31
STAYING ALIVE
The IS field at the half century mark

Ning Su, John Leslie King, and Jonathan Grudin

Introduction: dating the birth of the IS Field

The academic Information Systems Field (which we call the IS Field) is about at the half century mark. It is difficult to say precisely how old the field is. It is built on traditions that started with unit-record equipment and “business data processing” in the late 19th century. However, most would now agree it did not start until the commercial application of electronic digital computers in the early 1950s. The UK’s Lyons Electronic Office, the first commercial application of digital computers, was soon followed by the US’s UNIVAC I. Few commercial organizations had adopted this technology by the mid-1950s, but it became important to commerce by the mid-1960s, when International Business Machines (IBM) launched its successful line of 360 computers. The “mainframe” market emerged, and use grew.

The early days were preoccupied companies applying digital computers to commerce. These companies turned to higher education to meet their needs for expertise. The first textbooks appeared in the 1960s. Börje Langefors created an early instructional program at Stockholm University in the mid-1960s, soon followed by Gordon Davis’s program at the University of Minnesota and Frank Land’s program at the London School of Economics. There was little organized research publication in information systems. Some publication appeared in accounting outlets, but much appeared in computer science outlets such as the US Fall and Spring Joint Computer Conferences, and publications of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers (IEEE), and The Institute of Management Sciences (TIMS). Similar venues were used in other countries. There were no dedicated information system research venues in the 1960s.

Nevertheless, research grew along with teaching. An early formal gathering for information systems research was the Technical Committee 8 of the International Federation of Information Processing Societies (IFIP TC8) in 1976. In 1977 an academic journal dedicated to the IS Field, Management Information Systems Quarterly, was created at the University of Minnesota. The Information Systems Research Seminar in Scandinavia (IRIS) held its first meeting in 1978. Academic units (e.g., departments) proliferated and the IS Field took shape. In 1980 what became the International Conference on Information Systems (ICIS) started. The Association for Information Systems (AIS), started in the early 1990s. Assuming the IS Field is at least as old as the AIS, and possibly dates back to the beginnings of digital
computers, it is between 25 and 65 years old. We use the “start date” for the academic IS Field consisting of both research and teaching, in the mid-1970s. This places the field at about the half century mark.²

The IS Field is not very old by academic standards, and still faces many challenges of the “start-up.” Not the least of these is uncertainty about whether it will survive. Half a century does not guarantee survival in the academy. Many in the IS Field are part of management schools that are relative latecomers to the academy, most less than a century old (the earliest management schools date from the late 19th century). The IS Field began at about the same time that digital information technology started to change the world. The academy itself is now changing because of information technology and other reasons. The substrate of the IS Field is itself changing, making it difficult to find a natural “place.” The IS Field could never develop as academic fields “normally” do because the norms have long been up for grabs.

This chapter is written for people whose knowledge of the IS Field is grounded mostly in the content of this book. It reflects the opinions of the authors and does not attempt a definitive statement beyond that. The IS Field has survived. This is testimony to the importance of the underlying issues, especially the application of digital information technology to human enterprise, and to the intelligence and determination of people in the field. The chapter addresses a sentiment frequently found in assessments: pride in past accomplishments, but concern about the future. By the time this chapter is done, we will have made the argument that the IS Field has accomplished much by “staying alive,” but has the opportunity to advance to “really living.” The IS Field should take advantage of the opportunity.

The IS field at the half century mark

Staying alive and The Undead

The “start date” of the IS Field is contemporary with disco. The Bee Gees hit “Stayin’ Alive” opened the disco-oriented film *Saturday Night Fever* in 1977. (Both can be found online.) The IS Field “stayed alive” despite frequent encounters with The Undead. We use The Undead as a literary device, examining the IS Field’s encounters with The Undead to explore challenges of the field. We also assess what it will take to “really live” as information systems become important throughout organizations. Our pride in past accomplishments is found in the IS Field’s energy and excitement. Our concern about the future is grounded in IS programs being eliminated or forcibly merged with other groups. The anxiety of the IS Field might be an indication that the field is on to something big. We think so.

The Undead as a literary thing arises from the definition of what it means to be alive or dead. We first consider this. We then look at the rigor/relevance discussion, the emerging vision of design, and the broader ecology of changes. The IS Field hangs out with The Undead, and in so doing loses vitality. One might say the field spends too much time in whitened sepulchres, and is depressed, or at least, puzzled.³ Perhaps the problem is not the IS Field’s familiarity with The Undead, *per se*, but with how the field engages The Undead.

