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# DEMAND FOR INFORMATION TECHNOLOGY WORKERS IN CENTRAL FLORIDA

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## **Abstract**

*This is a study which attempts to determine the current and future demand for Information technology (IT) employees. A total of fifty-two (52) organizations from Central Florida responded to this study. Several interesting findings included: 1) seventy-five percent of the companies surveyed have a current hiring freeze in place for IT positions; 2) by 2006 forty percent of the companies are expected to resume hiring some IT personnel; 3) the areas of security, client support, systems analysis and consulting show the greatest demand and; 4) the most essential skills for an entry level IT position include: communications (verbal and written), database, system analysis and project management.*

## **Introduction**

This study explores the current and projected employment market for information technology (IT) employees in the Central Florida counties of Orange, Seminole, Volusia, Brevard, Lake, Polk and Osceola. We anticipate that the report will benefit the region's educational institutions, economic development organizations and local governments. In addition we believe that several of the findings provide some valuable insights for the MIS educational community in general. The demand for IT employees at all levels and in all areas has declined in the last two years, due to shifts in economic and market conditions both locally and globally. Through this study, we attempted to determine, in part, if this trend will continue and how it may impact educational institutions and local economies.

## **Study Activities**

The study team first reviewed recent articles in the popular press which discuss the issue of "IT Employment Trends." Then, several interviews were conducted with CIO's and CTO's from several of the larger employers in the Orlando metropolitan area. From these interviews a questionnaire was developed and it was reviewed by the CIO's, CTO's and the study team. The resulting questionnaire was then installed on the Department's web-site. We have had a total of fifty-two (52) survey responses which includes the face-to-face or telephone interviews as well as the web site.

## **Global IT Employment and Industry Trends**

Demand for IT professionals in the United States has declined significantly since 2000. U.S. companies have been shedding workers culminating with a high of 500,000 IT workers in 2001, according to the Information Technology Association of America (ITAA), dropping from 10.4 million to 9.9 million. While the ITAA predicted that demand would rebound in 2002, with an 11% increase in IT employment, the actual gain was much smaller – 400,000 new jobs or 4.1%, according to an ITAA research report published in May 2003. Several factors contributed to this decrease in worker demand. Companies built up IT staffing in the late 1990s to address Y2K problems, then cut back after those problems were solved. At the same time, investors awoke from their “irrational exuberance” over the potential of dot.com companies and thousands of these fledgling businesses collapsed for lack of capital and profits. On top of this, a series of events, ranging from corporate fraud scandals to terrorist attacks to the wars in Afghanistan and Iraq, put the economy in a tailspin, driving down corporate profits and causing businesses to cut expenditures in all areas, including IT.

This uncertain economic environment continues in 2003 and is affecting corporate investment plans. Forrester Research’s May 2003 survey of 877 companies in North America with revenues of \$500 million or more found that IT spending in 2003 will increase by only 1.3%. Still, some IT fields are growing substantially, specifically IT-strategy consulting, architecture planning, security and web-site design. These areas are expected to grow by 11% in the remainder of 2003, according to Forrester.

Another trend holding down IT jobs in the United States is corporate America’s increasing reliance on overseas outsourcing of IT functions. In one example, IBM, a leader in providing outsourcing services, revealed in July 2003 that it plans to shift a substantial number of software engineering jobs to offshore sites.

This trend is not really surprising, given the lower wages of IT workers overseas. But it also attests to the dramatically improving IT skill levels in other countries. India, Ireland, the Philippines and China, in particular, have developed significant information systems expertise. For example, more than 30 Indian software development facilities are rated at Level 5 on the Capability Maturity Model (CMM), a rating system for software developers established by the Software Engineering Institute at Carnegie Mellon University. (It is worth noting that more than half of these were subsidiaries of U.S. corporations, according to Michael Cusamano, a professor at MIT’s Sloan School of Management.)

Several research organizations, including the Gartner Group, Yankee Group and International Data Corporation, have examined the offshore outsourcing trend. Their studies estimate that the U.S. could lose between 600,000 and 2 million jobs in IT to overseas locations by 2015. These forecasts may be no more accurate than the 2002 ITAA employment projections, but a loss of even half the lower estimate would still create significant challenges for the U.S. IT industry, including university educators.

