Recruiting, Developing and Retaining IT Professionals

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Executive Summary

Ensuring a high quality Information Technology (IT) workforce is essential to keeping today’s companies competitive in the marketplace. It is imperative not only to recruit and develop these professionals, but to retain them as well. Since its inception, the IT field has gone through drastic changes, including the way the profession is viewed, the types of positions available (affected by outsourcing) and the number of students enrolled in IT programs at universities. Although recruiting, developing and retaining IT professionals is similar to the process for other positions in companies, there are subtle differences that will be highlighted in this paper.

Recruiting
Top ways to find qualified IT professionals include getting referrals from other professionals, utilizing employment websites and using recruiters. These sourcing methods yield the best results for IT professionals, as they are more technologically oriented than other professionals.

To ensure that a quality candidate is hired, it is essential to define the position, define the candidate you are seeking, screen the candidates, confirm resume claims, decide who to hire, negotiate a job offer and stay in contact with the candidates. In addition to these steps that work for all positions, it is particularly important when interviewing for IT professionals for hiring managers to be prepared to do what it takes to make the hire. High quality candidates will go quickly, and companies need to compete to get the best talent. Evaluating technical skills is another step that is unique to the IT field (Meneses and Kleiner, 2002).

Developing
Developing IT professionals once they have been hired is essential to maintaining a competitive workforce. Managers need to understand their employees, by being genuinely interested in them and learning about their hopes, dreams, fears and disappointments. It is also important that managers be good managers, by being able to encourage employees, providing challenges, having an open communication style and providing opportunities for feedback. This is similar to other professions, but is particularly important for managers of IT professionals, as IT professionals are in high demand, and are known for changing positions to advance their career.

Retaining
There are five basic strategies in retaining employees. These include financial, work content, career, affiliation and benefits strategies (Kochanski and Ledford, 2001). These approaches should not be seen as separate, but used in combination to retain key talent. In addition to these approaches that work for all professions, the IT profession needs to pay special attention to retaining females and minorities who are more likely than males to leave the IT workforce. To keep up-to-date on their skill set, most IT professionals are also interested in continuing education, which is unique to this field.
**Turnover**
It is important to minimize turnover as turnover leads to additional costs for employers. Costs for replacing an employee range from 30-150% of the employee’s salary. Although turnover is expensive, not all turnover is bad. Some turnover enables companies to get rid of poor performers and bring new employees with fresh ideas into the company.

**The Boeing Company**
To support our research, we conducted interviews at The Boeing Company to determine their methods for recruiting, developing and retaining IT professionals. To recruit talent, Boeing utilizes its Employee Staffing System (BESS), which includes a structured job description, job competencies and education. To attract talent from the student population, Boeing utilizes the Enterprise University Relations program.

Boeing has several programs established to support employee development. Included in this initiative is the Learning Together program, which facilitates advanced learning and career development opportunities for employees at all levels. Boeing’s Library and Learning Center is set up so employees can check out materials for self-directed learning. The Performance Development Partnership exists to foster development of an employee’s skills and abilities enabling him to benefit personally as well as professionally.

Retention at Boeing was also analyzed. It was discovered that they utilized all five of the retention strategies mentioned earlier, including financial, work content, career, affiliation and benefits. Under the financial strategy, Boeing offers stock options as a gift to certain employees. Under the work content strategy, Boeing offers the Career Foundation program which offers a rotation for IT professionals to increase their skills. The career focus category is met by Boeing in their program that allows IT professionals to select a management or technical career path, and their affiliation strategy is emphasized by their work/life balance initiatives which include flexible schedule and virtual office opportunities. Lastly the benefits strategy is highlighted by Boeing’s willingness to pay 100% for their Learning Together Program.

