INFO WORLD

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Intel on the road with PIII

■ Company envisions seven types of mobile platforms

By Dan Briody
and Ephraim Schwartz

ON THE EVE OF PC Expo, Intel is pushing notebook makers to expand their mobile offerings during the next year, hoping to give customers more choices than ever for maximizing mobile productivity while minimizing costs.

In a market that formerly contained as few as two types of notebooks, Intel envisions as many as seven by 2000, including a critical new category labeled "mininotebooks," that will be showcased by vendors at this week's PC Expo in New York. (See chart and related article, page 36.)

Intel will also be specializing processors for some of these emerging markets, according to internal Intel documents.

"We design to meet the needs of customers," said Frank Spindler, vice president of marketing for the mobile products group at Intel. "There are some cases where we have designed or will offer products for these different categories."

PC at a crossroads

▶ The growing interest in handhelds and specialized devices is threatening PC hegemony, *page 38*

▶ President of 3Com's Palm Computing Robin Abrams comments on the success of the handheld, *page 18*

▶ Server appliances are here to stay, and our Test Center Comparison shows why, *page 58*

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ONLINE

▶ Get the latest from the show floor in our PC Expo coverage

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Thin clients

'Pervasive' IBM plan targets mobile users

By Ed Scannell
and Ted Smalley Bowen

IBM WILL LAY OUT its long-term pervasive computing strategy this week, which aims to extend electronic business beyond the PC to the emerging class of intelligent devices. In addition, IBM will detail how it will use Java as the lingua franca to create applications capable of running across these platforms.

IBM, through its Pervasive Computing initiative, this week will detail much of its long-term strategy for tying together a wide variety of mobile computing and embedded devices through a series of Java-flavored technologies.

In a slap at Microsoft, part of IBM's message will emphasize that its strategy does not revolve around any one dominant operating system and that its approach will be to make dozens of different operating environments work together throughout the network.

IBM's plan could result in signif-

ENTERPRISE CAREERS

Our exclusive survey shows the value of mixing business with technology skills

▸ *Check out average salaries, benefits, and more,* **page 118**

▸ *Margaret Steen comments on the trends,* **page 138**

▸ *Related: Sandy Reed relates the bigger compensation picture,* **page 105**

▸ *Get your two cents in at our forum at* **www.infoworld.com**

1999 Compensation Survey

SUSAN GROSS

It pays to become business savvy

■ But new skills are just one factor to consider when evaluating IT compensation packages

A S CORPORATE DEPENDENCE on IT grows, IT professionals find themselves increasingly drawn into business decisions, rather than simply implementing and maintaining technologies. Now it appears that companies are backing up their desire for business-savvy IT professionals with cash.

The 1999 InfoWorld Compensation Survey found that the average salaries for IT professionals who focus on both business and technology are higher than the average salaries for those at the same level who focus primarily on technology. (See small chart, page 119.)

However, with crucial company projects depending on the expertise and hard work of the IT staff, managers trying to make sure their employees stay on board need to look beyond salaries. And the right types of compensation can be used to encourage employees to develop and apply new skills — including business skills.

In our second annual survey of the salaries and benefits our readers receive, we asked about both new trends and traditional factors that affect IT professionals' compensation. (For details, see Methodology, page 119.) The results of our survey can help companies and individuals look beyond simple averages to define a fair compensation package. In addition, we asked a random sample of our readers what they thought about their compensation and work environments; their comments appear throughout this report.
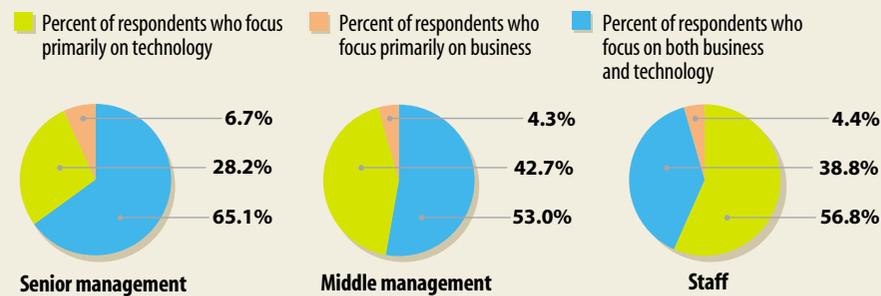
BUSINESS SKILLS PAY OFF. The salary difference between purely technical employees and those who also focus on business suggests that companies may be starting to connect the business results that these hybrid employees achieve with their compensation.

"It used to be technical skills that got the job done," said an IT program designer at a government agency in California. "[Now] you must have the technical skills to accomplish the mission, but you must be proficient in business skills to obtain what is needed to accomplish the mission."

About half of survey respondents said they focus on a mixture of business and technology. Almost all of the rest said they focus primarily on technology; a small percentage said they focus primarily on business. (For details, see chart, above right.) Of those whose focus is split, an average of about 58 percent of their time is spent on technology and 42 percent on business.

The salary difference is greater the higher up in management you go: For senior managers who focus on both business and technology, average salaries were 8.8 percent more than the average for those who focus primarily on technology; for middle managers, the difference was 6.8 percent. Even at the staff level there was a difference, although it was minor: Staff members who focus on both business and technology earned an average of 1.3 percent more than those who focus primarily on technology.

The overall message is that a joint focus on business and technology appears to be the best way to go for those who want the increased responsibility, salaries, and perks of senior management. And even at lower levels of the organization, it can pay off to develop business skills to complement technology skills.

For some groups, salary increases in the past year were also greater for those with a joint focus. Middle managers who focus on both business and technology reported average salary increases of 9.8 percent from the previous year in 1998; those who focus mainly on technology reported increases of 8.7 percent. For staff members, salary increases averaged 9.1 percent for those who focus on business and technology, compared with 8.2 percent for those who focus mainly on technology. IT business analysts reported one of the largest salary increases on average — 11.3 percent. And for senior managers, the salary increases each group reported were about the same: 10.5 percent.

Many readers said the business portion of their jobs has been growing in recent years. Some also said they are happy about this.

"If I invest my time and energies in the creation of architecture, structure, or process, then I deserve to be heard when decisions are made concerning the use of those things," said an IT specialist at a state government department, in Olympia, Wash.

However, some readers expressed concern about the difficulty of both keeping up with

Do IT professionals focus on business or technology?

■ Percent of respondents who focus primarily on technology
■ Percent of respondents who focus primarily on business
■ Percent of respondents who focus on both business and technology

Senior management: 6.7% / 28.2% / 65.1%
Middle management: 4.3% / 42.7% / 53.0%
Staff: 4.4% / 38.8% / 56.8%