While this trend should certainly be viewed with concern, it may not lead to the massive future layoffs of American IT workers, because the labor market is adjusting. Across the country, university-level IT education programs are reporting enrollment declines. At the University of Central Florida, Fall 2003 enrollments in Management Information Systems (MIS), Computer Science, Computer Engineering and Information Technology are down 10% to 30% from Fall 2002 levels. Interest in these majors expanded exponentially from 1997 to 2000, in part from the Y2K and the dot.com phenomena. Students know where job opportunities exist and they adjust their selection of a major accordingly.

The demand for IT services will continue whether they are delivered on-shore or off-shore. Just as leasing transformed the automobile industry, the pay-as-you-go approach that outsourcing provides is very attractive to CEO’s and CFO’s who are struggling to cut costs and maintain adequate service levels. Companies are also refocusing on their primary businesses and if they convert internal operating expenses into external service agreements, the corporations can amortize their IT spending. The outsourcing vendors can provide a menu of options from packaged application services to more customized services. The move toward turn-key solutions is expanding throughout the IT industry.

Despite the bad news over the past three years in the U.S. market, some studies see positives in today’s environment. International Data Corporation predicted a 9.5% annual worldwide growth in IT employment from 2001 to 2005. This does impact Central Florida. For example, Oracle’s Americas Support Services Center has hundreds of employees working in other countries even though the center is headquartered in Orlando. The employees who work in Orlando couldn’t exist without the employees who reside in other countries. Clearly, off-shore outsourcing will be part of every corporate IT strategic plan.

In addition, the lack of IT spending has created pent-up demand for new applications, hardware replacements and software upgrades. This should increase the demand for IT professionals as the economy improves. Also, looking further out, retirements of IT workers from the massive Baby Boom generation will also open the door for new IT professionals.

Meanwhile, opportunities do exist now for IT professionals in certain key areas. There is now much greater emphasis on all types of IT security (i.e. data, network, physical), according to Steve McMahon, president of K-force, Inc., a Tampa-based professional staffing firm with 40 North American offices. In a study conducted by META-Group and published in February 2003, Howard Rubin estimates current IT budgets at 3% of gross revenues, which is up 2% to 12% depending on the area. Security, outsourcing and maintenance are the areas with the largest increases.

The global situation may point, however, to a need for U.S. IT education programs to re-orient themselves to prepare people for the opportunities that will remain and be in demand in this country as many IT functions are outsourced overseas. In a Harvard Business Review article entitled "IT Doesn't Matter," Nicholas Carr contends that the focus should no longer be on new technologies (i.e. hardware platforms and software). Rather, he said, emphasis should revert to the earlier concept of "information systems" (IS), which focuses on how technologies can be merged and integrated into an overall process that solves a business problem or takes advantage of a business opportunity.

## Survey Results

The companies responding to our survey are listed in Table I. The respondents were primarily senior information systems managers and/or representatives from the organizations' human resources department. A profile of the responding companies in terms of their current number of IT employees is presented in Table II. Most of the companies (33 out of 52) represented organizations that had less than 100 IT employees. Many of the companies (75%) have current hiring freezes in place, especially the larger companies whose primary business is not providing IT products or services. These organizations view IT as a support area similar to the "human resources" or "customer service" areas of the company. Several of the companies where IT is the major focus are continuing to recruit, but they are limiting recruitment to critical replacements.

As a result, only 14 of the 52 survey respondents (see Table III) indicated that they will be hiring IT professionals in the next year. IT and human resource representatives are usually not part of any organization's strategic planning group. Even Chief Information Officers (CIO) or Chief Technology Officers (CTO) are excluded from this group in many companies. As a result, they are viewed as senior middle managers who are responsible for *implementing* the strategic plan rather than being part of the group that *creates* the strategic plan.