**Recommendations / Best Practices for Managers**
As a result of gathering secondary data and analyzing the Boeing case study, the following checklist of Best Practices for Managers has been compiled:

- **Recruiting**
  - Define job description
  - Use all recruiting resources available
  - Hire the best match for the position; appropriate pay range
- **Developing**
  - Managers need to understand needs and skills of employees
  - Managers need to determine motivators for employees
  - Opportunity for defined career path
- **Retaining**
  - Development and retention always requires a partnership between the employee, the manager, and HR
  - Create a work environment where employee can work and grow
  - Develop financial and non-financial incentives
Introduction
Within the past five years, it has been quite difficult for Information Technology (IT) professionals to reap the same rewards as before the turn of the century. Even though the economy has made employment more of a buyer’s market, companies still have to compete for the right talent. “Human, not financial capital, must be the starting point and ongoing foundation of a successful strategy” (Bartlett and Ghoshal, 2002). Even in organizations that are downsizing, executives must be able to obtain the right workforce that will enable them to adapt effectively to future technological changes and challenges.

Information Technology staffing involves three main issues: whom to recruit, how to develop their skills, and what to do to retain them.

History of the IT Workforce
To understand this type of workforce, you need to look at the history of information workers. According to The Growth of Information Workers in the US Economy (Wolff, 2005), “information workers increase from 37% in 1950 to 59% in 2000.” To help understand what is meant by information workers, the article breaks down the workforce into four categories: knowledge, data, services, and goods. Knowledge and data workers are considered information workers, while services and goods are considered non-information workers. Examples of information workers are technical and data entry positions. Examples of non-information workers are hospitality workers, craft workers, operatives, and unskilled labor. Below is a bar chart depicting the drastic differences between the four categories (Wolff, 2005).

As shown in Figure 2 (Wolff, 2005), from 1950 to 2000 the annual growth rate of employment of knowledge workers increased by 3.1% each year. Growth for data workers grew 2.5%, and growth for service workers grew 2.4%. Goods workers grew only 0.2%. There are development differences in each decade. Between 1950 and 1960, service workers were the fastest-growing group, followed by data workers and the knowledge workers. In the next decade, knowledge workers were the fastest-growing group, followed by data workers.
Recruiting, Developing & Retaining IT Professionals
By: C. Basile, J. Lewis & T. Tarm

In summary, information workers grew as a share of total employment in each of the five decades and were the fastest-growing group in all but the 1950s.

Information Revolution
What caused the information revolution? First, industry became more dependent on information. This includes news broadcasts, the financial industry, retail industry and internet providers.

Second, there has been exponential growth in the use of computers since 1980. Similar to television, at first computers were expensive. However, as technology grew, computers began to be mass-produced. This forced prices to drop, and essentially computers became commodities. Computers were no longer only for the wealthy and upper middle class; most working class people could afford to purchase one as well.

Third, the invention of the internet was crucial, but nothing compared to people adapting and commercializing its use. Twenty years ago the internet existed as Internet Relay Chat (IRC) rooms and basic messaging, but now online purchasing and real-time information gathering is prevalent.

Fourth, computers and the internet are not the only factors contributing to a diminishing blue-collar society. Technology has enhanced manufacturing (i.e. Robotics, Computer Aided Design, etc.) and the United States has outsourced many manufacturing jobs offshore. This has forced US society and the economy to become a service based country.

Fifth, the explosion of corporate technology and jobs did not truly happen until the late 1990s. Large corporations were in a hiring frenzy, exposing people to even more information.

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U.S. Employment Composition by Worker Type, 1950–2000

Figure 2
Sixth, as technology improves and its availability to people increases, competition between large companies requires them to grow internationally. With the help of cheap computers and internet services, just about anyone can sell and buy globally.

Seventh, IT professionals have become a strategic asset. In the past, it was stated, “I need someone to fix this computer”. Now a company is more likely to say, “I need someone to help me understand how using IT can give me a competitive edge over other companies out there.” All of this information dependence has created a need for versatile IT professionals.

**Shortage of Qualified IT Professionals**

There are several factors that contribute to the shortage of qualified IT professionals. During the early 2000’s, after the dot com bubble burst, many in the field felt betrayed and disappointed. There were so many people hired to perform IT functions, yet many were not experienced, nor did they qualify for mid level to senior level positions. When the job market tightened, many found themselves without a job. Previously, the market was quite lucrative, but after the crash, the work hours and lack of potential advancement, the market did not have the esteemed image it used to. These discouragements facilitated IT professionals to leave the field and pursue other interests.

