Communications of the Association for Information Systems

Volume 28 Article 13

3-2011

Addressing the Credibility Crisis in IS

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Abstract:

A credibility crisis continues to plague the information systems (IS) discipline. For decades IS has struggled to acquire and maintain its stature as a highly-respected academic discipline. The recent demise of several IS programs around the world highlights the credibility crisis, as departments have been subsumed into other business disciplines, or worse yet, abandoned entirely. In a recent *MIS Quarterly* article, Gill and Bhattacherjee [2009] highlight some of the challenges facing IS: low student enrollments, research that is rarely discussed in our classrooms, and research that fails to make an impact in practice. While useful tactics in terms of research [Dennis et al., 2006], student recruitment [Koch et al., 2010; Looney and Akbulut, 2007] and pedagogy [Firth et al., 2008] have surfaced, a holistic strategy for addressing the credibility crisis has yet to emerge. This article summarizes a panel discussion at the AMCIS 2010 conference, where a group of distinguished IS professors offered their unique perspectives on the challenges, origins, and solutions related to the current credibility crisis in IS.

Keywords: future of information systems, practice, education, research, enrollment, and credibility crisis

Volume 28, Article 13, pp. 199-212, March 2011

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I. INTRODUCTION

The purpose of this article is to discuss the credibility crisis facing the IS (information systems) field. Extending the credibility crisis panel at the 2010 Americas Conference on Information Systems (AMCIS), this article defines the credibility crisis, discusses its historical roots, and suggests how to address it. The conclusion calls for broadening this article's U.S. perspective by increasing the global dialogue on this topic.

II. THE CREDIBILITY CRISIS

The question, "What is IS?" best describes the credibility crisis [Somers, 2010]. When you tell people you are in IS or IT (information technology) the next question is invariably "What do you do?" As scholars we struggle to define IS, and, if we struggle, our colleagues and the public will continue to downplay the importance of IS. This situation does not plague other business school disciplines like accounting, marketing, and finance. While most laypeople do not understand the daily life of an accountant, they do have a general sense of the importance and purpose of accounting. The confusion regarding the IS discipline is evident in the variety of schools and colleges that house IS programs: colleges of computing, information, library science, and computer science, as well as business schools [Somers, 2010].

The pluralistic nature of IS [Somers, 2010] creates some of this confusion. On one hand, IS is the connective tissue that links an organization together; on the other hand, being the connective tissue creates questions concerning the boundaries of IS. Within the business school some accounting departments offer accounting IS tracks, distribution programs offer concentrations in distribution technology, and, most recently, marketing departments offer business intelligence courses. While scholars in these disciplines likely feel that IS programs are taking their content, IS scholars feel that "other disciplines are encroaching on IS and claiming pieces of it for its own" [Somers, 2010, p. 385].

We all face these issues as we struggle to explain what our field is, what IS professionals do, and the important contributions our research makes. Building on previous IS research [e.g., Gill and Bhattacherjee, 2009; Somers, 2010] this article defines the IS credibility crisis as uncertainty about the domain, future direction, and value of IS within academia. The credibility crisis manifests itself in declining course enrollments, misunderstandings regarding the value of IS (e.g., practitioners not understanding what we do), and questions concerning the relevance of IS research (e.g., research that is not used in teaching or practice). Our hope is that this article will launch a dialogue to help the IS discipline increase its credibility by better expressing its importance.

Declining Enrollments

Figure 1 shows the number of U.S. graduates receiving IS and computer science degrees from 1989 to 2008. While we were unable to find statistics on IS graduates alone, the diagram illustrates the IS field gaining and losing credibility as measured by student enrollment. In the late 1990s, the IS field began to gain credibility as the dot.com boom fueled increased enrollment in IS programs. During this time IS departments hired large numbers of faculty and achieved autonomy as stand-alone departments. Shortly thereafter, the dot.com bust occurred. Amid concerns about job availability, outsourcing, depressed salaries, and the value of an IS degree, many students, faculty, and counselors became wary of the IS profession, causing enrollment declines [Dick et al., 2007; Granger et al., 2007a]. Credibility slipped further during the "Great Recession" (from October 2008–June 2009) [Pew Social Trends Staff, 2010]. With decreased funding for higher education [Goldstein, 2010], IS departments with bloated faculties and low enrollment became an elimination target in university cost-cutting efforts. For example, in 2009 the University of Central Florida eliminated its IS program [Hickley, 2009] and a recent AIS World posting asked for input about the genuine synergies rather than administrative efficiencies to be gained from an IS program likely to be merged with Operations Management at Portland State University [Ramiller and Wagner, 2010].

The IS credibility crisis is not just about declining enrollments, although there is a good deal of recent literature that addresses this issues [e.g., Dick et al., 2007; Granger et al., 2007a; Firth et al., 2008; Koch et al., 2010]. At many, if not all universities, low enrollments in the English or History departments have not resulted in the elimination of departments or rolling departments into more popular programs, such as Media Arts and Criminal Sociology.

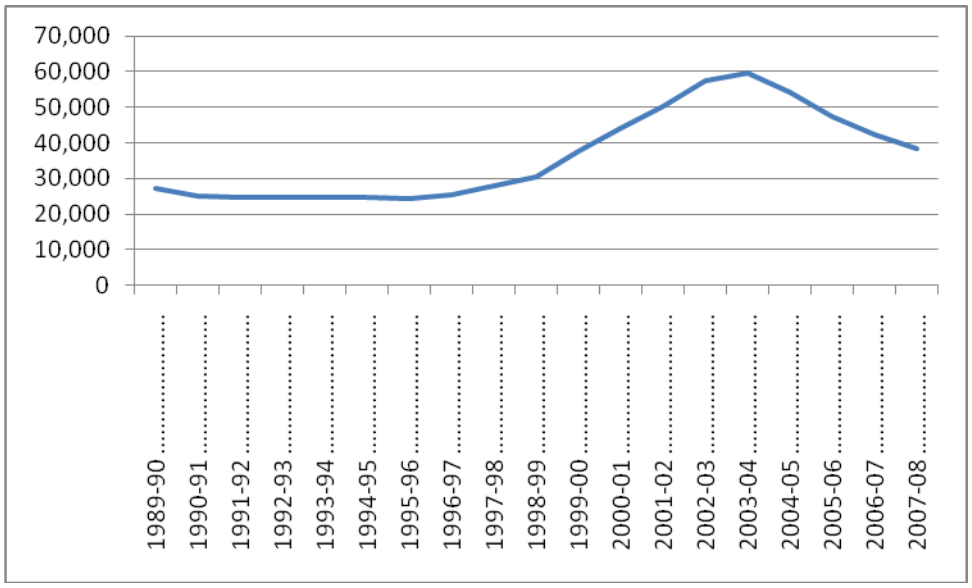

Figure 1. Number of U.S. Graduates Receiving Bachelor's Degrees in IS and Computer Science [U.S. Department of Education, 2009]

