

THE IS CORE – XI SORTING OUT ISSUES ABOUT THE CORE, SCOPE, AND IDENTITY OF THE IS FIELD

STEVEN ALTER
University of San Francisco
alter@usfca.edu

ABSTRACT

Debates about the core and the scope of the IS field and about whether the core and scope are related to a crisis in the field have smoldered for many years. This article is a response to ten articles submitted by members of the CAIS Editorial Board who accepted an invitation to contribute to a debate about the core and scope of the IS field. Those articles were written as responses to Benbasat and Zmud's [2003] article "The Identity Crisis Within the IS Discipline: Defining and Communicating the Discipline's Core Properties" and my rebuttal [Alter 2003b] entitled "Sidestepping the IT Artifact, Scrapping the IS Silo, and Laying Claim to "Systems in Organizations."

The present article is organized around excerpts related to the major topics the ten articles address as a group:

- What are the core and scope of the IS field?
- Is "the IT artifact" a meaningful concept?
- Whatever the core might be today, could tomorrow bring something different?
- Who is the customer of IS research?
- Do we believe the IS discipline is having an identity crisis?
- How do institutional issues shape the IS field?
- What if we followed Benbasat and Zmud's suggestions?

The conclusion attempts to sort out various views of the core, scope, and (possible) crisis of the IS field by identifying major products and major customers of the academic IS field and asking which customers are interested in which products. If a crisis exists, it is about the perceptions of certain customers, but not others, and may be only tangentially related to issues about the core or scope of the IS field. On the other hand, the core and scope of the IS field do have implications for the value of the products it produces and for its long-term ability to serve all of its major customers.

KEYWORDS: IS discipline, IT artifact, IS identity crisis, systems in organizations, work system, IS core

I. INTRODUCTION

Izak Benbasat and Bob Zmud's [2003] article in the June issue of MISQ entitled "The Identity Crisis Within the IS Discipline: Defining and Communicating the Discipline's Core Properties," focuses on the core of the field, which they view as "the IT artifact and its immediate nomological net" They assert that IS research should focus on the IT artifact and its immediate nomological network. They describe two types of errors in defining research topics. Errors of exclusion involve doing research without including the field's core constructs. Errors of inclusion involve doing research that emphasizes constructs outside of the core. They suggest that the distinctiveness of our work and our journals could be increased by focusing on relationships that fall within the nomological net and reducing the degrees of separation between IS constructs and the key constructs in research.

Although I totally agree that the IS research community is "under-investigating phenomena intimately associated with IT-based systems and over-investigating phenomena distantly associated with IT-based systems" [p. 186], I believe that important aspects of their approach and their recommendations might be counterproductive. I wrote a rebuttal and submitted it to CAIS in late July 2003.¹ The rebuttal is divided into three sections. The first section explores various meanings and connotations of *IT artifact*, a term at the heart of Benbasat and Zmud's analysis. The second section uses a 4 X 12 grid to describe the scope of the IS field by positioning numerous topics pursued by the IS research community, and then argues that the IS field would be diminished rather than strengthened by viewing many of those topics as marginal or outside of the field. The third section argues that an alternative vision, "laying claim to systems in organizations," would provide a rationale for building on current knowledge and expertise, exploiting the discipline's areas of competitive advantage in academia and business, defusing the IS discipline's identity crisis, and helping increase its long-term contributions to academia, business, and society.

Paul Gray, Editor-in-Chief of CAIS, decided that the differences in views expressed in the two articles might be a springboard for further debate about an important topic. At a CAIS Editorial Board meeting at AMCIS in early August, 2003, Paul invited Editorial Board members to contribute their thoughts in the form of responses to the two articles. The goal was to forward the debate by taking no more than three months to publish my article, the responses, and an additional wrap-up response from me, thereby taking full advantage of Benbasat and Zmud's original contribution, furthering an important debate, and doing so in a timely manner. Ten members of the CAIS Editorial Board provided short articles presenting a range of viewpoints and issues, with some ideas in common and other ideas unique to a single article, but nonetheless valuable and interesting.

This article is organized around excerpts related to the major topics the ten articles address:

¹ As mentioned on page 495 of that article [Alter, 2003b], it was the second of two related articles published in CAIS in consecutive months. The first article, "18 Reasons Why IT-Reliant Work Systems Should Replace 'The IT Artifact' as the Core Subject Matter of the IS Field," [Alter, 2003a] was submitted to CAIS in May, 2003 and published in October 2003 to present an alternative to Orlikowski and Iacono's belief that the IT artifact is the core subject matter of the IS field. Although questioning their view of the core of the field, that article does not dispute the main points of their article or their conclusions. The second article, the rebuttal article, was a response to the June 2003 *MIS Quarterly* article in which Benbasat and Zmud [2003] propose that the IS field should focus more closely on "the IT artifact and its immediate nomological net." Although there is some overlap between these two CAIS articles, they were not combined because they respond to different articles, focus on different themes, and cover many non-overlapping topics.

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- Who is the customer of IS research?
- Do we believe the IS discipline is having an identity crisis?
- How do institutional issues shape our field?
- What if we followed Benbasat and Zmud's suggestions?

Although much can be said about each of these questions, each question represents only a slice of a larger picture encompassing a number of disparate issues. The conclusion attempts to sort out the various views of the core, scope, and (possible) crisis of the IS field by identifying major products and major customers of the academic IS field and asking which customers are interested in which products. If a crisis exists, it is about the perceptions of certain customers, but not others, and may be only tangentially related to issues about the core or scope of the IS field. On the other hand, the core and scope of the IS field do have implications for the value of the products it produces and for its long-term ability to serve all of its major customers.

I would like to thank Izak Benbasat and Bob Zmud for their article articulating their view of the research areas that members of the IS research community should pursue. It is easy to speak in generalities about problems in the field and topics and issues that should be addressed, but much more challenging to step forward with a coherent view of what should be included and why.

Finally, before looking at the views covered in this article, I invite you, the reader, to ask yourself about your own views of major topics in this entire discussion. The Appendix is in the form of a first draft of an opinion survey about these topics. Answering the questions might help you see the extent to which your views are shared, and might provide a hint about the difficulty of attaining clarity about the topics that will be covered.

II. WHAT ARE THE CORE AND SCOPE OF THE IS FIELD?

There is a substantial amount of disagreement about both the core and the scope of the IS field. For example, Benbasat and Zmud speak of the IT artifact and its immediate nomological net as the core of the IS field, and recommend that IS research not stray too far from that core. Iivari and McCubbrey imply that the core of the IS field focuses on the work of IT professionals. El Sawy argues that recent progress in technical capabilities is leading toward a new perspective different from those proposed by either Benbasat and Zmud or Alter. Myers states that the information systems field is not ready to have a core and both Myers and Holland argue for the multidisciplinary nature of the IS field. With so much divergence it is worthwhile to remember:

- There is a difference between core and scope. Both are important.
- The scope is always larger than the core, but the core might be much smaller than the field's entire scope, or might encompass a substantial amount of its scope.
- Topics that are not part of a field's core can still be an integral part of the field and can be of great significance.
- Even things that are outside of a field's scope can have an important impact on the field and therefore may require substantial attention by practitioners and researchers within the field.