We also asked the respondents to project their expected hiring in the IT area from July 2004 – July 2005 and again for July 2005 – July 2006. These results are presented in tables IV and V. The responses indicated that by July 2004 – July 2005 twenty (20) of the fifty-two (52) firms surveyed would resume hiring IT professionals. In the July 2005 – July 2006 timeframe, the number of companies that intend to do some hiring increases to twenty-four (24) out of fifty-two (52).

**Table I – Survey Respondents**

Adept Corporation	McKesson Information Systems
AT&T	MEDai, Inc.
BOCEP Ventures	Navair Orlando TSD
Central Florida Investments /Westgate Resorts	Northrop Grumman IT
CHEP	Oracle Americas Support Services Center
City of Daytona Beach	Orange County Convention Center
City of Orlando	Orange County Dept of Corrections
Convergys	Orange County Government
Darden	Orange County Public Schools
DeVry University	Orlando Sentinel Communications
Dixon Ticonderoga Company	Pepsi Bottling Group
DragonPoint, Inc.	Perkin-Elmer, Belfab Products
EDIX	Qualvansys
Enterprise Florida Inc.	Raydon Corporation
Enterprise Initiatives, LLC	Rosen Hotels & Resorts, Inc.
Fiserv	Seminole County Public Schools
Florida Production Engineering	Siemens Telecom Networks
Gaylord Entertainment	Signature Consultants LLC
Halifax-Fish Community Health	Software Resources
Harris Corporation	Sprint, Customer Technology Software Center
Hewitt & Associates	Stratner Company
IBM	Technologies To Be, Inc
K12 Education	The City of Daytona Beach
Lake Sumter Community College	The North Highland Company
Lockheed Martin EIS	Universal Orlando

**Table II - Company Profiles  
Categorized by Number of IT Employees**

Large	>= 300 IT workers	7	13%
Medium	100 – 299 IT workers	12	23%
Small	30 – 99 IT workers	17	33%
Start-up	1 – 29 IT workers	16	31%

**Table III - Expected IT Employment,  
July 2003 – July 2004**

Reduce IT workforce 5% or more	13	25%
Remain Static – No Change:	25	48%
Minimal Increases 5% or less:	10	19%
Increased IT Employment >5%:	4	8%

**Table IV - Expected IT Employment,  
July 2004 – July 2005**

Reduce IT workforce 5% or more	7	13%
Remain Static – No Change:	25	48%
Minimal Increases 5% or less:	15	29%
Increased IT Employment > 5%:	5	10%

**Table V - Expected IT Employment,  
July 2005 – July 2006**

Reduce IT workforce 5% or more	4	8%
Remain Static – No Change:	24	46%
Minimal Increases 5% or less:	18	35%
Increased IT Employment > 5%:	6	12%

Table VI presents the IT employment totals for the fifty-two (52) organizations included in the survey categorized by IT position title. Two additional IT employment categories that were mentioned by the respondents as being important were: quality assurance and testing and IT architecture.

**Table VI – IT Employment Totals  
Categorized by IT Positions**

Technical Support <sup>+</sup>	12	0.1%
Database Administrators	652	7.9%
Systems Programmer	93	1.1%
Client Support	3160	38.4%
Systems Analyst	1920	23.3%
Network Administration	740	9.0%
IT Consultant	1,400	17.0%
Security <sup>+</sup>	134	1.6%
<b>Total IT Employees</b>	<b>8,227</b>	<b>100.0%</b>

<sup>+</sup> .. Categories “Technical Support” and “Security” combined for graph above

The average growth rate by IT position categories are presented in table VII. The results indicate continued improvement in IT hiring especially in 2005-2006. Some areas such as security, IT consultant, client-support and systems analyst show strong future demand.

**Table VII – Average Change  
in IT Employee Growth**

	7/03 to 7/04	7/04 to 7/05	7/05 to 7/06
Tech Support	-7.3	-2.5	+5.8
DB Admin	-2.4	-2.8	+6.7
Sys Programmer	0.0	0.0	+5.0
Client Support	-10.2	+4.0	+10.4
Sys Analyst	-8.4	+4.0	+9.5
Network Admin	-8.0	-2.0	+2.0
IT Consultant	+4.0	+10.0	+8.0
Security	+20.0	+15.0	+10.0

The companies responding used a variety of sources for their IT hiring as shown in Table VIII. The respondents indicated that they often use multiple sources such as experienced only, community colleges and universities. The importance of technical certifications such as CISCO, A+ and the MCSE is presented in Table IX.

