Academic Departments of Information Systems Faculty in the U.S.

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ABSTRACT

Information systems (IS) faculty are located in a variety of different departments in academic institutions. Both the theoretical basis of the discipline and the curricular needs of the professional business community influence departmental organization. Analyzing changes in the organizational home of information systems faculty in the 1980s and 1990s, we found that departmental structure did not reflect the establishment of IS as a fundamental theoretical discipline. The proportion of schools organizing information systems faculty in their own separate departments was relatively unchanged in 1995 compared to 1983, while the proportion of all IS faculty in separate IS departments decreased. There was no significant decrease in the proportion of IS faculty in departments of computer science and the proportion of faculty in management science departments and related fields increased through the mid 1990s. Changes in departmental location do reflect, however, the evolution of information systems in the business profession. There were significant increases in the proportion of schools and the number of faculty included with management, marketing, operations, interdisciplinary business, and finance departments and a significant decrease in accounting departments.

Keywords: Information systems departments, information systems faculty, academic departments

1. INTRODUCTION

There is no consensus on the optimum departmental location for the study of information systems. Some universities have established separate IS departments; others include IS faculty in departments such as computer science, management sciences, accounting, management, and marketing. The business community similarly has a variety of organizational structures for managing information systems. IS managers report to CEOs, CFOs, Division Directors, or Operating Managers.

We expect that the academic home of a discipline is influenced by both its theoretical basis and the professional community's requirements. Reference disciplines that provide foundation theories for a field of study initially house researchers in a new field. As the field evolves, these researchers begin to establish their own departments. Departments provide promotion and tenure standards so academic affiliation influences faculty research. "In addition to their particular knowledge bases and requisite skills, academic disciplines have distinct cultures with different beliefs, norms, values, patterns of work, and interpersonal interaction" (Anderson 1994). Academic departments also manage curriculum. Practitioner needs therefore drive the development of departments that support curricular requirements for entry-level participants in a field of endeavor.

We anticipate that the changing nature of information systems applications has influenced the location of teaching interests. As business applications evolved from support activities to more strategic systems, we expect that information systems faculty moved into departments focusing on primary value chain activities such as marketing, operations, and management.

The theory of IS management is in its infancy compared to other business disciplines such as accounting, finance, and production (Applegate 1999). This theory is extremely diverse, drawing from numerous reference disciplines that provide the fundamental theories that are investigated by IS researchers. Diversity has both threatened and advanced the academic field of informa-

tion systems (Benbasat 1996: Robey 1996). If research is influenced by the academic home of the discipline, then the diversity of information systems research may result from lack of consensus on the optimum organizational structure for the study of information systems.

Debate in the literature has questioned whether IS evolved into a unique discipline separate from its reference disciplines (Alavi 1992; Benbasat 1996; Culnan 1993; Robey 1996; Swanson 1993; Weber 1987). We expect that the evolution of information systems as a fundamental discipline would be reflected in a shift of IS faculty from its reference discipline departments to separate information systems departments.

This paper takes an historical perspective and investigates changes in the departmental home for the study of information systems since the early 1980s. Our objective was to see whether these changes: (1) supported information systems' evolution as a unique field of study separate from its reference disciplines, and (2) reflected a movement that paralleled the introduction of applications supporting the primary value chain functions of logistics, operations, marketing and sales, and service. This enables us to better understand both the evolution of the discipline and a source of the theoretical diversity of research in this field.

2. INFORMATION SYSTEMS IN ACADEMIA: RESEARCH PERSPECTIVE

Information systems as a field of academic study began in the 1960s, a few years after computers were first used for information processing by organizations. It has had a number of different labels, now considered equivalent, that reflect its historical development: information systems (IS), computer information systems, information management, information technology resources management, information resource management, management information systems (MIS) (Couger 1995).

"Information systems, as an academic field, encompasses two broad areas: (1) acquisition, deployment, and management of information technology resources and services (the information systems function), and (2) development and evolution of infrastructure and systems for information use in organization processes (systems development)." (Couger 1995). The context of information systems is an organization and its systems. The field differs from computer science, whose emphasis is on algorithms and system software, and from management science, which focuses on problems, models, and solvers, and the relevant information in a problem context (Culnan 1993). It also differs from organization science. While organization science studies individuals, organizations, and institutions, information systems focuses primarily on behaviors and attitudes of information systems users and the role of the social context of the information system.

In 1973 John Dearden published "MIS is a Mirage" in the Harvard Business Review in response to a Business Week report on the new management information systems (MIS) programs at Wharton, MIT, and Minnesota (Dearden 1973). Today there are hundreds of MIS programs in U.S. academic institutions. While MIS is no longer a mirage, IS curriculums have been criticized as out of date (Burton 1985; Lee 1995; Maglitta 1996; Maier 1996) while IS academic research has been criticized for lacking a paradigm, with neither direction nor cumulative tradition (Weber 1987).