Most living people believe that life is better than the alternative. Yet the living do not have a precise understanding of life. A rudimentary definition says life is a characteristic of physical entities that exhibit biological and self-sustaining processes. Termination of biological functions results in the end of life (death). Yet, the life sciences have abandoned explanations involving a special “life force” or “essence.” Viruses and prions (infectious proteins) can kill, but whether they are alive is disputed. To make matters more complicated, life is more than biological. An archaic word for alive is “quick,” and the dead are not “quick” by any definition (they do not “go” anywhere). Movement alone cannot be definitive: water moves, but is not alive. To top it off, life is often used metaphorically. Thoreau wrote in 1854 that he went to the
woods to live deliberately, to discover what it means to live, to be sure that, at the end of his life, he had lived. For Thoreau, life was a teacher.

The Undead is metaphorical, too. Metaphors can be powerful. Life and death matter to the living (and maybe the dead; we aren’t sure). Religious beliefs frequently touch on the life/death distinction. Nevertheless, the topic remains obscure. Living people talk about life and death without knowing exactly what they are talking about. This ambiguity extends to academic fields pursued by living people who care about them and try to keep them alive. Previously alive fields (e.g., alchemy) “live on” in other fields (e.g., chemistry). Fields with needed knowledge are often kept alive: the IS Field will probably be kept alive because companies need the knowledge. Even archaic fields such as classical studies in ancient Greek or Latin survive. Technological improvements render knowledge immaterial or salient. It is a metaphor to say that the IS Field is “staying alive.” But the notion is not uncommon. Truly dead academic fields are rare, and the number of academic fields has grown dramatically over the last century. The IS Field is not alone.

We recognize the metaphorical pitfalls of the literary device of The Undead. We are trying to capture something as elusive as the definition of life. We use The Undead because it shows value from and for the IS Field. We use the metaphor to articulate two visions for the field. In one the IS Field becomes The Undead, squabbling over a decreasing share of what matters, staying alive only because the topic remains important to external audiences and cannot be killed outright. The other is preferable for us: an IS Field enlivened by proximity to major change, showing leadership and courage as information systems change the world. The idea of being truly alive is itself metaphorical. It cannot be achieved by members of the IS Field scolding each other, any more than depressed people can exhort each other to be happy. Truly living requires departure from the existing path. It takes courage.

**Three kinds of The Undead**

We are primarily concerned with three kinds of The Undead. One is the Frankenstein monster. Henry Frankenstein made a creature out of dead human body parts and brought it to life by the animating force of electricity. (“It’s alive!” uttered Henry Frankenstein, played by Colin Clive, in James Whale’s 1931 film *Frankenstein.* The 1818 novel *Frankenstein, or, The Modern Prometheus,* was written by 19-year-old Mary Shelley, daughter of feminist Mary Wollstonecraft and anarchist William Godwin, and wife of poet Percy Bysshe Shelley. She wrote it on a challenge from Lord Byron. The book became a Romantic icon, a cautionary tale as people were starting to realize the terrible power of science to create what might or might not be human (Holmes, 2008). Henry Frankenstein was hurt for playing God, and his creature was misunderstood. The problem was in the intentions of people.

A second is the vampire. Bram Stoker’s 1897 post-Romantic, Gothic horror novel *Dracula* is an early example. Vampires are immortal unless killed by natural means (e.g., sunlight) or human agency (e.g., a stake through the heart, head torn off). Vampires are basically evil, but not because of normal people who chase them with torches and pitchforks. Science had advanced by the late 19th century, and people were less concerned that too much knowledge would make people evil. Rather, they were concerned with *resident evil* that had to be killed for good. In Stoker’s novel, Abraham Van Helsing takes care of the vampires (there were more than one – Dracula was just in charge). The evil was non-human and abroad irrespective of human agency. Vampires could wreak havoc on humans, but humans could (and did) destroy them.

Third is the zombie, a reanimated dead human body that attacks the living. This 20th-century creation originated in magic’s triumph over science in Haitian folklore that reanimated
The IS field at the half century mark

bodies through voodoo magic (e.g., W.B. Seabrook’s 1929 *The Magic Island*). Subsequently, the genre was scientifically updated. Reanimated zombies now occur through radiation or pathogens (if explained at all), and are seen in cinema (e.g., George Romero’s 1968 *Night of the Living Dead* and Mark Forster’s 2013 *World War Z*) or television shows like *The Walking Dead*. Zombies are individual people, although often the worse for wear, who return from death as limited-capability humans bent on destroying fully alive humans. Unlike Frankenstein’s meddling with the divine, or the vampire’s “resident evil,” zombies embody the nasty things that humans are capable of.

Interestingly, The Undead are neither dead nor alive. They are kind of dead. Living humans try to make The Undead really dead. Most plots revolve around people trying to truly kill The Undead. Although the authors do not “believe in” The Undead, we suggest that the IS Field embrace them, but not truly kill them. Their manifestation is central to the IS Field. Instead, we suggest that the field learn from The Undead how to move beyond staying alive. We take a quick tour through the rigor/relevance debate, the rise of design, and the broader ecology of the IS Field in this effort.

