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Daniel J. Power
University of Northern Iowa, poer@uni.edu

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THE IS CORE – II: THE MATURING IS DISCIPLINE: INSTITUTIONALIZING OUR DOMAIN OF INQUIRY

Daniel J. Power
University of Northern Iowa
Daniel.Power@uni.edu

ABSTRACT

Even though computerized information systems are a relatively recent phenomenon that continues to evolve, these technology-based systems are now studied by a maturing academic discipline. This article examines the issue of Information Systems (IS) core concepts; explores the content and boundaries of the Information Systems research domain; and discusses whether consensus about an identity and domain for Information Systems is important and worth discussing. Despite concerns in the profession about an IS identity crisis, Information Systems is a legitimate area of scientific research and inquiry. Groups like the Association for Information Systems are institutionalizing the IS domain of inquiry. Furthermore, Information Systems researchers are becoming much more assertive about the importance of the IS research domain.

Keywords: IS core, Decision Support, discipline maturity, institutionalization

I. INTRODUCTION

Curious people explore new phenomena as they arise in human society. One relatively recent phenomenon is the computerized information system. By the middle of the 1960s it was obvious to some academic researchers that a major change was occurring in organizations in terms of how computers and computing technology were being used. The concept of electronic data processing from the 1950s no longer captured the richness of the increasingly complex phenomenon that was being observed. It was also apparent that what was happening with computing in organizations, especially business organizations, was poorly understood, important, and interesting. So academic entrepreneurs (or preferably curious scientists) created a new domain of inquiry that was initially labeled Management Information Systems and then broadened to focus on all Information Systems (IS). The broader domain reflected the increasing importance of the Information Systems phenomenon across all organizations and all organization levels. The advent of networking, powerful personal computers, and new software development tools made Information Systems a ubiquitous part of contemporary civilization. Information Systems continue to exist and to evolve.

It is easy for a casual observer to consider Information Systems and the associated technologies that make them possible well-understood and even commonplace. Such an attitude may be acceptable in a lay audience, but as scientists we know that the IS phenomenon is growing more complex and that even as we think we understand some part of this organizational transformation we find that changing technologies and innovations are forcing us to revisit long cherished truths and reassess which propositions remain valid and which need to be refined in light of new evidence.

This article examines the identity of the IS discipline. The following sections examine issues that seemed interesting or contentious in Benbasat and Zmud [2003] and in Alter [2003]. Section II addresses the overriding identity issue. Section III examines Information Systems core concepts. Section IV examines the issue of core IS concepts and the IS identity question from five perspectives. The concluding section suggests Information Systems is a maturing discipline and that institutionalization of the IS discipline is occurring.

II. AN IDENTITY FOR THE IS DISCIPLINE

Benbasat and Zmud [2003] are concerned that the central identity of IS is becoming ambiguous because some of the research published in Information Systems journals is not really Information Systems research. Their concern is real and it is probably true. Editors make judgments about what is relevant based upon their own mental models of the Information Systems domain. We do not all agree and it is very unlikely that consensus can be reached on the boundaries of the IS domain or that it would be especially useful if we did reach some sort of consensus.

As Benbasat and Zmud note we have some outstanding research-oriented IS journals. The proliferation of IS journals is an indication of the increasing interest in Information Systems and the increasing importance of the issues and topics associated with Information Systems. The journal editors and the review boards however take on a special role as gatekeepers. In many cases editors must make difficult decisions about what is relevant to the audience they are trying to serve. Each accept or reject decision influences the boundaries of the IS research domain.

Information Systems is a legitimate area of scientific research and inquiry. But in the recent past, Information Systems researchers faced significant legitimacy challenges. From my vantage point, the legitimacy issue stemmed more from a collective immaturity of the discipline and an inability to assert what we do and why it is important, rather than from any inherent problem. Some Information Systems researchers are learning to be more assertive. For example, many people conducting research in Information Systems received Ph.D.s in related disciplines. During the 1980s at Research I Universities it often seemed safer to remain a management or management science researcher interested in computerized decision support and information systems than to join an IS faculty group. If IS departments existed, they were often politically weak and no professional association existed for IS researchers. Those realities have changed and are continuing to improve in positive directions.