Figure 1 attempts to illustrate the difference between my view and Benbasat and Zmud's view of the core and scope of the IS field. Their Figure 1 [p. 187], titled “IT Artifact and Its Immediate Nomological Net,” represents their “view of the phenomena studied by IS scholars – and, hence, the set of core properties of the IS discipline.” The five topics in the nomological net include:

1. the IT artifact
2. usage
3. impact
4. IT managerial, methodological, and technological capabilities
5. IT managerial, methodological, and operational practices.

Benbasat and Zmud believe a vital aspect of the nomological net is that “the constructs involved are *intimately* related to the IT artifact.”

In contrast, the “systems in organizations” vision in Alter [2003b] is conceived as a broad umbrella covering the scope of IS research and practice. Table A2 in Alter [2003b] tries to represent the scope of the IS field using an unwieldy 4 X 12 table, each of whose cells identifies one or more IS research topics based on table’s two dimensions, the degree to which the topic involves changes in IT-reliant work systems in specific settings and the extent to which the topic or situation encompasses a complete work system in an organization. (See Alter [2003b] for the details.). Within that broad scope, the core of the IS field was described as the “development, implementation, operation, evaluation, maintenance, and long-term evolution of systems in organizations, including variables and theories from any relevant discipline.” Although that description of the core does not mention IT explicitly, most systems of any consequence in today’s organizations involve IT in some significant way and can be described as IT-reliant.² [Alter, 2003a]

The relative sizes of the objects in Figure 1 express the impression that the core implied by the “systems in organizations” approach is somewhat broader than the scope implied by the IT artifact approach, although the meaningfulness of this type of representation is obviously questionable. Suffice it to say that most of the responses from CAIS Editorial Board members seem to agree that the “systems in organizations approach” views the IT field’s core and scope much more broadly than the “IT artifact approach.”

A striking aspect of the responses was that some disparaged the whole idea of a core for the current IS field. For example, Myers says:

“Both articles take one point for granted: that the IS discipline is ready and able to define a core. ... the field of information systems is nowhere near ready to define a core in information systems.” [Myers, p. 582]

“One idea is indisputable in the debate so far: at this point in time, information systems does not have core. On this point, everyone agrees.” [Myers, p. 584]

“What is clear from the above [chronological list of proposed cores starting the 1980s] is that the proposed cores of IS come and go on a regular basis. What was seen as core at one particular point in time was not seen as core later. An important question at this juncture, therefore, is: Are we at the point where no new cores will be suggested? Is the field settled down to such an extent that we do not expect any major new discoveries or insights that will cause a major shift of focus in the field?” [Myers, p.585]

² In contrast, the mere fact that a system relies on IT does not make it an IT system, any more than reliance on information makes a system an information system or reliance on electricity makes a system an electricity system.

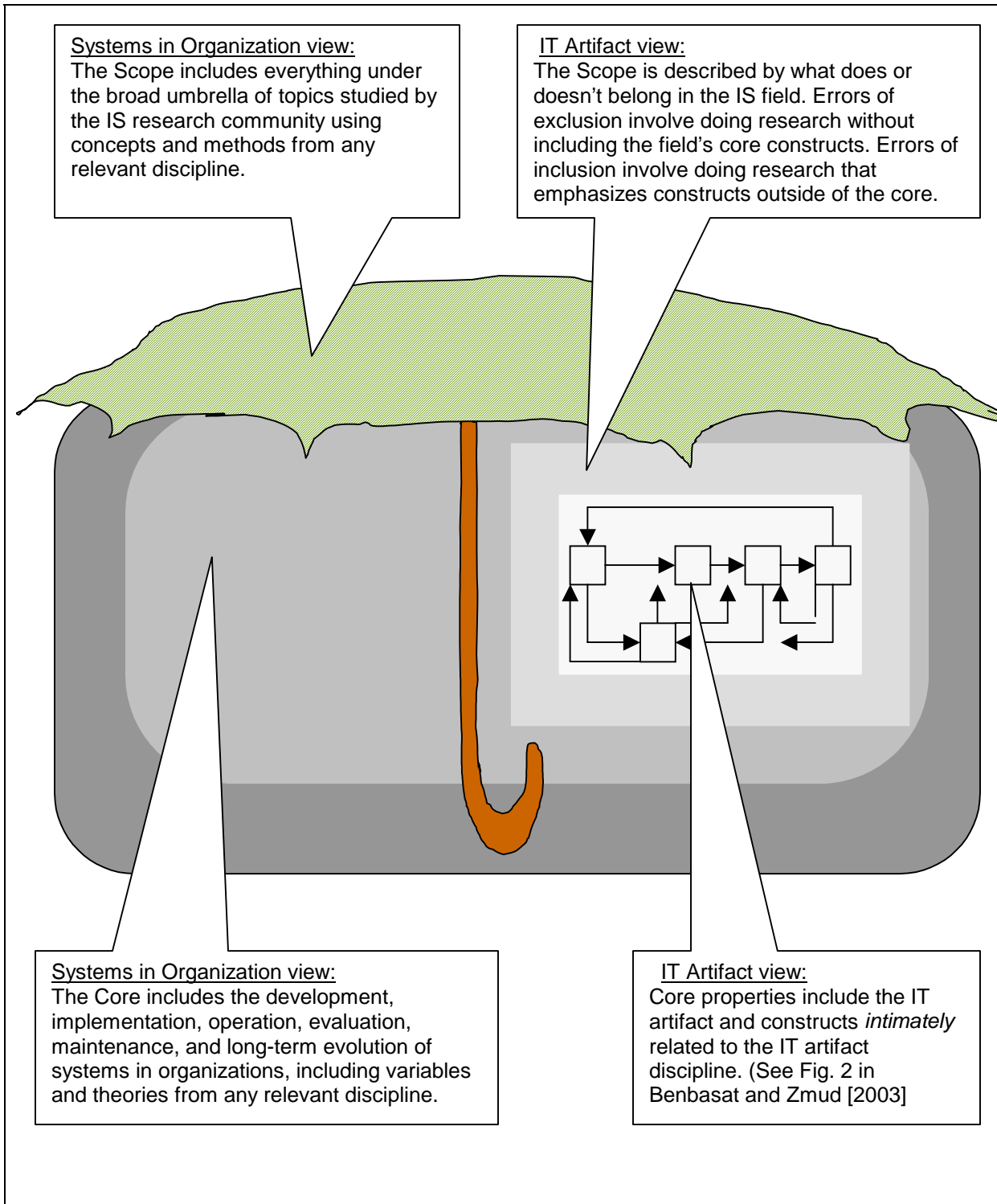


Figure 1: Comparing Two Views of the Core and Scope of the IS Field

Proceeding from the premise that IS is a multidisciplinary field, Holland concurs:

“Why should there be a core set of IS theories at all? All the major information systems issues that CIOs and IT directors face do not fall neatly within a technologically defined area.” [Holland, p. 603]

[A multidisciplinary view of IS] “has some similarities to the systems model proposed by Alter and takes this concept further to stress that the IS research field can make a claim not only to systems but to much broader core disciplines in management because of the ubiquitous nature of not only IT, but also because of the central role that information plays in the co-ordination of economic activity in business enterprises.” [Holland, p. 599]