**Table VIII – Source of IT Employees**

Experienced Only	7	13%
High School	12	23%
Community College	35	67%
Trade School	21	40%
University	38	73%

**Table IX – Importance of Technical Certifications**

Essential	7	13%
Very Important	16	31%
Important	13	25%
Neutral	10	19%
Not Important	6	12%

The organizations in the study were also asked to rate the importance of several skill areas as they pertain to IT employment within their respective organizations. The nine skill areas were: programming, database, systems analysis and design, data communications, communications, interpersonal, financial/accounting, marketing, business case development and project management. Each skill was rated on a five point scale from *essential* to *not important*. These ratings were an overall rating of perceived importance; they were not specific to individual IT jobs. The ratings are presented in Table X.

**Table X – IT Employee Skill Ratings**

	Essential	Very Important	Important	Neutral	Not Important
<b>Prog</b>	24	18	6	4	0
<b>DB</b>	35	6	4	7	0
<b>SA&amp;D</b>	35	10	7	0	0
<b>DComm</b>	22	8	5	10	7
<b>Comm</b>	41	9	2	0	0
<b>InterP</b>	35	10	5	2	0
<b>Fin/Acct</b>	12	15	8	10	7
<b>Mrkt</b>	25	12	10	2	3
<b>BCD</b>	22	8	10	6	6
<b>PM</b>	30	10	7	5	0

**Legend**

Where [abbreviation] means [skill]

- Prog            Programming
- DB             Database
- SA & D        Systems Analysis & Development
- DComm        Data Communications
- Comm         Communications
- InterP        Interpersonal Skills
- Fin/Acct      Financial and Accounting Skills
- Mrkt          Marketing
- BCD          Business Case Development
- PM            Project Management

**Summary**

Several conclusions can be drawn from this study. First, programming, database and systems analysis and design skills are still important. You cannot be viewed as an IT professional and not be well educated and knowledgeable about the technologies with which you will be working. These courses belong in the curricula regardless of the major, i.e. MIS, Computer Science or Information Technology or the level, i.e. K-12, Community College or University. Certifications are still important but our interviews seemed to indicate a lessening of importance.

Several CIO/CTO respondents expressed the desire that colleges and universities need to emphasize and create application expertise in such areas as healthcare, education, marketing, sales, public sector, manufacturing, retail and wholesale management as part of the MIS curriculum. This development they felt would create added value for the potential IT employer. This may mean understanding ERP software from the users’ point of view. Any vendor could be used but SAP, PeopleSoft or Oracle would be the preferred choices.

By integrating application knowledge with technical knowledge the potential IT employee becomes more of a specialist and thus would become a more attractive candidate within a specific industry or area. This expressed request mirrors the findings of a recent A.T. Kearney study of 144 European and American companies which found that it is more important to focus on the integration of business and technology rather than only technology. In essence, the IT professional is evolving into a knowledge worker who is comfortable in one or more information systems application domain

Communication skills, both verbal and written, and interpersonal skills are essential to success in the IT field. One reason that India and Ireland have succeeded as well as they have in terms of off-shore outsourcing is that English is spoken. Potential employers are looking towards community colleges and trade schools to provide the programmers, database designers and network specialists. Certification is more important at this level. They expect the universities to either upgrade the student technical skills or to provide that application expertise in addition to some level of technical knowledge.



As the economy improves additional IT employment opportunities will be created starting in 2004 -2005 and improving again in 2005 – 2006. Some studies have predicted that nationwide, up to two million IT jobs could be created by the end of 2006. As enrollments decline which they have at the University level, there will be fewer new graduates to fill these positions. Also the baby-boomers will be retiring in great numbers over the next five to ten years and a significant proportion of these individuals hold IT positions.

In conclusion the IT employment picture in the seven counties included in the study is bleak but if the economy improves locally and nationally there is hope especially if our educationally institutions position themselves in a niche, where they can become the experts in a particular application and/or technology area.