My research is in the area of Decision Support Systems. So quite naturally when I first heard about the IS identity crisis/domain controversy, my question was “Are Decision Support Systems IT artifacts?” Now, after reading Benbasat and Zmud’s article, I am reassured that DSS are relevant Information Systems, but I still do not like the term artifact. It seems too dead and more the term of an anthropologist than of an IS scholar. Information Systems are evolving and changing and that is part of the excitement and challenge. Grappling with the boundaries and content of an Information System was always part of the struggle in conducting IS research and it will continue. Perhaps in some cases an entire work system [cf., Alter, 2003] will be the object of inquiry and in other studies that boundary will be too broad and too amorphous.

Traditionally an Information System was defined as much more than the information technology components. System components like the people who use and support the hardware, software and technologies and the procedures developed for the operation and maintenance of the system

are usually included in a comprehensive definition. We need to use a broad definition of IS and not a restrictive review of the IS domain.

Discussing an identity crisis in our profession creates some serious conundrums. If the crisis exists, can we really be sure about what we are discussing and if the crisis does not really exist then why are we bothering to discuss the question at all. One might ask if some colleagues are trying to transform IS with a new identity or do they feel it is necessary to make IS more rigorous and less practice oriented? Is the current identity flawed?

Also, are some IS faculty in crisis about this IS identity crisis? Will it alter some faculty member's professional lives? Is part of the problem the changing of the guard in Information Systems departments? Or is it financial pressures in Universities that encourage the elimination or merging of peripheral programs or departments? Are we especially concerned about which departments get to hire new research faculty? We have people who have invested many years in helping create the field of Information Systems. They have done a good job. But academia is oligarchic, and the IS discipline is still struggling to gain recognition in many top-tier Universities. Some IS faculty are subjected to the stigma of clinical faculty status and retired industry professionals often teach IS courses because some academic administrator perceives that IS research is warmed over computer science or management science or management or even marketing in the case of e-tailing and e-business.

Why is the issue of an identity and domain for Information Systems important? Benbasat and Zmud identified a number of reasons. The following is my brainstormed list:

1. Our domain influences how we prepare future IS researchers;
2. Our domain should impact what articles are accepted and are acceptable in IS journals;
3. Our domain should impact what we teach and the content of our textbooks;
4. Our domain should impact what occurs in our IS professional associations;
5. Our domain may impact what other professions understand about our discipline and whether IS is perceived as science or as a more applied scientific discipline like Medicine;
6. Our domain may impact the status of our research. If we are constantly denigrating what some perceive as IS research we may be hurting one another;
7. Our domain may impact our perceptions of ourselves and of our self worth; and
8. Our domain may impact what others think of us in regard to promotion, tenure, and salary increase decisions.

Has sufficient progress been made in establishing the identity of the Information Systems discipline? Yes, we have come a long way. Is there more to do? Yes. So how do we define our identity? Do we use an historical approach, or do we define our identity by generally accepted practice, or by a citation analysis (an empirical approach), or in terms of theory or models? Or do we use all of the above? Can members of the IS research community collectively enact our identity or is it thrust upon us or is the identity of a new intellectual discipline like Information Systems emergent?

Establishing an identity for the IS field is important, but what that identity is cannot be perfectly controlled and in fact an identity already exists. The IS identity is becoming increasingly fixed with the passage of time and from the ongoing publication of articles ascribed by their authors as Information Systems research.

III. CORE PROPERTIES

What is the Information Systems Research domain? In my opinion no static core set of properties or constructs can be defined. The core IS phenomenon is inherently amorphous and abstract. The IS discipline should involve much more than studying an IT artifact and a set of directly related constructs. Relevant issues for IS research exist beyond the boundaries of how an Information System is conceived, constructed and implemented. We need to examine more than how Information Systems are used, supported, and replaced. We need to study how Information Systems in general and specific types of IS impact and are impacted by the economic, organizational, political and social contexts in which they are embedded [cf., Benbasat and Zmud, 2003, p. 186]. The concepts in Benbasat and Zmud's nomological network should not guide editorial decisions, but their model can and should impact IS research and teaching. We need ideas, propositions and constructs like those of Benbasat and Zmud [2003] and Alter [2003] so we can explore and test proposed relationships. In general, articles published in IS journals should be relevant to Information Systems (broadly defined) and not just relevant to a single model or framework.

What is the role served by IS researchers? We teach, we communicate, and we observe the core properties of Information Systems. We do not teach our students how to install software or repair computers. We rarely even study such activities. We are not training technicians; rather we are preparing technologists and managers for future careers. We share the knowledge we gained from our research about the nature and functioning of Information Systems. Our role as researchers is to understand the revolutionary transformation that is occurring in organizations and in Society as a result of computerized Information Systems and computing technologies.