Iivari refers to the goals of the IS field when questioning the validity of defining a core theory for the field:

“I would question, however, whether one should attempt to define the identity of the IS discipline in terms of a distinctive core theory. Instead, I would suggest that its identity should be based on its distinctive mission as an applied science, to support IS experts in practice. I contend that the core of the discipline for IS practitioners is to develop and maintain information systems or to manage their development and maintenance.” [Iivari, p. 569]

On the other hand, Guthrie seemed relatively satisfied with the idea of a core:

“Allowing for a narrow core with a wide breadth, enables us to move forward, including relevant works from the past, and enabling future scholars to explore promising new directions. Given technology in organizations is still defining and redefining work, it seems the breadth of coverage also makes us adaptable to the technological changes that the future surely holds.” [Guthrie, p. 558]

“Systems in organizations or technological systems ... are a satisfying solution to broadly defining the Information Systems discipline. Systems in organizations is broad but, gives us a distinct way to identify ourselves while embracing the diversity that we already thrive on.” [Guthrie, p. 560]

Except for the article by Wu and Saunders, the responses express little or no support for restricting the scope of the field. Holland and Myers both refer to the recent *Harvard Business Review* article “IT Doesn’t Matter” [Carr, 2003]:

“It is rather paradoxical that a call for IS researchers to narrow their focus to the “IT artifact” should follow an article published just one month earlier in Harvard Business Review in which it was said that “IT doesn’t matter.” ... If the latter article is some indication of the views of senior business people, then the call for IS researchers to narrow their focus to the IT artifact is potentially disastrous. If we focused our research solely on IT, then the IS field as whole could well be seen as irrelevant by senior business leaders in just a few short years.” [Myers, p. 582]

“If IS researchers focus exclusively on the IT artifact and those phenomena directly related to it, over time, an IS subject defined as a core discipline could become largely irrelevant and be vulnerable to the type of comment that Carr (2003) raises regarding the business use of IT.” [Holland, pp. 604-605]

Holland concludes:

“The diversity of the IS research community is its strength and multidisciplinary research should not be sacrificed to achieve theoretical neatness that would hardly be recognized, let alone valued, by IS practitioners and would undermine the position of IS researchers in Universities.” [Holland, p. 605]

Although in a milder tone, most of the other articles call for easing some aspect of what their authors see as an unnecessarily restricted view of the IS field's scope expressed in the "systems in organizations" approach. Having argued that Benbasat and Zmud's view seemed too restricted, I was surprised to have a similar comment directed toward my proposal, which I thought would be broad enough to cover the most or all of the topics addressed by current IS researchers. In some cases the authors may have misunderstood the unwieldy and complicated explanation (including Table A2) in Alter [2003b], but the important point is that this group of authors uniformly favored breadth over restriction for the IS field:

"Although [Alter] gives a compelling argument, it can still be argued that the systems approach is not broad enough to encompass all the behavioral, managerial, strategic, and functionally related IT interests. [Deans, p. 547]

"The practitioner community is certainly concerned with issues related to IT artifacts and their "nomological nets" and "work systems". However, IS practitioners' interests go beyond these domains, and some issues encompassed by these domains are not likely to be of interest to practitioners." [McCubbrey, p. 554]

"First, although Alter claims that the term "systems in organizations" succeeds in including most of what is currently done under the IS research umbrella, it does exclude a few important research areas. [such as] information economics ... networking ... IS research on institutions ... industries ... or countries. Most research work in these areas is not focused on individual organizations. ... Second, while I agree that the systems in organizations focus "reflects a reality that we do not incorporate fully into our view of ourselves and our work," it reflects today's reality, not tomorrow's." [Myers, p. 584]

"The IS discipline should produce knowledge to support IS development, including various "meta-artifacts" intended to support the development of IS artifacts." [Iivari, p. 570]

"The concept of systems in organizations does not address the complexities of organizations that share Information Systems or use highly interdependent networked IS in collaboration with customers and partners.³ These organizations have fluid, permeable, virtual boundaries and many are, in fact, made boundaryless by the use of wireless technologies." [Dufner, p. 532]

"Excluding research because of errors of exclusion and inclusion in the nomological core would reject many relevant works, clearly weakening our discipline and our relevance." [Guthrie, p. 558] ... "Specialization makes us more distinct but cross-disciplinary research makes us relevant." [p. 559]

In contrast to the other comments, several articles seem to support the idea of a core and seem to believe a better-defined core will improve the relevance of IS research:

"Defining a broad core for the purpose of encompassing eclectic research can be dangerous to the field." ... "A need to define the IS domain is clear. What distinguishes the field and sets it apart as a unique entity with a clear identity? How that core will be defined is still to be discussed and determined." [Deans, p. 547]

³ The idea of systems in organizations was not meant to imply systems within particular firms. Supply chains and other interorganizational systems can be viewed as work systems that cross multiple firms.

“The fluid boundaries are bound to expand based on Alter’s definition, and yet this expansion offers little promise of assistance in improving the relevance of IS research. In contrast, the core approach based on the IT artifact is more robust because it offers less guesswork and a more definable scope.” [Wu and Saunders, p. 564]

III. IS “THE IT ARTIFACT” A MEANINGFUL CONCEPT?

Alter [2003b] presented six different definitions of IT artifact, the definitions offered by Orlikowski and Iacono [2001] and Benbasat and Zmud [2003] plus four other definitions based on common dictionary definitions of the term *artifact*. One of the reasons for belaboring the various definitions was my belief that a “scientific” field’s basic concepts should not be highly susceptible to multiple, contradictory interpretations. I had noticed this problem before and discussed it in detail in a previous *CAIS* article called “Same Words, Different Meanings: Are Basic IS/IT Concepts our Self-Imposed Tower of Babel?” [Alter, 2000] Although I recognize the impossibility of insisting on consistent terminology across the field, I see no way that slippery, ephemeral terminology can help our field progress, and many ways that unclear terminology can obstruct us.

“IT artifact” is an exquisite example because the fancier and more ephemeral the definition, the more difficult it is for even authors who propose the fancy definitions to use them in a consistent way. For example, Orlikowski and Iacono [2001] define IT artifact as “those bundles of material and cultural properties packaged in some socially recognizable form such as hardware and/ or software.” [p. 121] Several subsequent uses of “IT artifact” in their article (which is about different ways IT artifacts are portrayed in articles in *Information Systems Research* in the 1990s) seem less like “bundles of material and cultural properties” and more like hardware and software. For example, they speak of “the rate with which particular IT artifacts (hardware, software, techniques) become spread across social systems ...” [p. 124] Later they speak of representing technology by measures of diffusion and penetration of a particular type of IT artifact (e.g., electronic mail) within some socio-institutional context” [p. 125] Having said that, I want to emphasize that the point of their influential article was that ten years of *ISR* did not adequately engage the reality of IT in the world, but dealt with it more frequently in a number of indirect guises that they identified and compared. Similarly, Benbasat and Zmud’s [2003] goal was to articulate a vision for IS research rather than to focus on the definition of IT artifact. In contrast, my articles Alter [2003a, 2003b] question whether IT artifact is a useful concept because that seemed to me a potentially effective way to promote a different vision of what the IS field is and what it can become.

