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## The FIRST+ Year Information Systems Faculty Experience

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# Communications of the Association for Information Systems



## The FIRST+ Year Information Systems Faculty Experience

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### Abstract:

The transition from information systems (IS) doctoral student to new faculty member is usually accompanied by a sense of satisfaction. The transition takes place on the heels of a significant investment of time, energy, and financial sacrifice for most students. While landing a new faculty position is generally viewed in itself as a huge achievement, new faculty members face plenty of challenges. The FIRST+ framework we present here details the key elements of transitioning from student to faculty and serves as a basis for sharing experiences among soon-to-be graduates and junior faculty members regarding this transition. This paper presents the FIRST+ framework, a panel discussion on the topic led by this paper's authors at the 2013 Americas Conference on Information Systems in Chicago, and subsequent analysis of AACSB data on PhD degrees conferred and new faculty hires in IS and other business disciplines. The analysis indicates that PhD graduates in all disciplines encountered a decrease in faculty job placement opportunities in 2009 and 2010, but that IS PhD graduates were especially hard hit. The good news for IS PhD graduates and challenge for faculty selection committees is that a resurgence in the job market has occurred since.

**Keywords:** Faculty Mentoring, Job Market, Fit, Information Systems, Junior Faculty, Faculty Hiring.

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**I. INTRODUCTION**

The transition from student to faculty, apprentice to mentor, teaching assistant to assistant professor, and applicant to recruiter is a profound change. Individuals who successfully land a junior faculty position in the information systems (IS) discipline generally view this transition as positive. The perks are certainly better than those afforded a doctoral student—greater respect and esteem from faculty colleagues, improved access to resources, higher compensation, and often a bigger office (or any office at all), among others. At the same time, any change, even positive, is challenging and frequently stressful. Many new IS graduates may face difficulties in attaining a position at a university. Even highly sought-after students encounter significant change in their personal and professional lives during the transition. Students are often provided anecdotal rules of thumb for determining which universities to apply to when they go on the market, such as “choose faculty colleagues and the university with greatest prestige”, “always ask for at least three years of summer support”, “seek a situation which offers work-life balance”, or “distinguish between research versus teaching universities”. However, anecdotal advice may not meet the unique needs of every transitioning IS doctoral student because each student is likely to value different aspects of a university (for example, the university’s primary focus, its people, and its location). A more robust framework that encompasses a broad range of transitional considerations may be useful for doctoral students advancing to junior faculty member.

We developed the FIRST+ framework as an organizing foundation to engage in conversation with similarly situated students and junior faculty about transitioning from doctoral student to faculty member in the IS discipline. We presented the FIRST+ framework and our own experiences of making the transition at a panel workshop at the 2013 Americas Conference on Information Systems in Chicago. The audience was comprised mostly of PhD students close to completing their degree (many of whom were “on the market” for a faculty position) and a handful of junior faculty members. We began by detailing the FIRST+ framework, but the real value came from presenters and participants sharing their own personal experiences, asking questions, and relating personal observations related to the framework. The FIRST+ framework complements the panel report targeting IS PhD students (Firth, Germonprez, & Thatcher, 2014) by extending the career management discussion to be especially relevant for graduating PhD students and early-career faculty members.

**II. THE FIRST+ YEAR FRAMEWORK**

The FIRST+ framework is a structure for talking about transitioning from IS graduate student to IS faculty member. The acronym itself represents the first year as a new faculty and beyond, with each of the characters in “FIRST+” representing one dimension of the transition. The FIRST+ framework includes six major dimensions that encompass the challenges and opportunities of transitioning from student to faculty: (1) fit, (2) institution, (3) research, (4) service, (5) teaching, and (6) + intangibles. Table 1 summarizes the framework and each dimension.

Table 1. The FIRST+ Framework	
FIRST+ dimension	Sample transition elements
Fit	Developing research promise Aligning scholarly perspective with department’s needs Appreciating market trends regarding research topics Filling unique teaching needs Seeking mutual interests Representing the university professionally
Institution	Connecting with new people Tapping into the uniqueness of the university Building a sense of belonging
Research	Closing work in progress Managing precious time Discovering collaboration opportunities Leveraging institutional support
Service	Recognizing expectations vary considerably Recognizing the university’s performance criteria Seizing opportunities to work with senior faculty

Teaching	Discovering your own style Managing rapid changes in the IS discipline Scheduling and structuring course load Leveraging existing teaching knowledge
+Intangibles	Enduring change is stressful Impacting family life, school, and work Adapting to a new location Applying intuition as the selection committee

While we believe the FIRST+ framework dimensions are comprehensive and apply generally, the elements we enumerate here are examples that may reflect the panel participants' idiosyncrasy. We can expect wide variation in individuals' experiences with respect to the transition elements.

