SPRING 2000

NEWSLINE

Trends in the Faculty Resources Market Point to Coming Shortage in Information Systems

Student demand for information systems and other technology-related educational programs continues to rise, while growth in other areas is declining.

Demand for doctoral degree information systems faculty is at its highest level since the late 1980s, according to recent AACSB survey results. Although the data do not signal an immediate overall faculty crunch, they amplify emerging concerns about shortages of doctoral degree information systems faculty. Demand in other areas experienced more modest increases, but jumps in average salaries indicate competition for high performers and faculty with an emphasis on technology within their field.

AACSB's annual survey of faculty demand collects data about doctoral degree positions in business schools in the United States. Roughly 60 percent of AACSB's U.S. members participate in the survey each year. Among other things, member schools report the number of vacant positions that are authorized and funded and that they are actively trying to fill with doctoral degree faculty. Dividing this number by the total number of doctoral degree positions gives the faculty vacancy rate, a key indicator of faculty demand.

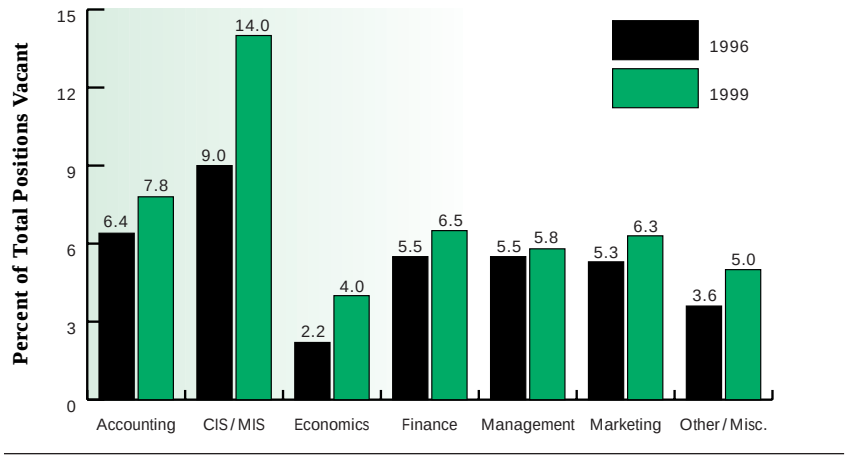
Following a low of 5.2 percent in 1996, the combined business faculty vacancy rate inched up to 6.6 percent in 1997. It has remained stable in the two years since, at 6.8 percent in 1998 and 6.7 percent in 1999.

Marginal increases in enrollment and faculty retirements are among the possible drivers boosting faculty demand.

Preliminary analysis of AACSB survey data indicates that average undergraduate business enrollment ticked up slightly from 1998 to 1999, and continuing, but slower, growth occurred in the MBA segment. According to AACSB-sponsored analysis of the Higher Education Research Institute (HERI) Faculty Survey, 32 percent of business faculty were 55 or older. Although comparable business faculty data from the 1989 survey are not available, the percent of faculty 55 or older in all disciplines at that time was only 24 percent. The 1988 National Survey of Postsecondary Faculty pegged the percentage at 19 for business faculty. Recent financial market performance, albeit more volatile and uncertain, may have made retirement the rational choice for a larger share of this growing population segment. It also is worth noting that 32 percent of faculty were 45 or younger in 1998. This compares with the 35.8 percent in other areas in 1998 and 41 percent for all faculty in 1989.