Most of the articles agreed that the concept of IT artifact has shortcomings and/or expressed dissatisfaction with Benbasat and Zmud’s definition:

“The definition of the IT artifact though is rather confusing and can be interpreted in a number of different ways.” [p.602] “From a practical perspective it is difficult to see how the IT artifact could be applied in practice. Is the definition plausible to academics and business managers? Most IS researchers and CIOs could agree on what constitutes IT in terms of products and services from the IT industry. But couching the definition in terms of tasks embedded in structures and contexts detracts from its explanatory and practical value.” [Holland , p. 604]

“I interpret the somewhat convoluted definitions of IT artifacts in Orlikowski and Iacono [2001] and Benbasat and Zmud [2003] as attempts to limit the focus to IT artifacts that are close to information systems.” [Iivari, p. 572]

“Alter [2003b] makes many good points in his critique of the IT artifact concept. He argues that the term itself is poorly defined and somewhat questionable. By and large I agree with many of his arguments ...” [Myers, p. 583]

“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.” [Power, p. 540]

“Benbasat and Zmud further define an artifact by decomposing the artifact into its parts which are the Information Technology, Task, Task structure, and Task context. These categories are inadequate to describe the highly complex, interdependent, globally distributed systems of today.” [Dufner, p. 530]

Wu and Saunders are more sanguine about the IT artifact:

“The word artifact carries multiple meanings. In the narrow sense, it refers to the more concrete IT application. In the broad sense, it is the aggregate of four elements – IT, task, task structure, and task context. The issue is not about which is the correct definition. It is about whether the concept can serve as an effective instrument to guide us in assessing the relevance of an IS study. To dissipate possible misinterpretation, perhaps Benbasat and Zmud should qualify the definition of IT artifact based on this two-fold meaning. Doing so will lead to affirmative answers to all the questions Alter raises in the section titled “Giving up on the IT artifact.” [Wu and Saunders, p. 563]

Several of the authors are interested in the relationship between information systems and IT artifacts:

“In my vocabulary, information systems form a subcategory of IT artifacts. I interpret an information system as a system whose purpose is to supply its groups of users with information about a set of topics to support their activities.” [Iivari, p.571] ... Agreeing with Weber [2003], I am ready to suggest that information systems should form the core of the IS discipline rather than IT artifacts.” [p. 572]

“I agree with Orlikowski and Iacono that we should not completely ignore the IT artifact. The IT artifact is one important part of an information system. But it is just that: it is but one part of a system. The focus of IS research should be on information systems, not IT.” [Myers, p. 583]

Holland is also concerned about information systems, but makes a definitional interpretation that might seem surprising⁴:

“Both sets of authors implicitly assume that they are referring to management information systems.” ... “However there are other types of information systems that do not fall neatly within the boundaries of management information systems yet still might be of tangential interest to the IS community, for example engineering information systems concerned with the control of large-scale manufacturing and distribution processes such as a coal-fired power station or a dark manufacturing site that employs advanced robotics” ...” Notwithstanding

⁴ Contrary to Holland’s assumption that the main topic is management information systems, one of the arguments favoring the systems in organizations approach proposed in Alter [2003b] is the ubiquity of IT-reliant systems in organizations. Such systems include “strategic IS, supply chain, ecommerce, ERP, expert systems, CAD, business intelligence, and other areas in which IT is applied in important ways.” In each case, a work system interpretation involves much more than a particular type of software running on a computer.

these other types of information systems, it is clear that the focus of the IS subject debate is on management information systems” ... [Holland, p. 600]

Whether or not we believe that information systems discussed in the IS community are mostly management information systems, what can we say about IT artifacts and work systems? Wu and Saunders’s claim that IT artifact and work system are essentially synonyms provides an additional illustration of why we need clear definitions of basic concepts along with careful distinctions about what is included and is not included within a concept:

“As Alter demonstrates with his Tables A1 and 3, [i.e. tables in Alter, 2003b], there is no substantial difference between the concept of IT artifact and his work system concept. His terminology is merely a matter of rearrangement and re-categorization, which is the result of different ways of examining the same set of criteria to define the core of IS research. Rather than introduce a new term⁵ to an old discussion, perhaps it would be better to refine the term that currently surfaces and resurfaces in the debate [Orlikowski and Iacono, 2001; Weber, 2003]. In particular, perhaps it would be better to refine what IT artifact means. The definition can be expanded to explicitly include the systems concept that is absolutely central to the IS discipline.” [Wu and Saunders, p. 563]

Ironically, one of my purposes in producing the detailed comparison in Table A1 in Appendix I of Alter [2003b] was to demonstrate that the IT artifact as defined by Benbasat and Zmud verges on being a synonym of work system but is NOT truly a synonym because it omits, or at least deemphasizes, both the information generated and used by the work system and the work system participants who perform the work (i.e., the task). Iivari [p. 572] seems to note the omission of information when he says, “the concept of information system ... implies that information is a significant part of the system.” In my view, the work system participants are also an integral part of a work system (and hence much more than just “users” of technology) even if they might not be considered part of a broadly defined IT artifact. On the other hand, stepping back and not being quite as literal, IT artifact (in Benbasat and Zmud’s definition) and work system certainly do cover a lot of the same territory. Given that most work systems of any significance in today’s world are IT-reliant. [Alter, 2003a], terms such as work system, “IT-reliant work system,” or “system in organization” are more easily understood (at least in my opinion) and more plausible for practical usage in communicating about systems, developing systems techniques, and developing a body of knowledge for the IS field⁶.

IV. WHATEVER THE CORE MIGHT BE TODAY, COULD TOMORROW BRING SOMETHING DIFFERENT?

Myers [2003] says that while he agrees that

⁵ As discussed in Alter [2003a, p. 367], *work system* appeared in two articles in the first volume of *MIS Quarterly*, [Bostrom and Heinen, 1977a; 1977b] and has been used somewhat informally by many sociotechnical researchers, consultants, and authors. My attempts to search out the relevant literature lead me to believe there have been few, if any, efforts to define the term work system carefully and to create a rich vocabulary and a set of easily used analysis methods based on carefully articulated work system concepts.

⁶ Myers [2003, p. 586] suggests that defining “a common body of knowledge for the field as a whole” might be a better approach than trying to define the core of the field. He notes that Hirschheim and Klein [2003] “propose a common body of knowledge as a high-level classification scheme ‘that does not endanger the currently very fertile pluralism that exists in the field.’ (p. 244).” As a possible step toward developing that body of knowledge, Alter [2003a, p.385] claims that treating IT-reliant work systems as the core of the IS field will help in organizing and codifying concepts and knowledge related to IS.”

“the systems in organizations focus ‘reflects a reality that we do not incorporate fully into our view of ourselves and our work,’ [Alter, 2003b, p. 513] it reflects today’s reality, not tomorrow’s. In other words, if the core becomes systems in organizations, we may still end up restricting the progress of the field, even though the systems in organizations vision is much broader than that of the IT artifact.” [p. 584]

El Sawy [2003] takes a similar direction but goes much further by presenting “three alternative faces for IS identity” and arguing that these are “alternative models of reality that accentuate particular features of phenomena and downplay others. None of them is more correct than the other, but each may be suited to different phenomena, state of IT advancement, and environmental context. They each offer utility and explanatory power. Other views also wait to be discovered.” [p. 595] The first two perspectives (Connection and Immersion) resemble the IT artifact view and the systems in organization views. El Sawy believes the third (Fusion) is currently emerging.