Another factor in the shortage of qualified IT professionals is the career barrier for women and minorities in the field. According to a study performed by the IT Association of America, the percentage of women in the IT workforce decreased from 41% to 34.9% from 1996 to 2002. In addition, there was a decrease among African Americans from 9.1% to 8.2%. The only increases were the Hispanic, Native, and Asian Americans between 1% and 2.9% (Smith, 2004). In a study performed by Luzzo and McWhitner, women in IT perceived greater obstacles than men because of sex discrimination, sexual harassment, and concern over balancing career and family. Minorities perceived obstacles relating to ethnicity, financial, and family issues more than non-minorities (Luzzo and McWhirter, 2001).

In another research study performed by Perrone, Sedlacek, and Alexander, women were found to assess these barriers as more problematic than men. They believed that career choice was the biggest obstacle (Perrone, Sedlacek, and Alexander, 2001). The findings suggest the perception was due to a lack of information about IT careers. Minority IT majors consider finding a job and performing a job a greater obstacle than non-minority majors. A careful examination of these perceived barriers provides an approach to producing changes to make the IT field a more viable option.

An issue many outside of IT overlook is the age factor. Those who entered the field in the 1960s and 1970s are approaching retirement age. These are the people who were the first ones to work on legacy systems such as mainframe and VAX. Losing that type of skill set has handicapped many companies that still rely on their expertise. As new IT professionals enter the field, many do not find it attractive to learn older programming and operating systems.

Another factor is when companies require more professionals to be multitalented or acquire more than just one skill.
As an example, look at Figure 3 (Prabhakar, Litecky, and Arnett, 2005). A company, who may be looking for a web programmer, no longer requires just knowledge in HTML, but requires additional skills such as Perl and JavaScript. Another factor to consider, the U.S. is not producing enough qualified graduates. Currently, companies are employing about five million IT workers. This number is projected to grow about seven percent each year until 2008. In addition, enrollment of undergraduate computer science majors fell more than 2000 and 2004 (Kolbasuk, 2005).

colleges and universities reported 34,000 graduates each year, not enough to fill the estimated 200,000 IT workers needed.

**IT as a Career**

The shortage of college graduates is caused by the current perception of IT. High school seniors and college freshman do not view the field as a lucrative profession. In addition, teenagers view IT careers as “uncool, nerdy, and boring” (Kamal, 2005). In a recent survey of eleven hundred college freshmen at Central Missouri State University, only 5% of the students expressed an interest in becoming a CIS major. Eighty-seven percent would not consider CIS because they were already interested in a different major or because they viewed CIS as too difficult. Seventy-eight percent of those surveyed knew someone working in the CIS profession. Of those surveyed, 53% of freshmen knew that IT jobs accounted for eight of the top ten fastest growing positions. Of those that were interested in other majors, only 34% explored the IT field by talking to friends, and 31% discussed the field with a school counselor. Thirty-two percent of those students have not decided on a career path. Of those that were interested in CIS majors, 75% of them were aware of the opportunities available.

For those who are interested in the field or already working in the field, the common IT positions available are primarily senior level. Many entry-level to mid-level positions do not provide the lucrative opportunities. Take as an example, senior network engineers. Their pay range is from $70,000 to $90,000. For a senior security manager, their pay range is from $87,000 to $107,000 (Swz.salary.com, 2005).
One of the reasons there are more senior level positions available is due to outsourcing. As more companies are under pressure to meet financial goals, they have decided to focus on their core business. In doing so, their non-essential business units have been outsourced to other companies. Outsourcing not only provides cost savings, but also improves their capability to compete in domestic and international markets. The potential long-term savings may be significant, but the short-term risks are daunting.

Some of the risks of outsourcing include vendor selection, negotiating a contract, transition period, and legal costs. The most expensive risk is the transition period, as it could take from a few months to several years to convert the work over to an offshore vendor. It requires bringing offshore developers to the US and having in-house employees to work side-by-side. The contract needs to be managed and time properly recorded. In addition, there are costs of severance packages paid to former employees. All these risks and savings have a major impact on the IT workforce. First, there is the loss of future talent. When the economy picks up and investments pour in, companies will need seasoned IT professionals. Second, the relationship between employees and employers is already fragile. Morale could worsen and potentially cause personnel issues such as lack of motivation and poor productivity.