Value Understanding

The credibility crisis also manifests itself in stakeholders not understanding the value of the IS field. Participants at the 2010 AMCIS panel highlighted potential employers and university administrators not understanding the value of IS.

The following quote details an IS professor's interaction with potential employers. The quotes illustrates practitioners not understanding the skills IS graduates obtain.

> Business leader: What we really need we can't hire right out of college.
> IS Professor: Why not?
> Business leader: Because we need skills that you can't get in college.
> IS Professor: Like what?
> Business leader: Well…there are just things you can't learn.
> IS Professor: Like what?
> Business leader: Like working in groups.
> IS Professor: So I'm sitting there thinking, uggghhh…teamwork is the fundamental way that we teach our curriculum. Right there in our own backyard, they don't see this.

Another panel participant described her interactions with the graduate school dean in an effort to achieve approval for an IS Ph.D. program. The Ph.D. director stated:

> The case was clearly articulated, well laid out, with appropriate supporting detail for the professor in charge of graduate programs. When he introduced the IS Ph.D. program for discussion for university approval, he specifically and deliberately noted that it was a "niche program." Later, I pointed out several facts that refuted this "niche" designation, key among which were that Accounting and Finance Ph.D. programs were not and would not be considered "niche." Nonetheless, relatively few innovations emerged in their fields over the last twenty years. The recent toxic collateralized mortgage obligations were first developed over twenty-five years ago and derivatives were created in the early 1980s. Nothing has changed how we live, socialize, and work more than IS and yet, in the eyes of our colleagues across campus, our credibility has not improved.

Research Relevance

A third component of addressing the IS credibility crisis is evidenced in the theme of the 2009 International Conference on Information Systems (ICIS): "Doing IT Research That Matters." Left unsaid or missing from this title is the question of Gill and Bhattacherjee's [2009] article: To whom does this IT research need to matter? Somers [2010] suggests that IS research needs to matter to practice and that this involves producing research that is neither too abstract nor too concrete. He highlights that leading IS journals publish both types of research: "low-level pre-

professional topics such as training and web site design and highly abstract relationships between ontology and epistemology" [Somers, 2010, p. 385].

To test whether our discipline "does IT research that matters," the first author asked his undergraduate IS students to review the ICIS 2009 program for papers that "matter" to them. Out of 141 full papers and fifty-seven research-in-progress papers, students selected only *one* that was something that would matter to them: Wu and Brynjolfsson's [2009] paper on using Google searches for prediction. Although highly unscientific, this exercise confirms the well-held but infrequently discussed notion that there are times when research satisfies the requirements of publication in terms of validity, but many times it doesn't pass the common sense or relevance tests in industry. An associate professor of IS stated:

> I don't go to ICIS or AMCIS anymore. I don't get anything out of them. The research focuses too much on the method and the topics aren't relevant to practitioners. I get more out of SIMPosium.

Often what is viewed as successful research in a university setting is too late or not positioned in the correct way for anyone outside that setting to find useful, or it involves other barriers that prevent it from being used.

III. HISTORICAL ROOTS

While the previous section shows how the IS credibility crisis manifests itself in declining enrollments, lack of understanding of the value of IS, and questions regarding the relevance of IS research, comprehending the IS credibility crisis requires understanding the historical roots of American higher education. Prior to World War II, higher education was not seen as something that everyone should aspire to. With the passage of the Servicemen's Readjustment Act of 1944, or the GI Bill, society's view of higher education changed. Society began to see higher education as available to the common person. In essence, people began to believe that higher education was important to people's welfare and their future. People began believing that if they did not receive higher education, their children needed to receive it [Nelson, 1961]. The increasing importance of higher education led to its federalization (i.e., the belief that the federal government needed to take control of it). Federalization prompted the need for an overarching strategy for higher education. For business schools this strategy was laid out in the Ford Foundation [Gordon and Howell, 1959] and the Carnegie Foundation reports [Pierson, 1959].

The 1959 Ford and Carnegie Foundation reports characterize the state of business education as sub-par and highlighted several shortcomings [Hazard, 1965]. These included: low student quality, low teacher quality, poor academic standards, and out of date curriculum and teaching methods. The reports encouraged migrating business school education away from the trade-school model of higher education, which dominated the first half of the twentieth century [Nelson, 1961]. Most of the trade schools began primarily as private, for-profit schools that granted Baccalaureate degrees at best and, most commonly, what is now the Associates degree (i.e., a two-year degree). The trade-school model focused on coursework that emphasized techniques, methods, and principles applied to a narrow aspect of business, most often accounting. Unsurprisingly, most of the articles on the impact of these reports are published in accounting journals. [See American Accounting Association, 1961; Nelson, 1961.]

The Ford and Carnegie Foundation reports recommended incorporating lessons from World War II into the classroom and encouraged focusing on the twentieth century industrial education paradigm developed by Alfred Sloan. The *Sloan* model advocated teaching students how business functions. The model's guiding philosophy promoted a liberal education at the undergraduate level and emphasized *graduate* level degrees, where future business people would learn how to conduct business as a professional venture. The reports suggested reallocating resources away from large, specialized undergraduate programs and toward MBA and Ph.D. degrees. Figure 2 shows the impact these reports had on the number of AACSB-accredited U.S. business programs. The inflection point for growth occurred shortly after 1959, when the Ford and Carnegie reports were issued. Clearly, the reports propelled programs in business education.

