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DIFFERENTIATING INFORMATION SYSTEMS AND INFORMATION TECHNOLOGY AS FIELDS OF STUDY: AN EVALUATION OF MODEL CURRICULA

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Abstract:

This essay analyzes the relationship between Information Systems and Information Technology as fields of study. Our goal is to start a comprehensive conversation regarding the role of Information Systems and Information Technology as computing disciplines. Specifically, this paper will identify key distinguishing factors for both fields by evaluating their model curricula (IS 2010 and IT 2008, respectively). This analysis builds on prior comparisons and provides a more in-depth understanding for stakeholders (i.e., faculty, administrators, practitioners, students and parents, and accreditors) regarding the differences and similarities between these disciplines. This preliminary evaluation will include: 1) a brief history of each discipline, 2) an analysis of the similarities and differences between the curricula and 3) recommendation for moving this conversation forward.

Keywords: Information Systems, Information Technology, model curricula

I. INTRODUCTION

The purpose of this essay is to analyze and discuss the relationship between Information Systems and Information Technology, two academic fields of study that both reside at least partially within the broader field of computing [Shackelford et al., 2006]. In some respects, these fields are very similar to each other and, in others, they are quite different. One of the difficulties is that neither term is defined unequivocally nor in a way that is universally accepted. In this paper, we use the terms to refer to fields of study within computing (instead of technology or systems).

Why is this type of analysis necessary? There are several reasons that justify this effort, including the following:

1) Even though earlier work in this area -- primarily [Shackelford et al., 2006] but also [Agresti, 2011] -- continues to provide useful guidance, various academic stakeholder groups can benefit from additional clarity regarding these two fields of study, including administrators and faculty decision related to the development and maintenance of programs of study in Information Systems and Information Technology.

2) Similarly, it will be useful for students, their parents, advisors and guidance councilors, and others involved in processes related to students' choices regarding academic programs to have materials based on as sound conceptual foundation as possible.

3) Academic and professional societies (such as ACM, AIS, and IEEE-CS) that develop and maintain curriculum guidance can benefit from this type of an analysis when they are making decisions regarding the structure and scheduling of the documents they maintain.

4) Organizations involved in computing accreditation (primarily ABET and CSAB, as the ABET lead society responsible for both Information Systems and Information

Technology) can also benefit from an up-to-date analysis of the identity and nature of these disciplines, particularly in the context of the criteria development processes.

The primary justifications for this study are related to education within these fields, but we will also discuss the issue of comparing the fields from the research perspective, recognizing that it is possible that the analysis results might end up being quite different.

A great deal has been written about the identity and nature of the Information Systems field as part of a natural process of disciplinary evolution and maturation (see, e.g., [Hassan, 2010] [Hassan, 2011] [Grover et al., 2006] [Hirschheim and Klein, 2012]). The volume and depth of the literature exploring the field of Information Technology are not quite as extensive because of the relatively young age of IT as a field of study. During the recent years several scholars in IT have, however, made systematic efforts to start to understand their field better [Agresti, 2011] [Lunt and Reichgelt, forthcoming] [Reichgelt et al., forthcoming]. It is our hope that this paper will contribute to the self-analytical processes within both disciplines through the systematic analysis of similarities and differences.

Information Systems and Information Technology are not the only disciplines in the broader space that explores issues related to information, information technology, human users, organizations, and the tasks and goals related to the use of information technology. Among the most closely related and also organizationally interesting are information science (see, e.g., [Sawyer and Huang, 2007] and various subfields of informatics, such as social informatics [Kling, 2007] or health informatics [Coiera, Magrabi, and Sintchenko, 2013]). These disciplines are not included in the scope of this paper, except in those cases when they support the key goal of understanding the relationship between Information Systems and Information Technology. These other comparisons provide excellent opportunities for future research.