“The Connection view of IS comes from a model of IT in which IT is used as a tool by people to help them in their work. It is a separable artifact that can be connected to people’s work actions and behaviors It is separable from work and people, and can be pushed aside if necessary, while work might still continue.” [p. 591]

“The Immersion view of IS comes from a model in which IT is immersed as part of the business environment and cannot be separated from work and the systemic properties of interorganizational relationships. People work inside an IT-intensive environment where work processes and IT are inter-mingled, highly interdependent, and intimately influence one another. [p. 591]

“The Fusion view of IS comes from a model in which IT is fused within the business environment in a way that modulates work in hidden ways that changes the boundaries between work and personal life, and that fuses personal and public information. IT is not only immersed, but it is fused with the business environment such that they are indistinguishable to our perception and form a unified fabric. We cannot disentangle them sufficiently to study their interaction in the traditional space-time domain.” [p. 591]

The title of El Sawy’s Figure 1 [p. 590] is “The Changing Nature of IT Induces Different Views of IS Identity. “ The dates in the figure represent his contention that the Connection perspective “was shaped and reinforced in the period 1970-1995 when these aspects were salient for an IS view that saw IT mainly as a tool or as a separable artifact.” [p. 591] The Immersion perspective “was reinforced by the network interconnections and the rapid diffusion of the internet in the mid-1990s. It implies that IT includes ubiquitous network connectivity and use of internet browsers and web-enabled applications..” [p. 591] The Fusion perspective represents an “environment in which the interface and connectivity between physical and electronic processes becomes increasingly seamless, and plug-and-play capabilities between small reusable software components become richer and more adaptive. This Fusion view of IS is just starting to appear ... as systemic complexity and the quest for real-time management and work process monitoring continue to gain prominence.” [p. 592] Whether or not the IT artifact view and the systems in organizations view fit directly into El Sawy’s three perspectives, in my opinion his perspectives provide an original and important view of how a new core and new set of concerns might emerge.

IV. WHO IS THE CUSTOMER OF IS RESEARCH?

Benbasat and Zmud [2003] says that “the principal consumer of our research [is] the IT practice community.” [p. 192]. In contrast, Alter [2003a, p. 503] claims

“The IT practice community is not the consumer of our research publications. This assertion is clear from the readership of MIS Quarterly and other research-oriented IS journals. As has been stated or implied in numerous rigor vs. relevance discussions, ... the IS academic community is the consumer of

academically respectable IS research; publications written to be understandable and usable by practitioners are often viewed as unworthy of credit within the academic community.”

The identity of our customers is a key issue that will be discussed further in the conclusions. For now, consider the difference between the customers for our publications and the customers for the knowledge we produce. Only McCubbrey's response mentions the mismatch between our publications and their purported customers in the world of practice, but a number of comments pursue the question of who is the customer for the knowledge that we produce. Most of those comments support Benbasat and Zmud's view that the IS discipline's principal customer is the IT practice community:

“I would suggest that [the IS field's] identity should be based on its distinctive mission as an applied science, to support IS experts in practice.” [Iivari, p. 569-570] ... “If we take the above mission of the IS discipline seriously, it does not matter so much whether a piece of research includes errors of inclusion or errors of exclusion provided that it has something meaningful and useful to tell IS practitioners, i.e. that it can help them to develop “better” information systems.” [p. 575]

“All the major information systems issues that CIOs and IT directors face do not fall neatly within a technologically defined area. For example the alignment of business and information systems strategies, the implementation of electronic commerce strategies, ...” [Holland, p. 603] [implying that CIOs and IT directors are important customers of IS research.]

“As academicians, we are teachers and scholars. Our scholarly efforts are directed towards the needs of both the academic and practitioner communities. We are easily able to identify research topics of interest to the academic community. Where we often fall short is that we publish papers in our journals that, while they are of interest to the academic community, are of little interest to IS practitioners. As a result, practitioners are not attracted to our journals. Our journals often contain little that is relevant to practitioners' concerns, and they are busy people.” [McCubbrey, p. 553]

Several other comments see general management as an important customer:

“If we focused our research solely on IT, then the IS field as a whole could well be seen as irrelevant by senior business leaders in just a few short years. The proposed cure for the supposed identify crisis could result in the opposite effect of what was intended.” [Myers, p. 582]

“Therefore, the significance of SAP and Oracle enterprise systems to a manager lies in terms of their influence on how business processes are designed, implemented, and then continue to evolve with changes to parameters in the software, new software releases, people changes, structural changes, and strategy changes.” [Holland, p. 602] [implying general management is an important customer, rather than just IS professionals]

In my opinion, the most important question is whether we produce results that are potentially useful for IS professionals, business managers, and others whom we consider to be customers of our research. Whether or not we should be surprised that IS journals for academic researchers are ignored by busy practitioners with easy access to an abundance of more appropriately packaged material, we can surely repackage useful results for a practitioner audience if we can produce those useful results in the first place.

V. IS THE IS FIELD HAVING AN IDENTITY CRISIS?

Benbasat and Zmud's title is "The Identity Crisis within the IS Discipline: Defining and Communicating the Discipline's Core Properties." A key motivation for their paper is that

"after 30 years, insufficient progress has been made in establishing [a] collective identity. Further, recent events – the collapse of the dot.coms, the 'e-ing' of both business and other scholarly disciplines, the recent tightening of the IT job market – seem to have raised anew concerns across the discipline that the viability and unique contributions of the IS discipline are being questioned by influential stakeholders." [p. 184]

Using categories from Aldrich [1999], they argue that the IS field made significant progress on sociopolitical legitimacy but has not succeeded as well in its cognitive legitimacy as viewed by

"governing bodies, executives from public and private organizations, university and college administrators, and, most importantly, scholars from other disciplines." [p. 185]

Alter [2003b, p. 507] notes that the discussion of an identity crisis of the IS field is over 20 years old, lists numerous quotes related to the identity crises in many other social science fields, and asks whether the real problem is an identity crisis or a need to produce better, more useful results.

The responses contained a number of comments about the existence or absence of an identity crisis.