Figure 3 and Figure 4 show the number of Bachelor of Business Administration (BBA) and Master's of Business Administration (MBA) degrees granted over time. As Figure 3 suggests, a dramatic increase in BBA enrollments followed the Ford and Carnegie reports. The bottom portion of Figure 3 depicts the normalized BBA growth, showing the number of BBA students who graduated as a function of the number of granting BBA programs. Figure 3 shows that the normalized number of BBAs granted is declining while Figure 4 shows the normalized number of MBAs granted is growing. This difference between BBAs and MBAs granted is pivotal. Some forty to fifty years after the reports were published, the full effects of the Master's degree program have come into focus. For many business schools today, the MBA program is the source of growth, whereas the BBA is not. The MBA is where the resources and attention are focused, the BBA is not.

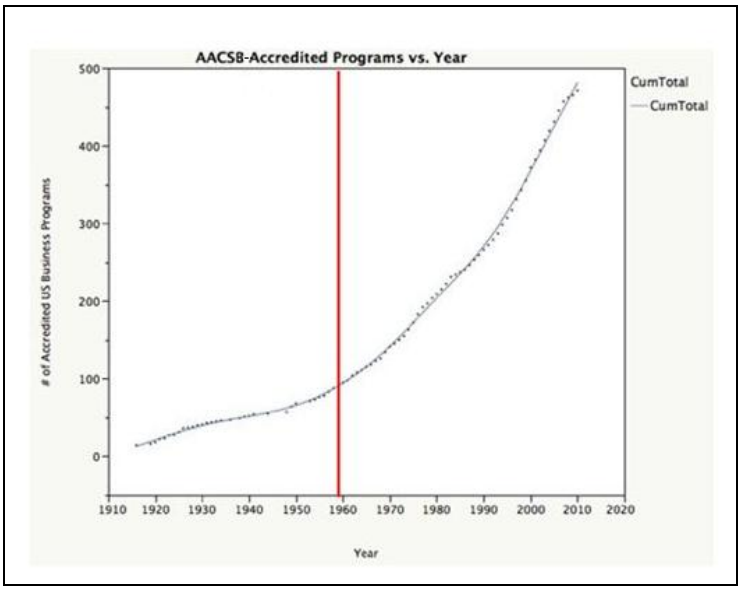

Figure 2. Number of AACSB-Accredited U.S. Business Programs by Year [Brown, 2010]

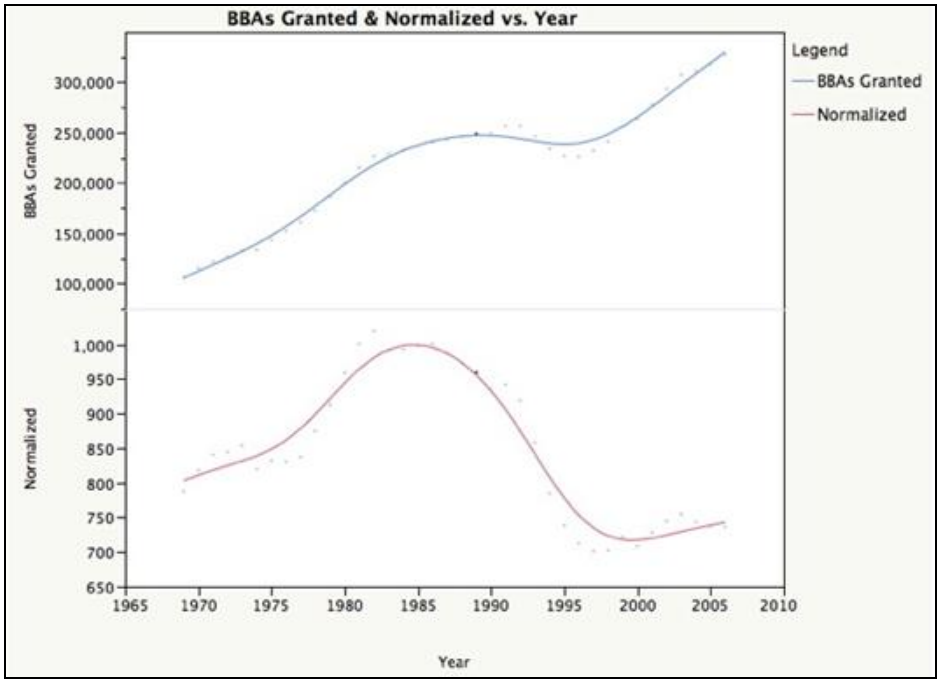

Figure 3. Number of Bachelors of Business Administration Degrees Granted (Top Curve) and the Normalized (by Number of Granting Institutions) Number [Brown, 2010; U.S. Department of Education, 2010]

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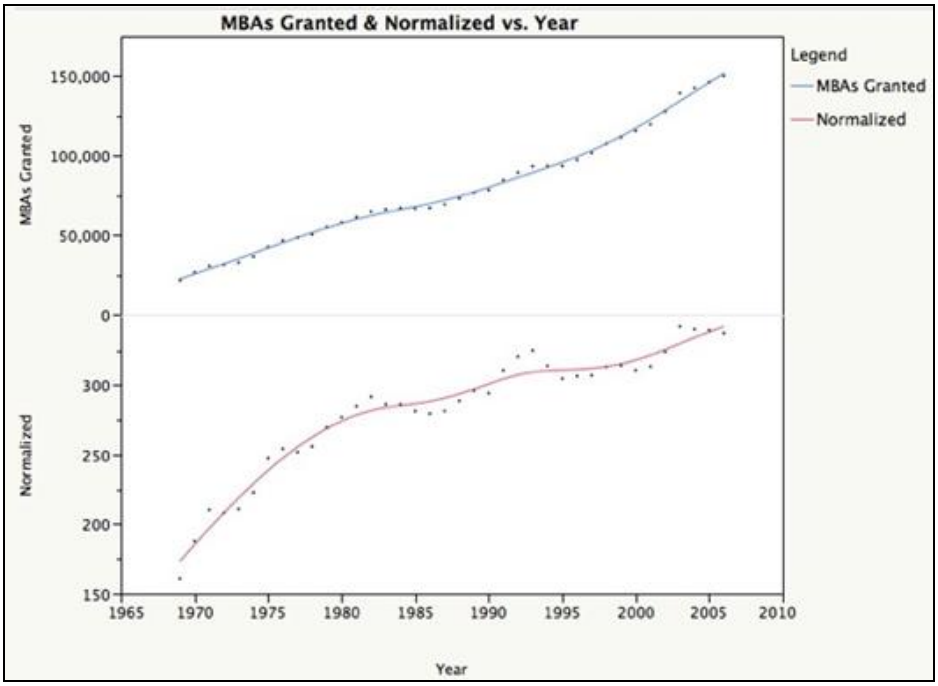