The structure of this paper is as follows: we will provide a brief description of the history and evolution of both Information Systems and Information Technology as academic fields of study. We will then describe three earlier efforts that have compared these two fields from different perspectives and for different purposes. Next, we discuss the approach used for the analysis presented in this paper, followed by the analysis itself. The paper will be completed with a discussion on implications of the analysis and recommendations based on it.

II. INFORMATION SYSTEMS: HISTORY AND EVOLUTION

One of the challenges in any analysis of discussing the field of Information Systems is that the term itself is not defined unambiguously. Most observers agree that integration between computing and at least one domain of practice is a key characteristic of Information Systems. Some academics, however, consider Information Systems only a field that focuses on the domain of business or, slightly more broadly, all goal-oriented human organizations. Others, however, take a significantly broader view and include under the umbrella of Information Systems all endeavors that study the use of computing to enable and support goal-oriented activities within any domain of practice. The latter is, for example, the view adopted by IS 2010 [Topi et al., 2010]. In this analysis, we follow the latter, broader approach to defining Information Systems as a field, while still recognizing that the largest and most dynamic academic community related to information systems focuses on businesses and other organizations as the domain of practice. A related challenge is that the field has from the beginning had a number of different names [Dickson, 1981] [Topi et al., 2010, p. 367].

This brief background review of the history and process of evolution of the field of Information Systems is primarily based on two historical reviews of the field: Gary Dickson's "Management Information Systems: Evolution and Status" [Dickson, 1981] and Hirschheim and Klein's [Hirschheim and Klein, 2012] "A Glorious and Not-So-Short History of the Information Systems Field". For space reasons, we present the review as a summary in Table 1.

III. INFORMATION TECHNOLOGY: HISTORY AND EVOLUTION

The conceptual confusion related to the use of the term Information Technology to describe a field of research and practice is even greater than that related to Information Systems. The phrase has at least three separate meanings:

1) Technical artifacts that are used to collect, store, process, and disseminate data, information, and knowledge following, for example, [Whisler, 1970];

2) A management discipline based on, for example, by [Whisler and Shultz, 1962], who suggested that " the computer is the basis for a new information technology that may be a vital part of the way organizations are run in the future" (p. 82, emphasis added; see [Kline, 2006] for an excellent discussion of how the phrase "information technology" was developed), and

3) The emerging academic discipline that is the focus of this analysis.

The identity, history and evolution of the IT discipline have not been discussed as actively as these characteristics of the IS discipline given the significantly shorter history of IT, but there are at least two papers that have described and analyzed the first decade or so of IT as a discipline [Agresti, 2011]; [Lunt and Reichgelt, forthcoming].

Before providing a brief summary of the IT discipline, it is important to identify one additional conceptual challenge. Instead of one nascent IT movement in early 2000s, there were two of them, although one was later transformed so that these parallel processes are not any more visible. The first one of these movements is the process focused on the collaboration among and support for the undergraduate degree programs in IT. The second one started to emerge in early 2000s as collaboration between schools of information and computing. Table 2 summarizes the history of this movement from which the iSchools eventually emerged.

This development also "IT" as the name of a field to be used primarily in the context of undergraduate degree programs and curriculum recommendations. The first one of these programs had been introduced in 1992 [Lunt and Reichgelt, forthcoming], and a formal effort to develop a model curriculum for IT programs was launched in 2001. The final outcome of this process was the IT 2008 curriculum recommendation accepted by the ACM and IEEE-CS. Even before that, IT had been established as a separate subfield of computing through the acceptance of IT accreditation criteria by ABET in 2004 and the inclusion of IT in the Computing Curricula 2005 document [Shackelford et al., 2006]. In 2013, there are about 50 IT programs in the U.S., about 20 of which are accredited by ABET.