**Rigor/relevance**

The rigor/relevance discussion has been going on for a while. Some date it to Keen’s 1980 paper on reference disciplines (Keen, 1980), and some to Mason’s 1989 piece on the role of experiments in IS research (Mason, 1989). Most start with Keen’s 1991 paper. In general it is an either/or choice between academic rigor that stands the test of time, or relevance enough to be useful immediately. The issue is still discussed today, and has become an industry that goes far beyond the IS Field. Education has long cared about the topic (Whitehurst 2008), and teachers can find the right balance of rigor and relevance in their work using the Rigor/Relevance Framework.

Some characterizations of the rigor/relevance debate posits an artificial dichotomy of two classes of stakeholders: scholars and practitioners. This is an old notion: more than 2,000 years ago Aristotle of slave-owning Athens distinguished between the “liberal arts” (subjects for free people that might have no practical utility) and the “servile arts” (practical subjects like medicine or architecture) for slaves. The fight between Liberal Arts and the Professions embodies this. The “trades” (plumber, mechanic, electrician, etc.) remains too “vocational” for four-year colleges, but a lot can happen in 2,000 years. Vocations might eventually rise. When rigor/relevance is a linguistic construction of either/or, it is not really alive but it keeps coming around. It is The Undead, and puts the IS Field 2,300 years in the past – a difficult trick for a field that started with digital computers in the 20th century.

The either/or distinction of rigor/relevance is not very helpful for most IS academics. Proposals that get funded, papers that get accepted, key editorial assignments that get awarded, promotions made in the academy, are all decided by academics with a strong voice for rigor and a weak voice for relevance. IS academics seeking legitimacy listen to other academics. Those seeking relevance look outside the academy. Being rewarded within the academy requires publishing papers “on the right things” and “in the right places.” Rigor is given preference over relevance. Despite some sympathy for relevance, many academic journal editors reject papers that are insufficiently rigorous. The either/or distinction means that academics go for rigor, while practitioners go for relevance. This splits the community, making it weaker.

Some deny the either/or construct, and say the issue has never really been about rigor or relevance, but about rigor and relevance. This idea is also older than many realize, and certainly predates the IS Field. In the early 20th century, John Dewey said that much of learning
is for practical application, and that rigorous science should serve this end (Dewey, 1929). He felt that the purpose of science is to gain practical knowledge, and that knowing how to do science requires practical skills. Donald Stokes captured this idea in his 1997 Pasteur’s Quadrant framework:

<table>
<thead>
<tr>
<th>Considerations of Use?</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quest for Fundamental Understanding?</td>
<td>Yes</td>
<td>Pure basic research (e.g., Bohr)</td>
</tr>
<tr>
<td>No</td>
<td>Pure applied research (e.g., Edison)</td>
<td></td>
</tr>
</tbody>
</table>

Stokes’ model, like many 2 × 2 representations, favors the “northeast” quadrant: use-inspired basic research of the kind done by Louis Pasteur (hence the book’s name). Many have lauded this insight, yet although the book was published decades ago, and many have spoken highly of it, few have done anything to implement its implications. In Stokes’s model, those at the intersection of fundamental understanding and practical use contribute most. The old-school either/or construct of rigor/relevance is reinforced.

Pasteur died in 1895, Edison in 1931, and Bohr in 1962. Neither Pasteur nor Edison is “contemporary.” Both died before WWII. Yet their experiences correspond with the world today. Edison accomplished many things, including starting the company General Electric, but these were not academic things. Edison never won a Nobel Prize (although the rumor that he was considered infuriated some scientists). Bohr did have academic accomplishments, including the Nobel Prize. Pasteur never won a Nobel Prize; he died before the prize was established. In Stokes’s model academics can contribute to fundamental understanding and use, but not to use alone. They can be rigorous and relevant, but if forced to choose, they must err on the side of fundamental understanding. Relevance and rigor, or just rigor. The former requires a lot of work. The latter is easier.

Unfortunately, the either/or construct of rigor/relevance is like the Frankenstein monster. While relevance in practice is at the IS Field’s origins, those whose academic employment is not secure (i.e., they do not have tenure) see relevance as too costly. As with the Frankenstein monster, they would like to be fully human and engaged with praxis, but this path is foreclosed. Work that starts out in praxis is subjected to a peer review process run by and for academics. These processes can drive out relevance, insisting on rigor, especially if space (e.g., page count) is limited, which it usually is. Editors and reviewers do not hate relevance; they just like rigor more. Many in the IS Field are conditioned to write papers that editors and reviewers like, even if practitioners wonder what to do with the results. While the Stokes model correctly points out that academics can focus on praxis and still achieve job security in the academy, in practice few do this. Rigor/relevance with and instead of or is a cruel hoax for many because it is simply too costly to the individual. The transgressive path of Frankenstein is unwise. If staying alive requires rigor, the community remains split between academics and practitioners.