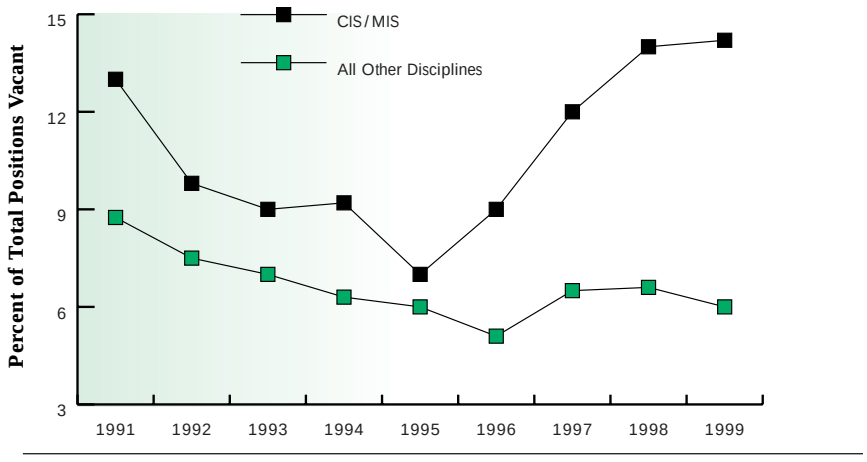
continued on page 2

FIGURE 1. DOCTORAL FACULTY VACANCY RATES BY DISCIPLINE



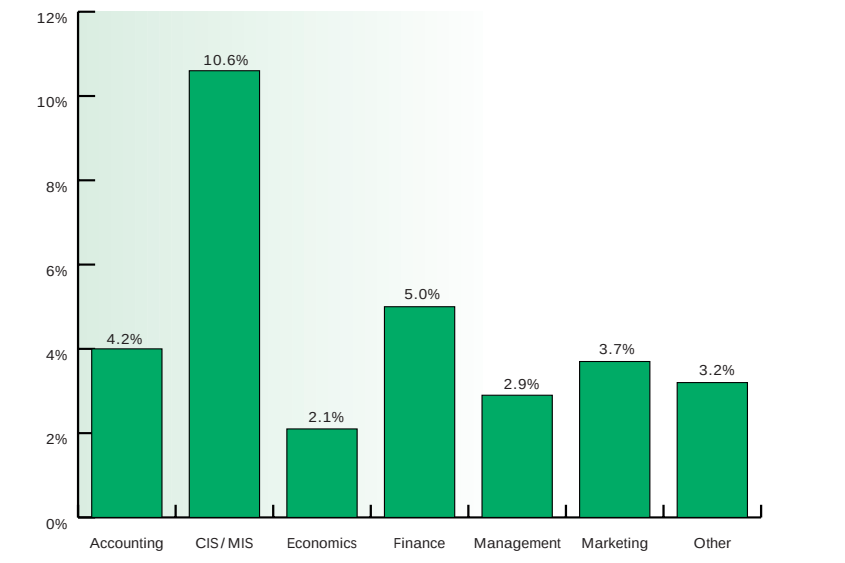
Source: AACSB Survey of Faculty Demand 1996 and 1999

FIGURE 2. CIS/MIS DOCTORAL FACULTY VACANCY RATES



Source: AACSB Survey of Faculty Demand 1991 through 1999

FIGURE 3. PLANNED GROWTH IN FACULTY POSITIONS



Source: AACSB Survey of Faculty Demand 1999

continued from page 1

A more careful analysis of the data reveals that the combined vacancy rate has been buoyed by demand in the information systems area. Figure 1 shows the faculty vacancy rate by discipline in 1996 and 1999. Higher faculty vacancy rates were reported in 1999 in all disciplines, with the largest gain in the CIS/MIS area. In Figure 2, the vacancy rate for CIS/MIS is shown along with the vacancy rate for all disciplines, excluding information systems. The diagram illustrates clearly that other disciplines have not paralleled the recent growth in information systems faculty demand.

It appears that this pattern will continue. Figure 3 shows the planned increase in doctoral degree faculty positions by discipline. Again, CIS/MIS leads the way with a planned increase of almost 11 percent, more than double the projected increases for any other discipline and up from 9.4 percent in 1998 and 7.9 percent the year before. To put this planned growth into perspective, in 1995 each responding school had 2.1 CIS/MIS positions on average. That year, the projected growth rate was 2 percent. In 1999, there were 4.5 CIS/MIS positions reported on average and projected growth was five times higher. Although information systems currently represents less than 10 percent

of the business school faculty, additional information systems positions are projected to account for almost 20 percent of the growth in new business school faculty positions.

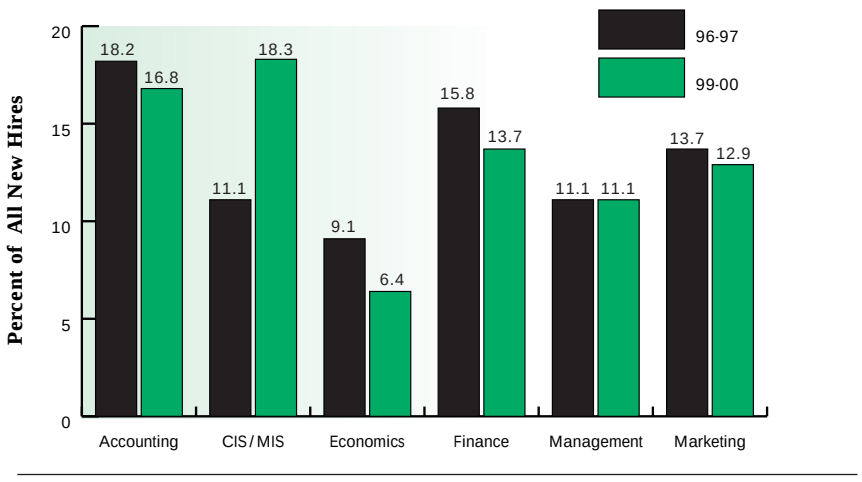
Are business schools reallocating faculty resources to the information systems area from other areas? There is no conclusive evidence that the answer is yes and the experiences of individual schools vary considerably. However, data from AACSB's Annual Salary Survey provide some initial insight into trends in the resource mix. The total number of faculty positions reported in the information systems area increased to 9.5 percent of the total in 1999 from 8 percent of the total in 1996. During the same period, the proportion of faculty in accounting, economics and management areas each decreased, while very modest increases occurred in finance and marketing. The percent captured by the "other" category decreased to 2.5 percent from 2.6 percent.