The IT 2008 document discusses the "pillars" of IT, which include programming, networking, human-computer interaction, database, and web systems, with the overarching themes of information assurance and security and professionalism [Lunt et al., 2008, p. 18]. Given the educational focus of the development of the IT development, one good way to get an understanding of the intent of the IT programs is to look at the organizational roles IT graduates are expected to fulfill. Both the IT 2008 document and a description of the history of the IT discipline by [Lunt and Reichgelt, forthcoming] emphasize the impact of the unmet organizational needs as one of the key driving forces underlying the development of the IT programs in the U.S. IT programs had to be created because no other computing discipline was producing graduates that had the required competencies for the infrastructure, systems administration, and systems integration jobs.

Table 1. Brief History of the Information Systems Field

Approx. Year	[Dickson, 1981]		[Hirschheim and Klein, 2012]		
	Period	**Description**	**Period**	**Description**	**Examples Areas of Emphasis**
1958	MIS concept	• MIS coined in "Management in the 1980s" [Leavitt and Whisler, 1958] • [Stoller and Van Horn, 1958] use of the term "Management Information System."	First Era	Beginning to think about decision making, information and management	• Applications Techniques • Users' interactions • Analysis of the system
~1960s		• Focused on the "relationship among decision making, information and management" [Dickson, 1981, p. 8] • Gallagher's "Management Information Systems and the Computer." [Gallagher, 1961].			
~1970s	MIS sub areas	Systems planning, analysis, design, and development and Managing MIS activity. Four major research frameworks: • [Mason and Mitroff, 1973] • [Chervany et al., 1972] • [Nolan and Wetherbe, 1980] • [Ives et al.,1980].	Second Era	• The new field brought together academics and practitioners from a number of fields of research [Davis and Olson, 1985]. • The first review articles started to appear (including [Dickson, 1968]) • New textbooks provided overviews of the new fields to students	• Systems planning, analysis, design and development • Managing technology activities
1980s – 1990s			Third Era	Development of PC and LANs	• Organizational computing • IS productivity • Value of IS • Acceptance • Group Support Systems
Late 1990s – 2000s			Fourth Era	Manage highly distributed systems	• IT artifact • Virtual teams • Globalization