During the 1970s many MIS academics experienced career advancement problems. Promotion and tenure committees discounted strong student and industry demand and focused on low research productivity. Building a research infrastructure became a priority. *MIS Quarterly* was established in 1977. The first International Conference on Information Systems followed in 1980. At that conference, Keen emphasized the need to create a coherent MIS research field through clarification of reference disciplines, definition of dependent variables, and building a cumulative tradition:

> "At present, MIS research is a theme rather than a substantive field. Luckily, since computers are important and knowledge of how to use them limited, academics have been given a line of credit to draw on, and can expect that universities will eagerly continue to hire assistant professors in MIS even while they bemoan the poverty of their seniors' research" (Keen 1980).

In the 1980s several new IS journals were established, including *Journal of Management Information Systems (JMIS)*, *Journal of Information Systems (JIS)*, *Information Systems Research (ISR)*, and *Transactions on Information Systems (TOIS)*. Three of these four journals were published by other academic disciplines. The Institute of Management Sciences (now known as INFORMS) published *ISR*, The Association of Computing Machinery (ACM) *CACM*, and The American Accounting Association *TOIS*. Both INFORMS and ACM also established sub-groups for IS academics, computer information systems (CIS) and SIGBIT, respectively. The organization science discipline was slower in accepting IS research. In 1986 Culnan reported that MIS research was not well grounded in organization theory nor had MIS research results been widely diffused in the organizational literature (Culnan 1986). However, in the 1990s The Academy of Management reestablished its former Organizational Communications Division as the OCIS Division and *Organization Science* became an outlet for some IS research.

IS has had tenuous status within academic institutions (Robey 1996). Despite healthy student enrollments, it is often a weak contender for intellectual legitimacy. Some universities in which IS programs were first established now have little critical mass of faculty or doctoral students remaining. Suffering both from neglect and political assaults, these programs lost ground while older programs were sustained. IS was regularly put on the spot to make a case for its existence (Robey 1996). Restricted academic budgets led to pressure from peer academic units (Couger 1995). One reason that talented IS faculty move frequently is the fact that local balance of power and political landscapes of academic institutions shift (Robey 1996). Senior IS academics often joined other disciplines or at least developed a growing affinity with other disciplines, changing departmental allegiance, due to disillusionment with the diffuse state of IS research and the disciplines' failure to articulate a core identity (Benbasat 1996).

Since 1980 a number of studies examined the progress of MIS as a scholarly field of study (Culnan 1986a, 1986b, 1987, 1993). Culnan's studies concluded that MIS, while still pre-paradigmatic, emerged as a distinct field of study with its own cumulative tradition from a supporting base of three foundational fields: computer science, management science, and organization science. Swanson & Ramiller's review of submissions to ISR in 1987-1992, however, concluded that there were still no major paradigms or foundations particular to IS (Swanson 1993). They concluded that IS researchers borrow more than they contribute to the literature of four reference disciplines: engineering and design, decision processes, social processes, and economic efficiency and business performance. In fact, the most popular electives or minor fields of IS doctoral students were in the reference disciplines of computer science, management science, and management. Production, economics, accounting, finance, were infrequently selected as minor fields for IS doctoral students in 1988-1989 with marketing one of the least popular (Jarvenpaa 1991).

Several researchers lament the lack of theory and paradigms in the IS field (Alavi 1992; Benbasat 1996; Weber 1987). Weber feels that MIS literature ignores the primacy of paradigms, "content to be seduced by excitement of new technology." The level of diversity in problems addressed, theoretical foundations and reference disciplines, and data collection and analysis methods has been considered problematic to the future of IS as a discipline. Others argue that MIS qualifies as a scientific field characterized as a fragmented adhocracy, where research is rather personal and weakly coordinated (Banville 1989). They advocate greater pluralism, more diversity, greater use of methods that allow researchers scope for interpretation, and adoption of theoretical perspectives not founded on a rational and mechanistic view of the world (Benbasat 1996).

3. INFORMATION SYSTEMS IN ACADEMIA: TEACHING PERSPECTIVE

The state of the field is strongly influenced by the fact that "MIS is not purely academic, MIS departments are to a large extent vocational schools in that their graduates are eagerly recruited by a supportive business community..." (Banville 1989, p. 57). Faculty in professional schools have been torn between the worlds of practice, education, and scientific disciplinary research (Rice 1993). MIS research is closely associated with practice (Alavi 1992). Faculty in fields who continue in their professional practice contribute to improvements in practice. Some researchers challenge the assumption that the pursuit of knowledge is best organized according to discipline-based departments (Rice 1993).

In the past barriers to entry for new IS programs and faculty were low because of high demand and the need to quickly develop a cadre of faculty who had not had the opportunity to study information systems. In 1987 The AACSB offered an Information Systems Faculty Development Institute offering a highly intensive, four and one-half week program, "specially designed for terminally qualified business school faculty members whose specialization and training is not in MIS, but who wish to move in this area to teach and do research. Management scientists, accountants, and organizational behaviorists are examples of intended participants.. 'others' are faculty holding a doctorate from non-business fields such as mathematics, computer science, information science, the behavioral sciences and education who wish to shift to a business school position." (Banville 1989).