**Fit**

Fit refers to the degree of congruity (Drazin & Van de Ven, 1985) between the mutual requirements and preferences of a candidate and their prospective department, college, and university. Of all the dimensions presented, we believe that perceived "fit" was an overwhelmingly important criteria for why our employers offered us positions as opposed to someone else. In fact, fit is the top-most criteria cited in the academic hiring process across disciplines (Fuerstman & Lavertu, 2005).

We identified six relevant elements of fit. The first element is research promise. A candidate's potential research productivity is often the primary criteria for hiring decisions and for tenure and promotion: it receives "much greater weight" than, for example, developing student talent (Astin & Antonio, 2012, p. 14). Of course, this reality is most true at research universities, but a balanced candidate may be attractive to both research and teaching universities. When the supply of PhD graduates in IS outpaces demand, universities that traditionally classify themselves as "comprehensive" or "teaching focused" may be able to attract candidates with significant research promise.

The second element of fit is scholarly perspective. Selection committees are often interested in how a candidate's research interests align with pre-existing faculty. IS departments may seek to build depth through extending their current capabilities. Still, others may seek complementary interests and capabilities to fill a perceived gap or to increase the breadth of research expertise in a department. The IS discipline is multidisciplinary: IS faculty members specialize in a wide variety of perspectives (e.g., Benbasat & Zmud, 2003) such as organizations, economics, data mining, design science, and behavioral research. This diversity of scholarly perspectives means that a department's teaching and research needs may vary dramatically from the capabilities of any one candidate, which makes fit a particularly important consideration in the IS discipline.

The third element of fit is appreciating market trends. Frequently, expertise in specific technology areas becomes a "hot" topic, with individuals trained in the area becoming highly sought after by universities to teach new courses and increased interest in the research stream (e-commerce in the late 1990s, information security in the mid-2000s, and data science and business analytics today). Given the frequent shift in hot research topics in IS, a candidate needs to be alert to potential research trends and think creatively about ways in which their research interests may help a department build depth and breadth in research expertise.

The fourth element of fit is filling unique teaching needs. Despite the importance of research promise, the budget to hire new faculty is often justified by an acute teaching need, so the candidate's ability to fulfill that teaching need is critical. The fact is that a key mission of universities is educating students and courses need instructors. A proven track record in the classroom, experience with specific topic areas, or a demonstrated interest in teaching a particular course may all improve perceptions of a candidate's fit for a position.

The fifth element of fit is the mutual interest of both parties. Hiring a new faculty member and accepting a new faculty position imply significant investments for both parties. A university wants to know that the candidate values the overall package they offer (compensation, resources, collaboration opportunities, geographical location, etc.) because this knowledge increases the likelihood that a good candidate will stay. A new faculty member also makes investments in the new position (family arrangements, opportunity costs, and financial commitments) and wants to know that the university provides the opportunities that the individual seeks.

The final element of fit is about the candidate's ability to represent the university and the extent to which a candidate believes that the university represents the candidate's values. Pre-existing faculty must have a high degree of confidence that a new faculty member will exemplify their and the university's values. Similarly, candidates need to be honest with themselves about the extent to which factors such as a university's Carnegie classification

(<http://carnegieclassifications.iu.edu>) matter to them as individuals. Boundaries between individual behaviors and institutional reputations are often blurred, so candidates need to view themselves in their potential positions as members of the organization rather than as individual contributors to understand fit.

Lack of fit may be a source of frustration for potential faculty members. A particularly well-qualified candidate may be discouraged when excluded from consideration by universities for positions in which the candidate seems to be among the most qualified candidates. Selection criteria is based on merit, but simultaneously contingent on a compatible fit between the candidate and university. The result is that, among universities, the profile of “top” candidates may be quite different based on mutual fit along a unique set of characteristics. Based on our experiences from both sides of this issue, fit plays a significant role in determining individual outcomes of the job market. A candidate who is predominantly interested in conducting research may not be a good fit at a university with high teaching loads (irrespective of the candidate’s caliber). Likewise, an open position at a university with very high research expectations would not likely be a good fit for a candidate who is primarily interested in teaching and conducting minimal research. One key takeaway is that candidates should be authentic to themselves in the hiring process. It is almost impossible to second-guess what fit is from an institution’s perspective. If a candidate manages to land a position while behaving in ways that are not authentic to their own values and objectives, the job market may beckon again—perhaps sooner than anticipated.

### **Institution**

Institution is the next major dimension in the FIRST+ framework. Someone who transitions to being a new faculty member means is now a member of a new university institution that has its own ways of doing business. We identified three major elements of new institutions that present opportunities and challenges to making this transition a success for IS faculty members.