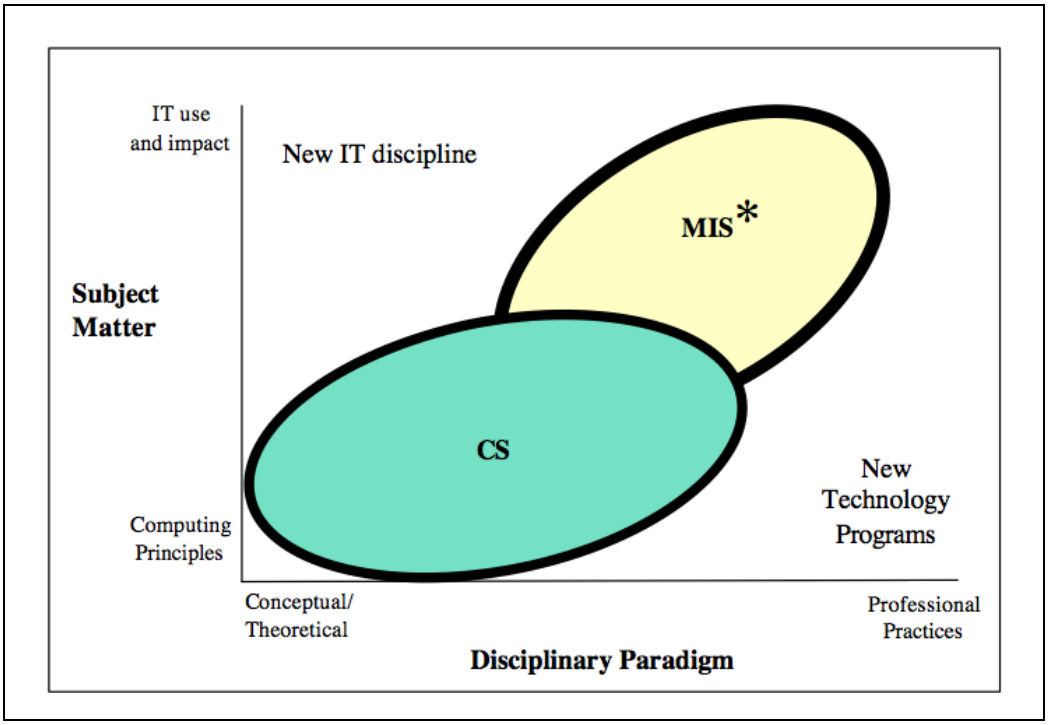

Figure 1. Mapping of CS, MIS, and "the New Discipline of IT" by [Finkelstein and Hafner, 2002].

Table 2. Summary of the iSchool Movement.

Period	Description
~2001-2008	Computer Resource Associates (CRA) IT Deans Group. Heads of informatics, information sciences, computing
~2004-05	Agenda titles started to change from IT to “i” (information moniker)
~ 2008 - 2009	CRA IT Deans Group merged with iSchool Caucus. Focus on information related topics. CRA IT Deans group drops IT from its name.

IV. EARLIER COMPARISONS OF IS AND IT

This section will describe three earlier comparative analyses between IS and IT, which all have their own specific focus and orientation. The first one was prepared as a discussion paper for an IT Deans meeting in 2002 [Finkelstein and Hafner, 2002]. The second one is probably the best known of the three, the joint ACM/AIS/IEEE-CS document CC 2005: Overview Report [Shackelford et al., 2006], which evaluates five computing disciplines based on their undergraduate curriculum recommendations. The final comparison is included in Agresti's recent proposal for a research agenda for the IT discipline [Agresti, 2011].

In the report discussed earlier, [Finkelstein and Hafner, 2002] present an interesting mapping in which they position Computer Science, (Management) Information Systems, and the "New IT discipline" in a space defined with two axes: one focusing on the subject matter on the Computing principles -- IT use and impact axis and the other one focusing on the Conceptual/theoretical -- Professional practices distinction. This mapping is depicted in Figure 1 (adapted directly from [Finkelstein and Hafner, 2002]).

This mapping leads to a couple of interesting observations. First, the Information Systems community would be very likely to disagree strongly with its characterization of (M)IS. For example, Finkelstein and Hafner explicitly state that "both research and education in MIS focus

more on professional practices than conceptual underpinnings" (p. 3). This is a surprising statement, given that the IS community has focused a very significant amount of effort on topics related to adoption, use, and impact of information technologies [Venkatesh, Davis, and Morris, 2007] [Orlikowski and Robey, 1991] [Markus and Robey, 1988]. On the other hand, the authors have in a very insightful way separated the research opportunities for the new IT discipline from what they call "new technology programs". They suggest that there is (or at least was) a clear void of educational programs that focus on professional practices related to and derived from computing principles. This is exactly the space that the IT programs are intending to fill.