But are IS departments succeeding in their vocational role? IS curricula in many universities are not well aligned with business needs (Lee 1995; Maier 1996; Magiltta 1998). A *Computerworld* survey of 90 four-year programs found that only a handful exposed the estimated 40,000 students to most of the technical skills desired by industry. New undergraduates lacked the right mix of technical, business, industry and soft skills. Few undergraduates were trained in hot technologies and even fewer were taught project management, communication, documentation and team skills (Maglitta 1998). Lack of skills was particularly a problem in manufacturing (Johnson 1993). "Schools are three years behind business...Universities move towards progress about the pace of a turtle with a case of the gout", according to Professor Zawacki at University of Colorado (Maglitta 1998). Reasons cited for the problem include: costs of upgrading platforms every two or three years, too many competing programs without adequate resources, guidelines from the AACSB making it difficult to add more IS credits, poorly trained faculty rewarded for publishing more than hands-on experience, politics involved in changing curriculum, and the

academic philosophy of teaching lifelong learning rather than hot skills.

4. INFORMATION SYSTEMS IN INDUSTRY

To illuminate reasons for poor success in supporting its vocational role, we need to understand the professional needs of the IS community. The role of IS in industry has changed over time, resulting in an evolution not only in the skills required by IS professionals but in the management of IS (Applegate 1999). IS curricula have often been ill matched with business needs because business use of IS has continually evolved. This evolution has placed different demands on IS professionals. More end-user focused business orientations are clearly required (Lee 1995).

During Era 1, from the 1950s to the early 1970s, IS operated as a regulated monopoly. The primary focus of applications was organization-wide (payroll, accounting, production scheduling, and order entry). New applications typically automated clerical functions and were justified by cost elimination or displacement. As a result most data processing functions were established as part of accounting or financial organizations.

Era II began with the introduction of minicomputers and timesharing in the early 1970s, and accelerated in the 1980s with the advent of the PC. This lead to a "free market" for IS services, as users had a wide range of new channels to acquire technology expertise and information processing capabilities. Individual and work unit effectiveness became key justification measures. Some organizations moved IS expertise out into business units. Since Era 1 applications were still important to business success, many IS departments remained in financial units. In most cases IS personnel in operating units continued to report to a central IS function.

During Era III, the 1990s, the focus was on strategic and competitive applications, administered through a regulated free-market environment. The trend to move IS functions out to the user community accelerated (Couger 1995). In some cases, these applications transformed internal organizations and functions, and IS functions were established within operating units. In other cases technology use transcended traditional departmental boundaries, so that IS organizations were moved upward. As the strategic importance of IS grew, "More chief information officers are reporting directly to chief executive officers, rather than to lower-level executives. More chief information officers (CIO) are being included on management committees." (Lancaster 1998).

Era IV, today's ubiquitous era of computing, focuses on the development of widely distributed, flexible information management systems and communication networks to enable correct information to be available anytime, anywhere. Administration of the IS function is collaborative. Justification is based upon organizational effectiveness. Enterprise resource systems with links throughout the extended value chain are becoming widespread. IS functions within individual units are often supplemented with more central functions to enable collaboration.

As IS becomes more strategic it is expected that CIOs should be peers of other functional leaders and ought to report to the Chief Operating Officer (COO) or the Chief Executive Officer (CEO) (McCreary 1998). A 1997 survey of senior level IS executives by Ernst & Young indicated, however, that most CIOs in the late 1990s continued to report to the chief financial officer (CFO) or an equivalent finance-oriented role (Ernst & Young 1997). Titles and functions of the immediate bosses of the 230 CIOs who responded to the survey are shown in Table 1. A 1998 survey of 417 chief financial officers (CFOs) by the Financial Executives Institute reported even more CIOs reporting to CFOs as shown in Table 1 (Hildebrand 1998). However, the numbers in the latter survey varied considerably by industry. In industries where information systems are central to daily operations, there is a greater likelihood that the CIO reports to the chief executive officer (CEO). For example, respondents in the insurance and financial service sectors report that 38% and 33% of their CIOs, respectively report to the CEO. Financial executives feel that finance is the best place for IS to report because these executives are technologically literate and objective so that prospective projects get a balanced analysis. However, when companies are technology dependent, the chairman of the Financial Executive Institute's committee on finance and information technology suggests that it may be wiser to have a direct CIO/CEO reporting relationship.