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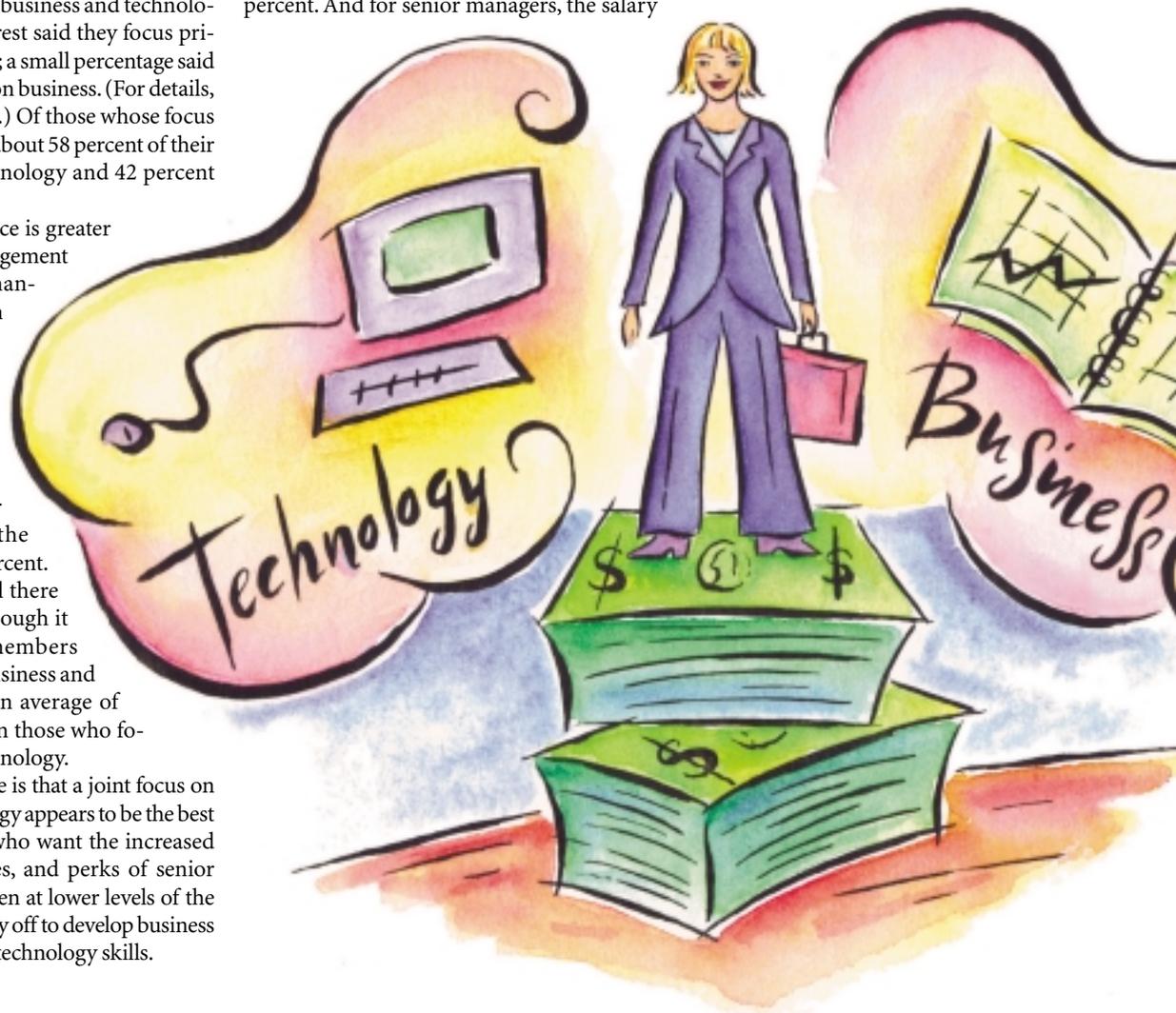
METHODOLOGY

The statistical portion of the 1999 InfoWorld Compensation Survey was conducted by the IDG Research Services Group, an *InfoWorld* affiliate based in Framingham, Mass.

In January, 7,000 confidential surveys were mailed; 137 were returned as undeliverable, bringing the total number of surveys delivered to 6,683.

Of the 6,683 surveys delivered, 1,724 were completed, returned by the cutoff date, and included in the results of the study, producing a 25 percent response rate.

The sample for this study was selected on a random, "nth" name basis from a list of *InfoWorld* print subscribers with IT-related primary job functions.

To ensure that the results of the study reflected the profile of *InfoWorld* subscribers who are IT professionals, the results were weighted to match the computer-related budget distribution for those subscribers.

technology and developing business skills.

"Too much focus on business would likely lead to me falling behind in technology," said a software engineer at a California-based software company.

Others equated focusing on business to delving into office politics, meetings, and busywork.

"Bureaucratic papers, meetings, and such eat up so much time and resolve nothing that 30 percent of my production time is lost per week," said an IT program designer.

One respondent said that an increased business focus tends to accompany increased management responsibility, a trend that was borne out in our survey.

"I'm happier with business because technology is just a supporting function," said an IT project manager at a mutual fund company in the Northeast.

TRADITIONAL MEASURES. Current trends such as the increased focus on business are not the only influence on salaries, of course. The charts on page 120 illustrate many of the factors that affect salary, including a company's size and location; the size of the budget or staff for which an IT professional is responsible; the industry; and education. On page 122, we examine how bonuses increase compensation, and on page 126, we look at the benefits offered as part of compensation packages.

The Education section, on page 130, looks more closely at these degrees, especially MBAs, and delves into the contentious question of whether certification leads to more compensation. Whether they are tied to certification or not, salary increases are a hot issue for most people. And IT professionals did well in 1998: 85.4 percent of them reported salary increases, with an average increase of 9.3 percent. See the Raises section on page 126 for the numbers for each job category.

A more interesting question may be whether changing companies is the way to a higher salary. Our data suggests that it is — but perhaps not to the degree that some people think. Given the hefty salary increases some IT professionals report when they change jobs, it sur-

prised us to find that people who have recently switched companies were not making much more than the overall average. A possible explanation: Companies may be starting to keep their salaries up to market rates.

FAIRNESS AND MOTIVATION. Perceptions about compensation can be almost as important as the compensation itself. We examine how well money works to motivate employees (see page 130), as well as other key questions about the equity of IT salaries.

For example, many people wonder if older workers and women get a fair shake in the IT job market. We looked at this issue in our survey and discovered that among survey respondents, on average, women senior managers are paid 78.6 percent of what their male counterparts make; women middle managers earn 82 percent of what men earn; and at the staff level, women earn 78.8 percent of what men earn. We also began to unravel the complicated relationships between age, experience, and salary. But as the Diversity section on page 134 explains, these issues are more complicated than simply comparing numbers.

Another issue that is more complex than the numbers indicate is whether IT professionals are adequately compensated for the hours they put in. Some IT professionals work a 40-hour workweek, but many others are putting in long hours on the job and on call — some more happily than others.

"The current pace is not sustainable over the long haul," said the director of worldwide IT support at a logistics company in California, who said that working 60 hours per week is considered part of the job.

"I have to keep everything working and do not have the tools available to keep things tuned automatically or remotely," said a system administrator at a West Coast company, who works between 50 and 60 hours per week. "I receive no recognition, except from my wife for not being home enough."

Few respondents reported being paid extra to compensate directly for the extra work, and most reported getting extra time off infrequently at best. But some said they got rewards if they helped the business during those extra hours.

"I'm not compensated solely for extra hours, but for business results achieved," said a technical sales specialist at a software company on the East Coast who works between 45 and 50 hours per week.