"In terms of vibrancy and growth, IS research is widely published in every conceivable medium. There is a strong cadre of IS-focused journals in the US, Europe, and Asia. IS research is also published extensively in prestigious management journals where its role in shaping and enabling new forms of organization, work patterns, industrial structures, and global business models is widely documented." [Holland, p. 605] *"IS is not a subject that is in crisis. IS faculty are based in business schools, technical departments, media and communications institutes, and social science faculties. This is to be expected if the IS problems facing industry require a multidisciplinary approach."* [Holland, pp. 605]

"One explanation for our 'identity crisis' is that it is a natural occurrence because of our varied origins. Scholars of Information Science come from a wide variety of disciplines." [Guthrie, p. 6] [Guthrie's final paragraph starts:] *"The appendix in Alter's paper provides a list, and quotations of disciplines in crisis. Even the age-old study of geography is cited as having 'another identity crisis'. Like the philosopher's creed, 'The unexamined life is not worth living.' (Socrates, 399 BCE), perhaps the unexamined discipline is not worth building."* [Guthrie, p. 559]

"Benbasat and Zmud [2003] propose that IS needs an organizational identity. ... When the issues of legitimacy and learning are examined in terms of economic reality and historical investment, IS and IT do not suffer from either a lack of legitimacy or of learning. ... Our results are based on estimates of the United States investment in computers, peripherals, and software." [Dufner, p. 527]

"Perhaps the best way for the IS discipline to end its identity crisis is develop a healthy set of theories that can be used to help its constituents understand better and deal with the dynamic technological environment in which they find themselves. If the IS discipline were stronger theoretically, it would not need to borrow so extensively from reference disciplines." [Wu and Saunders, p. 565]

VI. HOW DO INSTITUTIONAL ISSUES SHAPE OUR FIELD?

Benbasat and Zmud [2003] discuss Aldrich's [1999] concepts of cognitive legitimacy and sociopolitical legitimacy as part of their explanation of the need for a tighter identity for the IS field. An important issue that was only hinted at in Alter [2003b] is that institutional issues have had, and continue to have, an important impact on the IS field's evolution. In other words, the field's evolution depends on various institutional stakeholders, not just intrinsic characteristics of IS as a scientific or applied field.

The responses mentioned institutional issues in four areas: allocation of turf, interests of business schools, and expectations, interests of certain groups of researchers, and interests of journals. livari's contribution across these areas is especially interesting, in part because it expresses a perspective that may be unfamiliar to some readers. His points include:

(allocation of turf) ... *"Work systems represent users and their activities at the organizational level in the above framework, but to define the core and identity of our discipline in terms of IT-reliant work systems would be an attempt by IS experts to monopolize the development of work systems. I see the enhancement of work systems more as an interdisciplinary effort, in which experts from different fields are required (expertise in organizations, expertise in the application domain, and expertise in IT). IS experts represent only IT-related expertise in this enhancement effort."* [livari, p. 571]

(interests of business schools) ... *"Benbasat and Zmud [2003] attempt to define the identity and core of the IS discipline with regard to organization/business studies, assuming that Information Systems is a discipline within organization/business studies. ... This institutionalised relationship led to the adoption of the epistemology of organization studies ..., and to ignorance of the nature of the IS discipline as a science of the artificial ..., a discipline that builds artifacts."* [livari, p. 573]

(interests of certain groups of researchers) *"How can we provide the knowledge needed to support IS development? The North American IS research community has believed that the best way to support practice is to focus on descriptive-explanatory theories, hoping that they will lead to practical implications relevant to practitioners. [in a footnote: "An alternative explanation is that the major objective of the IS community was to achieve legitimacy in terms of criteria applied in organization/management studies without much concern to the practical relevance."] " It seems, however, that this approach failed badly." ... "In the most serious cases this theory-guided research will have led to research topics and problems that are simply not of interest to practitioners."* [livari, p. 575]

(interests of journals) *"It is clear that the IS discipline was essentially shaped by the publication policies of the major journals in the field. The requirements of a strong theory and rigorous empirical research methods effectively excluded meta-artifacts from these journals, largely because abstract meta-artifacts such as systems development approaches and methods are extremely difficult to validate in practice."* [livari, p. 576]

Other authors also mention issues concerning academic journals. For example, Guthrie mentions relying on "A-journals to filter the research gems from the scholarly abundance that we face with so many authors, journals, and conferences." [p. 5] (In contrast, one of the main points presented by Orlikowski and Iacono [2001] is that *Information Systems Research*, one of those A journals, rarely addressed topics at the core of the IS field.) Guthrie also discusses pressures on editors who are the gatekeepers for the institution of journals:

"In reading Weber's Editorial Comments [2003] that appear in the same issue as the Benbasat and Zmud [2003] article in MISQ, I am struck by the massive work

of an editor reviewing hundreds of papers, most of which are inappropriate or not ready for MISQ.” ... “Editors of A-journals have a massive responsibility to review a large amount of research and determine how to define the IS field.” [Guthrie, p. 558]

VII. WHAT IF WE FOLLOWED RECOMMENDATIONS ABOUT ERRORS OF INCLUSION OR EXCLUSION?

Benbasat and Zmud’s argue that there are troubling trends in IS research in the form of errors of exclusion and of inclusion. *Errors of exclusion* involve doing research without including the field’s core constructs. *Errors of inclusion* involve doing research that emphasizes constructs outside of the core. They suggest that the distinctiveness of our work and our journals could be increased by focusing on relationships that fall within the nomological net and reducing the degrees of separation between IS constructs and the key constructs in research.

Several of the responses object to the idea of errors of inclusion or exclusion.

“Excluding research because of errors of exclusion and inclusion in the nomological core would reject many relevant works, clearly weakening our discipline and our relevance.” [Guthrie, p. 558]

“If we take the above mission of the IS discipline seriously, it does not matter so much whether a piece of research includes errors of inclusion or errors of exclusion provided that it has something meaningful and useful to tell IS practitioners, i.e. that it can help them to develop “better” information systems.” [Iivari, p. 575]

“Limiting the scope of IS research to first order effects of the IT artifact may be appealing from a ‘pure IS’ core discipline perspective but it may miss the point of the research in the first place, namely to solve a particular problem in an organization where IT is an element in that problem. Most management IS problems concern how information technology is inter-related with other aspects of the organization, whether this be business processes, information modelling, strategy, production management, or whatever.” [Holland, p. 602]

To illustrate the impact of thinking in terms of errors of inclusion and exclusion, consider the way Wu and Saunders highlight an example from the table in Alter [2003b] that tried to illustrate the scope of the IS field:

“As Alter notes, some particular categories in Table A2 might fit better into other disciplines such as computer science, organizational behavior, operations management, or economics. For instance, the inclusion of the category “the importance of workarounds by suppliers and buyers in keeping supply chains operating” does not always seem to pertain to IS. [If] the “workaround by suppliers and buyers” is examined as a critical part of an information system, rather than building a new warehouse to improve distribution, then it becomes a relevant, though not necessarily core, issue.” [Wu and Saunders, p. 564]

The selection of workarounds as an example illustrating the desired inclusion versus desired exclusion was striking to me. Around five years ago I asked Diane Strong of Worcester Polytechnic Institute whether she was continuing her research about exceptions and exception handling, because I thought that her article on that topic [Strong and Miller, 1995] was interesting and addressed an important question for the IS field. That article analyzed an order fulfillment process and found a surprisingly high frequency of exceptions requiring manual intervention. The results led me to wonder about the typical rate of workarounds in various types of systems, and the effect workarounds might have on the efficiency and effectiveness of various types of information systems. More recently, I noticed that ethnographic studies frequently mention adaptations and mutual adjustment, and sometimes mention workarounds, even if not by that name. Just a month ago, I decided to change the work system framework that I used for years by

substituting “work practices” for the more idealized term “business process” because, among other things, workarounds are part of the reality of work systems that might be ignored by assuming the action occurs in accordance with a specified business process. [Alter, 2003a, p. 368]

Furthermore, a small number of companies recently started developing and selling commercial software in a category called “supply chain event management” (SCEM). Excluding supply chain workarounds (or at least certain classes of workarounds) as too involved with topics outside of IS seems to me an unnecessary and counterproductive restriction if the IS field is interested in contributing to analyzing this new type of information system. IS managers and system designers who are concerned with supply chains might be very interested in workarounds that affect the reliability of supply chains, and they probably don’t care whether some of the root causes involve topics distant from the core of the IS field, such as personal incentives or shortcomings of material systems. IS researchers might find some interesting topics related to workarounds that are not just workarounds of software bugs. Table 1 lists examples of research topics related to workarounds along with established areas of IS research that might address those topics.