The first element is meeting new people. The new faculty member will have new colleagues, support staff, academic professionals, department chairs, deans, and others on the campus and in the community to meet and interact with. Developing network ties matters, so making time to interact with others in the institution and local community is an important endeavor. Formal mentoring programs and regular access to senior colleagues enables new faculty members to develop strong social ties and positive support mechanisms (Cawyer, Simonds, & Davis, 2002). While many new faculty go it alone, guidance from mentors and formal programs in the university provide benefits. After being carefully scrutinized as a job candidate and anticipating the challenging tenure review process, many new faculty members may find it surprising that senior faculty colleagues truly want the new faculty member to be successful. While expectations are extremely high, colleagues were all once junior faculty members themselves and many are willing to share helpful tips, techniques, and ideas. Still, senior colleagues are busy people: they chair committees, serve as journal editors, organize conferences, and supervise PhD students in addition to their research and teaching work. Thus, in most cases, the junior faculty member should reach out and engage senior colleagues rather than waiting for their senior colleagues to initiate interaction. Many senior IS colleagues experienced firsthand the development of the IS discipline from its infancy during their career and can share a wealth of knowledge and experience regarding career advancement and the many transitional elements of the FIRST+ framework, especially in the context of the IS discipline.

The second element is tapping into the uniqueness of the university. Every university enjoys its own strengths, culture, campus, traditions, and resources. Learning what is unique about one’s university adds to the richness of one’s experience. Such knowledge may also allow one to uncover new scholarly opportunities that are unique to that university. Learning the place and simply getting around is important for being productive and can be fun, but it also requires a balanced investment of time.

The third element is building a sense of belonging. In the process of writing this paper, we learned that every individual takes a different perspective on their own sense of belonging to their university. Some individuals act as “rah-rahs”: they cheer for the university’s sports teams, dress in university colors, and shift allegiances to their new home campus. Others think of the new campus as “a place to hang your hat”, a place to do good work and collect a paycheck, but not a place to create emotional bonds. One is not necessarily better than the other, but faculty members evolve their attitudes and viewpoints with the university over time.

### **Research**

With the heavy emphasis on research productivity in evaluating untenured faculty (Dean, Lowry, & Humphreys, 2011; Dennis, Valacich, Fuller, & Schneider, 2006) and the difficulty of publishing in top IS journals (Athey & Plotnicki, 2000), research is one of the most important areas for a candidate to be hired as a new IS faculty member.

The first year experience should focus on finishing work in progress. Regardless of the dissertation model (typically a single “thick” thesis or three-paper model), most students complete the doctoral program with 2-3 potential manuscripts that they may develop from their dissertation. Quickly moving these manuscripts from works in progress to manuscripts under review demonstrates a strong work ethic and places the new faculty member on a good trajectory for tenure consideration. Many new opportunities will arise for a new faculty member, but finishing work that is already close to being finished is important.

Time is of the essence. The new faculty member will have increasing time demands in the form of teaching load, service expectations, journal reviews, and conference attendance and organization. Carving out time for research productivity, including tasks such as theorizing, designing research, collecting data, analyzing data, and writing, is essential. In particular, making time for writing among other time demands is a persistent challenge for new faculty members (Boice, 1991). Implementation varies by what works best for each individual. Ideally, setting a firm schedule for activities (e.g., write for two hours first thing every morning; or focus on theory development Monday, data analysis on Tuesday, and writing on Wednesday) can help build an effective routine. However, setting up such a routine is not easy. For a new faculty member juggling the many competing demands of settling into a new role, a new town, and a new institution, weeks and months can quickly slip away while the individual waits for “just two hours of dedicated writing time”. Sometimes, the best way to be productive is to take whatever time is available, which may mean writing for just ten minutes on some occasions. The key is to keep moving forward in an attempt to create processes that work for the individual. Time management and how good time management can translate to success as an IS academic is emphasized in junior faculty consortia at major conferences such as Americas Conference on Information Systems, International Conference on Information Systems, and Academy of Management (organizational communication and information systems division).

A new institution provides many new collaboration opportunities with faculty colleagues, doctoral students, and even local companies. These opportunities are available especially in IS where, depending on a faculty member's background and the university, collaborators may emerge from diverse departments across campus. Access to so many opportunities can be a mixed blessing. New junior faculty should be selective in choosing opportunities that are most closely aligned with their interests and directed at tangible outputs, while not losing sight of closing works-in-progress.

As a faculty member, the level of available institutional support is quite different than as a student. For example, internal funding may be available to support junior faculty in interdisciplinary and strategic research programs at the department, college, and university levels. Sometimes, available funding simply requires a good idea and a small amount of effort to justify and receive funding awards. Successfully securing funding provides the obvious financial benefit to pay for useful resources, but it also recognizes and validates research potential.