Flexibility seemed to make workers feel better about the long hours: 74.8 percent of the respondents who were offered flexible work hours said using this benefit contributed to their job satisfaction. (For more on work hours, see page 126.)
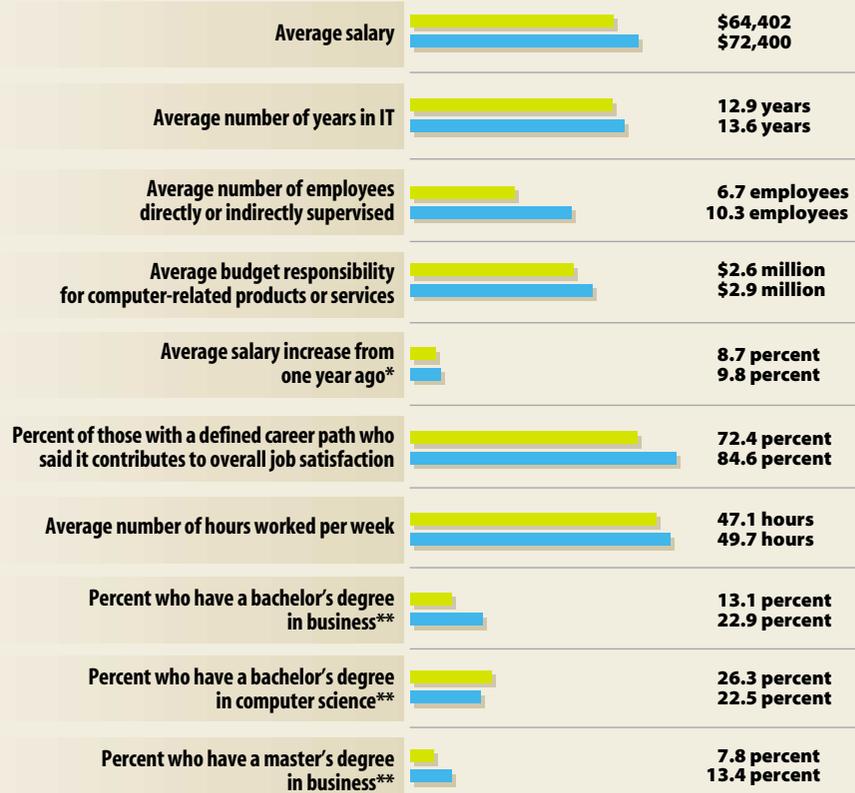
"If I were to come in late after working late the night before, my manager would not say anything to me," said a programmer analyst at a manufacturing company in Pennsylvania. "She trusts my ethics."

USING THESE RESULTS. This survey is a guide to help you determine your staff's value — and your own. The survey used a strict random sample of our print subscribers and was completely confidential. In some cases, we did not get enough respondents in a particular category — database managers in the Northeast, for example — to have stable projections. We have printed those answers and marked them with asterisks. They are not as reliable as the survey's other numbers, but consider them an alternative to asking a dozen or so of your colleagues around the country how much money they make and taking the average.

Keep in mind that surveys in general are imperfect tools for telling you exactly what you should be making. When you look at the salary charts on page 120, for example, remember that the national salary listed for CIOs is an average of numbers that range from about $30,000 to more than $300,000.

If you are an experienced middle manager at a large New York company that depends heavily on technology, and you have an MBA, a large budget, and many people reporting to you, you may well be due significantly more than the average listed for your job title in the Northeast. However, if you live in a rural area of the same region, have a middle management title but are not responsible for many people or much money, do not have a college degree, and work for a small company that does not use technology heavily, a fair salary for you may be less than the average we report.

One of the best ways to use averages such as these is to compare them with the results of other surveys and look for patterns.

The numbers reported in this survey, then, are an excellent starting point for your research into IT salaries; they are not by themselves the final answer.

A combined focus

■ Focus primarily on technology ■ Focus on both business and technology

	Focus primarily on technology	Focus on both business and technology
Average salary	$64,402	$72,400
Average number of years in IT	12.9 years	13.6 years
Average number of employees directly or indirectly supervised	6.7 employees	10.3 employees
Average budget responsibility for computer-related products or services	$2.6 million	$2.9 million
Average salary increase from one year ago*	8.7 percent	9.8 percent
Percent of those with a defined career path who said it contributes to overall job satisfaction	72.4 percent	84.6 percent
Average number of hours worked per week	47.1 hours	49.7 hours
Percent who have a bachelor's degree in business**	13.1 percent	22.9 percent
Percent who have a bachelor's degree in computer science**	26.3 percent	22.5 percent
Percent who have a master's degree in business**	7.8 percent	13.4 percent

*Of those whose salaries increased
**Of those with a bachelor's degree or higher

Business skills push technology salaries

■ Focus primarily on technology ■ Focus on both business and technology

Average salary

	Focus primarily on technology	Focus on both business and technology
Senior management	$79,764	$86,753
Middle management	$68,210	$72,845
Staff	$56,404	$57,139

TALK BACK

▶ Send comments on this report to margaret_steen@infoworld.com.

▶ Join our Compensation Survey forum to discuss these results at forums.infoworld.com.

1999 INFOWORLD COMPENSATION SURVEY

Average salaries for IT professionals

HOW TO USE THESE NUMBERS

It is tempting, when faced with charts of average salaries such as these, to try to find the one number that will tell you whether you are making enough money or how much you should be paying your staff members. No compensation survey, however, can accurately take into account all variables that go into determining a fair salary.

A better use of salary charts is to examine the ways in which many different factors affect salaries. Look for patterns and use them to evaluate whether you should be making more or less than the average for your job in your region.

Number of employees in company

	Fewer than 100	100–999	1,000–9,999	10,000 or more
Senior management	$82,232	$70,413	$107,769	$105,817
Middle management	$54,040	$67,169	$65,061	$80,479
Staff	$50,603	$49,934	$56,947	$62,351

Certification

	MCSE certified[5]	No MCSE	CNE certified[6]	No CNE
Senior management	$71,261*	$87,988	$108,060*	$85,960
Middle management	$62,743	$71,273	$58,749	$71,363
Staff	$62,952	$56,635	$62,964*	$56,818

Average weekly work hours

	1–40	41–45	46–50	More than 50
Senior management	$83,907	$68,230	$78,057	$99,850
Middle management	$73,687	$65,544	$64,534	$81,009
Staff	$54,548	$56,030	$60,620	$59,483

Number of direct and indirect reports

	0	1–5	6–10	11–25	26+
Senior management	$62,742*	$68,539	$74,087	$81,474	$135,747
Middle management	$64,115	$66,546	$71,811	$81,904	$82,195
Staff	$57,177	$55,444	$59,220*	$52,087*	$58,173*

Business/technology focus

	Focus primarily on technology	Focus on both business and technology
Senior management	$79,764	$86,753
Middle management	$68,210	$72,845
Staff	$56,404	$57,139

Average salary after job change

	Promoted[7]	Changed companies
Senior management	$72,373	$89,288
Middle management	$70,999	$71,695
Staff	$54,391	$58,513

Education

		Highest degree earned	
	Associate's	Bachelor's	Master's
Senior management	$57,777	$74,265	$108,478
Middle management	$63,491	$69,667	$76,409
Staff	$45,954	$57,352	$64,332

National and by region

Job title	National average	West[1]	Midwest[2]	South[3]	Northeast[4]
Senior management	**$87,514**	**$89,183**	**$89,244**	**$67,192**	**$99,451**
CIO/vice president of IT	$111,104	$119,005*	$112,589*	$69,272*	$131,886
Director of IT	$75,083	$82,540	$71,734	$66,865	$81,152
Other vice president/director	$96,262	$93,897*	$119,957*	$63,987*	$97,711*
Middle management	**$70,597**	**$68,935**	**$63,424**	**$65,042**	**$86,765**
Application development manager	$69,894	$71,421*	$65,691*	$73,070	$68,341
Database manager	$82,032	$66,210*	$67,055*	$83,432*	$101,801*
Help desk manager	$57,596	$59,611*	$40,333*	$61,694*	$56,550*
Internet/Web manager	$57,495*	$55,287*	$65,031*	$52,563*	$45,267*
IT manager	$68,619	$65,453	$65,560	$63,188	$78,918
IT project manager	$82,845	$76,656	$65,888*	$63,456	$130,333
Network manager	$61,656	$69,877*	$59,034	$53,488*	$66,445*
Staff	**$57,054**	**$58,583**	**$52,111**	**$56,511**	**$61,973**
Database analyst/administrator	$56,859	$56,785*	$54,828*	$58,804*	$57,171*
Help desk specialist	$49,986	$56,559*	$35,853*	$49,665*	$58,392*
Internet/Web developer	$61,409	$64,942*	$58,806*	$64,887*	$56,659*
IT business analyst	$63,183	$62,847*	$54,922*	$58,127*	$80,434*
Network/system administrator	$51,969	$49,219	$49,327	$48,938	$58,977
System programmer/analyst	$62,198	$67,025	$56,222	$61,309	$66,021