Few academics hate relevance in our experience, but some academic gatekeepers consider time spent on considerations of use as wasted or stolen from fundamental understanding. In such cases rigor is reinforced at the cost of relevance. The IS Field loses its raison d’être. The problem is not that it becomes too “pure.” Rather, it becomes less useful for practitioner patrons who use IS. The academy is a patronage scheme, and many patrons are practitioners. Patrons must benefit or they will not support the academy. Patrons benefit from graduates who
The IS field at the half century mark

can “think outside the box” and do what higher education prepares them for. Patrons also benefit from innovation. Some benefit from far-reaching research in which payoffs do not show up right away. Payoffs 10 or 20 or even 100 years hence have their place. Most understand that the full implications of some research cannot be known at present. Patrons also benefit when academics show that otherwise promising ideas are dead ends. But when relevance becomes difficult to explain, patronage is at risk. There are issues of relevance in every line of academic work. “Pure” research that has no conceivable application treats patrons as a food source – rather like a vampire.

Some relevant work lies outside the academy, but few IS academics show slavish adherence to considerations of use. Highly trained IS academics seldom produce directly the breakthroughs touted by technology companies or the newest techniques recommended by management consultants. However, they test claims and show whether benefits materialize as hoped. They can prevent others from heading down a dead end. They can challenge misleading advertising slogans upended by evidence. They can speak truth to power. Academics should be unafraid to pursue the consequences of new technologies and capabilities, even when they perturb the environment in surprising ways that require venturing into other fields or disciplines.

Yet here the problem for the IS Field becomes acute. The academy is highly “stovepiped.” Woe betide any IS academic who crosses the boundaries between stovepipes. Most IS academics recognize the sneer followed by the accusatory question, “What are you doing here?” IS academics should be among the first to say, “I am not convinced.” However, this poses a conundrum that can be risky to one’s academic career. Lewis Branscomb, Chief Scientist for IBM and Chair of the National Science Board, once remarked that a major contribution of research is to show that things that should work do not. This saves everyone time and money. Unfortunately, some grant application reviewers feel being negative is “not rigorous,” and some reviewers and editors of respected journals prefer positive findings. In such circumstances, scholars fear they will not be funded or published. They write only about positive results. Positive is tied to “innovation,” which is fashionable. Fashion is big in the IS Field. It is also part of the problem.

Oscar Wilde said, “Fashion is a form of ugliness so intolerable that we have to alter it every six months” (Esar, 1949). Fashion is indeed a tempestuous child, but we humor it because it dies so young. This poses a problem for academics. When academics take on fashion, asking what is really new, they often note that almost nothing “changes everything.” Yet that new technology “changes everything” is a frequent claim about fashionable innovation. Santayana said those who cannot remember the past are condemned to repeat it (Santayana, 1905), and many in the “innovation” space promote ballyhooed ideas that are just warmed-over versions of what has gone before. Even when dressed up in the fine raiment of smaller semiconductors, such innovations can still be a fraud. Academics in fast-changing fields must live in the uncomfortable territory between the Ecclesiastes (1:9) admonition that there is nothing new under the sun, and Heraclitus’s aphorism that you cannot step twice in the same river. Nearly everything is simultaneously a rehash of what has gone before and new in the moment. The academy repays patrons by being methodical, but this is risky business. Academics can seem too hasty when public acceptance is slow, and too conservative when public acceptance is rapid. The happy medium is elusive.

Part of this elusiveness is the misplaced quest for rigor tied to the traditions of natural sciences that prize results reached through theory and experimentation. This is a losing proposition when every organization is different and experiences with IS differ. Natural science experimentation can be difficult to arrange, when it makes sense at all, so many IS academics use statistical testing to show general trends, but this seldom achieves the results of natural
science experiments, and infrequently provides practitioners with much they can use. IS researchers who conclude it “all depends,” and use contingency theories often get as close to the truth as possible, but some see such work as insufficiently rigorous. The resident evil is hegemony of “good” research following traditions of the natural sciences applied to socio-technical issues that require more interpretation.

