized in different sorts of modelling since the original work of Langefors (1963) and Young & Kent (1958). Models are representational artifacts through which the technical world and the social world can be made explicit and (if necessary) be reconciled. Over the years, information systems researchers have developed a variety of models to support IS development that involve modelling data, processes, require-ments, businesses, methods (e.g., Yu, 1997; Mylopoulous, Borida, Jarke, & Koubarakis, 1990; Brinkkemper, 1996), and even modelling models (i.e., meta-modeling, see Jarke, Jeusfeld, Nissen, & Quix, 2009). The “design science” tradition in IS has also garnered rich experience and deep capabilities in studying theoretically driven development and in the testing of such models (Hevner, March, Park, & Ram, 2004). Thus, it is no surprise that it is IS scholars who have revolutionized the practice of business modelling in the age of novel business models born out of digital innovation (Osterwalder & Pigneur, 2010). Yves Pigneur and Alex Osterwalder (2013, this special issue) argue that IS research can positively impact the discipline of strategic planning. Specifically, research on strategic planning can benefit from IS research associated with validating conceptual frameworks, from design thinking with "objects", and from socio-technical systems that can improve strategic planning outcomes (Pigneur & Osterwalder, 2013, this special issue). Whether the organizational context involves designing complex electro-mechanical products, supply chain processes, or viral marketing campaigns, information systems researchers have rich experience in areas that other disciplines are just beginning to explore, such as how to go about designing things in general (e.g., Boland & Collopy, 2004; Gregor & Jones, 2007). The impact of the modelling tradition in IS is not just in the discipline of design, however, but may also impact any data-intensive discipline (such as natural science), which we discuss in Section 8.

8. Information Modelling

Because the IS discipline is both social and technical, the discipline has an edge in understanding how to make information meaningful and how to represent it in a way that is useful. Some of the early foundational work in IS explored how humans interact and deal with information, and how to best present and manage such information (Davis, 1974; Langefors, 1973, 1980). "Information" is one of the defining concepts of our discipline (it is in the name!) and one could argue that IS scholars (along with those in information science and cognitive science) know a great deal about how to manage and organize information in a way that is most useful. Historically, IS researchers (together with their computer science counterparts) have settled on a relational scheme to manage databases based on entities and attributes, combined with object-oriented concepts such as classes, inheritance, and ontologies to address the contextual elements of information. Purely categorical schemes for managing information have proven less useful for the bulk of applications. However, scientists, in general, employ categories for classifying objects of study. Along these lines, Jeffrey Parsons and Yair Wand (2013, this special issue) propose new principles for information modelling based on a specific and well-defined concept of classes. They offer a set of principles by which effective classification can occur and they propose a system of classification and illustrate it. Drawing on their experiences in IS research and meta-modeling, Parsons & Wand (2013, this special issue) show how the IS discipline has something actionable and useful to offer to the science of classification in general. This is one tangible example of what IS researchers can strive to accomplish with ambitious goals. In Section 9, we discuss how IS research might similarly strive toward high impact contributions to other disciplines through strong theory.

9. Strong Theorizing

The papers in this special issue offer a handful of examples of how the body of IS research can inform new domains and contexts. But they do not necessarily address the question of how IS as a discipline should organize itself and conduct research in orderto increase its influence and improve the likelihood of conducting high-impact research. In a provocative essay, Varun Grover (2013, this special issue) challenges IS researchers to move in this direction. He indicates that if we, as a discipline, expand the genres of acceptable publication, more actively integrate diverse research streams, and embrace the plurality of our discipline, we can produce stronger genuine theory. Grover points out that we, as a discipline, tend to test and validate theories that we bring in from other disciplines. We put these theories "on a pedestal" in the sense that we give a privileged position to the theories we import from economics, psychology, sociology, and so on, and we assume that they can directly help us to understand our phenomena. He encourages us to stand less in awe of these theories and instead to point out when and how they do not attend to some specific theoretical challenges that come with information technologies and digital innovations. Grover suggests that IS scholars need to pay explicit attention to the unique character and ubiquity of digitization, which can, in turn, lead us to improve on those theories. In this way, the discipline will have more to offer, and will not simply serve other disciplines by testing and validating their theories. Rather, we can integrate IT constructs into these theoretical frameworks, and refine them in the process.