Metropolitan areas

	Chicago	Los Angeles/ San Diego	New York	Philadelphia/ Trenton	San Francisco/ San Jose
Senior management	$103,130*	$78,329*	$115,255	$94,772	$132,531*
Middle management	$66,408	$76,624*	$97,255	$74,420	$80,814*
Staff	$57,246*	$51,842*	$69,526	$63,390	$78,427*

Budget responsibility

	Less than $100,000	$100,000– $399,999	$400,000– $999,999	$1 million– $4.9 million	$5 million– $9.9 million	$10 million or more
Senior management	$57,984	$68,198	$77,193	$93,901	$99,000	$157,000
Middle management	$55,473	$61,940	$66,918	$76,835	$99,571	$75,076
Staff	$51,048	$55,644	$57,374	$61,145	$74,200	$67,333*

Industry

	Business services	Computer-related manufacturing	Education	Finance/insurance/ real estate/legal services	Government	Health care	Noncomputer-related manufacturing	Transportation/utilities/ communication carriers
Senior management	$68,608	$118,829	$79,331	$88,877	$63,303*	$112,650	$92,139	$67,975*
Middle management	$63,957	$74,045	$71,985	$85,550	$60,673	$61,709	$73,571	$72,158
Staff	$60,379	$74,007	$38,504	$58,129	$52,985	$55,873	$55,664	$60,684

1. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming
2. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
3. South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
4. Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont

5. Microsoft Certified Systems Engineer
6. Certified Novell Engineer
7. Promoted within company
* Numbers marked with an asterisk are based on fewer than 30 respondents and are unstable. Although they can be helpful indicators of the salaries for certain jobs, they may not be accurate projections of the average salaries for these categories.

1999 INFOWORLD COMPENSATION SURVEY

BONUSES

For many, financial rewards of IT work go beyond salaries

WHAT'S THE BEST way to help employees see the link between IT work and business results? One possibility is to use bonuses to reward performance that helps the business.

IT professionals with a joint business-technology focus reported getting some kinds of bonuses in larger numbers than those who focus primarily on technology.

For example, profit-sharing bonuses were the most common kind reported overall. Of the technically focused respondents who reported receiving bonuses, 49.8 percent said they received a profit-sharing bonus. Of those who focus on business and technology, 57.6 percent who reported bonuses got a profit-sharing bonus.

Other bonuses that suggest an alignment with achieving business results, including team performance bonuses and bonuses for the completion of a major project, showed a similar disparity: Of those who focus on business and technology and who reported bonuses, 12.5 percent said they received a team performance bonus, and 14.3 percent reported getting a bonus for the completion of a major project. Of those who focus primarily on technology and reported bonuses, 8.9 percent reported a team performance bonus and 9 percent reported a bonus for the completion of a major project.

One exception to this pattern was the signing bonus. Of those who focus on technology and got a bonus in 1998, 7.3 percent reported receiving a signing bonus; of those whose focus is split and got a bonus last year, 6.2 percent reported a signing bonus. This relatively small difference may point to the high demand for specific technical skills in some areas.

Signing bonuses also appear to be the most lucrative bonuses to receive, although as with all averages, the average bonus numbers mask the fact that a few people reported extremely high signing bonuses, while many others got lesser amounts. The majority of the signing bonuses reported were between $5,000 and $10,000.

We asked respondents about a couple of other kinds of bonuses: those for new employee referrals and those for completing technical education or certification. Neither produced enough responses for us to have an accurate idea of how large the bonuses are, but the responses did indicate that IT professionals aren't getting these bonuses in large numbers.

It's important to remember that bonuses can also cause dissension, especially when the recipients (or those who did not receive a bonus) do not understand how bonuses are distributed.

"No one seems to know how the bonus scale is determined," said one respondent, an IT project analyst at a cable television company in the Northeast.
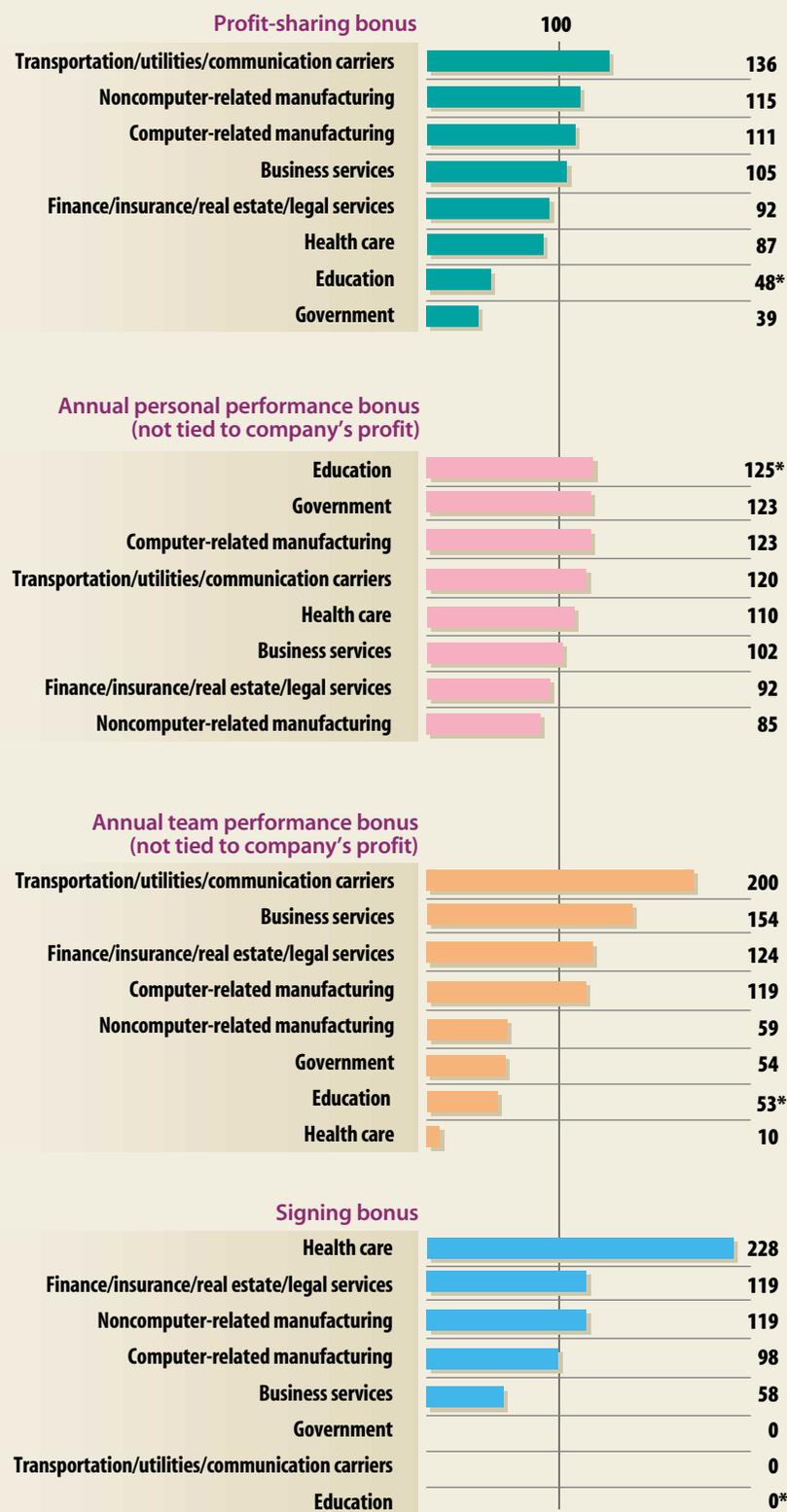
"I received a bonus because I was perceived to be hardworking. It seemed somewhat subjective," another respondent said.