The problem cannot be resolved. It makes more sense to see rigor/relevance conundrum as inherent in the IS Field, as part of the field. IS researchers who must choose rigor over relevance because that is what is expected of them must do as their immediate environment requires, irrespective of the fact that demands for rigor can destroy considerations of use. This is especially true if usefulness is prima facie evidence of lack of rigor. Such researchers have to accept that separation from relevance makes IS research dull, and such research can be off-putting to patrons. The rigor/relevance conundrum keeps coming back. It is similar to what Roman Catholics call the Mystery of the Faith. It is hard to explain but real to many. It is part of the DNA that gave rise to the field. Many of the field’s insights come through explaining the consequences of use.

There is little solid IS research without consideration of use. Socio-technical systems draw their purpose and much of their interest from use. It might be difficult or impossible to persuade academic leaders to treat considerations of use as part of academic contribution. It is also difficult to work in Pasteur’s Quadrant. Taking use away from the IS Field cannot be a successful strategy over the long run. However, it can be necessary over the short run. It is not a matter of finding the right balance in the short run. The only way academic researchers in IS Field can win with promotion committees full of scientists and liberal arts scholars who warn against “creeping professionalism” is to not play. To be “rigorous” is to be safe. Preferring rigor over relevance (or vice versa) splits the community and weakens it, but over the long run academic researchers in IS must return to consideration of use. The tension never abates. Seen in this light, rigor/relevance helps to animate the IS Field.

**Design**

“Design” in the IS Field brings a new dimension to The Undead. Design is aimed at creating organizations, processes, and so forth to produce desired outcomes and mitigate undesired ones in organizations, institutions, markets, and so forth. The design notion in the IS Field emerges from Herbert Simon’s influential book, *The Sciences of the Artificial*, built from a set of lectures at the University of California, Berkeley (Simon, 1969; Boland and Collopy, 2004; March and Storey, 2008). Simon distinguished between the natural (as evolved without human agency) and the artificial (shaped by human agency). He made design science – the informed and purposeful creation of things that make the artificial desirable for humans – the heart of the sciences of the artificial. The designer develops and shapes information systems for managerial decision making, software prototyping, and managing business processes.

Design has become an attractive way to accommodate “innovation” in the IS Field. The designer shapes human endeavor as he or she pleases. It is relatively new, emerging since 1990, and especially since 2000. We cite some of the contemporary literature on the idea. Design techniques are used to help forecast technology trends, provide frameworks for text analysis in computer-mediated communication, and create rules for conceptual modeling (Lee et al., 2008; Pries-Heje and Baskerville, 2008; Parsons and Wand, 2008; Adomavicius et al., 2008; Abbasi and Chen, 2008). It has become bifurcated, with one stream aimed at creating artifacts for problem solving (Hevner et al., 2004; March and Smith, 1995; Nunamaker et al., 1990–91), and another aimed at generalizable and abstract design theories (Gregor and Jones,
The IS field at the half century mark

2007; Markus et al., 2002; Walls et al., 1992). The streams differ in concept, execution, and presentation.

Design research joins description with prescription in the construction of artifacts to achieve rigor and relevance (Gregor and Hevner, 2013). It has stimulated discussion of field and discipline boundaries and contributed to knowledge creation and accumulation through two views of the design process. One is design as rational and rigorous problem solving, essentially Simon’s view that shaped disciplines from economics to computer science. Dorst calls Simon’s view a “dominant paradigm” of design, fitting sciences and engineering, and encompassing information technology software and hardware (Dorst 2006). Others place greater emphasis on intuition, interaction, experience, and judgment akin to the architecture of the built environment or fashion, closer to art than science (Huppatz 2015).

The rigor/relevance issues are not easily resolved, however. The tension is seen in many higher education institutions that have programs in art and design while granting a design role for engineering. There is disagreement over the “profession” of design. Simon’s view makes design a profession in the traditions of engineering, but others disagree. Fashion designer Elsa Schiaparelli called dress design an art rather than a profession (Secrest, 2014). Design reflects opportunities and challenges beyond socially constructed boundaries. The difficulty of classifying art extends to design as evident when people say, “I can’t define it but I know what I like.” Teaching people to design is also hard. Is design talent, like art talent, resident in the person? If so, training might bring it out or make it more refined, but training cannot make an “unartistic” person into an “artist.” Others feel design can be taught, and many are in between. There is not an agreed-on “canon” and teaching design is a hit-or-miss proposition. There is much disagreement over whether everyone above some level of education and/or aptitude can grasp the fundamentals of a design and apply them.

Design in the IS Field is too new to evaluate completely, but some things can be said about it. Its core issue is the power of will. Design tries to make the world as we want it to be, and makes willfulness part of professional identity. Professionals have knowledge, skill, and authority to act, and their actions should be judged only by peers with similar knowledge, skill, and authority. Though willfulness one can design organizations and enterprise, and set the direction of management education. Design proposals arising from the IS Field often look far beyond historic limits.