**Recruiting IT Professionals**

The key to successful recruiting is for the recruiter to use a variety of resources to obtain qualified candidates. Because IT professionals are technical in nature, the best ways to find these professionals is to utilize technology. Top ways to find qualified IT professionals include getting referrals from other professionals, utilizing employment websites and using recruiters.
Referrals can come from other IT professionals, business associates or IT professional associations. Many of these contact people have friends and colleagues in the IT profession and are aware of their skill sets.

IT professionals seeking new positions commonly use employment websites such as hotjobs.com, monster.com, careerbuilder.com or dice.com. Posting a position on a website allows the employer more space and graphics ability than the once common technique of placing a newspaper ad.

Recruiters that specialize in placing IT professionals generally charge 20% of the first year’s salary of a new hire. These professionals have a database of candidates and are often able to match the specific needs of a company.

Along with the three most common ways to source for IT professionals, other ways to recruit for IT and other positions are: Referral from a business advisor or IT professional

- Employment Websites
- Recruiter
- Internet Ads
- College Job Fairs
- Company Websites
- Co-Op Opportunities
- Internships
- Employee Referrals
- Word of Mouth
- Specialty Journals or websites
- Newspaper Ads

**Hiring the Right IT Employee**

Hiring the right employees is critical for a company’s success. If a good hire is not made up front, time and money will be spent on handling problems caused by that employee in the future. There are seven steps in successful hiring (Meneses and Kleiner, 2002), including:

1. **Defining the position** - This is the foundation for all of the other steps. Start with a high-quality job description, detailing standards expected and secondary functions that are not required for the position, but that will be used as a measure to separate candidates.

2. **Defining the candidate you are seeking** - List 20-40 qualifications that are necessary to complete the job (not characteristics that the supervisor would like to have in an employee). Keep in mind that no one is perfect and the interviewer must balance the strengths and weaknesses of the candidate and determine who the best fit for the organization is. Considering internal candidates saves money and can increase employee morale.

3. **Screening the candidates** - A variety of sources can be used in obtaining qualified candidates. Consider the type of candidate that is being sought to help determine where recruiting efforts should be focused. Candidates should be selected by comparing resumes to the qualifications determined in steps one and two above.
a. **Interviewing** - It is important to contact candidates of interest immediately upon receiving their information. It builds rapport with potential employees and lets them know you are serious about the process. Candidates should be extensively interviewed by at least two interviewers. Open-ended and behavioral questions should be utilized to ascertain information from the candidate about past performance and fit for the current open position and organization. Notes should be made immediately following the interview, and second interviews can be used if two candidates have equal qualifications, or if additional information is needed. Of particular importance in interviewing for IT positions, technical skills must be carefully evaluated to ensure the candidate has the desired skill set.

4. **Confirm resume claims** - Lying on resumes is more common today than ever before. Recent studies estimate between 25-50% of all resumes contain lies. Information such as employment dates, academic degrees, achievements, awards and even personal references need to be carefully verified (http://www.carnegieresources.com/resume.htm).

5. **Decide whom to hire** - Make a decision quickly regarding whom you will offer the position to. Candidates seeking a position with one company are most likely interviewing at several, and the best candidates will be off the market first.
   a. **Candidates of interest** - Offers made by phone should be followed with a written offer, reiterating the details. Allow the candidate to ask questions they may have regarding the position or the company. Set a time frame for the candidate to make a decision, and also a date that the position will start. Quality candidates in the IT field will go quickly, so be prepared to move quickly with your offer.
   b. **Candidates not of interest** - Candidates who were being considered but were not chosen for the position should be notified by mail. To avoid lawsuits, specific reasons that the candidate was not selected should not be outlined in the letter, or by phone if the candidate should initiate a follow-up call. It’s important to remember that candidates not selected may pass on information about your company to associates, may be or may become customers in the future.