The remarks suggest that the more people know, the more likely they are to think that the system is fair.
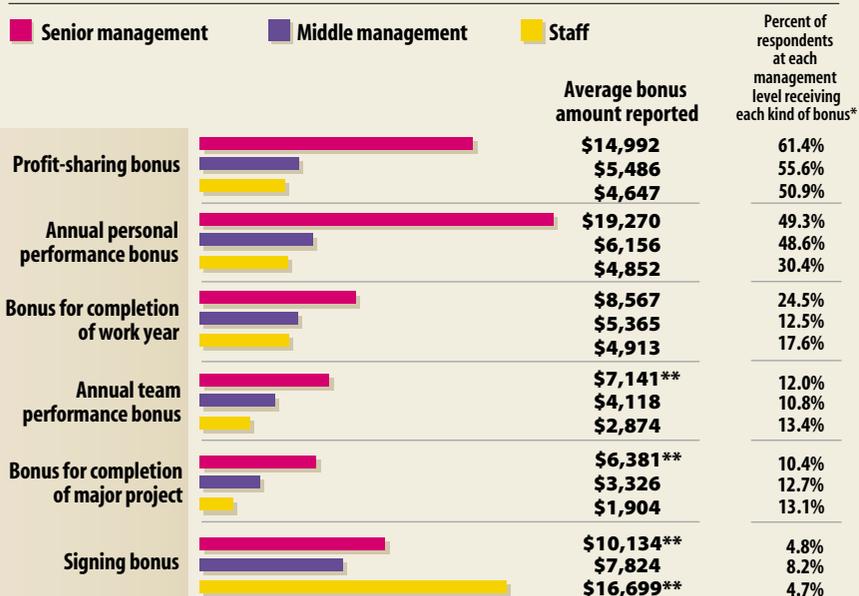
"I believe it is fair to a point," said a network supervisor at a manufacturing company in the Great Lakes region. "The bonus amount changes the higher up you are, the theory being that the higher you are, the more influence you carry to help the corporation meet its goals."

Who gets what

	Senior management	Middle management	Staff	Average bonus amount reported	Percent of respondents at each management level receiving each kind of bonus*
Profit-sharing bonus	■			$14,992	61.4%
		■		$5,486	55.6%
			■	$4,647	50.9%
Annual personal performance bonus	■			$19,270	49.3%
		■		$6,156	48.6%
			■	$4,852	30.4%
Bonus for completion of work year	■			$8,567	24.5%
		■		$5,365	12.5%
			■	$4,913	17.6%
Annual team performance bonus	■			$7,141**	12.0%
		■		$4,118	10.8%
			■	$2,874	13.4%
Bonus for completion of major project	■			$6,381**	10.4%
		■		$3,326	12.7%
			■	$1,904	13.1%
Signing bonus	■			$10,134**	4.8%
		■		$7,824	8.2%
			■	$16,699**	4.7%

Legend: ■ Senior management ■ Middle management ■ Staff

* Numbers represent percent of respondents who reported receiving a bonus in 1998. Multiple responses are possible.
** Numbers marked with two asterisks are based on fewer than 30 respondents and are unstable.

Show me the money

The likelihood of your receiving a bonus depends on the type of bonus and the industry in which you work. These indexes show the chances of getting a particular type of bonus in various industries. The value 100 serves as the index average. This means, for example, that respondents in the transportation/utilities/communication carriers industry were 36 percent more likely than the average respondent to receive a profit-sharing bonus. Respondents in the business services sector were 42 percent less likely than average to receive signing bonuses.

Profit-sharing bonus   100

Industry	Index
Transportation/utilities/communication carriers	136
Noncomputer-related manufacturing	115
Computer-related manufacturing	111
Business services	105
Finance/insurance/real estate/legal services	92
Health care	87
Education	48*
Government	39

Annual personal performance bonus (not tied to company's profit)

Industry	Index
Education	125*
Government	123
Computer-related manufacturing	123
Transportation/utilities/communication carriers	120
Health care	110
Business services	102
Finance/insurance/real estate/legal services	92
Noncomputer-related manufacturing	85

Annual team performance bonus (not tied to company's profit)

Industry	Index
Transportation/utilities/communication carriers	200
Business services	154
Finance/insurance/real estate/legal services	124
Computer-related manufacturing	119
Noncomputer-related manufacturing	59
Government	54
Education	53*
Health care	10

Signing bonus

Industry	Index
Health care	228
Finance/insurance/real estate/legal services	119
Noncomputer-related manufacturing	119
Computer-related manufacturing	98
Business services	58
Government	0
Transportation/utilities/communication carriers	0
Education	0*

* Numbers marked with an asterisk are based on fewer than 30 respondents and are unstable.

1999 INFOWORLD COMPENSATION SURVEY

BENEFITS

What employers offer, what employees like

- ■ Percent of respondents who were offered each benefit
- ■ Percent of respondents who were offered and used each benefit
- ■ Percent of respondents who used each benefit and said it contributes to overall job satisfaction

Traditional benefits

Benefit	Values
Health insurance	72.1% / 87.1% / 98.3%
Life insurance	43.4% / 74.9% / 89.4%
Tuition/education reimbursement	29.5% / 33.6% / 76.7%
Matching 401(k) contributions	54.9% / 61.7% / 70.6%
Medical flexible-spending plan	25.3% / 36.0% / 63.4%
Dependent care support (all types)	7.9% / 10.7% / 38.9%
Employee stock option plan	21.3% / 25.5% / 35.7%
Car allowance/company car	6.0% / 8.6% / 13.8%
Commuter vouchers	3.4% / 4.9% / 10.5%

Informal benefits

Benefit	Values
Flexible hours	47.7% / 52.4% / 63.8%
Nonmonetary recognition (plaques, etc.)	13.4% / 25.2% / 38.5%
Telecommuting	17.9% / 20.2% / 32.9%

WORK HOURS

Lots to do, never enough time to do it

ALTHOUGH OUR SURVEY results indicate that some IT professionals put in close to a standard workweek, many others work long hours and are on call far beyond 40 hours.

The average work week reported by this year's respondents was 48.4 hours, about the same as in our 1998 survey. Senior managers go some way toward earning their high salaries with their average of 52.2 hours per week; middle managers reported working an average of 48.6 hours each week, and staff reported working 45.9 hours per week.

As the work hours chart on the left side of page 120 shows, longer hours tend to be tied to higher salaries, probably at least in part because senior managers work the longest hours and earn the most money. A look at respondents' business or technology focus reveals a similar split: Focusing on both business and technology rather than solely on technology seems to result in more work to go along with the higher salaries, although this could be affected by the higher proportion of senior managers whose focus is split this way.