Table 1. The Chief Information Officer's Boss

	Percentage of CIOs reporting to title	
CIO's Boss' Title	1997 E&Y*	1998 FEI*
CFO	32%	55%
CEO/President/Chairman	22%	21%
Executive or Senior Vice President/Director	19%	
Vice President of IT/IS/MIS	8%	
COO	5%	11%
Other	14%	13%

*E&Y = Ernst & Young; FEI = Financial Executives Institute

IS curriculum has had to continually evolve to develop graduates with the skills required to manage the new types of applications introduced in each era. Programs

have changed to prepare students to work in information systems organizations with different types of systems and responsibilities.

5. RESEARCH HYPOTHESES

Professional academic institutions serve two primary purposes: (1) educate future professionals and (2) further the state of research. We expect, therefore, that the academic home of a field of endeavor reflects both the needs of the profession and the research affinities of that discipline. Since both the requirements of industry and the evolution of academic research in this new discipline underwent significant change in the last two decades, we expect that IS academic affiliations also evolved.

We expect that academic home is driven by the research roots of the discipline and evolves with the theoretical basis of the field of study. Thus, early in the evolution of information systems as a discipline of study, researchers were found primarily in the reference discipline departments, in particular, computer science and decision sciences. As the discipline established its own identity as an academic field of study, separate information systems departments were created.

We also expect that professional and curricular needs impact the academic home of information systems. The academic home of information systems should be aligned with the evolving use of technology in the business community, enabling development of curriculum to meet these constituents' needs. In the 1990s organizations moved from custom development to purchase and integration of information systems. When information systems are purchased, there is less need for algorithmic development and technical issues so less focus on computer science issues and quantitative modeling is expected, contributing to a move of information systems faculty from computer science and decision sciences departments.

H1a: The proportion of schools housing information systems in standalone departments increased as the information systems discipline established its own body of knowledge and academic research community.

H1b: The proportion of IS faculty in standalone information systems departments increased as the information systems discipline established its own body of knowledge and academic research community.

H2a: The proportion of schools housing information systems faculty in the reference discipline department of computer science decreased as the information systems discipline established its own body of knowledge and academic research community.

H2b: The proportion of IS faculty housed in computer science departments decreased as the information systems discipline established its own body of knowledge and academic research community.

H3a: The proportion of schools housing information systems in the reference discipline departments of management sciences/decision sciences/quantitative methods decreased as the information systems discipline established its own body of knowledge and academic research community.

H3b: The proportion of IS faculty housed in the reference discipline departments of management sciences/decision sciences/quantitative methods decreased as the information systems discipline established its own body of knowledge and academic research community.

As information systems evolved from accounting control and support systems in the 1970s and early 1980s to manage the effectiveness of individual business functions in the primary value chain in the mid to late 1980s, we expect that information systems faculty moved from accounting departments to primary business functions such as management, marketing, and operations. Moreover, accounting information systems grew as a separate field of study within accounting departments so we expect a decrease in the proportion of IS faculty in accounting departments.

H4a: The proportion of schools housing information systems in primary business functions such as management, marketing, and operations management increased as information systems evolved to support primary value chain activities.

H4b: The proportion of IS faculty housed in primary business functions such as management, marketing, and operations management increased as information systems evolved to support primary value chain activities.

H5a: The proportion of schools housing information systems in accounting departments decreased as information systems evolved to support primary value chain activities rather than accounting support functions.

H5b: The proportion of IS faculty housed in accounting departments decreased as information systems evolved to support primary value chain activities rather than accounting support functions.

In the late 1980s and early 1990s, more cross-functional and strategic systems evolved. We expect that the study of information systems was included in more cross-functional organizations. In addition, given the fact that many professional IS organizations report to CFOs, we

expect to see some academic IS researchers in finance departments.

H6a: The proportion of schools housing information systems in interdisciplinary departments increased as strategic cross-functional systems evolved.

H6b: The proportion of IS faculty in interdisciplinary departments increased as strategic cross-functional systems evolved.

H7a: The proportion of schools housing information systems in finance departments increased.

H7b: The portion of IS faculty in finance departments increased.

6. LOCATION OF IS FACULTY

In order to test these hypotheses, we compared data obtained from the directories of Management Information Systems faculty in the U.S. at three time periods: 1983, 1989, and 1995. We felt that these time periods would best capture the hypothesized changes in the location of IS faculty. Prior to 1980 when the first ICIS conference met, IS was not considered to be a substantive field (Keen 1980). We felt that most of the changes both in the development of IS theory and business use of information systems occurred during the mid to late 1980s and the early 1990s. The departmental home was classified into one of nine categories based upon the title of the department: (1) Information Systems, (2) Decision Sciences/Management Sciences/Quantitative Methods/ Operations Research, (3) Accounting, (4) Management/Marketing/Operations Management, (5) Computer Science/Engineering, (6) Finance, (7) Business/Administrative Science/ Interdisciplinary, (8) Other (e.g. Social Sciences, Urban and Public Affairs, Communications) (9), No department listed.