Design feasts on other areas, works with what is available, and adds value by overcoming constraints and inertia. Design attempts to make things better with the materials at hand while transcending business as usual. Design is not The Undead. It causes observers to realize what they would never have thought of. It is something that living humans can do (dead humans do not design things), but not every living human can do good design. Some can, and some cannot. Professional education is predicated on the belief that sufficient preparation makes people with modest talents “good enough” to meet the high demand for talent. “Naturals” – people who “get it” without having professional education – pose a challenge. In the “real world” something “big” might be going on, but it is unclear.

The design perspective ignores the limits that some place on the IS Field. It end-runs the problematic of The Undead, especially as seen in the rigor/relevance debate, by claiming both engineering and artistic traditions. Design leaves the IS Field free to make use of method that leads to rigor, without obliging the field to do so. Design also embraces art, which is notoriously difficult to define precisely. Relevance can appeal to the “art” end of the spectrum. This end-run will fail if academic gatekeepers insist on rigor, and judge rigor by the expectations of the natural sciences. Most universities contain artistic programs and the insistence on the criteria of the natural sciences might be losing power in situations where “it all depends.” Few
practitioners believe that sustainable solutions to socio-technical problems can be found using only the methods of the natural sciences. The design strategy might help the IS Field move permanently past The Undead, but there is cause for concern as well as for hope.

The major concern with design is that it seems subjective in an era when objectivity is emphasized. Terms like “design science” or “design research” skirt that part of design that lies in an individual’s ability to “see” what is needed and deliver it, but not to eliminate it. Traditions of the natural sciences and much of engineering are against people who “see” in this way, but most scientists and engineers admit to the role of “creativity” in science and engineering work. To the extent that they take positions against those they see as “unfit” by demanding greater rigor, the design strategy cannot prevail. The trick is not to make a frontal assault on rigor: people often harden their positions when they feel threatened. Besides, much of the academy’s value to patrons comes from rigor. The legitimate defense of rigor remains important. But when rigor is used as a political weapon it hurts the field over time. The artistic side is a real, if ambiguous, part of design.

Hope springs from the possibility that design will open the IS Field to a more nuanced and fine-grained view of the rigor/relevance debate. The field might embrace the inherent tension of rigor/relevance as part of the role of information systems in social settings. This must happen mostly in the minds of IS researchers, not in the tools of discourse. For the foreseeable future academic publications will require rigor, practitioners will require relevance, and IS academics must be bi-lingual, understanding all sides of the issues. Design emphasizes that. The problem is hard. When relevance is marginalized, the vampire returns. Truly living requires embracing the tension inherent in design.

An ecological perspective

Thus far we have attended to Frankenstein’s monster and to vampires. What about zombies found in the ecology of the IS Field’s evolution? As the foregoing discussion suggests, the IS Field’s initial professional affiliation was in other associations. People “specialized” Special Interest Groups, or SIGs. Membership in SIGs has been changing. One such association, the Association for Computing Machinery (ACM), showed membership across more than 30 SIGs dropped from over 100,000 in 1990 to less than 40,000 in 2015. The SIG for Management Information Systems dropped from over 3,000 to less than 300, but ACM membership did not drop appreciably in this time, remaining above 80,000. People in the IS Field might have moved to the Association for Information Systems (AIS) in the early 1990s. By 2007 AIS membership had grown to about 3,600 and in 2016 stood at around 4,300. The number of AIS SIGs grew from six established in 2001 to more than 30 today. The decline of SIG membership in ACM is striking, but does not seem to be represented in the much smaller AIS.

We suspect that the reasons people join associations are changing, leaving zombies in the wake. Research from the IS Field seems to show that information systems are changing human enterprise, and speculation about these changes is rampant. Among other things, there are predictions of driverless vehicles and massive unemployment, not to mention effects from data (“big data,” “data science,” “analytics,” etc.). These speculations might come to pass: there have been changes such as supply-chain management, the “sharing” economy, and crowd-sourcing. Whether the IS Field will capitalize on these changes is as yet unclear, but the origins of the field have caught up with it, raising questions about what “relevance” means. This is seen mostly in changes in the IS Function.
The IS field at the half century mark

The IS Function arises from a functionalist view of what IS entities in organizations do. Functionalism (often called structural functionalism) in sociology says parts contribute to the whole, which is more than the sum of its parts. Each component plays a part. Parts make the whole. Different parts fulfill different needs and depend on each other. Parts that no longer serve a role die away. This view was originally derived from the study of living organisms. It profoundly shaped the field of management education. Specialists in functions were produced, and many areas of management education grew around this view.