"We currently are seeing a dramatic increase in demand for MIS degrees and a steady decline in students seeking a degree in accounting," reported Donald F. Parker, business dean at Oregon State University. "If this continues as expected, a shift of faculty resources from declining programs to growth areas seems inevitable."

Faculty recruiting trends also are evident in AACSB data on the number of new hires. Figure 4 shows the distribution of new hires across disciplines. While all other areas remained flat or decreased, information systems faculty now represent almost one-fifth of all new hires by business schools, up from less than 12 percent in 1996-1997. Although not shown, these data also reveal business schools turning away from new entrants (new doctorates and ABDs) and toward experienced faculty members. The percent of new hires with experience increased to almost 60 percent in 1999 from 54 percent in 1996.

Student demand for information systems and other technology-related educational programs continues to rise, while growth in other areas was flat or negative. An AACSB analysis of U.S. Department of Education data shows that the number of degrees awarded in business and management decreased 11 percent between 1992 and 1997. Further analysis of the decline shows that fewer degrees were awarded in 1997 than in 1992 in accounting, finance and marketing. During the same period, the number of degrees awarded in information systems increased by 44 percent. Meanwhile, the U.S. Department of Commerce estimates that the United States will need more than 1 million new technology workers by the year 2005. And a recent survey by the Information Technology Association of America projects that the number of unfilled IT positions will reach 850,000 by January of next year.

FIGURE 4. DISTRIBUTION OF NEW HIRES ACROSS DISCIPLINES



Source: AACSB Salary Survey 1996-1997 and 1999-2000

At Western Kentucky University, business dean Robert W. Jefferson said computer information systems is the fastest growing major on campus and ranks 10th in enrollment of all campus undergraduate majors. "There has been a 158 percent increase during the past five years in this major," he said. "Today's students are aware of employer interest and need for graduates with competence in use and application of information technologies. Almost every notice of employment or executive visiting the campus cites growing expectations of IS competence among new or future hires."

Stories about huge and potentially unmanageable growth in information systems enrollment are coming from AACSB members. Stories of triple-digit growth are not uncommon, from globally competitive schools located in well-known technology centers to regional institutions in small college towns. Growth in technology-related, non-degree executive education, both open enrollment and custom programs, also are driving demand for faculty. "This enrollment growth often has created tension in institutional budgeting cycles," said Dan LeClair, AACSB director of information services and strategies. "Resource constraints have resulted in faculty recruitment shortfalls, forcing some business schools to place caps on enrollment and increase admission standards for information systems students."

Parker said his school is putting processes into place to restrict the number of students who specialize in MIS. The same goes for the University of Texas at Austin. " I believe we have one of the largest IS faculty groups in the country and yet we have difficulty keeping up with student demand," said Robert G. May, UT business dean. "We have had to limit the number of our MBAs who may concentrate in information management and we have developed an MIS minor at the undergraduate level to decongest courses for students seeking majors in

continued on page 4

continued from page 3

MIS. The latter students almost exceeded the finance majors (traditionally our largest group) at commencement in May," he said.

The pace at which member business schools have introduced new e-business courses and degree programs is unprecedented. "This rapid growth obviously has influenced the demand for information systems faculty," said LeClair, "but the greater challenge may be to find qualified doctoral degree faculty in other areas, such as accounting, finance and marketing to support the integrative curriculum implied by e-business degree and non-degree programs." Some suggest that recent industry salary increases were largely the result of business school competition for a small number of doctoral degree faculty with academic and professional experience in electronic commerce. Others believe that the new programs have accelerated a trend toward increasing use of clinical and part-time faculty. If so, AACSB data understate the strength of technology faculty demand.

"Rapid shifts in program offerings and in instructional delivery will cause schools to re-examine their missions, faculty development and instruction resources," said Milton R. Blood, AACSB managing director, accreditation. "There will be a strong, but dangerous, pull to meet market changes with ad hoc, rather than planned, responses."

"Interestingly, we are finding that many of our new faculty in other areas, as well as existing faculty in non-IT areas, are orienting their teaching and research toward the ITM area, a trend that we support," said David Blake, business dean at the University of California, Irvine.

The business demands for technology workers not only have driven up enrollments, but also have created new concerns about faculty retention. Large corporate information departments and technology start-ups alike are attracting many qualified doctorates to non-academic jobs. In addition to competitive salaries and stock options, they may provide access to resources, such as software and staff, often not available in academic environments. Concerns about faculty retention may be most prevalent in technology centers, such as San Francisco, Austin, New York, Boston and Northern Virginia.