Results are shown in Table 2. The primary location of IS faculty in the U.S. is in departments that specialize in information systems. In 1995, approximately 30% of all schools with IS faculty (133 of 445 schools) had a department dedicated to information systems, employing 38% of the total IS faculty (753 of 1959), with an average of 6 IS faculty in a department. The next most popular locations for IS faculty were in Departments of Decision Sciences, Quantitative Methods, Management Science and Operations Research and in Departments of Management/Marketing/Operations Management. In 1995, approximately 21% (92) of all 445 schools with IS faculty housed them in each of these departments. Decision Science departments had more IS faculty than primary value chain departments, on average, 6 and 4 faculty, respectively. Decision Sciences Departments housed, in total, 26% (509) of all the IS faculty while Management/ Marketing/ Operations Departments housed 14% (284) of all IS faculty.

Trends over time are shown in Figures 1 and 2, which display the percentage of schools housing IS faculty in the different categories of departments and the percentage of faculty housed in these departments, respectively. For each category, the sample proportions in each year were compared pair wise. The difference in sampling proportions is assumed to be normally distributed with sampling from binomial populations. The results are shown in Tables 3 and 4 and significant differences at the 10% level are summarized in Table 5.

During the overall period 1983-1995 there were no significant differences in the proportion of schools that house information systems in a standalone department or with Decision Sciences and related fields. However, there was a significant decrease in the percent of all IS faculty housed in standalone IS departments with a significant increase in the percent of all IS faculty in Decision Sciences departments.

There was a significant decrease in the proportion of schools and faculty with IS faculty in Accounting Departments as well as a significant decrease in the number of schools housing IS faculty in Computer Science/Engineering. The decrease in IS faculty and schools in accounting departments took place in the 1980s while the decrease in schools with IS faculty in computer science took place in the early 1990s.

There was a significant increase in the proportions of schools and faculty housed with Management/ Marketing/Operations Management, Finance, and Business. These increases took place primarily during the 1980s. The proportion of schools and faculty with IS in interdisciplinary departments increased from 1983 to 1995.

7. DISCUSSION

Results are summarized in Table 6. They provide support for the significant increase in schools housing IS faculty in primary value chain departments, interdisciplinary departments, and finance departments, which occurred primarily during the 1980s. This reflects the shift in emphasis in business, supporting the hypothesis that the curricular needs of the profession strongly influence the organizational home of the field of study.

An interesting result is the lack of strong support for the movements of IS faculty due to the theoretical emergence of IS separate from its reference disciplines. While standalone information systems departments house the largest proportion of IS faculty, the proportion of schools housing information systems in standalone departments has not significantly changed from 1983-1995. The proportion of all IS faculty in these departments decreased as IS faculty were increasingly found in other departments.

Table 2: Location of Information Systems Departments

	Number of Schools			Number of Faculty		
IS Faculty located in departments of	1983	1989	1995	1983	1989	1995
Information Systems	37	103	133	212	611	753
Decision Sciences/ Management Sciences/ Quantitative Methods.	28	86	92	105	473	509
Accounting	18	33	36	53	130	131
Management/Marketing/ Operations Management	18	82	92	50	254	284
Computer Science/ Engineering	10	28	20	19	87	83
Finance	0	7	8	0	23	29
Business/Interdisciplinary.	9	77	63	23	186	169
Other	1	2	0	6	7	0
Total	122	421	445	469	1775	1959

Figure 1. Location of IS Faculty by Department: Percentage of Schools

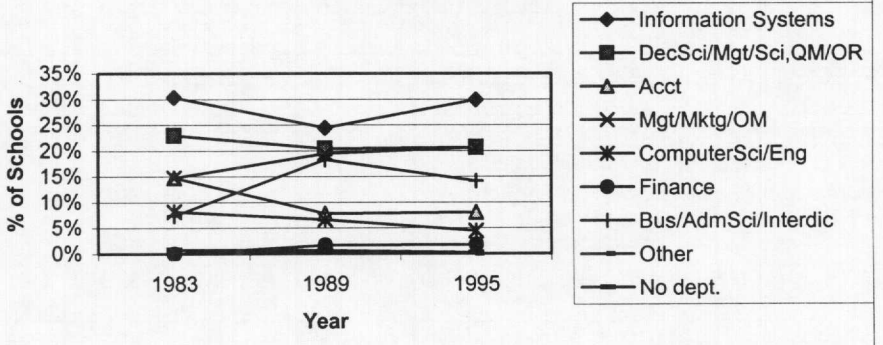


Figure 2. Location of IS Faculty by Department: Percentage of Faculty

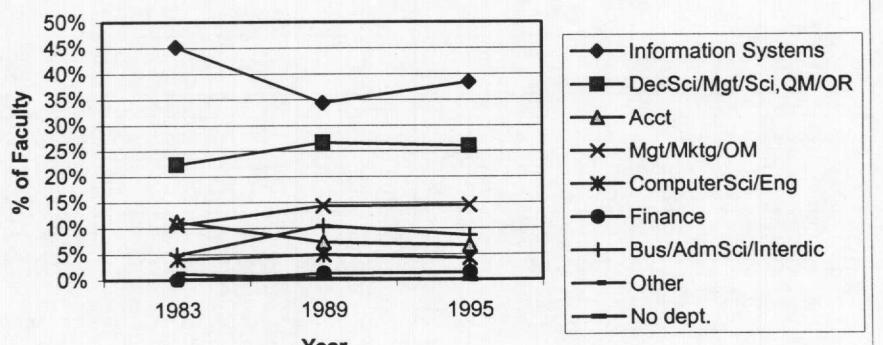


Table 3: Sampling Distribution of Difference between Proportions: Number of Schools