The IS Function emerged to process the organization’s information. Its heyday was the “mainframe era” that grew out of electromechanical unit record equipment. Unit record devices and the digital computers that followed were expensive. Organizations created central data processing functions for economies of scale. The advent of stored program computers in central data processing led to the “software” era, and most application software was written in-house. Data communications supported remote job entry (RJE) and remote printing for “batch” jobs. “Interactive” computing emerged through use of terminals connected to the mainframe. The power of central data processing – what became the IS Function – grew. The computers in the “glass house” of the data center might have been powerless compared to today’s equipment, but their high costs compelled all or most organizational units to work through the central data processing unit. Central data processing, in turn, came to know at least part of the core business of every unit.

The IS Field emerged to serve the IS Function in the 1970s. Central data processing units needed expert professionals. The academy (increasingly management schools within the academy) came to produce these professionals. As management schools became more “academic,” research grew. By the 1980s, central data processing was in decline. Computer technology became more decentralizable through minicomputers and microcomputers that served as terminals to the mainframe and as stand-alone computers running spreadsheets and other useful software. By the 1990s computers were connected to internal and external data communication networks like the Internet. The cost of computing fell between 1975 and 1999. Organizational units that could not earlier afford to buy computers did so. Central data processing’s power loss accelerated as outsourcing grew. Many “hardware” functions were outsourced, and central data processing often did little more than manage “enterprise systems” and contracts with outsourc

The declining cost of computers was only part of the decline of central data processing’s power. Starting in the 1980s application software moved out of central data processing, and often out of the organization. Operating system software was still “bundled” with computer purchases (a practice still followed today) and was not a hindrance to decentralization. Application software moved increasingly to packaged software produced by software companies (virtually unknown in the 1960s). Bundles such as Microsoft Office contained most of the software moderately sophisticated microcomputer users needed. Most units, not just central data processing, could buy application software. “Software as a service,” or SaaS, continued the migration of application software out of the organization. For many employees, including those outside central data processing, computing became personal as well as organizational. Computers at home allowed employees to do organizational work at home or to “telecommute.”

Many computerized tasks became once again the province of those units that owned the tasks, as opposed to those that controlled data processing. Prior to unit record equipment there was little centralized data processing. Most units had their own data processing expertise. As central data processing grew, units complied as organization policy required. In time, central data processing’s power base became dependent on policies that required use of central data processing. Central data processing might try to defend centralization (or re-centralization) by
arguing cost saving (usually economies of scale), enforcement of uniformity, and so on. But central data processing never regained the power of its heyday. Renaming central data processing to Information Systems or the Data Processing Manager to Chief Information Officer (CIO) did not change this fact. The IS Function became weaker as people who had never used computers became expert with desktops, laptops, tablets, and mobile devices far more powerful than early mainframe computers, and as software moved outside the organization. IT became more important, but the IS Function became less important.

This ecological change has had important implications for the IS Field. The field was originally launched to meet the workforce needs of the IS Function, and much of “relevance” was tied to the IS Function’s power base. As that power base contracted, the IS Field faced new challenges. As IS academics had to meet expectations for academic rigor, irrespective of relevance, they became less interested in relevance at the same time the IS Function was fading as a source for guidance on relevance. To make matters worse, other organizational functions recognized information technology as vital to their long-term prosperity and sustainability and became less interested in having the IS Function play a dominant (or any) role to constrain their destiny. They did not want the IS Function moving into “their” territory, and other functional areas of management education followed suit. Marketing provides a good example. An executive from a large technology company recently told one of this chapter’s authors that her company no longer talks much with CIOs. In many cases her company is the CIO due to outsourcing. More important, her company spends time with client marketing leaders. The IS Function is no longer at the IS frontier; marketing is. Marketing belongs to marketing, not to IS, and relevance is determined by marketing, not IS.

The raison d’être of the IS Field was the praxis from whence it was born. Yet the seat of that praxis, the IS Function, is often decreasingly salient. The IS Field’s heroic and well-intentioned efforts to find alternatives may be to no avail because most functions in organizations have their functional counterparts in the academy. For example, health-related IT usually must deal with physicians and others from the health sciences who determine what is relevant. The academic enterprise is the problem. It might not work to hitch the IS Field’s fortunes to unstable praxis.

Nothing lasts forever, especially on “Internet Time.” The IS Function might have given birth to the IS Field, but times change. The IS Field cannot draw much comfort from the academic side that is increasingly hard to predict, especially in management schools that house many in the IS Field. Of more than 500 accredited MBA-granting programs in the United States, perhaps 100 are making money off their full-time MBA programs. Subsidies go to high-performing MBA students to keep rankings up, while full-time programs move toward the undergraduate level and MBA programs move toward fully employed students as fewer students can afford to quit their jobs and return to school. To further complicate things, many of the management fields look backwards, while the IS Field must be about the future. About all we can be certain of is that there will be organizations, and information systems will be important. The zombies of the IS Field are tied to a different and disappearing world. Turning away from the IS Field’s origins and the promise of academic legitimacy presents a major challenge.