## Service

Expectations for service (departmental committees, doctoral student mentoring, curriculum development, etc.) vary significantly from place to place. Many universities limit junior faculty service assignments, which provides them with more time to work on research and teaching in preparation for the tenure process. Other universities may have organizational needs that require junior faculty to contribute relatively high levels of service. Also, the experience and talents of each faculty member differ, so certain service activities may be more suitable for specific individuals than others. Junior faculty generally require training, development, and experience to prepare for significant administrative service roles.

While service is a critical part of many universities' mission, the reality is that service contribution is generally weighted as only a small portion of the overall performance criteria (O'Meara, 2002). Service comprises only 5-10 percent of the overall performance metric for new faculty at most universities. A new faculty member should be aware of this weighting and allocate time accordingly. The scale of the department may impact the service demands placed on each faculty member. The number of IS faculty is often smaller relative to other disciplines, which means that new IS faculty members may be required to do more service to complete the required work.

At the same time, many service activities increase a new faculty member's interaction with senior faculty (e.g., departmental committees). Making a service contribution is one way to meet senior faculty, who may be helpful in finding resources, answering institutional questions, and mentoring (Payton, 2007). Service also provides a new faculty member with a platform for demonstrating that they can extend beyond being an individual contributor. Service in the IS discipline may also include outreach to companies dealing with the impact of new technology, assisting campus student organizations such as AIS chapters, and mentoring school-age and college students on potential information technology careers.

## Teaching

Educating students is a key component of universities' mission, so new faculty members are expected to teach competently, if not admirably (Meizlish & Kaplan, 2008). We suggest that new faculty members aspire for excellence in the classroom, but not confuse excellence with effort. Excellence in the classroom is a worthy goal and must be achieved without sacrificing all else.

One of the first insights that a new faculty member should understand regarding teaching is that teaching is more evolutionary than revolutionary. It has more to do with coming to terms with who you are as an individual and what you are the most comfortable with in the classroom. (Should a course be 80% or 20% flipped? How much of the course will be online versus classroom based? Should a textbook, popular press articles, research journal papers and/or business cases be used, or will the course include hands-on training in a computer lab?) There are thousands of teaching techniques and approaches to choose from, but it is a matter of finding the combination that fits the material and to which students can relate and learn. This reality requires a new faculty member to be flexible, to experiment, to make mistakes (hopefully small), and to discover an enjoyable and effective teaching style. If the professor has fun and enjoys teaching, students are likely to follow suit and be inspired to learn more on their own.

Technology changes constantly in the IS discipline, and this change demands additional preparation time of IS faculty as compared to their peers in other disciplines to keep up. The IS discipline's nature may also result in having students in the classroom who are more knowledgeable than the instructor about a particular type of technology or newer innovation. Although faculty manage this change with a variety of classroom techniques, the professor's willingness to embrace change is pivotal. Some faculty dedicate time in every class period to reviewing new technologies, while others create student assignments associated with researching and reporting about emerging technologies.

Many universities devise a teaching schedule and structure that is conducive to the new faculty member's research program. Additionally, the new faculty member may be able to request certain parameters to maximize their own productivity, such as: 1) efficient choice of day of week/time of day schedule, 2) limited simultaneous class preparations (preps), 3) unbalanced loading to one semester (e.g., a 3/0 vs. 2/1 schedule), 4) course assignment in a familiar topic area, and 5) commitment to teach the same course repeatedly year after year. Admittedly, the small scale of most IS departments may preclude being able to attain some of these arrangements (there may not be enough sections of a given course to afford a one- or two- prep schedule). Yet, new faculty members should recognize what is possible and seek an efficient schedule while recognizing that they do not have full control.

Finally, reusing courses materials, exercises, and pedagogy is an important aspect of teaching efficiently while managing other commitments. Reinventing the wheel is not necessary in most cases. New faculty members may benefit from repeating courses they taught in the past and by asking colleagues to share materials for courses, topics, exercises, and pedagogy. Most IS programs share common courses (e.g., IS management, databases, systems analysis and design, project management, and now business analytics). Only on rare occasions would a new faculty member teach a course that is completely new to the world: someone probably taught a similar course somewhere. Even in the case where the course is taught for the first time, good pedagogical tools apply generally. The Information Systems Society IT Teaching Workshop ([https://www.misrc.umn.edu/Teaching\\_workshop/](https://www.misrc.umn.edu/Teaching_workshop/)) is an excellent venue for knowledge sharing regarding classroom innovations specifically designed for IS faculty.