6. **Negotiate a job offer** - Determine a fair salary for the candidate that you want to hire. Offering a starting salary that is too low might encourage a top candidate to accept a competing offer. If you actually do hire someone under the fair market value, that candidate might terminate employment later down the line if he finds out. After setting a fair salary, be prepared to negotiate. IT professionals today have a lot of choices in the market, and employers need to be prepared to do what it takes to get a top candidate. If the candidate gets too expensive, and you decide not to negotiate further, consider other possible candidates from the recently interviewed pool.

7. **Stay in Contact with Candidates** - Once a new employee has accepted and started a position, continue building that relationship. During the first few weeks or even months, new employees are often feeling lost and wonder if they made the right decision. Be supportive of the new employee by providing a useful orientation, regularly checking in on him, answering questions and being supportive during this transition.
Developing IT Professionals

After selecting the proper candidate for an IT position, development of this employee is essential. A good development program mandates that the employer understands the IT employee. Here are a few examples of what an employer should know:

- **Hopes and Dreams** – For example, an employee wishing to start a family may indicate that they are ready to settle down and do what is necessary to obtain that dream. Knowing the employee’s hopes and dreams will help managers focus employees on their interests and goals. It is important to have short and long-term goals. Short-term goals give employees confidence and a sense of completion; long-term goals enable employees to get closer to their hopes and dreams.

- **Fears and Disappointments** - Hopes and dreams cannot exist without fears and disappointments. An employee may have concerns about the financial situation of the company. If the company is not able to make enough money, the employee may fear outsourcing or layoffs. It is important for the manager to be in tune with concerns employees have and address them in an open and honest manner.

A disappointed employee can develop low morale, which can lead to poor production and eventually higher costs and diminished profits. Keeping morale high is important for the company to remain positive and profitable.

- **Motivation** - These examples point toward employee motivation. It is easy for one to listen and understand needs and interests, but how does a company provide the drive for them to succeed? It is important to not only have the right goals, but also the incentive. Many candidates, particularly good candidates, want to know whether the organization supports continuous IT training and the level of that support. The rapid changes in IT technology mandate a continual upgrading of skills for people who want to make a strong contribution. If the organization makes an effort to hire the best people, there must exist an understanding that those people have a strong interest in education.

Educational support should be seen as a critical component of the hiring approach. If the organization is supportive of education, that is viewed as a strong quality and stressed as such in the interview. Conversely, if the organization does not value continuing education, the interviewer should be candid about that fact. It is important to recognize that IT training (if appropriately managed) represents an investment, not an expense. Also, the rapid changes in IT technology require continuous upgrading of technical skills. Training good people in current technologies is in the best interest of the individual as well as the organization. A link exists between a strong IT training program and the retention of high-quality IT people. That link is viewed as a critical component in the success of the IT effort.

Employing high-quality IT people raises the bar for the IT department. Well-motivated employees will work hard at their careers. The manager of the IT department must recognize that high-quality people are likely to take an aggressive approach towards continuing education. If there are representations about educational commitments made to the employees, those commitments must be honored.
Sometimes people become stale and restless in their current position. They can develop an interest in moving on to a new challenge for a variety of reasons. If the organization cannot meet the changed needs of those employees, it is in the best interest of all concerned for that employee to move on to something else.

Good managers are essential in developing good employees. Some examples of qualities that good managers possess include:

- The ability to encourage employees
- The ability to provide challenges
- An open communication style
- Providing opportunities for feedback

An effective manager should encourage an employee to obtain a goal and direction. Many times an employee is unsure of how and where to proceed. Other times, they are unsure of their skills and potential. A little encouragement in the right direction can help out. Most IT professionals look for challenges and relish in the chance to be challenged. It is part of the troubleshooting mentality. When a task becomes routine and dull, a good manager will identify the problem and provide a more challenging task.

Clear and open communication enables better understanding of what is needed and requested by the manager. Mistakes should be treated as a source of learning rather than reasons for punishment. This leads into opportunities for feedback. Having an open door policy helps, but giving feedback by providing constructive criticism is invaluable.