Beyond staying alive

This all sounds rather anxious (King and Lyttinen, 2006). The important but difficult thing is to see the bright side captured in this observation: there will be organizations, and information systems will be important. Organizations have been around since humans have been on
The IS field at the half century mark

The scene (an early, detailed account of hierarchy can be found in Exodus 18, written about 4,500 years ago). They will probably be around a while longer. Information systems appear to be changing much, if not everything. There is ample evidence that information systems are changing organizations. Academic fields struggle hard to maintain their salience, and functionalist fields founded in professional schools (like management schools) do this all the time. But that does not mean they always succeed.

The IS Field’s anxiety does not properly belong with the notion that there will be organizations, or that information systems will be important. It belongs with the likelihood that failing academic constructs encourage the field to live with The Undead instead of really living. The IS Field is an academic enterprise. Is it fair to ask how the IS Field can escape academic constructs? It probably cannot. Yet the current constructs need not be the constructs of the future. Earlier we noted that the academy is a patronage scheme. Who are our patrons, and what are they interested in? The IS Field seems smitten with “crowdsourcing.” Maybe the IS Field should crowdsourced from our patrons. We recognize that this puts great pressure on people who are just joining the academic enterprise, and especially on those who will soon seek security of employment through tenure. This is an artifact of the times in which we live. We are not saying that every aspect of academic life will change. Most change will be on the margins, but marginal change can be a big deal. It is time to rethink the IS Field, learning from The Undead to be more fully alive. Tensions that refuse to go away can guide us.

As strange as it might sound, a source of inspiration for the IS Field is Robert Michels’s century-old Iron Law of Oligarchy (Michels, 1915): no matter how democratic a complex social organization might be when started, in time it evolves into an oligarchy ruled by an elite. It is time to start questioning elites. There is false hope in the IS Field emphasizing preservation of the field (or even worse, as the discipline) – things are changing too fast and too much. Elites benefit even from fields not fully alive. The leadership of the IS Field are no more to blame for this dilemma than are leaders of science who Thomas Kuhn criticized as inherently conservative (Kuhn, 1962). Change does happen, and it is seldom easy in the academy. The academy of the 15th century (when there was no IS Field) could not cope with the challenges of the late 20th century (when the IS Field had emerged). The context of the academy is changing at an accelerating pace. The IS Field’s question of what it means to be a “field” (or a “legitimate field”) is increasingly difficult to answer because the quest for academic legitimacy began in the 1980s when the norms of academic legitimacy themselves began to change. That change has not abated, and might have accelerated. Information systems affect academic legitimacy, as even a modest glance at various “impact” metrics shows.

Comfortable answers do not take care of uncomfortable questions. Why look at the IS Field to understand the problems of the IS Field? We suggest the problems lie in the academy itself. The IS Field was born and grew up in the latter quarter of the 20th century, a fairly stable time for academic fields. However, stable does not mean permanent. The IS Field hitched itself to a star – the tradition of academic legitimacy. This star appeared unchangeable until it fell. The IS Field’s roots are in the rapidly evolving digital ecosystem, but they cannot today reside in the heyday of the central data processing function – that world is gone. The new ecosystem is unstable, and the ideal balance between old and new, socio and technical, rigorous and relevant, or whatever dichotomy one chooses, is as elusive as the Golden Mean. Fast change affords opportunities for frame-breaking as well as opportunities to get things wrong. We learn by doing. The IT-centric economy creates speculation about the future. The “important” stakeholders seem to be from the private sector. Or maybe they are from the public sector. Or maybe they are from developed economies. Or maybe they are from emerging markets. Any
thesis and antithesis will do in a pinch. All are worthy of discussion as long as there will be organizations and information systems will be important.

To be really alive, the IS Field must recapture the vitality and inherent riskiness of life at the frontier, even as the frontier that gave rise to the field is no more. This might – probably will – require breaking with academic orthodoxy. This is risky, but it is a small price to pay for really living.

Notes
1 Authors are listed in reverse alphabetical order.
2 Hirschheim and Klein’s (2011) excellent history says instruction started in the 1960s. We address the academic enterprise of the IS Field, including research that got organized somewhat later. This paper is not primarily about history. For history we defer to Hirschheim and Klein and similar work.
3 See Matthew 23:27 (KJV).
4 A detailed review is beyond this chapter. Searching on &lt;rigor relevance&gt; produces many hits. See King and Lyytinen (2006) for more discussion of this and related issues.
6 Remark made to one of the authors of this chapter.
7 Data included here come from the ACM and AIS, a combination of website examination and email correspondence.

References