### + Intangibles

Transitioning a new faculty position almost always involves a move to a new geographic location, especially when most IS departments follow a strict policy prohibiting immediate employment of their own graduates. Moving inherently yields numerous challenges and opportunities well beyond the work environment that can be stressful on the new faculty member. Common events that occur during the transition include (1) "major change in financial state"—a new IS faculty member is likely to see a significant improvement in annual income, (2) "taking on a mortgage"—new faculty members may choose to purchase a home in the new location, (3) "outstanding personal achievement"—students are likely to defend their dissertation, participate in commencement, and feel a strong sense of personal achievement with securing a new position, (4) "revision of personal habits"—a new location, job, and overall context means that the new faculty member and family adjust to new routines and patterns, (5) "changes in residence"—even if the new faculty member chooses not to purchase a home, a new residence in a new location is almost certain, and (6) "changing to a new school"—family members experience a change in venue for schooling (Holmes & Rahe, 1967). Many of these events are positive, but each contributes to increasing stress levels during the shift from doctoral student to IS faculty member.

If applicable to the new faculty member, the transition is likely to be highly impactful on family members. Children attend new schools and can lose contact with existing friends. While national standards are the new norm, the

quality of public schools, private school options, and costs vary considerably from place to place. The shift from one location to another may require the faculty member and their family to evaluate critically and choose from a new set of school options. The new faculty member's spouse or partner may be required to re-evaluate career options or completely change their normal routines in the new location. Some universities support policies to help couples manage a dual academic career or help a "trailing" spouse/partner find work in a new location. However, locating appropriate work in a new location can be especially challenging for highly specialized professionals.

As with any move, the transition requires learning about the location's best offerings for family, recreational activities, and social activities. It may be exciting to try new restaurants, but an old favorite might be sorely missed. We found that every location possesses unique advantages and disadvantages. While it's sometimes easy to focus on what is missing, pleasant surprises do emerge; it may require a little search and inquiry to find the hidden gems.

From the hiring perspective, the intangible factor means that selection committee members may assess the IS PhD graduate by intuition, especially when it comes down to multiple candidates who all are well qualified for the position. A hiring faculty member may recognize that one particular candidate has the passion, persistence, work-life balance, and outgoing personality to achieve great success. A can-do attitude and positive outlook may differentiate one candidate from a discipline of otherwise well-qualified candidates. While prior tangible work provides a good measure of future success, predicting an uncertain future is difficult, so selection committees are likely to supplement their assessments by considering such intangibles as well.

### III. TRENDS IN THE ACADEMIC IS JOB MARKET

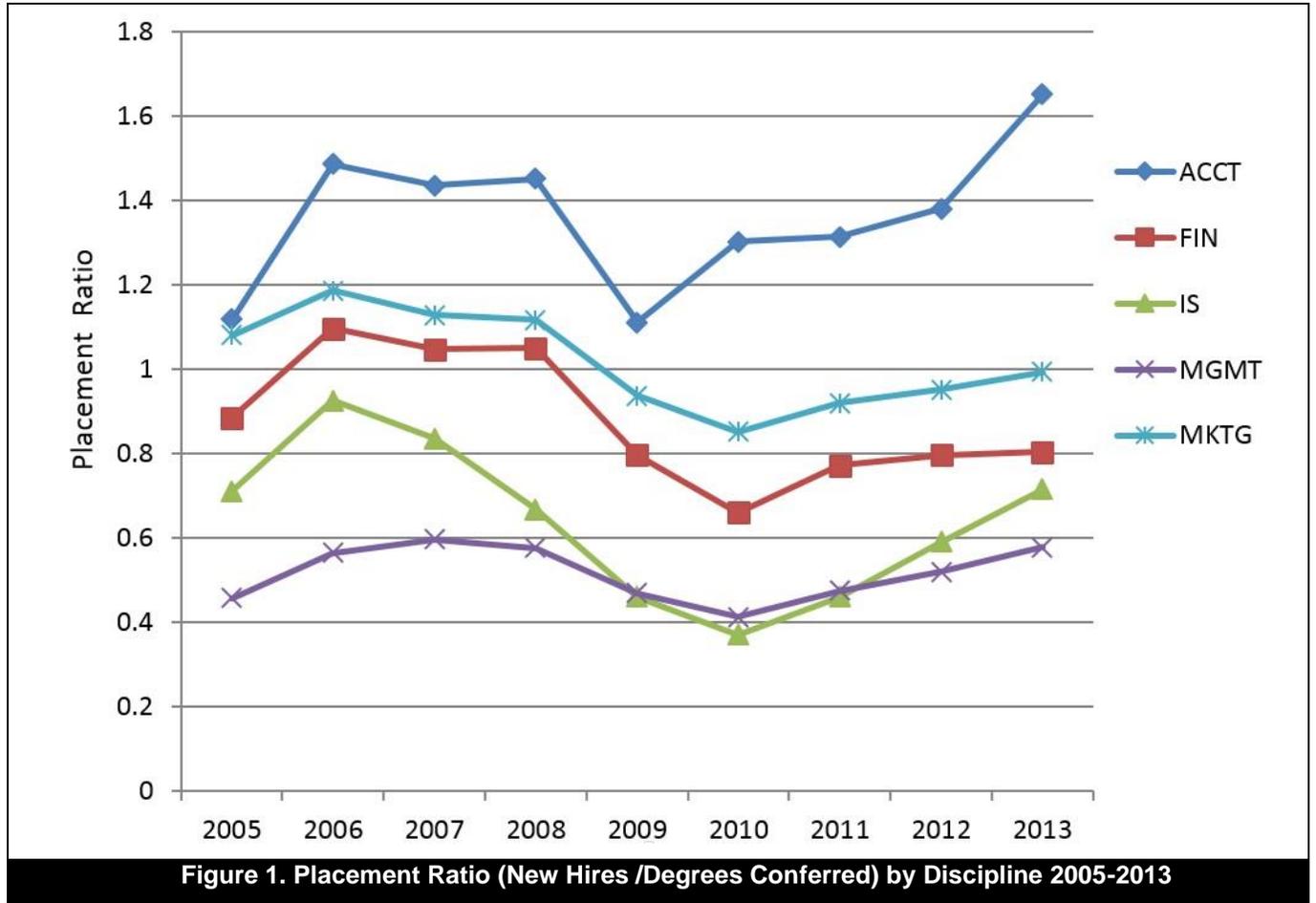
An understanding of trends in the IS academic job market is important in transitioning from doctoral student to junior faculty, especially when considering the relative volatility of the IS academic market (as compared to other academic disciplines). Awareness of these trends can provide important cues to doctoral students in terms of the best timing to enter the job market, but they can also influence a variety of areas in the FIRST+ framework from the type and number of universities that are hiring (fit and institution), to the level of research support, service expectations and teaching loads (research and service), and several intangibles (stress levels, relocation, and location-specific offerings).