Thus, the consensus among the authors in this special issue is that, yes, the IS discipline has something to contribute to other fields. Now the question remains, how are we doing? Specifically, what are the sorts of things we contribute? Grover roots his essay in a prior study that he and his colleagues did on whether IS serves as a reference discipline for other fields. Although he concludes that the findings are mixed, it is clear that our field does inform other fields to some extent. But there is virtually no work into what types of research we contribute. What are the streams and traditions in IS research that have informed other disciplines in the past? In Section 10, we present some initial results in an attempt to answer this question. We then conclude in Section 11 with some ideas for IS going forward.

10. What Areas of Information Systems Research Inform Other Fields?

There are a number of different ways that one might assess the topics in IS research that have more of an impact outside of our discipline. In this paper, we do not attempt to present an exhaustive treatment of the topic. Instead, we report on a subset of findings from a broader study that looks to distinguish the relative impacts of key research papers both in and outside of our discipline (Gallivan, 2012)[1]. In this analysis, Gallivan coded articles using specific codes for thirteen subject areas, or topics, for IS research identified by Sidorova et al. (2008)[2].

He was then able to identify IS topics that were highly cited, which was based on each corresponding paper's yearly rate of external citations in fields outside of IS. It is well known that citations to an academic paper are related to the number of years that it has been available for ciatation (i.e., the amount of elapsed time since publication; Heeks, 2010). Based on the total number of external citations per paper per year, Gallivan identified five IS topics, in ranked order, that had a significantly higher than average number of external citations:

1. Measurement instrument development & validation (#7)[3]
2. IT adoption and use (#4)
3. IT use by individuals (IT Training and IT for Higher Education; #13)
4. IS discipline development (Epistemological Issues and Conceptual Reviews; #8)
5. Value of IT (#3).

While papers belonging to the "measurement instrument development & validation" category had the highest rate of external citations, all five topics listed above exhibited external citation rates that were higher than the average, relative to all papers published in the three North American journals he analyzed (for which the average was 2.25 external citations per year). Tables 2 to 6 identify three examples that are highly cited, and correspond to each topic that exhibits high external citation rates.

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[1] This is an analysis of external citations computed from Reuters/Thomson "Web of Science" database, based on identifying the total number of citations to each IS paper and then subtracting the number of citations appearing in a set of 35 "matching" IS journals (i.e., the best-known IS journals). For instance, if a given IS paper received 400 citations and 200 of these citations came from IS journals on the list of 35 "matching" IS journals, then the remaining 200 citations are assumed to come from academic journals in other fields.

[2] Sidorova et al. (2008) performed a Latent Semantic Analysis, followed by cluster analysis, and they argued that their results could be interpreted into terms of three different solutions, in terms of their level-of-granularity (5-factor, 13-factor, and 100-factor solutions).

[3] The numbers appearing in parentheses is the corresponding topic number from Sidorova et al. (2008).

Table 2. Measurement Instrument Development and Validation				
External rate[4]	**External sum**[5]	**Total cites**	**Journal (year)**	**Author names**
16.778	151	415	JMIS (2003)	DeLone & McLean
6.650	133	395	MISQ (1992)	Adams, Nelson & Todd
4.526	86	219	MISQ (1993)	Segars & Grover

Table 3. IT Adoption and Use				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
39.556	356	861	MISQ (2003)	Venkatesh, Morris, Davis & Davis
16.353	278	724	ISR (1995)	Taylor & Todd
11.529	196	488	ISR (1995)	Compeau

Table 4. Individual IT Use (IT Training and IT for Higher Education)				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
11.529	196	488	MISQ (1995)	Compeau & Higgins
6.385	83	252	MISQ (1999)	Compeau, Higgins & Huff
3.667	66	142	MISQ (1994)	Alavi