Table 1. How Supply Chain Workarounds Might Fit into Established Areas of IS Research

Possible research topic related to workarounds	Established area of IS research where research related to this topic might fit
Taxonomy of workarounds	Research about conceptual modeling
Inefficiencies caused by workarounds or lack of workarounds	Research about IT economics
Workarounds as evidence of resistance to change	Research about resistance to IS
Creativity in imagining workarounds or in recognizing unwanted workarounds	Research on systems analysis and design methods
Ability to detect unwelcome workarounds	Research about data and system integrity
Workarounds in work flow systems	Research about making workflow technologies more flexible and effective.
Analogy between supply chain workarounds and IS security breaches	Research about making procedures more reliable and about security breaches

In this particular case, both scientific and practical issues imply it is a bad idea to discourage potentially fruitful research that might apply knowledge and methods that already exist in the IS community. Instead of worrying about whether supply chain workarounds are close enough to the heart of the IS field or whether any of the above topics are uniquely associated with the IS field, I think it is more valuable for the IS research community to find opportunities to apply our expertise and knowledge to produce useful results. Business and IS professionals involved in creating, operating, and improving supply chains would be well served by a better understanding of the nature of workarounds that positively or negatively affect business results they care about. Software developers in the same application area would surely benefit. Even software developers in totally different application areas could also benefit because they also need to deal with workarounds. Effective research in any of the areas in Table 1 could contribute to the IS research community by extending knowledge and by providing models for subsequent research. There is little advantage in trying to exclude or discourage research that is a bit too far from the core, even if general purpose IS journals might find those topics a bit too focused on a specific application area and might refer the research papers to more specialized journals. Encouraging research about topics that truly matter is a far more beneficial goal for IS researchers, IS practitioners, business professionals, and society in general.

VIII. SYNTHESIS AND CONCLUSION: HOW DO THE PIECES OF THE PUZZLE FIT TOGETHER?

The topics discussed in the debate about the core, scope, and possible identity crisis of the IS field resemble a puzzle whose pieces don't fit together well, and that is difficult to solve by looking at each topic in isolation. Sometimes the topic is about the knowledge we are producing; sometimes it is about our journals and their requirements; sometimes it is about IS experts versus general managers as the customers; sometimes it is about demonstrating legitimacy to external stakeholders. With diverse concerns such as these, the debate sometimes seems to jump from one topic to another without producing a coherent view of how the issues are related.

This conclusion attempts to synthesize the main points in the ten responses without repeating them and (mercifully) without writing another paper. I recognize that others might synthesize the responses differently.

Table 2 tries to fit the pieces together by identifying seven types of customers and five different types of products of IS research. The five possibilities for products incorporate the possibility that the difference between IT artifacts and systems in organizations matters to the customers. The seven customers are not only general managers and IS practitioners, but also other stakeholders including the A journals in IS. The cells in the table show my personal view of the degree of interest that each customer shows in each product. For simplicity, only three degrees of interest are allowed: high, medium, and low. Most of the cells in the table are classified into one of three color-coded categories based on the foregoing excerpts from the ten responses. The categories can be called the disconnect, the knowledge challenge, and the crisis.

Table 2. Interests of Different Customers for the Academic IS Field

Customers \ Products	General managers	IS practitioners	"A" – level journals in IS	Promotion & Tenure committees	MBA programs	Non-Ph.D. students in IS/IT programs	Ph.D. students in IS/IT programs
"A"-level articles about IT artifacts	Low	Low	High	High	Low	Low	High
"A"-level articles about systems in organizations	Low	Low	Medium	High	Low	Low	High
Knowledge about IT artifacts	Medium	High	High	Low	Medium	High	High
Knowledge about systems in organizations	High	High	Medium	Low	Medium	Medium	High
Transmission of practical knowledge to non-researchers	High	High	Low	Low	Medium	High	High

Color code:	The disconnect	The knowledge challenge	The crisis
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If a crisis exists, it is not about the core and boundaries of the IS field. Articles such as Benbasat and Zmud [2003] energize substantive debates that are an essential part of the development of knowledge. One practical application of those debates is in helping journal editors with the difficult challenge they face when they try to decide which topics to include in journals and which articles to review. Whether or not individuals might agree with particular editorial decisions, everyone in the field should appreciate the leadership they provide and the enormous effort they expend. The growth of our journals, conferences, and other publishing outlets over the last 20 years is a success story, not a crisis, even if some editorial decisions may not go our way.

If a crisis exists in the IS academic field, it is largely about our current positioning in the eyes of external stakeholders in academia. This problem is real. The IS field is barely represented or represented only indirectly in some leading MBA programs. Many computer-proficient, non-IS academic colleagues see “computer knowledge” as an old and receding problem. Some promotion and tenure committees do not recognize the rigor of IS journals or the value of IS research. The dot-com bust took the bloom off of a burgeoning area and led to faulty misgivings about the staying power of IS. On the other hand, even Carr’s [2003] article “IT Doesn’t Matter” makes absolutely no dent in the essential nature of IT and IT-reliant systems in today’s businesses. Some CEOs may have smaller ambitions for IT than we might like, but no CEO plans to turn it off.

If a crisis in academia is the problem, a tighter definition of the IS field’s core or boundaries is not the solution because whatever definition of the field we share or debate has little effect on perceptions of non-IS academic colleagues who are uninvolved. Our difficulties in academia need to be addressed through personal relationships, promotion of the field, demonstration that IS knowledge is important to business and IT students, and evidence that the academic IS field generates important knowledge ... which leads to the disconnect.

The disconnect is about ignoring the first week of Marketing 101 and assuming that journal articles exhibiting the rigor and style required by A journals somehow match the interests and needs of most general managers and IS practitioners. If it is true that general managers and IS practitioners are the customers of the academic IS field, consciously producing products whose defining features guarantee rejection by those customers seems self-defeating. Assuming that the disconnect is mostly about the rigor and style of journals designed to demonstrate research prowess, we certainly have the option of continuing those journals to support the interests and legitimacy needs of researchers while also providing other outlets directed at practitioners. The recently launched *MISQE* and the tutorials in *CAIS* provide many examples of publications that practitioners can appreciate and apply.

But what if a major part of the disconnect is about the relevance and value of the subject matter in much IS research? As reflected by grading some cells high and others medium in Table 2, most of the responses argue that a tighter definition of the IS field is unlikely to generate more results of genuine value. Most seem to favor a broader, more multidisciplinary view of the field, but even that doesn’t guarantee that genuinely valuable knowledge will be generated.

The knowledge challenge for the IS field is to produce, refine, and disseminate knowledge that enriches the field itself and can be applied in the real world. Regardless of whether the field is narrower or broader, it is important to build a vocabulary that supports a body of knowledge that can be communicated, understood, and applied. In other words, the debate about IT artifacts vs. other terminology actually does matter and is directly linked to any possibility of creating an organized a body of knowledge for the IS field.