The "job market" faced by graduating doctoral students is a constant source of intrigue and discussion. In the run up to the dot-com bubble, IS faculty hiring was frenzied, with universities snapping up graduates and luring faculty from other programs to fill their ranks. This fever pitch quickly reversed as undergraduate enrollment in IS programs dropped by an estimated 50 percent by 2005 (George, Valacich, & Valor, 2005). Yet, the demand for IS undergraduates, especially those with business knowledge and client management capabilities, remains strong (Abraham et al., 2006). From the anecdotal experience of colleagues who have sought a new position and been involved in faculty hiring, there is a strong sense that faculty hiring fell dramatically again following the U.S. recession in 2008.

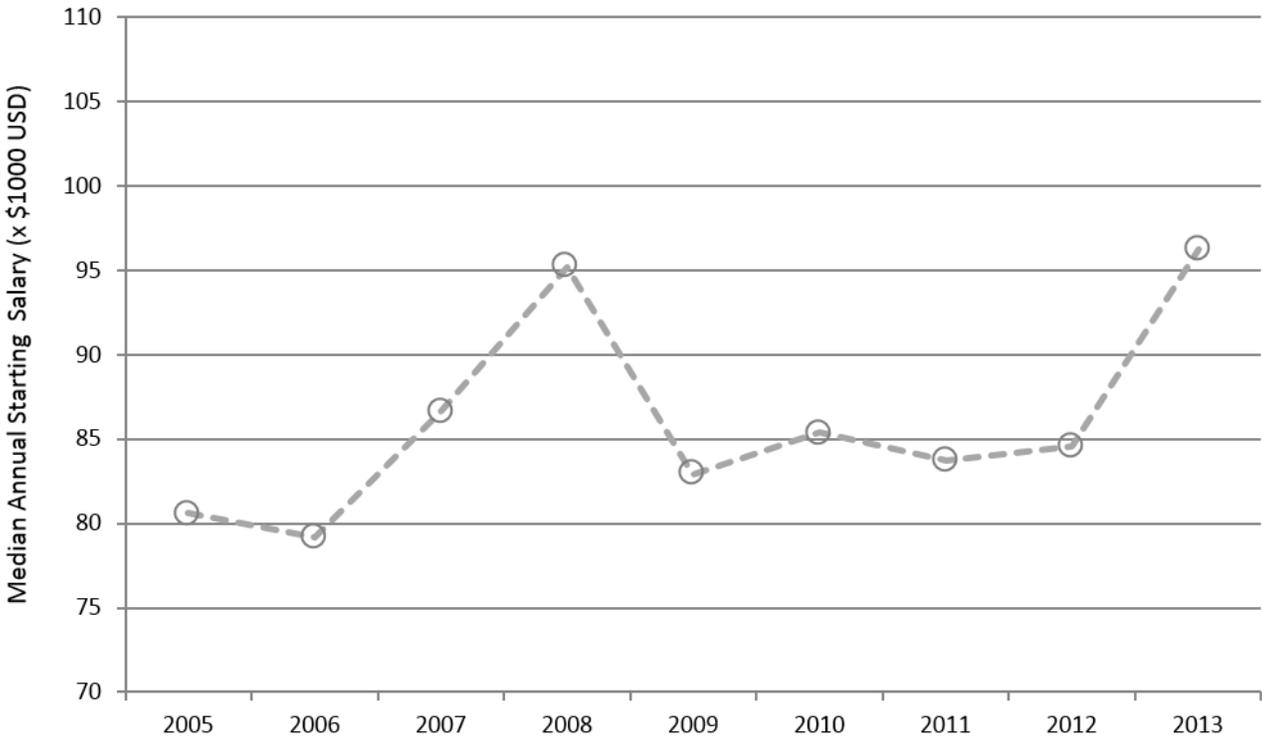
In order to assess empirically the new IS faculty job market and substantiate the anecdotal evidence of the trends in IS faculty hiring, we leverage data from AACSB Data Direct regarding the supply of PhD graduates and demand for new faculty positions. We gathered the data from comprehensive surveys completed by 613 AACSB accredited (U.S. and international) universities, including information about the number of PhD degrees conferred and the number of new faculty hires among AACSB-accredited institutions for each academic year from 2005-2006 to 2013-2014. While these data present a broad view of the job market for IS PhD graduates in business colleges, information about the demand for IS PhD graduates from information schools (iSchools), industry, and other potential employers is not included. While there is no intentional bias toward U.S. universities and many international universities are included in the data, the majority of the surveyed academic institutions are based in the US.

We measure supply in this market as the number of PhD degrees conferred in the academic year and demand by the number of new hires at the junior faculty level (assistant professor, lecturer, and faculty hired anticipating completion of their doctorate degree) according to the annual survey of AACSB-accredited institutions. We constructed an original measure of the market that we call the placement ratio (PR): new hires divided by conferred degrees. The placement ratio provides a proxy for the relative munificence ( $PR >> 1$ ) or difficulty ( $PR << 1$ ) of the market from the job candidate's perspective. Because the measure may include new hires that moved from other faculty positions, it is likely that the measure overstates the absolute number of hires in a given year. However, the measure does reflect the overall strength of the market since job-hopping is more prevalent when the market affords it. It is also possible that some specific graduates would be accounted for on the supply side but not on the demand and vice versa due to the fact that graduates of one discipline may take positions in different but related discipline, while the AACSB data from this study is focused on business schools. For these reasons, the placement ratio is best interpreted as a relative and useful proxy of supply and demand, not an absolute measure of job placement.