Table 5. IS Discipline Development (Epistemological Issues and Conceptual Reviews)				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
23.417	281	544	MISQ (2000)	Alavi & Leidner
15.500	124	279	MISQ (2004)	Hevner, March, Park & Ram
8.375	134	223	ISR (1996)	Orlikowski

Table 6. Value of IT				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
11.917	110	343	MISQ (2000)	Bharadwaj
9.455	94	182	JMIS (2001)	Gold, Malhotra & Segars
8.250	54	179	MISQ (2004)	Melville, Kraemer & Gurbaxani

In addition to the five topics for which IS papers were more highly cited than average, there were five topics for which papers had an average rate of external citations, and three additional topics for which corresponding papers were only weakly cited externally: IS development, HR issues in IS, and decision support systems. The tables below identify three examples in each topic that exhibited an extremely low external citation rate. For Tables 7, 8, and 9, the sample papers shown are ones that received the highest rate of external citations.

[4] External rate refers to the average number of citations per year cited outside the discipline.
[5] External sum refers to the total number of citations outside the discipline.

Table 7. IS Development (Including Design Science Research)				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
4.875	78	136	ISR (1996)	Star & Ruhleder
4.100	41	91	ISR (2002)	Wand & Weber
2.000	20	77	MISQ (2002)	Markus, Majchrzak & Gasser

Table 8. HR Issues in IS				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
1.917	23	60	MISQ (2000)	Moore
1.723	19	51	MISQ (2001)	Ang & Slaughter
1.667	30	101	MISQ (1994)	McKeen, Guimaraes & Wetherbe

Table 9. Decision Support Systems				
External rate	**External sum**	**Total cites**	**Journal (year)**	**Author names**
1.300	26	86	MISQ (1992)	Alavi & Joachimsthaler
0.938	15	20	ISR (1996)	Kasper
0.923	12	61	ISR (1999)	Todd & Benbasat

One potential limitation of the topics analyzed above is that they are based on subject categories that resulted from a scientometric study (Sidorova et al., 2008) of articles published in just three North American IS journals (*ISR, Journal of MIS,* and *MIS Quarterly*) over a 21-year time period from 1985 to 2006. Of course, it is possible that some topics may be over- or under-represented in these three North American journals, relative to their frequency in leading journals from other geographic regions or other North American IS journals. Moreover, the subject areas they identified may have been influenced the lengthy 21-year period they analyzed, and may therefore not have a high degree of currency with topics now relevant to IS research.

In a related analysis, Evangelopoulos identified a somewhat different set of IS topics by analyzing articles from a set of five leading IS journals (which included two leading European journals) for the years 1999-2006. Gallivan also compared the citation rates of those same papers using Evangelopoulos' topics. Although these results were largely consistent with the previous results, there were some minor differences. For example, two additional topics appeared in the results: “IT project and risk management” and “ERP implementation”. Papers corresponding to both topics were average in terms of their external citation rates when published in U.S. journals, but accrued much higher-than-average rates of external citations when published in European IS journals.

Based on Gallivan's analyses, certain topics indeed appear to be cited outside of our discipline more than others. As noted, the topics identified as being more or less cited than usual are dependent on the timeframe from which topics are derived, and on the type of covariates included (such as journal) and the dependent variable analyzed (citation rate or total citations). One interesting point, however, is that it is perhaps those topics that most directly attend to the IT artifact and the unique character of the IS discipline (such as decision support systems and IS development) that seem least likely to be drawn upon by other fields. This may be explained by their traditional lack of interest to scholars who investigate technology concerns in other management and social sciences disciplines.