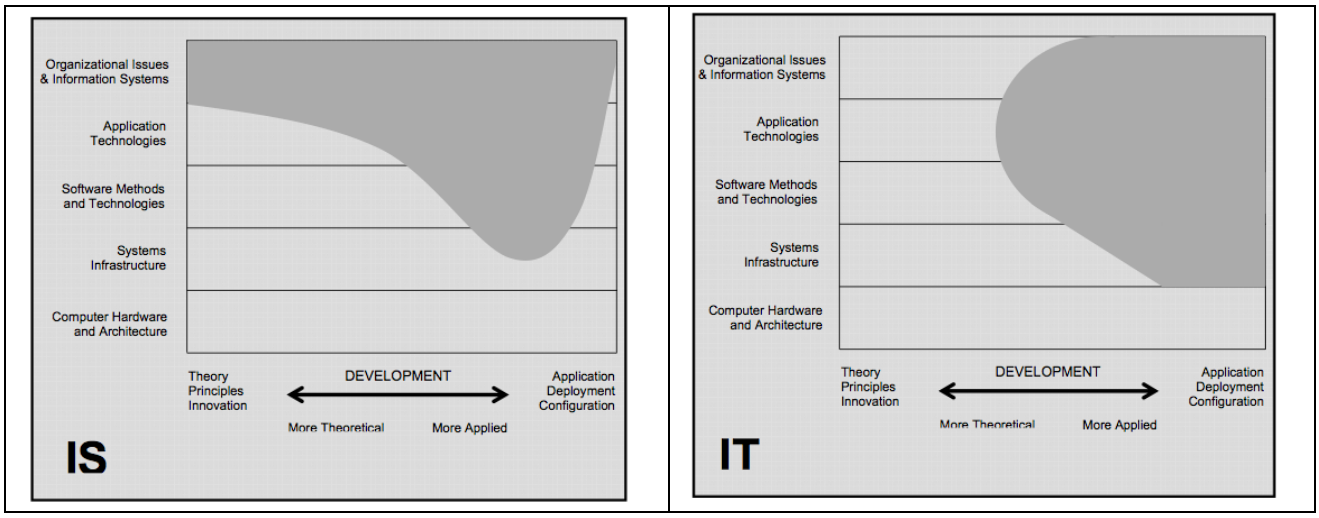

Figure 2. Analysis of IS and IT (CC 2005)

In early 2000s, ACM, AIS, and IEEE-CS collaborated to produce a joint document that provides an integrative review of the curriculum recommendations for five computing disciplines: Computer Engineering (CE 2004), Computer Science (CS 2001), Information Systems (IS 2002), Information Technology (pre-version of IT 2008), and Software Engineering (SE 2004). CC 2005 provides a different type of a graphical analysis regarding the computing disciplines; Figure 2 below shows how it illustrated the areas of interest for Information Systems and Information Technology, respectively.

The axes here are, in practice, the same as in [Finkelstein and Hafner, 2002], which itself is interesting given that the illustrations were developed independently. In CC 2005, the vertical axis provides a higher level of granularity and on the horizontal axis CC 2005 uses "applied" instead of "professional practice," but analytical framework is the same. The analysis results are, however, somewhat different in that CC 2005 explicitly identifies the theoretical contributions of IS at the higher levels of abstraction. CC 2005 identifies the same educational space for IT as Finkelstein and Hafner did with the "new educational programs" label, but CC 2005 extends the application area of IT further towards "Organizational Issues and Information Systems."

Agresti's [Agresti, 2011] discussion on the IT research agenda includes an Appendix that focuses on the relationship between IS and IT. In his analysis, Agresti first briefly reviews the Bodies of Knowledge for IS and IT and then discusses the CC 2005 positioning of the disciplines. He emphasizes the focus of IT on "the deployment, structuring and configuring computing artifacts" (p. 260), particularly focusing on deployment as an anchor word was IT in the same way as CS is related to (computing) theory, CE to hardware, SE to development, and IS to organizations (including all sizes of collectives of people, such as groups and teams, but also the society as a whole).

In sum, three relatively recent efforts have compared the fields of IS and IT with each other; all have identified a conceptual distinction between them. All emphasize the strong focus of IS on organizations and their use of computing technology to enable and support the achievement of

organizational goals and the relatively significantly stronger focus of IT on the deployment, structuring, and configuring of technology infrastructure.

V. APPROACH TO COMPARISON BETWEEN IS AND IT

When developing or choosing a framework for comparing academic disciplines or fields of study, there are many approaches from which one can choose. For example, it would be possible to apply a comparison framework used in an earlier study (such as [Sawyer and Huang, 2007]) that has compared one of the fields with a third field. Another option would be to build a new framework based on a study or a stream of studies that have analyzed the characteristics of a single field or discipline (such as [Hassan, 2010; Hassan, 2011]). Typically the comparison processes create or adapt a framework and then use the framework to support an analytical process that uses research literature of the field as its material.