**Retaining IT Professionals**

Technical professionals value a comprehensive reward package, including work content, financial, career, affiliation and benefits (Kochanski and Ledford, 2001). Although each piece of the retention strategy is important, all of the pieces together are vital in retaining IT talent.

**Work Content Retention Strategy**

IT professionals, in establishing job satisfaction, have ranked this strategy number one. Seventy-five percent of technical professionals ranked this area as important, compared to 62-65% of the remaining strategies (Kochanski and Ledford, 2001). Enriching jobs in the following areas is one of the most effective ways of reducing turnover. Feedback from co-workers and managers is the most important factor in this category.

- Challenges - IT professionals want challenging assignments that contribute to company success. Most are not interested in routine, repetitive tasks.
- Variety - IT professionals like to be challenged with a variety of different tasks and like to avoid repetitive or routine work.
- Meaningfulness - The work having meaning in the greater context of the department.
Financial Retention Strategy
Although higher salaries might be enough to attract IT professionals, higher salaries alone will not retain this population (Jamrog, 2004). Categories included in the financial retention strategy consist of:

- Competitive pay - Although competitive pay and increases are important, research indicates that the way the pay changes are made matter more to IT professionals (Kochanski and Ledford, 2001).
- Stay bonuses - stock options given in an effort to retain top performers
- Cash Recognition including more aggressive pay increases, hot skills premiums and royalty sharing

Career Focus Retention Strategy
It is important to differentiate between different levels of employees and work with each on his career interests:

- Training and development opportunities to increase skills and stay current with new technology
- Make experiences transferable and relevant for employee’s future
- Provide instant gratification

Affiliation Retention Strategy
It is important to begin a relationship with IT professionals from their first day of work forward. Ways to build the relationship between the IT professional and the new company include:

- IT professional’s feeling of attachment to the organization
- Organization’s (top management) support of the IT professional
- Work environment engages employee and provides flexibility to allow employee to balance work/life/family

Benefits Retention Strategy
The norm for technology professionals is to have more flexibility in their working lives. Flex time, virtual office environments and other worker friendly policy can be utilized to retain this group: Standard benefits – health care, retirement package, 401(k), etc.

- Non-cash recognition
- Flex time
- Virtual office environment
- Additional vacation

In addition to these five benefit categories that are useful in retaining IT professionals, recent research indicates that females leave the IT workforce in greater numbers than do men. It has been determined that the lower retention rate of females is not because they are leaving IT for another position, but because they leave the workforce all together. Women who lacked formal IT training were more likely than their male counterparts to leave the IT profession if they began parenting a young child during the research period (Stephan and Levin, 2005).

Recent research (Stephan and Levin, 2005) also indicates that African American IT professionals have lower retention rates than their Caucasian counterparts. Unlike the
group of women listed above who leave the workforce, the majority of African Americans who leave the IT profession are changing to another profession.

In an effort to retain the diverse professionals in the IT field, retention strategies need to be varied. In addition to the five categories of retention strategies listed above, it would be wise for companies to consider child care and flexible work schedules in an effort to retain skilled female IT professionals. Mentorship and continuing education programs would be a good retention strategy aimed at African Americans in an effort to make the IT profession more attractive than non-IT opportunities (Stephan and Levin, 2005).

**Effects of Turnover**

It is important to retain employees, as replacing them represents a cost to companies. Although turnover affects the bottom line, not all turnover is bad. Some turnover is needed to get unproductive employees out the door and to bring in new employees with fresh ideas. An employee deciding to leave on his own is considered voluntary turnover, and an employee leaving at the request of the company is considered involuntary turnover. Regardless of the type of turnover, each one costs money. Estimates of the cost of turnover range from 30 percent to 150 percent of an employee's salary (Http://www.ilogos.com/en/expertviews/articles/strategic/20031007_YL.html).