Figure 4. Number of Masters of Business Administration Granted (Top Curve) and the Normalized (by Number of Granting Institutions) Number [Brown, 2010]

The fact that the growth is in the MBA programs and a substantial fraction of MBA programs do not even offer a core IS course contributes to the credibility crisis in the IS field [Dhar and Sundarajan, 2004]. Many MBA programs build off the fundamental elements cited in the Ford and Carnegie Foundation reports, such as finance, accounting, and management. Unfortunately, as Table 1 below highlights, these reports were published in 1959, years before the introduction of the PC and the Internet. The crux of the IS credibility crisis is that these reports continue to serve as the cornerstone for modern business education [Carter, 2009; Economist, 2009], yet the information revolution was not considered or even envisioned by the authors. It is possible that the IS field has been marginalized from its inception because of these two reports, with the possible exception of the dot.com boom in the late 1990s–early 2000s. These reports never foresaw the impact of IS on businesses, individuals, and societies at large. John King, a vice provost with an IS background and thirty-three years of academic experience, stated at the panel:

> At least part of the IS credibility crisis comes from the fact that the nature of IS, which at its core is transformative and progressive, is diametrically opposed to the ideas laid out in the Ford and Carnegie Foundation reports. We are transformative and progressive. IS involves change and innovation, but many organizations, including higher education institutions and business schools in particular, hate change.

To summarize, Table 1 shows that the Ford and Carnegie Foundation reports were written in 1959 before many of the IS advances (i.e., the information revolution) that led to the emergence of IS as an academic discipline. The fact that (1) the IS discipline was not part of the original U.S. business school equation like finance, management, and accounting and (2) many aspects of the 1959 reports are still used to operate U.S. business schools today [Carter, 2009], contribute significantly to the credibility issues that IS academics face in U.S. business schools.

IV. ADDRESSING THE CREDIBILITY CRISIS

The preceding paragraphs suggest that the IS credibility crisis manifests itself in a lack of understanding of the role that the IS field plays in higher education, business, and research. During the 2010 AMCIS panel, IS academics had a spirited debate around the propositions in Table 2. This resulted in three distinct perspectives on how to address the IS credibility crisis: focus on teaching, focus on research, and leverage market dynamics. We discuss these perspectives in turn.

Focus on Teaching

One way to address the IS credibility crisis is to focus on relevant and quality teaching. This argument is that teaching is not just needed in order to enhance credibility; it is a matter of survival. If there are no students to teach,

Table 1: Key Technology Events before and after the Ford Foundation and Carnegie Foundation for Higher Education Reports	
Year	**Event**
1881	The first business school in the United States, Wharton, was founded [Wharton, 2010].
1888	A calculator that performed four basic functions was invented, giving rise to the fields of finance and insurance. Soon after, the original calculator manufacturer became IBM [New York Times, 2007; Timeline History of Computing, 2010].
1890	The first punch card computer was introduced and used for the U.S. Census. The punch card reduced the census analyses effort from almost seven years to a few months and thus produced information that helped businesses understand where the population was and where business should be done [New York Times, 2007; Timeline History of Computing, 2010]. Unfortunately, the technology was not discussed in business schools *at all.*
1916	AACSB was established and started accrediting business schools [Brown, 2010].
1941	The U.S. entered WWII, which led to an enormous shift in the way work was performed in the U.S. and who performed the work. By early 1944, increased automation allowed plants to produce one B-24 Liberator bomber every hour [Weber, 2001].
1951	The Lyons Electronic Office (LEO) came out, running the first business application. This was a result of the UK's leading catering and food manufacturer sending two of its senior managers, Oliver Standingford and Raymond Thompson, to the U.S. to look at new business methods developed during the war [New York Times, 2007; Timeline History of Computing, 2010].
1959	**The Ford Foundation and the Carnegie Foundation for Higher Education reports were published [Gordon and Howell, 1959; Pierson, 1959].**
1964	IBM announces the first family of computers, the 360, which would start shipping in 1965 [New York Times, 2007; Timeline History of Computing, 2010].
1969	The Internet's precursor, the Arpanet, emerged [New York Times, 2007].
1977	The first self-service interactive kiosk debuted. This started the vending computer revolution. When they debuted in the University of Illinois Student Union in April 1977, more than 30,000 students, teachers. and visitors stood in line during its first six weeks to experience a personal computer for the first time [Arc Design, 2010].
1980	The first International Conference on Information Systems (ICIS) was held [AIS, 2010].
1981	The first PC came out: the IBM Model 5150 [New York Times, 2007; Timeline History of Computing, 2010].
1993	The World Wide Web was becoming more popular. Shortly after, Amazon and eBay emerged, introducing new ways to connect buyers and sellers all over the world [New York Times, 2007; Timeline History of Computing, 2010].
1998	A new search company called Google began operating [Timeline History of Computing, 2010].
2004	The Web shifted to Web 2.0 where user-generated content began to move message control from marketers to consumers [Weber, 2009].
2006	Nearly 210 million Americans subscribe to cell phone services. A year later, Bank of America introduced mobile banking, spawning a wave of mobile business applications [New York Times, 2007].

there will be no jobs for scholars and no incentive to recruit new Ph.D. students to become the next generation of scholars. An IS academic highlighted:

> Focusing on research in this environment is like the people who were ballroom dancing when the Titanic was sinking. We have to focus on enrollment and job placement to keep our programs afloat.