What makes this task a challenge in the current case is that it is not clear at all what material could be used to define the IT field or provide a representative sample of its literature. In IS, most analyses of the intellectual content of the field have used one or two of the top journals of the field (MIS Quarterly and ISR), the so called IS Senior Scholars' Basket of Journals (http://home.aisnet.org/displaycommon.cfm? an=1&subarticlenbr=346), which currently includes six journals in addition to MISQ and ISR, or some subset of the basket. Few observers would question the representativeness of these choices of the field of IS.

As a new discipline, IT has yet to develop mature bodies of research. Several authors have written essays in which they have proposed research directions for IT, including [Finkelstein and Hafner, 2002], [Reichgelt, 2004], [Agresti, 2011], and [Reichgelt et al., forthcoming]. Although a review of these materials reveals some common themes, there simply is not yet a sufficient body of accumulated executed research or plans for future research streams for a true comparison between the fields based on scholarship.

Therefore, any meaningful comparison between IS and IT has to be based on education. As [Reichgelt et al., 2004] suggest, there are two possible ways to approach this: 1) based on model curricula and other similar documents that the field has developed for itself as a specification of what degree programs in the discipline should cover and what the qualifications of a graduate from a degree program are; and 2) based on the curricula of actual existing programs. For the purposes of this discussion the former approach will be used; the latter will be left for future work.

The following section will compare IS and IT based on expected characteristics of the graduates (outcome expectations) and the bodies of knowledge of each of the disciplines.

VI. COMPARISON OF THE DISCIPLINES

Capabilities of graduates

The latest restructuring of the undergraduate IS model curriculum (IS 2010; [Topi et al. 2010]) was driven by a comprehensive revision of high-level graduate capabilities. In turn, these high-level capabilities were translated into three knowledge and skills areas: IS specific knowledge and skills, foundational knowledge and skills, and domain fundamentals. Further, these sets of knowledge and skills were used to guide the development of curriculum topics or courses. The IT model curriculum has developed the curriculum topics and courses based on program outcomes, which were grounded in the IT Fundamental Pillars (see [Lunt et al., 2008]). The program outcomes, similar to the high-level capabilities in the IS 2010, provide the framework for developing the curriculum body of knowledge, in which specific knowledge areas guide curriculum topics. Table 3 presents both the IS 2010 high-level IS capabilities and the IT 2008 pervasive themes of program outcomes.

When evaluating the similarities between the high-level capabilities of IS 2010 and the outcome themes of IT 2008, we see two clear similarities. First, problem solving capabilities are prevalent on both sides. IT 2008 lists problem solving explicitly, whereas IS 2010 uses terms such as understanding, identifying and evaluating, and designing to refer to problem solving abilities. Second, managing complexity is also common to both the IS 2010 and IT 2008 capabilities: IT 2008 again includes it explicitly whereas IS 2010 assumes it as a prerequisite for several of the high-level capabilities (very directly in the context of information requirements).

Some differences are also evident when evaluating IS 2010 and IT 2008. Specifically, IS 2010 focuses on the *organizational* needs such as scanning for solutions, understanding IT risks, identifying solutions, and so on. On the other hand, IT 2008 emphasizes the development and deployment of *technology* resources. The IS 2010 high-level capabilities are explicitly aligned with the organization, whereas IT 2008 focuses exclusively on development, operations, and user support within the IT function. Understanding the organization which you serve is critical for all IS capabilities whereas the capabilities of

IT graduates focus on the technology itself and its individual users. The italicized elements in Table 3 are intended to highlight these differences.