Some workers would dearly like to work fewer hours than they do, but many of them don't feel able to do that. A concern voiced by many respondents about cutting back on hours is the question of how the work would get done.
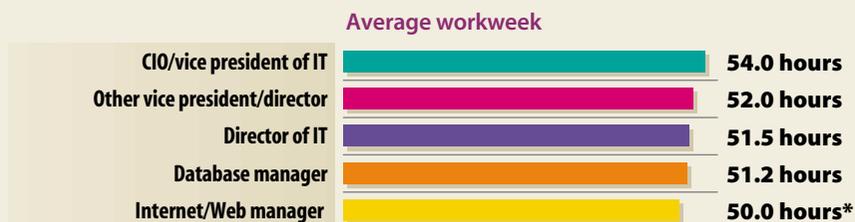
"If I cut back, others would have to pick up the time, and it would not be fair to my peer employees," said a programmer analyst at an electric utility company in the Midwest. Others said they choose to put in more time in order to learn new skills and advance more quickly.

"If I were willing to accept less advancement, I could [work less]," said an IT project manager at a large computer company in the Northeast, who reported no specific compensation or recognition for extra hours.

"I know I've gotten promotions and raises for it, though," the project manager said. "Overall, I guess I do think it's adequate. That's why I'm not choosing fewer hours for less advancement."
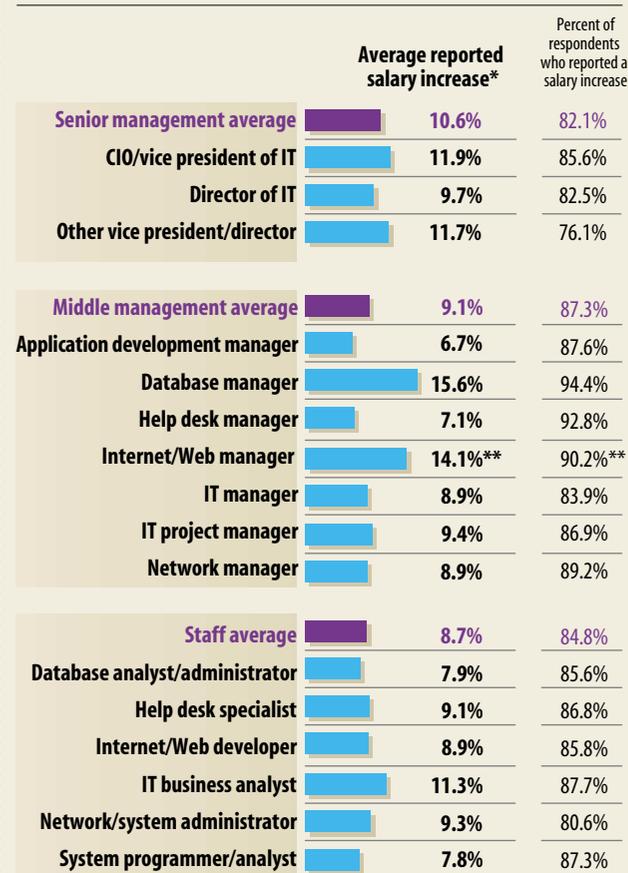
Burning the midnight oil

Respondents reported working an average of 48.4 hours per week, but the people in some positions — especially senior management — put in more time. IT professionals in these five job categories tend to have the longest workweek.

Average workweek

Position	Hours
CIO/vice president of IT	54.0 hours
Other vice president/director	52.0 hours
Director of IT	51.5 hours
Database manager	51.2 hours
Internet/Web manager	50.0 hours*

* Numbers marked with an asterisk are based on fewer than 30 respondents and are unstable.

RAISES

Salaries are up across the board

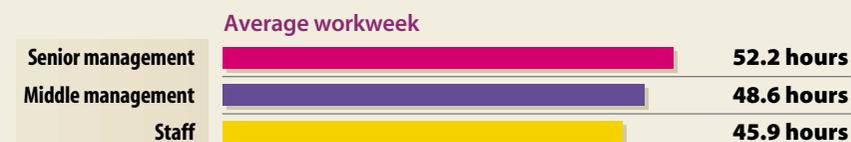|	Average reported salary increase*	Percent of respondents who reported a salary increase
Senior management average	10.6%	82.1%
CIO/vice president of IT	11.9%	85.6%
Director of IT	9.7%	82.5%
Other vice president/director	11.7%	76.1%
Middle management average	9.1%	87.3%
Application development manager	6.7%	87.6%
Database manager	15.6%	94.4%
Help desk manager	7.1%	92.8%
Internet/Web manager	14.1%**	90.2%**
IT manager	8.9%	83.9%
IT project manager	9.4%	86.9%
Network manager	8.9%	89.2%
Staff average	8.7%	84.8%
Database analyst/administrator	7.9%	85.6%
Help desk specialist	9.1%	86.8%
Internet/Web developer	8.9%	85.8%
IT business analyst	11.3%	87.7%
Network/system administrator	9.3%	80.6%
System programmer/analyst	7.8%	87.3%

* Percentage represents those who reported increases.
** Numbers marked with two asterisks are based on fewer than 30 respondents and are unstable.
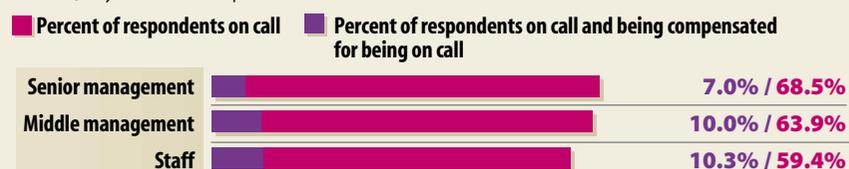
Top factors influencing raises

Factor	Percent of respondents*
Excellent or good job performance	58.9%
Standard percent increase companywide	33.5%
Increase in responsibilities	25.3%
Promoted within company	17.1%
Increase in skill set, education, or certification	14.5%
Changed jobs and companies	8.6%

*Multiple responses are possible.

A week in the life of IT

Average workweek

Level	Hours
Senior management	52.2 hours
Middle management	48.6 hours
Staff	45.9 hours

Who ya gonna call?

For a majority of respondents at all levels, work extends beyond regular hours to being on call via pager or cell phone. However, very few receive compensation in return for their extra efforts.

- ■ Percent of respondents on call
- ■ Percent of respondents on call and being compensated for being on call

Level	Values
Senior management	7.0% / 68.5%
Middle management	10.0% / 63.9%
Staff	10.3% / 59.4%

1999 INFOWORLD COMPENSATION SURVEY

MOTIVATION

Many factors at play

COMPENSATION SURVEYS, not surprisingly, tend to focus on money. And for some people, money is one of the main reasons they will accept or leave a job.

"Compensation can be used as a benchmark for value," said an IT manager at an insurance company in Boston, explaining why he would leave his job for a 15 to 20 percent pay increase. "I want to maximize my personal value."

However, compensation is just one piece of the puzzle when it comes to enjoying your job or motivating your staff. We asked respondents to rate compensation along with four other factors in terms of how important they are in motivating them. Compensation led the pack in first-place votes — but only 28.5 percent of respondents rated it as most important. This means more than 70 percent of
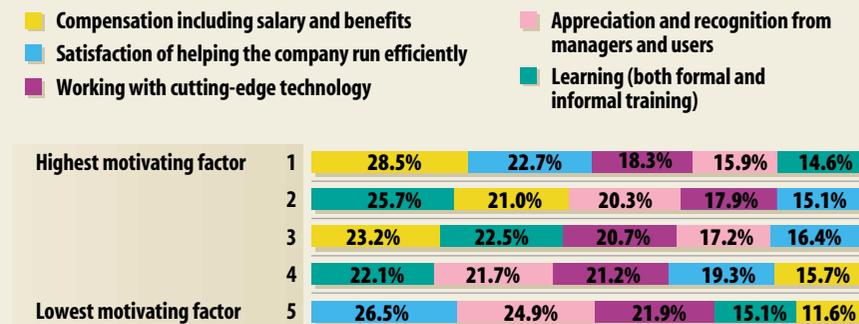
respondents are primarily motivated by something other than money: the satisfaction of helping the company run efficiently, working with cutting-edge technology, appreciation from users and managers, or learning new skills. (See chart, right.)