	1983-1989			1989-1995			1983-1995		
IS Faculty Located in Departments of	μ^1	σ^2	z	μ	σ	z	μ	σ	z
Information Systems	-.0586	.0449	-1.31*	.0542	.0303	1.79*	-.0044	0.0468	-.09
DecSci/MgtSci/QM.	-.0252	.0418	- .60	.0025	.0285	.09	-.0228	0.0417	-.54
Accounting	-.0691	.0300	-2.31*	.0025	.0184	.14	-.0666	0.0300	-2.22*
Mgt/Mktg/OM	.0472	.0399	1.18*	.0120	.0272	.44	.0592	0.0404	1.46*
ComputerSci/Eng	-.0155	.0262	-.59	-.0216	.0156	-1.39*	-.0370	0.0229	-1.62*
Finance	.0166	.0116	1.43*	.0013	.0089	.15	0.0180	0.0121	1.49*
Business/Interdisp.	.1091	.0375	2.91*	-.0413	.0250	-1.65*	0.0678	0.0340	1.99*

[1]$\mu = p_2 - p_1$ where p_i is the proportion of entries in the category for year i.
[2]Standard deviation of the difference of the proportions
*Significant at 10% level

Table 4: Sampling Distribution of Difference between Proportions: Number of Faculty

	1983-1989			1989-1995			1983-1995		
IS Faculty Located in Departments of	μ^1	σ^2	z	μ	σ	z	μ	σ	z
Information Systems	-.1078	.0250	-4.31*	.0401	.0158	2.54*.	-.0676	.0251	-2.69*
DecSci/MgtSci/QM.	.0426	.0227	1.88*	-.0067	.0144	-.46	.0340	.0223	1.61*
Accounting	-.0398	.0142	-2.80*	-.0064	.0084	-.76	-.0461	.0136	-3.39*
Mgt/Mktg/OM	.0365	.0178	2.95*	.0019	.0115	.16	.0384	.0177	2.17*
ComputerSci/Eng	.0085	.0110	.77	-.0066	.0068	-.97	.0019	.0103	.18
Finance	.0130	.0052	2.478*	.0019	.0038	.48	.0148	.0056	2.65*
Business/Interdisp.	.0558	.0151	3.695*	-.0185	.0096	-1.93*	.0372	.0139	2.68*

[1]$\mu = p_2 - p_1$ where pi is the proportion of entries in the category for year i.
[2]Standard deviation of the difference of the proportions
*Signficant at 10% level

Table 5: Significant Changes in Location of IS Faculty from 1983-1995

IS Faculty Located in Departments of	1983-1989	1989-1995	Overall:1983-1995
Information Systems	Proportion of schools and faculty both decreased	Proportion of schools and faculty both increased	Proportion of faculty decreased.
Decision Sciences/ Management Science/ Quantitative Methods	Proportion of faculty increased.		Proportion of faculty increased.
Accounting	Proportion of schools and faculty both decreased.		Proportion of schools and faculty both decreased
Mgt/Marketing/Operations Management	Proportion of schools and faculty both increased		Proportion of schools and faculty increased
ComputerScience/ Engineering		Proportion of schools de-creased	Proportion of schools decreased.
Finance	Proportion of schools and faculty both increased.		Proportion of schools and faculty both increased.
Business/Interdisciplinary.	Proportion of schools and faculty both increased.	Proportion of schools and faculty both decreased.	Proportion of schools and faculty both increased.

Table 6. Results of Hypothesis Testing

Hypothesis	Description	Results
H1a	Proportion of schools housing IS in **standalone IS** departments *increased.*	No support
H1b	Proportion of IS faculty in **standalone IS** departments *increased.*	Contradictory
H2a	Proportion of schools housing IS in **computer science** *decreased.*	Yes
H2b	Proportion of IS faculty housed in **computer science** departments *decreased.*	No support
H3a	Proportion of schools housing IS in **DecSci/MgtSci/QM** *decreased.*	No support
H3b	Proportion of IS faculty in **DecSci/MgtSci/QM** *decreased.*	Contradictory
H4a	Proportion of schools housing IS in **primary value chain** *increased.*	Yes
H4b	Proportion of IS faculty in **primary value chain** *increased.*	Yes
H5a	Proportion of schools housing IS in **accounting** departments *decreased.*	Yes
H5b	Proportion of IS faculty in **accounting** departments *decreased.*	Yes
H6a	Proportion of schools housing IS in **interdisciplinary** departments *increased.*	Yes
H6b	Proportion of IS faculty in **interdisciplinary** departments *increased.*	Yes
H7a	Proportion of schools housing IS in **finance** departments *increased.*	Yes
H7b	Proportion of IS faculty in **finance** departments *increased.*	Yes

There is no support for the theory that faculty moved from the reference disciplines to standalone information systems departments as the discipline emerged. While there has been a significant decrease in the number of schools housing information systems in computer science departments, the proportion of total IS faculty housed in computer science has not significantly decreased. This suggests that, while schools are moving information systems into other departments, there are still faculty working in more technical areas of information systems in computer science departments.