Focusing on teaching means giving attention to both relevance of content and quality of instruction.

Relevant Teaching

Relevant teaching involves understanding the skills that graduates need and marketing these skills to potential employers. Understanding the necessary IS skills also requires a recognition that IS graduates will obtain jobs in one of two IT sectors: the primary IT sector or the secondary IT sector [Trauth, 2000, p. 5–6]. The primary IT sector encompasses the "Googles" and the "Microsofts" of the world. These are companies that produce hardware, software, and information goods. The secondary IT sector, in contrast, supports business needs through the application of IS. This sector includes the IS work that is done in other industries, such as healthcare, distribution, and transportation. It is crucial that IS academics understand this distinction and communicate it to potential students, employers, and university administration. The reason is that, if "the IS field" is only understood to be the

Table 2: Propositions on How to Address the IS Credibility Crisis
1. We can grow our credibility as a discipline by focusing on: a. Research b. Teaching Practice
2. The credibility of the IS discipline lies in aligning our incentives properly with our mission. Promotion and tenure should be based on: a. Quality and depth of research b. Quality and depth of teaching Quality and depth of the IS programs at a school
3. The credibility of the IS discipline lies in serving our primary constituents, who are: a. Students b. Colleagues c. Practitioners d. Deans
4. The credibility of the IS discipline lies in: a. How we are viewed by our business school colleagues in other disciplines b. The quality of journals we establish and maintain within the IS discipline c. How well we recruit students to our IS programs. d. How well we place our students (undergraduate, Masters, and Ph.D.)
5. The credibility of the IS discipline lies in a renewed and invigorated focus on: a. The undergraduate introductory IS class b. The Master's of Science in IS program c. The Ph.D. program.
6. The credibility of the IS discipline lies in the design and delivery of excellent courses and curriculum, whatever level they be (undergraduate, Master's, or Ph.D.). These curriculum and courses should be biased toward: a. Technical skills to allow graduates to show a deep understand of technology b. Soft skills to allow graduates to communicate effectively with other constituents c. Business skills to reflect the fact that IS is merely part of the broader business strategy

primary IT sector, then the actual number of available employment opportunities will be significantly undercounted. To illustrate this point, one of the panelists gave an example of a state-wide study of employment sectors. As originally conceived, the "information and communications cluster" was defined only as jobs in the primary IT sector. IS jobs in banking, healthcare, education, government, etc. were being classified not as IS jobs but as jobs in these other sectors. The result was that approximately 75 percent of the actual IS jobs in the state were going unrecognized as such. Hence, it is crucial to our survival that IS professionals (both academics and practitioners) continue to clarify the *real scope and size* of IS employment opportunities.

Maintaining the distinction between the primary and secondary IT sectors also has implications for the topics students and employers believe are important for future employees to learn. Hence, a second key to relevant teaching in the IS field requires concentrating on what industry needs. A study of IS skills and knowledge published in 1993 [Trauth et al., 1993] that is still relevant today suggests that:

> Industry will demand a cadre of IS professionals with knowledge and skills in technology, business operations, management, and interpersonal skills to effectively lead organizational integration and process reengineering activities. The lower-level IS jobs are rapidly disappearing, and the requirements for IS professionals are becoming more demanding in multiple dimensions, particularly in the areas of business functional knowledge and interpersonal/management skills.

Despite the fact that the 1993 study was conducted before the Internet and Web became mainstream, this statement could have been written in 2011. After almost twenty years, the core issues remain the same: IS professionals graduating from our programs—particularly those destined for work in the secondary IT sector—will need technical skills, an understanding of how businesses work, and interpersonal skills, which are often referred to today as *soft skills.*

Quality Teaching

Even though the AACSB reports referenced in Figure 3 and Figure 4 indicate that MBA programs are the money-makers for the college, the AMCIS 2010 panel discussion advocated that quality teaching at the *undergraduate* level is necessary to increase the credibility of the IS discipline among students, administrators, and potential employers.

The following discussion shows how quality teaching in the IS classes offered to all undergraduate students creates a reinforcing cycle of increased enrollment in the IS program, high salaries, and placement for IS graduates.

At the undergraduate level, most IS degree programs incorporate a series of core IS courses that begin in a student's junior year. This means that the best opportunity to recruit an undergraduate business student to become an IS major is in the introductory IS class, which most students take as a course requirement during their sophomore year. By converting students during the introductory class, we can ensure students choose to major in IS before they enroll in junior-level classes. The required undergraduate IS course is essentially our last opportunity to influence every student in the business school to major in IS. Failing to take action before students formally select a major means that it is much more difficult to persuade students to change majors or to dual major [George et al., 2005; Looney and Akbulut, 2007].

Given the importance of the introductory class for its timing and reach, it then follows that the best quality teaching should be delivered in the introductory class [George et al., 2005; Looney and Akbulut, 2007]. Effective teachers foster a "can do" attitude in students, promote the valued rewards that will emerge from majoring in IS, and increase student interest in the IS discipline [Looney and Akbulut, 2007]. Based on this notion, Firth et al. [2008] outline a twelve-step program to improve the IS introductory class and subsequently increase the number of students majoring in IS. With the revamp, students now see the IS discipline as a place where they can learn to manage information in a globally connected world. Figure 5 shows the percentage change in the number of students graduating from the various business school majors at The University of Montana, normalized to FY 2006, the date the twelve-step program was introduced. Between 2006 and 2010, with the exception of International Business, the number of students majoring in non-IS disciplines increased between 10 to 30 percent. Thanks to effective teaching, the number of students majoring in IS increased by more than 120 percent!