Is the discipline of Information Systems like Medicine or Law? Are we expected to be both practitioners and researchers? Our colleagues in marketing, management, and finance struggle with this issue of an academic's role and the prerequisite knowledge of practice. We should be first and foremost scientists and then, because of the applied nature of what we study, IS scholars who are objective observers of the IS phenomenon can comment on the practice of Information Systems. In general, IS researchers need to have and maintain practical experience and skills to be credible with the IS practitioner community.

A few years ago I addressed the question "Is DSS or Decision Support a core concept in Information Systems?" in *DSS News* [Power, 2001]. Of course the conclusion was in the affirmative. The column was written at about the same time that AIS was requesting proposals for special interest groups and I had recently read Frederic Adam and Brian Fitzgerald's [2000] article titled "The Status of the IS Field: Historical Perspective and Practical Orientation". Adam and Fitzgerald concluded

> *"IS researchers do not seem to have succeeded in developing a core of concepts and definitions to enable the accumulation of knowledge in IS and to significantly contribute to the improvement of the business application of information systems."*

The action taken by the Association for Information Systems (AIS) to create Special Interest Groups (SIG) helped remedy the problem identified by Adam and Fitzgerald, Benbasat and Zmud, and others. SIGs can help us better realize the twin benefits of accumulating knowledge and contributing to Information Systems practice.

So what are the broadly defined Information Systems research areas? We will not all agree on the labels and we may end up with some overlap, but the process of identifying major concepts/research areas is underway. Institutional developments associated with constructing AMCIS, ICIS, and other conference programs are refining our knowledge map and "ontology" of Information Systems. In my opinion, creating Special Interest Group for AIS was and is an important step in clarifying and institutionalizing the discipline of Information Systems. The sidebar on the next page lists some examples of IS meta-concepts from an AMCIS meeting and from the AIS SIGs.

EXAMPLES OF IS META-CONCEPTS

Straub and Strong, co-Program chairs, identified nine meta-tracks for AMCIS 2001:

IS curriculum and e-learning	ERP systems	information technology management
data management and decision support	software design, development and use	networks
electronic commerce	information technology applications	IS theoretical foundations and research methods

AIS SIGs (2003)

SIGABIS (Agent-Based Information Systems)	SIGHCI (Human-Computer Interaction)	SIGLEAD (Leadership in IT),
SIGDSS (Decision Support, Knowledge and Data Management)	SIG IS-CORE (Information Systems - Cognitive Research Exchange)	SIGPhilosophy (Philosophy and Epistemology in IS)
SIGED: IAIM (Education)	SIG ISO (IS Outsourcing)	SIGPAM (Process Automation and Management)
SIGEBIZ (E-Business)	SIGITPM (IT Professional Management)	SIGSEC (Security)

IV. FIVE PERSPECTIVES ON CONSTRUCTING THE IS DOMAIN

Churchman (1971] identified a number of inquiring systems that guide the way scientists examine intellectual domains. In a maturing discipline like Information Systems it is important that we maintain a broad, diverse perspective on our domain and that we employ multiple inquiring systems to advance our discipline. Consider the issues raised about the IS domain and identity crisis from the five perspectives originally identified by Churchman. The following questions were suggested by Mitroff and Turoff [1973].

From a Leibnizian perspective, Information Systems researchers should build a rational model of an Information System and the factors that impact the system that is independent of any empirical or personal considerations. Benbasat and Zmud developed such a rational model. We should then ask, according to Mitroff and Turoff, "How was the result deduced; is it precise, certain?" Supposedly once we can agree on the logical rightness of the model, then we will have a central model to guide future research. This deductive effort should impact our thinking, but it is unlikely to reach a final conclusion.

From a Lockean perpective, data should always be gathered prior to the development of a formal theory. We have been gathering data in MIS/IS for almost 30 years. A Lockean respondent to Benbasat and Zmud might ask "Are their assertions a good estimate of the true empirical state of affairs?" I am sure Benbasat and Zmud believe their network of concepts is comprehensive and complete. Only a more rigorous specification of their model will let us collect more data and test the assertion. But restricting our attention only to those concepts in their model will create a self-fullfiling prophecy. Concepts that appear relevant to Information Systems should be the subject of observation and data gathering whether they are in the currently accepted nomological network or not. Theory development and theory testing must be ongoing.

From a Kantian perspective, we should ask "What alternative sets of propositions exist and which best satisfy the research objectives and offer the strongest combination of data plus model?" We need to pursue this line of inquiry more vigorously. Perhaps we are too linear in our thinking and

perhaps the synergistic effects of networking or peer-to-peer computing or some other technologies are lost in current models.