Figure 1 reflects the placement ratio by major business discipline as categorized by the AACSB institution for the 2005-2013 academic years. Overall, the results tend to corroborate some anecdotal suspicions regarding PhD placement trends in business colleges. For example, accounting experienced the highest faculty demand per degree conferred over the period, while the IS discipline was relatively lower in comparison. Among major disciplines, the job market according to the PR ratio was moderate for finance and marketing in relation to other disciplines. The results also indicate that demand for new faculty members relative to degrees conferred dropped noticeably across all business disciplines in 2009. Interestingly, the relative improvements in the PR ratio in the IS discipline (e.g., the positive and steeper slope in the PR ratio) outpaced other business disciplines since 2010 (with the exception of accounting).



Given the apparent decrease in demand for new IS faculty hires in 2009, 2010, and 2011, we might also expect an associated drop in starting salaries. Figure 2 indicates that new hire starting salaries increased rapidly up to 2008-2009, but then quickly retracted and leveled out over the next 4 years. The data from the 2013-2014 academic year indicates a comeback may be under way, although this assessment is based on just one year of data and only time will tell.



**Figure 2. Placement Ratio (New Hires /Degrees Conferred) by Discipline 2005-2013**

We developed a simple regression model to explain variation in the market as measured by the placement ratio. We posit in this model that PR is a function of the cyclicity of the faculty job market regardless of discipline (i.e., the market for academic positions in general) and heterogeneous effects inherent to each discipline (e.g., accounting experiences stronger demand than other disciplines). We construct this model using dummy variables for each year compared to 2005 and dummy variables for each discipline as compared to the reference discipline of accounting. The regression model predicting PR for each discipline and year is expressed:

$$PR_i = \beta_0 + \beta_1 Year2006_i + \beta_2 Year2007_i + \beta_3 Year2008_i + \beta_4 Year2009_i + \beta_5 Year2010_i + \beta_6 Year2011_i + \beta_7 Year2012_i + \beta_8 Year2013_i + \beta_9 Finance_i + \beta_{10} S_i + \beta_{11} Mgmt_i + \beta_{12} Mktg_i + \beta_{13} Other_i + e_i$$

The model shows strong fit ( $R^2 = 0.948$ ), which indicates that the combination of the overall market in a given year and the specific discipline accounts for nearly all of the variance in PR.