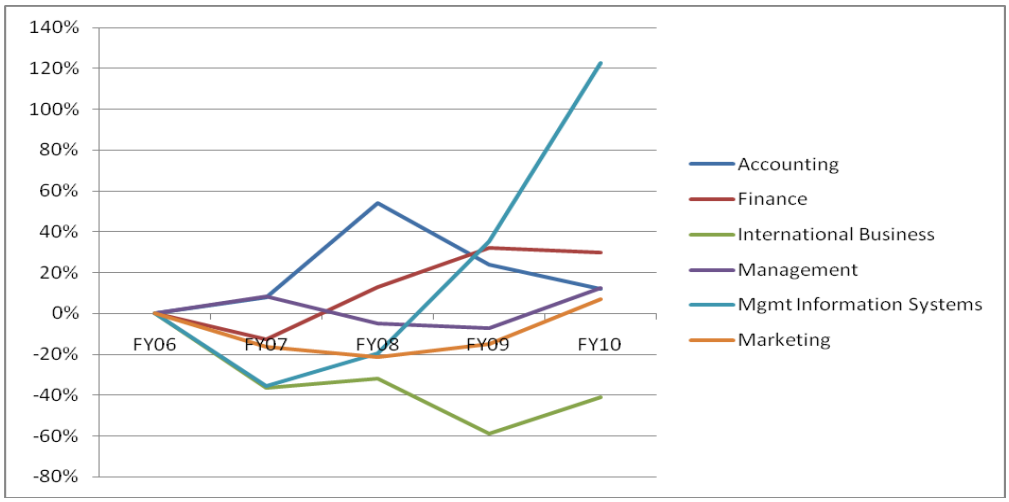

Figure 5. Percentage Change in the Number of Students Graduating from the Various Majors at the University of Montana, Normalized to FY 2006

IS graduates at The University of Montana secure jobs with prominent employers and earn premium salaries, which have now been the highest across every discipline for several years. As graduates mature in the workforce, they look back and realize that an IS degree brought success. Many graduates return to the business school to recruit students, as well as to engage in conversations with students about career opportunities in the field. In summary, a vibrant IS major where students see IS as a field with high salaries, exciting responsibilities, and the flexibility to dictate your own career path gives credibility to the IS discipline.

Focus on Research

While the previous section linked quality and relevant teaching to increased credibility, an alternative perspective advocates producing excellent research in high-quality journals. Advocates of this perspective recognize a trade-off between the cost of running a Ph.D. program, which supports much of this research, and the reputation associated with quality research. Paul Pavlou stated:

> Business schools and MBA programs are sources of revenue to university administrators. Ph.D. programs are a money-drain. However, Ph.D. programs support research and research is the primary source of reputation. A good reputation can increase the number and quality of undergraduate and MBA students seeking to attend the university and major in business.

Results from the panel suggest three ways the IS discipline can increase its credibility by focusing on research. First, collaborate with colleagues in the business school and beyond. Second, emphasize the difficult and challenging nature of the IS field. Third, research emerging topics that people find interesting.

Collaborating with colleagues in other disciplines represents one way of helping them understand IS research. In the following quote, an IS Associate Professor describes his experience interacting with colleagues across disciplines:

> Our colleagues in other disciplines don't have respect for our journals, and so we are deemed an unacademic discipline.

He explained that this can be addressed by publishing with these colleagues and letting them experience the rigor of publishing in a top-tier IS journal. IS academics are well positioned to collaborate with colleagues across business-school disciplines since IS is the connective tissue that ties an organization together and enables it to function. Furthermore, IS has impacted nearly all aspects of how we live, work, and play.

A second strategy to increase the credibility of the IS field is explaining the difficult and challenging nature of the IS field (i.e., constant change and new technology). Lamenting on their experiences in U.S. business schools, some of the panel participants explained that the disciplines of finance and accounting do not suffer from this problem. A university administrator stated:

> Professors in these disciplines constantly talk about the difficult and complex financial world that they study and how challenging it is to publish in finance and accounting journals. I've seen these disciplines use this to exercise profound hegemony over business schools.

The notion that the finance field is complex helps finance scholars achieve credibility for the world they study. However, the derivatives (i.e., credit-default swaps and collateralized debt obligations) that the recent "Great Recession" has been blamed on [McDonald, 2009] have been around since the late 1980s and are reasonably simple to explain. Indeed, farmers use hedging instruments constantly to protect their livelihoods. Consequently, the public seems to understand how to manage risk through derivatives. IS scholars need to more aggressively market the value of their research while also being more critical of research in other business school fields.

In a similar vein, IS research needs to expand from its traditional focus of issues revolving around organizational adoption of business-oriented technology and the organizational and industrial ramifications of this adoption [Sidorova et al., 2008] to more emergent topics such as solving world problems, setting policy, and predicting the "next-big-thing." These topics should be showcased in our top journals. As a result, the discipline can position itself on the forefront of societal transformation. Nouriel Roubini, the world famous economist who predicted the "Great Recession," engendered a great deal of credibility to the world of economics, despite the fact that the majority of his colleagues completely missed it. With his own nickname, Dr. Doom, he is now being asked to predict the future again [Brockes, 2009]. Ironically, despite the introduction of life-changing technologies over the last few decades, IS scholars are not being asked to predict how technological advancements will change the world. Worse, the big issues of IS have been left to those outside our field. For instance, Thomas Friedman, a foreign affairs correspondent for the New York Times, wrote *The World Is Flat* [2007], which describes how globalization has emerged as a result of IS. Nick Carr, who holds a Master's of Art in English, American Literature, and Language from Harvard, has written several thought-provoking pieces about IS [Carr, 2003; 2010] including *The Big Switch: Rewiring the World, From Edison to Google* [Carr, 2009]. As IS scholars, we need to concentrate less on low-level pre-professional topics and highly abstract relationships [Somers, 2010], and instead position our research so that it matters more to the stakeholders that we serve. The *Journal of the Association for Information Systems (JAIS)* is beginning to do this with the recent research perspectives paper call [Beath et al., 2010].

Leverage Market Dynamics

Is there light at the end of the tunnel? Perhaps, and this light might be driven by market dynamics. Over the past 20 years, higher education has been shifting from the public realm to the private, as state contributions to universities' general funds have continued to decrease. John King explained the situation at the University of Michigan:

> For instance, at the University of Michigan, 80% of its general fund came from the state in 1990, while today only 20% of the general funds come from the state, resulting in just 6% of the overall university support.