Table 3. High-Level Comparison of IS 2010 and IT 2008

IS 2010: High-level IS capabilities	**IT 2008: Pervasive themes of program outcomes**
Improving *organizational* processes	*User* centeredness and advocacy
Exploiting opportunities created by technology innovations	Extensive capabilities for problem solving across a range of integrated information and communication *technologies* and their associated *tools*
Understanding and addressing *information requirements*	The ability to *manage complexity* through abstraction & modeling, best practices, patterns, standards, and the use of appropriate tools
Designing and managing *enterprise* architecture	
Identifying and evaluating solution and sourcing alternatives	
Securing data and infrastructure	Information assurance and security
Understanding, managing, and controlling IT risks	
	Professionalism Adaptability Interpersonal skills

Another mechanism for comparing IS and IT at the high level based on the model curricula is to compare the expectations regarding the individual knowledge and skills that the graduates will have (see Table 4, which has been organized to highlight the similarities and differences between the disciplines). Both model curricula provide such a list, although they are, again, not exactly at the same level of abstraction.

Table 4. Comparison of Knowledge and Skills Between IS 2010 and IT 2008

	IS 2010: Knowledge and Skills of IS Graduates	**IT 2008: The Skill Set That an IT graduate "Must Acquire"**
Specific to the field	Identifying and designing opportunities for IT-enabled organizational improvement Analyzing trade-offs	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems An ability to effectively integrate IT-based solutions into the user environment
	Designing and implementing information systems solutions	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs An understanding of best practices and standards and their application
	Managing ongoing information technology operations	An ability to use current techniques, skills, and tools necessary for computing practice An ability to use and apply current technical concepts and practices in the core information technologies
Foundational	Leadership and collaboration	An ability to function effectively on teams to accomplish a common goal
	Communication Negotiation	An ability to communicate effectively with a range of audiences
	Analytical and critical thinking, including creativity and ethical analysis	An understanding of professional, ethical, legal, security and social issues and responsibilities An ability to analyze the local and global impact of computing on individuals, organizations, and society
	Mathematical foundations	An ability to apply knowledge of computing and mathematics appropriate to the discipline
		Recognition of the need for and an ability to engage in continuing professional development
		An ability to assist in the creation of an effective project plan
Domain of practice	General models of the domain	
	Key specifications within the domain	
	Evaluation of performance within the domain	

The two curricula have clear similarities: 1) both identify the importance of individual graduates' foundational skills and knowledge (using the IS terminology) related to communication, team work, negotiation, critical thinking, ethical and moral reasoning, and appropriate mathematical capabilities; 2) both discuss the need to be able to identify and analyze a problem (in the case of IS, specifically organizational improvement) and specify a set of computing requirements that will provide a solution; and 3) both include the design and implementation of computer-based systems as one of the fundamental knowledge and skill areas.

There are also significant differences: 1) IS includes an explicit educational objective components related to a domain of practice (most typically business but potentially any field of human

endeavor that can benefit from computer-based solutions); 2) also at this level, IS is clearly focused on organizational capabilities and changes, whereas IT talks more generically about "a problem," "desired needs," "user needs," and "user environment;" and 3) in IS the perspective on IT operations is "managing," whereas IT refers to the "ability to use and apply current technical concepts and practices."

Bodies of Knowledge

Both IS 2010 and IT 2008 include a body of knowledge for the discipline. Table 5 presents the highest level knowledge areas for both IS and IT (only those elements that belong to the required core) organized to highlight the areas specific to each field and those that are shared.

As the similarities and overlapping areas in the bodies of knowledge suggest, the curriculum recommendations are not mutually exclusive. They share coverage of foundational professional capabilities, data management, human-computer interaction/usability and certain elements of IT infrastructure. However, the IS 2010 and IT 2008 each also have distinct elements, as demonstrated in Table 5. First, ties to the organization and domain of practice are deeply engrained in IS 2010. By focusing on the domain of practice, graduates of programs following IS 2010 are acculturated in the organization and therefore focus on solving organizational problems using information products or services they develop or integrate. Graduates of programs following IT 2008 are geared toward the IT functional area that which develops and maintains systems. Both types of capability sets are useful and important; they simply prepare the graduates for different organizational roles.