While there was no significant change in the proportion of schools housing IS in management sciences/decision sciences/quantitative methods departments, the proportion of IS faculty in these departments actually increased. It is expected that many schools did not consider changing the organizational home of IS and, with the increased need for IS faculty, simply hired them into these existing departments.

Our research assumes that the location of information systems academics is driven by the theoretical basis for IS research or pressures from practice. We did not consider internal academic politics or financial pressures as driving forces for academic institutions, which is a threat to the validity of this study. Politically strong departments in the reference disciplines, for example, may have fought the loss of faculty to standalone information systems departments. Financial constraints may also have limited the number of departments.

8. CURRENT LOCATION OF IS FACULTY

We felt that the time period from 1983-1995 should have reflected the hypothesized departmental changes. However, we also include an update of the current location of IS faculty. We did not attempt to statistically compare the 2001 results with previous results because the data were collected differently. After 1995 the directory of IS faculty was maintained online with individual faculty contributing and updating entries at will. The 2001 data were not organized by department or school whereas the previous directories were organized by school and department. We still felt that it would be instructional to review the data even if we could not statistically test differences. Table 7 includes the 2001 results from the database of all IS faculty recorded at www.isworld.org as of August 2001.

Table 7. Percentage of all IS Faculty by Department

Department	1983	1989	1995	2001
Information Systems	45%	34%	38%	38%
Dec Sci/Mgt Sci/ QM/OR	22%	27%	25%	16%
Accounting	11%	7%	6%	8%
Mgt/Mktg/OM	10%	14%	13%	17%
Computer Science/Eng	4%	5%	4%	6%
Finance	0%	1%	1%	0%
Bus AdmSci/Interdisc.	4%	10%	5%	7%
Other	1%	0%	0%	2%
No department	1%	0%	6%	5%

The data are consistent with our conclusions that more IS faculty have not moved into separate information systems departments as the number of information systems faculty have grown. Also, a greater proportion of IS faculty today are found in the primary value

chain departments. However, the 2001 data are not consistent with our conclusions from 1983-1995 regarding the percentage of IS faculty in Decision Sciences/ Quantitative Methods/ Management Sciences departments. In 2001, there appears to be a lower percentage of all IS faculty who reported their location in these departments. In fact, this data is more consistent with our original hypothesis that there would be a decrease of faculty in these departments (H3). It just may have taken longer for this change to occur.

9. FUTURE RESEARCH AND CONCLUSIONS

This work provides an empirical examination of how the locations of IS faculty and departments have changed during a time period when the number of programs and faculty in information systems grew significantly. Some decisions about the academic home of information systems may have been driven by the evolution of the use of information systems in business. There is no evidence of the recognized evolution of IS as a separate discipline of study.

It is generally expected that the organization of schools offering more advanced degrees such as PhD are driven more by theoretical evolution of the field compared to schools that offer only B.S. degrees. We would like to investigate whether there is any relationship between the highest degree offered and the home of the academic department.

This work is based upon our hypothesis that the organizational home has an impact on the type of research. Since academic departments generally have strong input to promotion and tenure decisions, we expect that faculty choose to publish articles related to the basic discipline of their department in journals widely accepted by those departments. For example, we expect more information systems faculty in decision science departments publish in journals such as Decision Sciences whereas information systems faculty in management and marketing departments choose to publish in management and marketing journals. We plan to test this hypothesis by analyzing the publication outlets of IS faculty in different departments.

While this study focused on the study of information systems in the U.S., it would be interesting to compare these results with academics in other countries. A more cross-cultural perspective can investigate whether similar changes took place in academic institutions outside the United States.

Finally, we plan to do an historical analysis of the changes in the organizational home of the IS department in industry through the 1980s and 1990s. We hypothesize that IS departments moved from centralized departments into primary value chain areas.

This research suggests that professional use of information systems in business organizations has influenced the academic home of information systems. Historically, the reference disciplines also provided a home for academic study of information systems. There is no strong evidence that the evolution of information systems as a fundamental field of study contributed to the establishment of separate academic departments of information systems. This suggests that future research will continue to have much theoretical diversity. We also expect that more research will be wedded to the primary business functions.