As a result of decreasing state support for education, college tuition over the last twenty years has increased in price more than any other good or service [Kamenetz, 2010].

Less government support has resulted in a shift in education from public to the private. In fact, the fastest growing sector of U.S. higher education is for-profit universities [Chronicle of Higher Education, 2010]. Not only do they have 10 percent of the seats of U.S. undergraduate education [Wilson, 2010], they also have 50 percent of the Pell grants [Wilson, 2010]. What this means is that for-profit universities are turning higher education into a place where the issue of providing a return on investment for the individual is much more important than a return on investment for society. As a result, the fifty-year-old Ford [Gordon and Howell, 1959] and Carnegie [Pierson, 1959] reports, which do not mention IS and instead emphasize management, accounting, and finance may become less important as universities strive to offer majors that will instead result in a high return for the student who has amassed high levels of debt in pursuit of higher education [Kamenetz, 2010].

In this new era of higher education for private gain, the IS discipline has a chance to gain some credibility, and it already is increasing its credibility in the public discourse. For instance, a recent *Wall Street Journal* article [Light, 2010] touted IS graduates as the most satisfied with their major after graduation while a *Newsweek* [Dokoupil and Michael, 2010] article featured IS in the top 10 of the "Best majors for big paychecks." "As society becomes more reliant on digital infrastructure and networks, savvy grads who can design, implement, and manage those systems will be in high demand" [Dokoupil and Michael, 2010].

IS academics need to leverage these market dynamics by (1) participating in national, state, university, and school dialogue, (2) assuming leadership positions, and (3) serving on important committees such as curriculum committees. In all of these endeavors, IS academics need to highlight the importance of the IS discipline in preparing and placing students in high-demand jobs and how IS research can help address world problems like poverty, violence, and the environment [Beath et al., 2010].

V. FUTURE DIALOGUE

Apart from implementing the solutions suggested above to address the IS credibility crisis, future research is critically needed in this area. A search of the conference proceedings available through the Association for Information Systems e-library revealed that only AMCIS has offered a panel session on addressing IS credibility (the results of which are reported herein) and one focusing on increasing IS enrollments [Koch et al., 2010]. This situation highlights two key issues: (1) the discussion involving the vitality of IS programs tends to be *ad hoc* and in need of an organizing vision [Swanson and Ramiller, 1997] and (2) there is U.S. centeredness to the current discussion.

For instance, the current article provides a U.S. perspective and emphasizes IS education and IS enrollment. Based on this, we believe that two things are necessary: (1) worldwide recognition of the issues, and a discussion of broad solutions by scholars based outside of the U.S. and (2) having the major conferences (i.e., ICIS, AMCIS, PACIS, ECIS, MCIS, and HICSS) welcome papers and panel sessions that address the issue of IS credibility. The SIG ED (i.e., the special interest group on education) track at AMCIS is an ideal forum for some of these papers.

VI. CONCLUSION

Based on a panel at the 2010 AMCIS conference, this article discussed the IS credibility crisis. Complementing Somers' [2010] opinion piece, which uses the theory of the professions to understand the IS credibility crisis, this article makes several contributions. First, it shows how the IS credibility crisis manifests itself in the daily interactions of IS academics. Second, drawing on experiences of IS academics, this article provides some teaching, research, and service strategies to address the credibility crisis.

This article is one of the first to link the IS credibility crisis to the historical roots of U.S. higher business education. Highlighting that the 1959 Ford and Carnegie Foundation reports still provide some of the organizing framework for U.S. higher business education, there is no wonder that IS suffers from a credibility crisis. The reports were written before the information revolution and do not even consider IS. The article highlights that the current shift from public to private university funding models and rising educational costs may increase the credibility of IS as an academic discipline as rising numbers of students seek degrees that will allow them to repay educational debt. It is our hope that this article will stimulate action research projects to increase the credibility of IS as an academic discipline.

REFERENCES

Editor's Note: The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the article on the Web, can gain direct access to these linked references. Readers are warned, however, that:

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AIS (2010) "The Association for Information Systems", http://www.arcdesignconsulting.com/custom-kiosk.php (current Dec. 26, 2010).

American Accounting Association (1961) "Report on the Committee of the Ford and Carnegie Foundation Reports", *The Accounting Review* (36)2, pp. 191–196.

Arc Design (2010) "Interactive Kiosks Design and Consulting", http://www.arcdesignconsulting.com/custom-kiosk.php (current Dec. 26, 2010).

Beath, C., N. Berente, and K. Lyytinen (2010) "JAIS Research Perspectives Paper Call: Expanding the Fronters of Information Systems Research", *Journal of the Association for Information Systems*.

Brockes, E. (2009) "He Told Us So", *The Guardian*, Jan. 24, http://www.guardian.co.uk/business/2009/jan/24/nouriel-roubini-credit-crunch (current Mar. 7, 2011).

Brown, J. (2010) *AACSB Data Direct,* Tampa, FL: AACSB International.

Carr, N. (2009) *The Big Switch: Rewiring the World, from Edison to Google,* New York, NY: W.W.Norton, & Company, Inc.

Carr, N. (2010) *The Shallows: What the Internet Is Doing to Our Brain,*. New York, NY: W.W. Norton & Company, Inc.

Carr, N.G. (2003) "IT Doesn't Matter", *Harvard Business Review* (81)5, pp. 41–49.

Carter, D.A. (2009) "How Two National Reports Ruined Business Schools", *Chronicle of Higher Education* (56)12, p. A88.

Chronicle of Higher Education (2010) "For-Profit Colleges Capitalize on Pell Grant Revenue", *Chronicle of Higher Education* (56)17, p. A3.

Dennis, A.R. et al. (2006) "Research Standards for Promotion and Tenure in Information Systems", *MIS Quarterly* (30)1, pp. 1–12.

Dhar, V. and A. Sundarajan (2004) "Should the Core Information Systems Curriculum Be Structured Around a Fundamental Question?" *Panel Discussion at Twenty-Fifth International Conference on Information Systems,* Washington, D.C., pp. 1021–1022.