The message from these seemingly inconclusive numbers is clear: Motivating employees is a complicated business, and paying them well is only one aspect of the solution. It's vital for employees to feel fairly compensated — and almost two-thirds of our respondents said they do — but other factors are also important.

"Most IT people feed off of change," said a network engineer in Seattle. "Depending on your [work] environment, your [opportunities for] access to new technology might be few and far between, leaving you feeling bored and with a declining skill set."

What would respondents like to tell their bosses about how to better motivate them? Few mentioned asking for more money. Instead, they spoke of appreciation, autonomy, and an opportunity to learn new skills.

"Recognition and sincere appreciation — not some bogus certificate — would be appropriate," said an IT manager at a travel

company in Miami.

"When things are going well," said an IT manager for a church group in Texas, "they don't know you are there."

A database administration consultant in the Southwest said, "I feel powerless when management makes a bad decision against my input."

What motivates IT professionals?

Respondents' rating of five motivators shows the complexity of this subject. For example, most respondents chose compensation as the highest motivating factor, yet it garnered only 28.5 percent of first-place votes. No single motivating factor emerged as most important — a combination of all motivators seem to be crucial.

- **Compensation including salary and benefits** (yellow)
- **Satisfaction of helping the company run efficiently** (blue)
- **Working with cutting-edge technology** (purple)
- **Appreciation and recognition from managers and users** (pink)
- **Learning (both formal and informal training)** (teal)

Highest motivating factor	1	28.5%	22.7%	18.3%	15.9%	14.6%
	2	25.7%	21.0%	20.3%	17.9%	15.1%
	3	23.2%	22.5%	20.7%	17.2%	16.4%
	4	22.1%	21.7%	21.2%	19.3%	15.7%
Lowest motivating factor	5	26.5%	24.9%	21.9%	15.1%	11.6%

EDUCATION

Advanced learning advances careers

TO ACHIEVE THAT CRUCIAL balance between technical and business skills, IT professionals are turning to a variety of training and education methods.

Formal degrees remain the cornerstone: Almost all of the survey respondents reported holding a degree of some sort. Of those, 16.4 percent said an associate's degree is their highest degree; 49.4 percent reported a bachelor's degree; and 30.5 percent reported a master's degree as their highest degree.

Senior managers were more likely than middle managers or staff members to have advanced degrees, and at every level, salaries were higher for people with more education. (See education chart, page 120.)

Business degrees were popular among respondents, particularly in certain job categories. (See chart, below right.) One respondent reported that a technical bachelor's degree plus an MBA had provided a jumpstart into project-lead roles.

"[Education] has made it easier to work with engineers and corporate management," said another respondent, a software consultant with a bachelor's degree in engineering and an MBA.

One of the most contentious issues in the IT education arena is the value of certification. We asked our respondents which certifications they held and compared the salaries of those with certifications to those without.

We found that at the staff level, people with Microsoft Certified Systems Engineer or Certified Novell Engineer certification

earned more than staff members who did not have those certifications. At the middle management and senior management levels, there were no consistent patterns. (For details, see the chart at left, below, and certification chart on page 120.)

Does this mean that staff members should all get certifications unless they want to become managers? Probably not. More likely, it's a sign that certification may help boost a staff member's salary in some circumstances — and you need to carefully consider all the particulars of your situation before deciding.
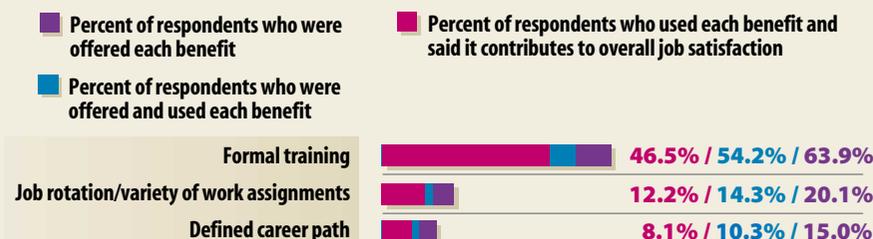
They're certified

A relatively small number, about one-fifth, of the respondents in the compensation survey answered this question. Among those, the MCSE certification is the most prevalent type.

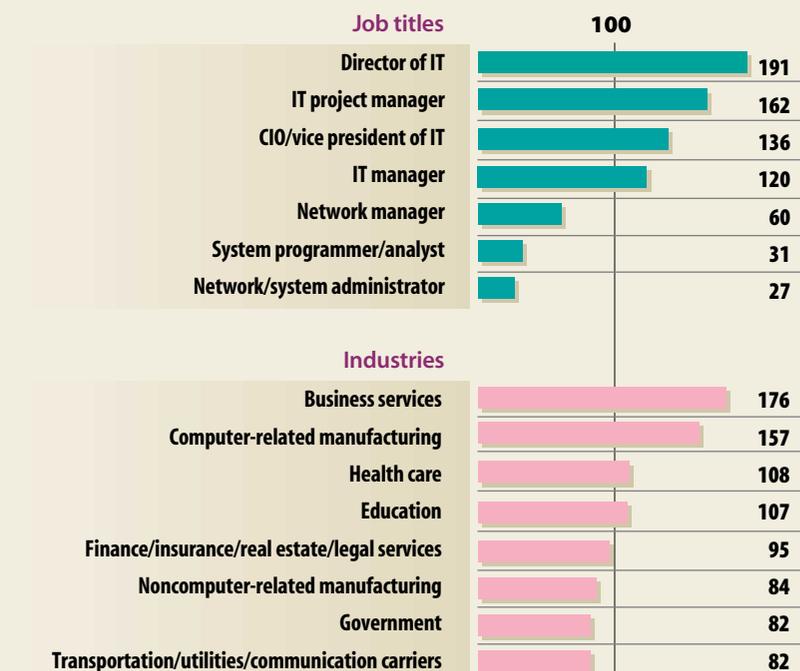**Percent of respondents who reported holding certifications ***

Microsoft Certified Systems Engineer	30.6%
Certified Novell Engineer	23.8%
Database certification	9.4%
Web certification	4.2%

* Numbers represent percentage of those who reported holding any certification. Multiple responses are possible.

Learning is a good thing

- **Percent of respondents who were offered each benefit** (purple)
- **Percent of respondents who were offered and used each benefit** (blue)
- **Percent of respondents who used each benefit and said it contributes to overall job satisfaction** (pink)

Formal training	46.5% / 54.2% / 63.9%
Job rotation/variety of work assignments	12.2% / 14.3% / 20.1%
Defined career path	8.1% / 10.3% / 15.0%

The prevalence of MBAs in IT

How likely is it that your colleagues have MBAs? These indexes show the chances of an IT professional in each job category or industry having an MBA, compared with the overall average for the survey. The value 100 serves as the index average, which means that a director of IT, for example, is 91 percent more likely than the average respondent to have an MBA. Likewise, an IT professional in the government sector is 18 percent less likely to have one.

Job titles — 100

Director of IT	191
IT project manager	162
CIO/vice president of IT	136
IT manager	120
Network manager	60
System programmer/analyst	31
Network/system administrator	27

Industries

Business services	176
Computer-related manufacturing	157
Health care	108
Education	107
Finance/insurance/real estate/legal services	95
Noncomputer-related manufacturing	84
Government	82
Transportation/utilities/communication carriers	82

DIVERSITY

Differences are clear, but reasons are not

MOST OF THIS compensation survey, including the salary charts on page 120, examines fairly rational reasons for the wide variety of salaries paid to IT professionals.