Next, we use the regression model to predict values of PR for each discipline/year. The resulting prediction and residual (the difference between the actual and predicted PR) allow us to test for those cases where PR significantly differs from what would be predicted (in other words, the market for a given discipline/year is significantly different than expected based on the overall market and discipline effects). Our analysis of the PR for the IS discipline indicates that there was an especially acute squeeze on IS PhD graduates. The IS discipline is the only major discipline in which the actual PRs were significantly below the predicted PRs for three consecutive years (2009 to 2011). Table 2 shows actual and predicted PRs for IS faculty hiring. The negative and significant residuals for the three-year period starting in 2009 indicate that the actual market demand in the IS discipline was not accounted for by the overall market demand and the heterogeneous effect of the IS discipline. In other words, the market was acutely challenging for IS PhD graduates during the period. So, while all disciplines were impacted by the recession, this specific analysis suggests that the impact on the IS job market was strikingly profound.

**Table 2: Comparison of Actual and Predicted Placement Ratios for IS Discipline 2005-2014**

Academic year	Actual placement ratio	Predicted placement ratio	Residual (SE)
2005-2006	0.712	0.569	0.142(0.048)*
2006-2007	0.925	0.775	0.15(0.047)*
2007-2008	0.836	0.744	0.092(0.047)
2008-2009	0.668	0.706	-0.038(0.047)

<b>2009-2010</b>	<b>0.461</b>	<b>0.561</b>	<b>-0.1(0.047)*</b>
<b>2010-2011</b>	<b>0.371</b>	<b>0.496</b>	<b>-0.126(0.047)*</b>
<b>2011-2012</b>	<b>0.461</b>	<b>0.563</b>	<b>-0.102(0.047)*</b>
2012-2013	0.591	0.612	-0.021(0.047)
2013-2014	0.715	0.713	0.002(0.047)
* Statistically significant at p < 0.05			

Despite the PR and salary volatility associated with IS academic hiring, there are several noteworthy and upbeat trends in the IS academic job market. The iSchool movement (<http://ischools.org>) is a recent phenomenon that can create new and focused opportunities for IS academics outside the traditional business disciplines described above. There are also association services such as those from Association for Information Systems' (AIS) job placement service that can help bridge the gap of hiring opportunities for IS academics between business colleges and the information schools. The growing industry demand for PhD graduates with expertise in data science and business analytics creates new career paths for IS researchers that were rarely considered just a few years ago (Davenport & Patil 2012). Collectively, these trends in hiring, together with improvements in the U.S. economy since the 2009 recession, are likely important drivers behind the sharp salary increase in 2013 (as Figure 2 shows) and corresponding increases in PR ratio (as Figure 1 shows).

#### IV. TAKEAWAYS

One important idea to recognize is that the FIRST+ framework is generic. It may be a useful, general structure to converse about issues of transitioning from student to new faculty member. Yet, it is also important to remember that every person has different expectations for their career, while each university has unique staffing requirements, teaching needs, and research expectations. The truth is that "it depends" on the individual and the university. We shared our experiences regarding the transition across the dimensions of the FIRST+ framework, but, as with most organizational issues, the ideal path is contingent on the unique factors in each case.

Persistence seems to be a theme especially relevant to the transition. Some individuals experience a lot of seemingly insurmountable obstacles and others seem to recognize immediate success, but all new faculty members experience some setbacks along the path. Persistence is required to overcome the setbacks and find the ideal situation for each IS PhD graduate.

The evidence does appear to support the notion that the IS faculty job market varied dramatically over time. While the market was hot for new faculty leading up to the dot-com bubble, new faculty candidates faced significant challenges in subsequent years. Then, the demand for IS PhD graduates seemed to be on a path toward recovery, but the U.S. recession beginning in 2008 significantly impacted the job market. The good news for new IS PhD graduates seeking faculty positions is that the market shifted back to be more friendly for new faculty candidates. Of course, on the demand side, faculty selection committees should especially recognize this trend in order to be strategic about getting the best IS faculty candidates as demand for new academics in the IS discipline shifts higher.

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#### 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 paper on the Web, can gain direct access to these linked references. Readers are warned, however, that:

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