In closing, I want to emphasize again that although I question many things about the term *IT artifact* that Orlikowski and Iacono and Benbasat and Zmud made more visible recently, I agree completely with their over-arching concern that research directly related to IT artifacts in organizations (or IT-reliant work systems, systems in organizations, or whatever one might prefer to call it) is underrepresented in our IS journals and research. More research in this area would

go a long way toward providing value for all of our constituents, including general managers, IS practitioners, students, and ourselves.

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Editor's Note: This article is the eleventh in the series titled The IS Core. Other papers in this series in *CAIS* include Articles 31 through 40, and the editorial in Article 42. These articles were motivated by Benbasat and Zmud [2003] in the *MIS Quarterly* and by Article 30 [Alter 2003b] in this journal. The article was received on November 14, 2003 and was published on November ____, 2003.

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APPENDIX: ISSUES RELATED TO THE CORE AND SCOPE OF THE IS FIELD, EXPRESSED AS THE FIRST DRAFT OF AN OPINION SURVEY⁷

<p>1. To what extent do you believe the IS field has a core?</p> <p>a) ___ It has a core that can be defined clearly.</p> <p>b) ___ It contains a range of topics, but precise agreement on those topics is not very important.</p> <p>c) ___ Given the state of the field, it is inappropriate to define a core because that might be counterproductive.</p> <p>If you answer a), please identify the core _____</p>
<p>2. Benbasat and Zmud [2003] follow Orlikowski and Iacono [2001] in stating that the IT artifact is at the core of the IS field. To what extent do you agree?</p> <p>a) ___ Agree strongly.</p> <p>b) ___ Something like the IT artifact is present, but "IT artifact" is fuzzy and has many interpretations.</p> <p>c) ___ Disagree because the core should be characterized in a different way.</p> <p>d) ___ Don't know because the definition of "IT artifact" is too unclear.</p> <p>If you answer c), please describe how the core should be characterized _____</p>

⁷ Feel free to select or extend the "questionnaire" and use the result in any way you see fit (including use of the entire questionnaire in a classroom exercise about fixing flawed questionnaires).

<p>3. Benbasat and Zmud [2003] propose that IS research should focus on the IT artifact and its immediate nomological net, and that the research variables should be intimately related to the IT artifact. To what extent do you agree?</p> <p>a) ___ Agree strongly.</p> <p>b) ___ Agree that more research is needed, but question the desirability of limiting the scope of IS research.</p> <p>c) ___ Disagree because diversity and inclusiveness are more important than establishing the uniqueness of the IS field.</p>
<p>4. To what extent is the IS field about development, implementation, operation, evaluation, maintenance, and long-term evolution of systems in organizations, including variables and theories from any relevant discipline?</p> <p>a) ___ Good characterization of the field.</p> <p>b) ___ Inadequate characterization because it does not focus on IT .</p> <p>c) ___ Possibly a characterization of some other field, but not the IS field.</p> <p>If you answer b) or c), please give your characterization of the IS field _____</p>
<p>5. To what extent is the use of IT within specific business activities, tasks, or processes relevant to the IS field?</p> <p>a) ___ This is at the core of the field.</p> <p>b) ___ This is among many important topics.</p> <p>c) ___ This is tangential or unrelated to the IS field.</p> <p>If you answer c), please describe please identify a field in which usage of IT fits _____</p>
<p>6. To what extent is the context within which IT is used (i.e., the environment that surrounds the activities, tasks, and process in which IT is used) relevant in IS research?</p> <p>a) ___ This is often a central concern.</p> <p>b) ___ This is among many important topics.</p> <p>c) ___ This fits better in other disciplines.</p> <p>If you answer c), please name those disciplines _____</p>
<p>7. To what extent is the codified information within the situation(s) being studied relevant in IS research?</p> <p>a) ___ This is often a central concern</p> <p>b) ___ This is often one of many important topics</p> <p>c) ___ This fits better in other disciplines.</p> <p>If you answer c), please name those disciplines _____</p>
<p>8. To what extent are human interactions, conversations, and other non-codified information within the situation(s) being studied relevant in IS research?</p> <p>a) ___ This is often a central concern.</p> <p>b) ___ This is often one of many important topics.</p> <p>c) ___ This fits better in other disciplines.</p> <p>If you answer c), please name other disciplines _____</p>
<p>9. To what extent are users of hardware and software integral parts of the systems studied in IS research?</p> <p>a) ___ They are participants in the systems. The systems include who they are, what they know, and what they do.</p> <p>b) ___ They are users of technology and the way they use technology is relevant to the IS field.</p> <p>c) ___ They are not part of the systems that are being studied. They are users of those systems.</p>
<p>10. To what extent are people who are not direct users of hardware and software integral parts of systems studied in IS research?</p> <p>a) ___ IS research should include them and what they do because they are participants in those systems even if they don't use IT directly.</p> <p>b) ___ Direct users of technology are much more important to IS research than non-users even when the non-users are participants in the same work systems.</p> <p>c) ___ Non-users of IT are not part of the systems that IS research should study.</p>
<p>11. To what extent is the IS field about the work of IS professionals?</p> <p>a) ___ This is at the core of the field.</p> <p>b) ___ This is among many important topics.</p> <p>c) ___ This is tangential or unrelated to the core of the IS field because the core is about IT artifacts.</p> <p>d) ___ This is tangential or unrelated to the core of the IS field because the core is about how IT-reliant systems operate in organizations.</p>

12. Whether or not you believe the IS field has articulated concepts, frameworks, and theories that are useful for IS research, to what extent has the IS field contributed concepts, frameworks, and theories that are useful to IS professionals?

- a) ____ The contribution has been very large.
- b) ____ The contribution has been relatively small.
- c) ____ The contribution has been minimal.

If you answer a), please name three or more of these concepts, frameworks, or theories

13. Whether or not you believe the IS field has articulated concepts, frameworks, and theories that are useful for IS research, to what extent has the IS field contributed concepts, frameworks, and theories that are useful to business managers and other professionals who are not IS professionals?

- a) ____ The contribution has been very large.
- b) ____ The contribution has been relatively small.
- c) ____ The contribution has been minimal.

If you answer a), please name three or more of these concepts, frameworks, or theories

ABOUT THE AUTHOR

Steven Alter is Professor of Information Systems at the University of San Francisco. He holds a B.S. in mathematics and Ph.D. in management science from MIT. He extended his 1975 Ph.D. thesis into one of the first books on decision support systems. After teaching at the University of Southern California he served for eight years as co-founder and Vice President of Consilium, a manufacturing software firm that went public in 1989 and was acquired by Applied Materials in 1998. His many roles at Consilium included starting departments for customer service, training, documentation, technical support, and product management. Upon returning to academia, he wrote an information systems textbook that is currently in its fourth edition with a new title, *Information Systems: Foundation of E-business*. His articles appear in *Harvard Business Review*, *Sloan Management Review*, *MIS Quarterly*, *Interfaces*, *Communications of the ACM*, *Communications of the AIS*, *CIO Insight*, *Futures*, *The Futurist*, and many conference transactions.

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