Dick, G. et al. (2007) "Where Have All the Students Gone? Strategies for Tackling Falling Enrollment", *Americas Conference on Information Systems,* Keystone, CO.

Dokoupil, T. and C. Michael (2010) "Best Majors for Big Paychecks", *NewsWeek*, Sept. 12, http://education.newsweek.com/photo/2010/09/12/best-majors-for-big-paychecks.html (current Mar. 7, 2011).

Economist (2009) "The Gordon-Howell Report of 1959, the More Things Change, a Seminal Critique of American Business Education Five Decades On", *The Economist,* June 4.

Firth, D., C. Lawrence, and C. A. Looney (2008) "Addressing the IS Enrollment Crisis: A 12-Step Program to Bring About Change in the Introductory IS Course", *Communications of the Association for Information Systems* (23), pp. 17–36.

Friedman, T. (2007) *The World Is Flat [Further Updated and Expanded, Release 3.0]*, New York, NY: Farrar, Straus, and Giroux.

George, J.F., J.S. Valacich, and J. Valor (2005) "Does Information Systems Still Matter? Lessons for a Maturing Discipline", *Communications of the Association for Information Systems* (16), pp. 219–232.

Gill, G. and A. Bhattacherjee (2009) "Whom Are We Informing? Issues and Recommendations for MIS Research from an Informing Sciences Perspective", *MIS Quarterly* (33)2, pp. 217–235.

Goldstein, P.J. (2010) *Responding to Recession: IT Funding and Cost Management in Higher Education, EDUCAUSE Center for Applied Research*.

Gordon, R.A. and J.E. Howell (1959) *Higher Education for Business,* New York, NY: Columbia University Press.

Granger, M.J. et al. (2007a) "Information Systems Enrollment: Challenges and Strategies", *Journal of Information Systems Education* (18)3, pp. 303–312.

Granger, M.J. et al. (2007b) "Information Systems Enrollments: Can They Be Increased?" *Communications of the Association for Information Systems* (20), pp. 649–659.

Hazard, E.L. (1965) "Educating Tomorrow's Business Leaders", *Training Directors Journal* (19)8, pp. 40–47.

Kamenetz, A. (2010) *DIY U: Edupunks, Edupreneurs, and the Coming Transformation of Higher Education,* White River Junction, VT: Chelsea Green Publishing.

Koch, H. et al. (2010) "Best Practices for Increasing IS Enrollment: A Program Perspective", *Communication of the Association for Information Systems* (26), pp. 477–492.

Light, J. (2010) "Psych Majors Aren't Happy with Options", *The Wall Street Journal*, Oct. 12, http://finance.yahoo.com/college-education/article/111000/psych-majors-not-happy-with-options?mod=edu-continuing_education (current Mar. 7, 2011).

Looney, C.A. and A.Y. Akbulut (2007) "Combating the IS Enrollment Crisis: The Role of Effective Teachers in Introductory IS Courses", *Communications of the Association for Information Systems* (19), pp. 781–805.

McDonald, L.G. (2009) *A Colossal Failure of Common Sense: The Inside Story of the Collapse of Lehman Brothers*, New York, NY: The Crown Publishing Group.

Nelson, H.G. (1961) "Impact and Validity of the Ford and Carnegie Reports on Business Education", *The Accounting Review* (36)2, pp. 179–185.

New York Times (2007) *The New York Times Guide to Essential Knowlege, 2nd edition*, New York, NY: Elizabeth Publishing.

Pew Social Trends Staff (2010) *How the Great Recession Has Changed Life in America*, Pew Research Center.

Pierson, F.C. (1959) *The Education of American Businessmen: A Study of University-College Programs in Business Administration*, New York, NY: McGraw-Hill.

Ramiller, N. and E. Wagner (2010) *Combining IS and Operations Management-Finding Synergies,* List, A.W. (ed.), Portland, OR: AIS World List..

Sidorova, A. et al. (2008) "Uncovering the Intellectual Core of the Information Systems Discipline", *MIS Quarterly* (32)3, pp. 467–482.

Somers, M.J. (2010) "Using the Theory of the Professions to Understand the IS Identity Crisis", *European Journal of Information Systems* (19), pp. 382–388.

Swanson, E.B. and N.C. Ramiller (1997), "The Organizing Vision in Information Systems Innovation", *Organization Science* (8)5, pp. 458–474.

Timeline History of Computing (2010) "The History of Computing Project", http://www.thocp.net/timeline/1886.htm#26 (current Dec. 26, 2010).

Trauth, E.M. (2000) *The Culture of an Information Economy: Influences and Impacts in the Republic of Ireland*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Trauth, E.M. D.W. Farwell, and D. Lee (1993) "The IS Expectation Gap: Industry Expectations Versus Academic Preparation", *MIS Quarterly* (17)3, pp. 293–307.

U.S. Department of Education (2009) *Degrees and Other Formal Awards Conferred*.

U.S. Department of Education (2010) National Center for Educational Statistics, Integrated Post Secondary Education Data Systems (NCES IPEDS): Institute of Educational Sciences.

Weber, A. (2001) "A Historical Perspective", *Assembly Magazine*, http://www.assemblymag.com/CDA/Articles/Web_Exclusive/c7dfeddacb5c9010VgnVCM100000f932a8c0 (current Mar. 7, 2011).

Weber, L. (2009) *Marketing to the Social Web*, Hoboken, NJ: John Wiley & Sons, Inc.

Wharton (2010) "Wharton History", http://www.wharton.upenn.edu/about/wharton-history.cfm (current Dec. 26, 2010).

Wilson, R. (2010) "For-Profit Colleges Change Higher Education's Landscape", *Chronicle of Higher Education* (56)22.

Wu, L. and E. Brynjolfsson (2009) "The Future of Prediction: How Google Searches Foreshadow Housing Prices and Sales", *International Conference on Information Systems*, Phoenix, AZ.

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Communications of the Association for Information Systems

ISSN: 1529-3181

Communications of the Association for Information Systems