Table 5. Comparison of Highest Level Knowledge areas for both IS and IT

	IS 2010	IT 2008
IS Specific	IS Management and Leadership Systems Analysis and Design IS Project Management Enterprise Architecture Domain: General models Domain: Key specialization Domain: Evaluation of performance	
IT Specific		Information Technology Fundamentals Information Assurance and Security Interactive Programming and Technologies System Administration and Maintenance System Integration and Architecture Web Systems and Technologies Programming Fundamentals
Shared computing foundations	Net Centric Computing Operating Systems	Networking Platform Technologies
Shared but with a different emphasis	User Experience	Human Computer Interaction
	Data and Information Management	Information Management
	Professional Issues in IS Leadership and Communication Individual and Organizational Knowledge Work Capabilities	Social and Professional Issues Math and Statistics for IT

VII. IMPLICATIONS AND RECOMMENDATIONS

One of the key findings of this analysis is the importance of separating the identity and nature of a field as an area of research from the conceptual analysis of educational programs in the field. Our analysis suggests that degree programs in Information Systems and Information Technology serve a different purpose and that it would be useful to strengthen the identities of the programs and acknowledge the distinctive value of the different capability sets that the programs offer. It is not clear at all whether or not this difference exists in research; this requires further analysis.

Further, academic disciplines should be analyzed based on the intellectual pursuits associated with them and not based on the institutional structures and politics that often drive such conversations. IS and IT are clearly legitimate fields of study and professional disciplines that serve very useful (but different) practical purposes. There is an organizational need for both types of graduate capabilities. Understanding the fields of IS and IT is much easier if we analyze the nature of the scientific inquiry in these fields separately from the analysis of the educational programs and don't try to force a strict match between science and education where one does not exist. Therefore, our focus has been on educational programs.

The results of our analysis suggest that degree programs in IS and IT can be conceptually separated from each other and that they serve different purpose. IS programs prepare their graduates for roles that address organizational problems and opportunities with computing-based solutions whereas IT programs prepare their graduates for roles that focus on the deployment and management of the technology itself. Even though both types of activities take place in the organizational context, the foci are sufficiently different to maintain a separate identity for the programs. This enables improved guidance to key stakeholders, including the following:

1) Academic administrators have improved clarity on how to develop and maintain programs that suit their faculty knowledge and skills, address the needs of key recruiters, and align with their host units (such as business school, school of computing, etc.).

2) Students, parents and guidance counselors can better understand the professional employment opportunities associated with both IT and IS programs.

3) Recruiters can better target their efforts based on the true needs of the organization.

4) Academic and professional societies can use this guidance to decide which types of educational resource development activities they want to support and how to structure these efforts.

5) Computing accreditation bodies can use this analysis to gain a more nuanced understanding of the distinction between degree programs in IT and IS, leading to better guidance and clearer evaluation processes for programs that are seeking for accreditation.

Subtle differences related to academic organizational structures and scholarly disciplines are difficult for external stakeholder groups to understand and for academic organizations to communicate. If one does, however, focus on essential characteristics of the educational offerings, the distinction between IS and IT programs can be articulated clearly and in a way that allows all actors in the organizational computing space achieve their goals better.

VIII. CONCLUSION

The main goal of this essay is to improve our collective understanding of the differences and similarities between undergraduate degree programs in the two organizationally focused computing disciplines, Information Systems and Information Technology. We have argued that this distinction can be understood much better if the analysis focuses on the programs themselves separated from research and organizational structures. Based on an analysis of the most recent model curricula, we suggest that the difference between IS and IT is significant enough to warrant the distinction between the fields. IS graduates focus on the improvement of an organization from the perspective of its domain of practice whereas IT graduates focus on the deployment and management of computing technologies in an organizational context. This essay is only an early-stage contribution to advance this important conversation, which should significantly help both academic disciplines to articulate their identities to both internal and external audiences. Obviously, much work remains to provide a clear set of guidelines.

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