10. REFERENCES

Alavi, M. and P. Carlson, P. [1992], "A Review of MIS Research and Disciplinary Development." *Journal of Management Information Systems* 8,4, Spring 1992, 45.

Andersen, M., K. Louis, and J. Earle [1994], "Disciplinary and Departmental Effects on Observations of Faculty and Graduate Student Misconduct." *The Journal of Higher Education* 65,3, May 1994, 331.

Applegate. L., W. McFarlan, and W. McKenney [1999], ***Corporate Information Systems Management***, Irwin, Chicago.

Banville, C. and M. Landry, M. [1989], "Can the Field of MIS be Disciplined?" *Communications of the ACM* 32, 1, Jan. 1989, 48-60.

Benbasat, I. and R. Weber [1996], "Research Commentary: Rethinking "Diversity" in Information Systems Research." *Information Systems Research* 7,4, Dec. 1996, 389-399.

Burton, K. [1985], "Outdated MIS Curricula at Core of Graduate Drought/Universities in Losing Struggle to Stay Timely with DP/Colleges Having Trouble Retaining Entry-level MIS Faculty." *Computerworld* 19, 10, March 11, 1985, 26-28.

Couger, D, G. Davis, D. Dologite, D. Feinstein, J. Gorgone, G. Kasper, Y. Little, and H. Longenecker [1995], "IS '95: Guideline for Undergraduate IS Curriculum." *MIS Quarterly* 19, 3 September 1995, 341.

Culnan, M. [1986a], "The Intellectual Development of Management Information Systems, 1972-1982: A Co-Citation Analysis." *Management Science* 32, 2, February 1986, 156-172.

Culnan, M. and E. Swanson [1986b], "Research in Management Information Systems, 1980-1984: Points of Work and Reference." *MIS Quarterly*, September 1986, 289-301.

Culnan, M. [1987], "Mapping the Intellectual Structure of MIS, 1980-1985: A Co-Citation Analysis." *MIS Quarterly,* September 1987, 341-350.

Culnan, M, E. Swanson, and M. Keller [1993], "MIS Research in the 1980's" Shifting Points of Work and Reference." *Proceedings of the 26th Hawaii International Conference on System Sciences,* 597-606.

Dearden, J. [1972], "MIS is a Mirage." *Harvard Business Review,* Jan-Feb. 1972, 90-99.

Ernst and Young LLP [1997], "*An Organizational Look at the Information Executive."* Ernst & Young Center for Technology Enablement, Va.

Hildebrand, C. [1998], "IT and the Bottom Line." *CIO Enterprise,* Section 2, June 15, 1998, 70-76.

Jarvenpaa, S., B. Ives, and G. Davis [1991], "Supply/Demand of IS Doctorates in the 1990s." *Communications of the ACM,* 34,3, January 1991, 86-99.

Johnson, D., and LaBarre [1993], "Retraining Management Information Systems for its Role in Computer Integrated Manufacturing." *Journal of Systems Management,* 44, 9, September 1993, 18-40.

Keen, P [1980], "MIS Research: Reference Disciplines and a Cumulative Tradition." *Proceedings of First International Conference on Information Systems,* 9-18.

Lancaster, H. [1998], "Technology Managers Start to Gain Status as Information Rules." *Wall Street Journal,* August 25, 1998, B1.

Lee, D., E. Trauth, and D. Farwell [1995], "Critical Skills and Knowledge Requirements of IS Professionals: A Joint Academic/Industry Investigation." *MIS Quarterly* 19, 3, September 1995, 313.

Maglitta, J. [1996], "IS Schools: Need Improvement." *Computerworld* 30, 8, February 19, 1996, 78.

Maier, J. and S. Gambill [1996], "CIS/MIS Curriculums in AACSB-accredited Colleges of Business." *Journal of Education for Business,* 71,6 July/August 1996, 329.

McCreary, L. [1998], "Re: IT Governance" *CIO,* May 15, 1998, 12.

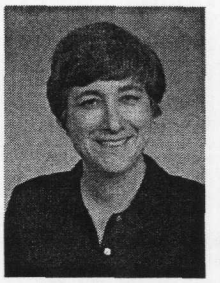
Robey, D. [1996], "Research Commentary: Diversity in Information Systems Research: Threat, Promise, and Responsibility." *Information Systems Research* 7, 4, December 1996, 400-408.

Rice, R. and L. Richlin [1993], "Broadening the Concept of Scholarship in the Professions." Curry, L. and J. Wergin & Associates (eds.), *Educating Professionals,* Jossey-Bass, San Francisco.

Swanson, E. and N. Ramiller [1993], "Information Systems Research Thematics: Submissions to a New Journal, 1987-1992." *Information Systems Research* 4,4, December 1993, 299-358.

Weber, R. [1987], "Toward a Theory of Artifacts: A Paradigmatic Base for Information Systems Research." *Journal of Information Systems,* Spring 1987, 3-19.

AUTHOR BIOGRAPHY



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