After all, it's not unfair for an IT manager who supervises 40 employees and controls a large budget at a big company to earn more than someone with a similar title at the much smaller company across the street, who has fewer employees and a smaller budget.

However, there are some characteristics that should not affect salary but sometimes seem to anyway, such as race, gender, and age. This survey did not ask for data about ethnicity or national origin, so it cannot shed any light on racial discrimination or on whether foreign workers in this country are paid less than U.S. citizens.

We did look at differences between men and women, however, as well as at how age affects salary.

The age issue is complicated by the fact that it is difficult to separate age from experience. Salaries rise significantly with years of experience — and you can't get experience without getting older.

It would seem to follow, then, that older workers should make more than younger ones — and for those who reach senior management, this tends to be the case, as the chart, below right, illustrates.

In fact, senior managers with very little experience are paid less than some middle managers, which is probably a reflection of the fact that someone with less than five years of experience and who has a senior management title really may not have that much responsibility.

For staff-level employees, however, many years of experience do not translate as clearly into large salary increases — which may help to explain some older workers' feeling that companies don't want to pay for their experience.

The average age of our respondents was 40 years, one year younger than the average for last year's survey. There was no significant difference in the average age of those who focused solely on technology compared with those who focused on both business and technology.

Our survey had a relatively small number of female respondents, about 10 percent. Still, the numbers were large enough to give us some indication of how women fare in IT.

Women were about as likely as men to have a split focus on business and technology. They were also just as likely to feel that their compensation was fair (almost two-thirds of each group said they were fairly compensated), yet their salaries, on average, were about 80 percent of men's. This number was fairly consistent for all three levels of management.

There are many possible explanations for this disparity.

One centers around job responsibilities: Women's average budget responsibility was 9.8 percent less than men's, and women had 17.8 percent fewer people reporting to them, on average, than men. In addition, women reported working fewer hours than men (46.5 hours per week compared with 48.7 hours per week).

The statistics regarding job responsibilities could be affected by the smaller percentage of women who are in senior management: 22.4 percent of the men who responded to the survey were senior managers, compared with 16.4 percent of the women who responded. And senior managers in general tend to have more budget and supervisory responsibility and to work longer hours.

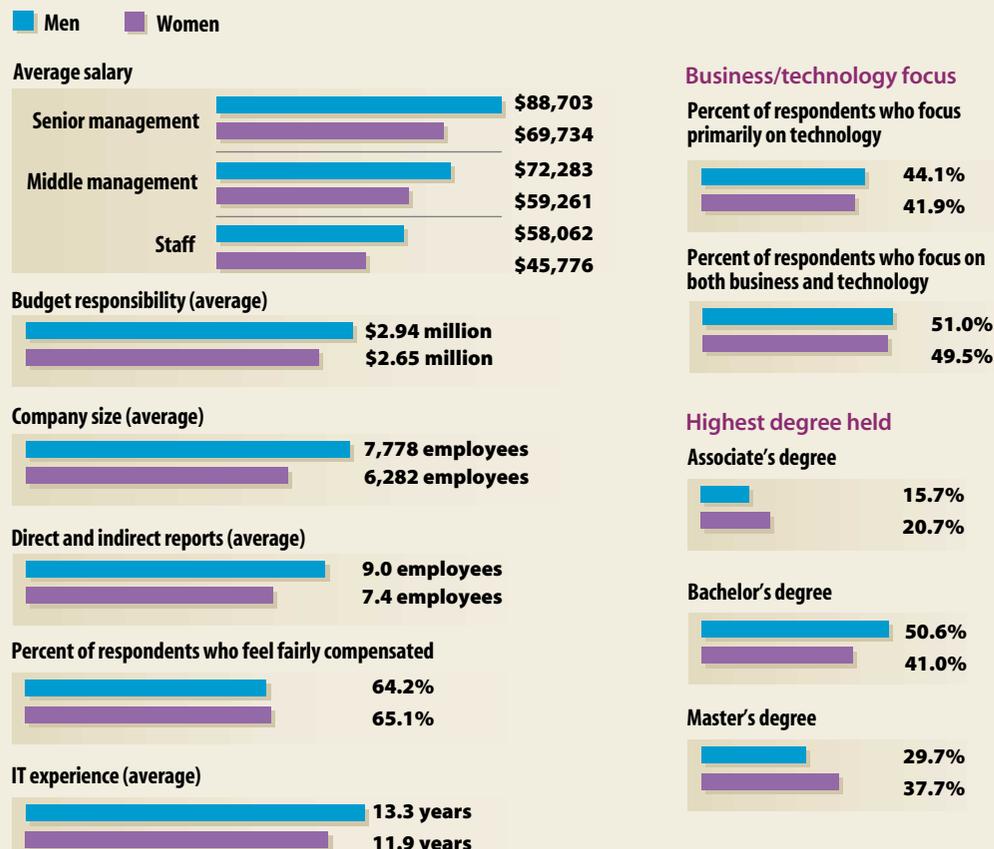Where women work may also have an effect on their salaries.

The average number of employees in the companies where the women respondents worked was 19.2 percent lower than the average at the companies where men worked, suggesting that women tend to work at slightly smaller companies, which often pay less.

Some industries pay more than others, as well, and women were not always well represented in industries that pay IT professionals well. For example, the percentage of women who reported working in education — which tends to pay average or below-average salaries — was nearly twice the percentage of men.

We looked at salary differences between men and women, and at how age affects salary.

Why the salary difference between men and women?

Our survey results showed that women earn substantially less than men at all levels of the organization. However, these numbers may provide more questions than answers. Women were also responsible for fewer employees and smaller budgets, and tended to work at smaller companies — all factors that affect compensation.

■ Men **■ Women**

Average salary

	Men	Women
Senior management	$88,703	$69,734
Middle management	$72,283	$59,261
Staff	$58,062	$45,776

Budget responsibility (average)
- Men: $2.94 million
- Women: $2.65 million

Company size (average)
- Men: 7,778 employees
- Women: 6,282 employees

Direct and indirect reports (average)
- Men: 9.0 employees
- Women: 7.4 employees

Percent of respondents who feel fairly compensated
- Men: 64.2%
- Women: 65.1%

IT experience (average)
- Men: 13.3 years
- Women: 11.9 years

Business/technology focus

Percent of respondents who focus primarily on technology
- Men: 44.1%
- Women: 41.9%

Percent of respondents who focus on both business and technology
- Men: 51.0%
- Women: 49.5%

Highest degree held

Associate's degree
- Men: 15.7%
- Women: 20.7%

Bachelor's degree
- Men: 50.6%
- Women: 41.0%

Master's degree
- Men: 29.7%
- Women: 37.7%

Experience pays off

Are older workers fairly paid? One reason this question is so difficult to answer is that age and years of experience are closely related, as the first chart below shows. The second chart illustrates that more experience does lead to higher salaries, but more so for people at higher levels of the organization.

■ Senior management **■ Middle management** **■ Staff**

Age of respondents	Years of IT experience (Senior management / Middle management / Staff)
18-29	6.0 / 5.6 / 4.3
30-39	10.3 / 9.9 / 9.6
40-44	14.9 / 13.7 / 14.2
45-49	18.3 / 17.0 / 14.2
50-54	23.2 / 18.5 / 17.7
55 and older	24.4 / 25.1 / 21.2

Years of IT experience	Average salary (Senior management / Middle management / Staff)
1-5 yrs	$54,727 / $62,948 / $48,003
6-10 yrs	$76,675 / $66,320 / $56,509
11+ yrs	$97,006 / $76,038 / $62,893