From a Hegelian or dialectical perspective, we as IS researchers are encouraged to recognize that “every set of propositions is a reflection of a more general theory about the nature of the world as a whole system, as a world-view.” Our perception of the identity of the IS discipline is a reflection of our own world-view. We need to routinely ask “Does there exist a sharply differing world-view that results in a completely opposite set of propositions?” We need to identify opposing views and assess them. An ongoing dialectical conflict on the IS core concepts may help a new world-view emerge that is a creative synthesis.

Finally, Mitroff and Turoff assert that from a Singerian point of view, we should ask “Have we taken a broad enough perspective of the basic problem? Have we asked the right question? Have we focused on the right objectives? To what extent are the questions and models of each inquirer a reflection of the unique personality of each inquirer as much as they are felt to be a ‘natural’ characteristic or property of the ‘real’ world?" Perhaps Benbasat and Zmud and Alter are asking the wrong question. From my point of view the IS discipline is taking a very broad view of the computerized Information System phenomenon. We are usually asking relevant questions, but we have many more questions that are unasked and unanswered. We each need to ask about the impact of our unique personality on our research. For example, the research questions and models that I study are a reflection of my background, perceptions, and interests. I am not guided by a set of core IS constructs. Perhaps the right question is “How can we improve the usefulness andquality of Information Systems research?”

V. CONCLUSIONS AND QUESTIONS FOR FURTHER THOUGHT

Do we want to try to control our brand as Benbasat and Zmud suggest? Perhaps. IS researchers certainly need to do more to communicate with external stakeholders about what we study and why. Is the identity and domain of Information Systems an old issue? Yes, but it is an important, ongoing issue. Are we tired of discussing this topic? Perhaps. Do the answers really make a difference? Perhaps not, but the debate may impact our thinking about Information Systems. Who determines the scope and content of IS research? We all do!

So should we stop the debate? Is there an identity crisis? My answer to both questions is NO. The ongoing debate indicates to me that we have a maturing discipline that merits our intellectual attention. So we should encourage high quality research that is relevant to Information Systems in our journals. We should let the journal editors, web site editors, professional associations, the textbook publishers and the reviewers (all of us) shape the discipline. We do not need to adopt one overriding paradigm for the IS discipline and even if some people were so inclined it would not be realistic to do more than debate various paradigms.

Has the Association for Information Systems helped institutionalize the domain for IS? Do the Special Interest Groups further define the core concepts of the IS discipline? Both of these questions should receive a resounding affirmative response. We are institutionalizing our discipline and our academic IS community will be stronger as a result.

What kind or assurance or reassurances do we all want? We all want to believe that our research will continue as part of a meaningful intellectual stream. Is that guaranteed? YES. Information Systems will remain an object of study as long as our technologically-based civilization exists. And our institutionalized academic structures like journals and professional associations will contribute to managing and preserving the knowledge we create and accumulate.

In conclusion, we are collectively constructing the IS discipline and no single model, nomological network, or approach can capture the identity of our discipline. We are the IS community in all of the diversity of our backgrounds, research interests and professional affiliations.

Ultimately, our identity as a profession is wrapped up in what we know and more importantly perhaps in what we do not know and in what we want to know. The Information Systems identity is NOT fragmenting, rather it is incrementally converging.

Editor's Note: This article is the second in the series titled *The IS Core***.** At the time of publication, the papers in this CAIS series included Articles 31 through 41 and the editorial in Article 42. These articles were motivated by Benbasat and Zmud [2003] in the MIS Quarterly and by Article 30 [Alter 2003] in this journal. The article was received on September 17, 2003 and was published on November 24, 2003.

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ABOUT THE AUTHOR

Daniel J. Power is Professor of Information Systems and Management at the College of Business Administration at the University of Northern Iowa and the editor of DSSResources.COM, the Web-based knowledge repository about computerized systems that support decision making, and the editor of DSS News, a bi-weekly e-newsletter.

Dr. Power's research interests include the design and development of Decision Support Systems and how DSS impact individual and organizational decision behavior. He is the author of more than 40 articles, book chapters and proceedings papers. He co-authored Strategic Management Skills (1986) and authored Decision Support Systems: Concepts and Resources for Managers (2002).

Professor Power is Chair of the Association for Information Systems Special Interest Group on Decision Support, Knowledge and Data Management Systems (SIG DSS), a member of three academic journal editorial boards, and the section editor of the ISWorld pages on Decision Support Systems.

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