The supply of new business doctorates continues the slide initiated by program cuts in the early '90s. According to the Survey of Earned Doctorates, between 1994 and 1998, the number of doctorates awarded in areas such as accounting, finance, information systems and marketing declined by 14 percent, 38 percent, 26 percent and 14 percent, respectively. Table 1 shows the number of research doctorates awarded in the U.S. from 1994 to 1998. This comprehensive survey also indicates that only 60.8 percent of the 1,165 business doctoral graduates in 1998 planned to work in educational institutions. Although data are not available, it is believed that the percentage is now significantly lower in the information systems area. Also, 21.3 percent of 1998 doctoral graduates were non-U.S. citizens on temporary visas. This is down from 42.5 percent for 1991 graduates, but still indicates that one out of five new doctorates is not automatically eligible for employment in U.S. business schools.

TABLE 1. DOCTORATES IN BUSINESS AND MANAGEMENT

DISCIPLINE	1994	1995	1996	1997	1998
Accounting	179	168	156	150	154
CIS/MIS	117	111	94	100	86
Economics	40	37	38	47	56
Finance	134	163	114	69	83
International Business	22	23	36	39	33
Management	319	340	393	421	342
Marketing	167	153	153	153	143
Organizational Behavior	102	100	108	121	103
Other	203	232	184	136	165

Source: Survey of Earned Doctorates sponsored by the NSF, NIH, NEH, USDE and USDA

Preliminary data drawn from AACSB's 1999 Business School Questionnaire suggest no sign of an upturn in doctoral degree production. The average number of doctorates per school decreased to 9.9 in 1998-1999 from 10.2 in 1997-1998. However, the number of reported CIS/MIS doctoral graduates from 98 schools totaled 87, which is higher than the 86 recorded by the Survey of Earned Doctorates in 1998.

The doctoral degree program enrollment picture is mixed, but clearly does not signal the start of a turnaround. Many of the largest doctoral degree producers reported enrollment declines between 1998 and 1999. The University of Pennsylvania, the University of Illinois at Urbana-Champaign, Michigan State University, The University of Arizona, the University of Tennessee at Knoxville, Harvard University and the University of Nebraska-Lincoln all reported enrollment declines ranging from a low of 1.7 percent to a high of 6.8 percent. However, the University of Iowa, Purdue University, The University of Texas at Austin, the University of Minnesota and Stanford University registered modest gains in enrollment. With weakness in doctoral enrollments and the median registered time from bachelor's degree to doctoral degree at 7.7 years, it appears that business school recruiting challenges will only become greater.

Rising demand and decreasing or stagnant supply imply price increases in market environments. Salary trends were reported in a recent *Newsline* article and a more detailed discussion is beyond the scope of this article. Readers may be interested in purchasing the full 1999-2000 AACSB Salary Survey report now available in print or electronic format from AACSB. Among other findings, it documents a 20 percent increase in CIS/MIS new doctorate salaries between 1997 and 1999. It also shows that finance new doctorates earned 21 percent more in 1999 than in 1997, indicating that flat growth in vacancy rates did not slow growth in salaries. This may provide evidence of increasing competition for a few top performers. Indeed, the top 10 percent of finance assistant professors now earn more than $115,000, 20.4 percent higher than in 1997.

Some have claimed that private institutions have been able to respond more quickly and effectively to increasing technology enrollment and faculty shortages than their public counterparts. "Although more careful analysis is necessary, initial evidence indicates that this has not been the case," said LeClair. "For example, between 1996 and 1999, average salary for CIS/MIS new doctorates grew about the same in public accredited schools (22 percent) as in private accredited schools (21 percent)," he said. "Of course, private schools tend to pay more on average than public schools. In the CIS/MIS case, full professors in private schools average $18,400 more than their public school counterparts. Although this differential is not new or unusual, the consequences may be more substantial when placed in the context of the current competitive business environment."

The analysis above points toward re-emerging intensity in competition for faculty in certain disciplines. "However, two cautions are in order," said LeClair. "First, using aggregate data for decision-making may be dangerous. Whenever possible, data analysis should be customized to be most relevant for the school. For example, AACSB members may select peer institutions to include in custom salary reports, which can be created, purchased and received online," he said. "Second, the above demand and supply analysis does not do justice to the increasing complexity in faculty markets. Funding uncertainties, competition in non-salary compensation, educational reform and new faculty models make faculty trends less interpretable than ever." Analysis also is complicated by staggering public and private investments in e-learning and the continuing globalization of management education. A more comprehensive and current report on the market for faculty resources is scheduled for release at the first-ever AACSB Strategic Compensation Conference in November.