11. Conclusion

Transformations in the world are sociotechnical: they involve technological artifacts and their appropriation in human contexts. IS researchers seek to attend to both the technical side and the human side. As a result, we are perhaps more well equipped to handle the ambidextrous nature of contemporary digitally enabled innovation and to contribute this view to other fields. To those fields that are generally more technical, such as computer science, we can emphasize the human and organizational elements of IS (Slaughter & Kirsch, 2013, this special issue; King, 2013, this special issue). To those fields that focus more on the human and organizational context, we can help them attend to the technical with a particular emphasis on those unique technologies that are digitally enabled (Nambisan, 2013, this special issue; Yoo, 2013, this special issue). Finally, in order to study the interaction between the human and the technical, we have built competencies in modelling situations, and can thereby inform those fields that have not traditionally focused on modelling (Parsons & Wand, 2013, this special issue; Pigneur & Osterwalder, 2013, this special issue). So the potential for broader impact is there, but the question becomes about how can we do this more in practice.

As we show, some areas of IS research have had greater success transferring to other fields than others. But how can we encourage IS researchers to contribute to other fields? This will require hard work: researchers aspiring to publish elsewhere need to learn the fundamentals of those other fields and do the heavy lifting of making connections across disciplines. Disciplinary researchers are embedded in established discourses that have an established language and associated problems, assumptions, languages, and goals. Even still, it is difficult enough to publish in your own field's top outlets (and becoming increasingly difficult). Why take on the extra, added effort required to publish outside that domain?

There is no simple answer to such questions. Individual economizing and specialization are rewarded by the academic incentive system, and cross-disciplinary research is often discouraged. In defense of such cross-disciplinary work, however, we argue that by bringing new ideas to a field that is currently ignoring them, IS researchers may garner some measure of "competitive advantage" in the marketplace of ideas. If an IS researcher gains a foothold in another domain, he or she can act as a boundary spanner between the domains. Grover (2013, this special issue) acknowledges the institutional challenges to cross-disciplinary research, but suggests a number of strategies, including selective collaborating with specialists from other fields, for dealing with these challenges.

In our call for this special issue, we invited research contributions that conveyed far-reaching and radical visions for the impact of the IS discipline. In this sense, we are consistent with other recent work that sees a higher calling for the IS discipline (e.g., Winter & Butler, 2011). We encouraged the submission of work that might otherwise be considered to be risky for an IS journal: that is, papers that might be in domains outside of the traditional focus of the IS discipline or papers that use methods or theories that otherwise would not be considered. We invited potential authors to ask: what are important domains and ideas at the "edge", and what does our discipline have to say that can benefit those who study these domains?

We received some of what we were expecting, particularly in terms of product development and innovation in all forms – areas where the IS discipline clearly has something to contribute, given the rapid digitalization of products and organizations. However, we found that many contributions simply did not seem to "get" the goals of the special issue. Many submissions involved (again) reflecting on the limits of IS research, gaps in our theorizing, and more examples of putting outside theory on a pedestal (as Grover, 2013, this special issue, describes). There seemed to be a fundamental, paradigmatic disconnect between the goals of expanding our boundaries and the accepted practices of IS research. This is a fundamental issue that needs to be resolved if IS is to have a broader impact.

Going forward, we encourage IS researchers to push their thinking and their research programs to do more to help frame and address the world's big problems (e.g., poverty, violence, the environment), critical aspects of national policy and nation building (e.g., regulation, democracy, infrastructure), and broader, pressing problems (e.g., innovation, design, globalization, market analytics, new media). A good place to start along these lines can involve contributing to research on the “grand challenges” of other fields (Winter & Butler, 2011). Further, the IS discipline can help explain non-conventional aspects of organizational behavior and related IT uses (e.g., crime, identity, humor) and help us understand broad and long waves of change in peoples’ live (e.g., morality, social relationships, health, sanity). In each of these domains, a host of digital technologies are transforming situations dramatically.

The goal of this special issue is to inspire, to provoke, and to challenge. We encouraged submissions with radical goals, ambitious thinking, and a positive, proactive view of the IS discipline’s potential to improve relevant scholarship, and, by doing so, perhaps the world. While the inward-looking debate for legitimacy continues on decade after decade (see King & Lyytinen, 2006), perhaps it is our impact on other fields that can offer the additional legitimacy and respect so many in our field crave.

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