The costs associated with turnover are both direct and non-direct (Figure 5). Although the direct costs are the easiest to measure, indirect costs cause the greatest loss:

![Figure 5](http://www.ilogos.com/en/expertviews/articles/strategic/20031007_YL.html)
The Boeing Company Case Study
To illustrate the concepts discussed in this paper, we chose to interview The Boeing Company on their practices with regards to recruiting, developing and retaining their IT professionals. The interview took place with Gail Flinn, Executive Assistant to Don Imholz, Vice-President of Information Technology for The Boeing Company. Mr. Imholz is currently responsible for the design and support of all Business Systems for Boeing, and also responsible to Integrated Defense Systems (IDS), the largest Boeing business unit, for ensuring quality and cost effectiveness of all information technology services. Our case study focuses on the IDS business unit, and was conducted in October and November of 2005. All references below are a result of the interview with Gail Flinn and information she directed us to within Boeing’s intranet.

Company Overview
The Boeing Company, founded in 1916 in Puget Sound, Washington, is now a product of many mergers, acquisitions and divestitures (Rockwell Intl., Hughes Space and Communications, McDonnell Douglas, etc.). Boeing is a global aerospace corporation known as a leading producer of commercial jetliners, the world’s largest designer and manufacturer of military aircraft, the world’s largest provider of commercial and military satellites, a leading rocket manufacturer, NASA’s largest contractor, and a leading developer of advanced technology defining the future of aerospace.

Boeing’s 2004 sales were $52.5 billion from customers in 145 countries. IDS (our focus for this study) had revenues of $30.5 billion, approximately 60% of the total company revenues. IDS employs over 80,000 people (52% of Boeing’s total 151,000 workforce). In St. Louis (IDS headquarters and the center of our study) there are approximately 16,400 employees with 4500 of them employed in the IT department. Thus, we can estimate that the IT department in our study represents 5.6% of the total IDS workforce.

Although the annual IT budget is proprietary and the turnover rates in the IT department were unavailable, voluntary attrition in IT Business Systems (one subsection of the IT organization) excluding retirements is about 1%.

IT is viewed as a strategic resource to Boeing as evidenced in Figure 6 (sourced from Boeing’s company intranet). Boeing Technology has three primary organizational groups – Phantom Works, Intellectual Property Business, and Information Technology, who enhances and protects the company’s intellectual capital. Boeing has a history and mission of leadership and innovation. Cutting edge technology is vital to their survival. Thus, IT plays a strategic role. This role supported by the Executive Council (Figure 7, sourced from Boeing’s company intranet). Jim Jamison, Senior VP and Chief Technology Officer is an equal member on the Council. Don Imholz reports directly to the CIO who reports directly to this CTO.
Boeing’s IT Vision, Mission, Principles & Practices, and Concept of Operations are published as key process documents of the IT department. These statements are the backbone of the organization, and are reflected in the culture. Notice in Figure 8 (sourced from Boeing’s company intranet) how often people are mentioned. Hiring, developing and retaining the best people are keys to Boeing’s IT success.

![The Boeing Company Leadership](Image)

**Figure 7**

**Figure 8**
Recruiting IT Professionals at Boeing

Like many companies, Boeing utilizes common channels for recruitment of new employees. The majority of positions are filled internally or externally through advertising on Boeing Employment Staffing System (BESS). BESS can be accessed from both the company intranet and the public internet. A job posting is very structured in its format (including status of posting, closing date, job location, job classification, and other vital statistics), and very detailed in its job description, competencies required and education preferred. In particular, open IT positions are detailed in describing the advertised job, and include all the technical experience requirements to fulfill the positions.

BESS, as well as all Boeing staffing procedures and guidelines, is maintained by the Global Staffing organization within the company. Global Staffing is also accountable for the formation and guidance of the Human Resources Process Council’s Staffing Sub Council. Through this council, companywide staffing strategies, policies and updates are implemented. With regard to IT professionals, Global Staffing partners with the business unit to determine the short and long-term hiring requirements and define sources to meet them. They identify, assess, and screen applicants to match current job requisitions which were posted by hiring managers, and assist the hiring managers by processing the job offers to fill the position. By providing the structured framework to the hiring process, the hiring manager can concentrate on what he does best – intensive interviewing to find the right applicant for the job.

New this year for the hiring manager is the structured interview process, including assessment questions, rating scales and a panel of at least two managers. This new structured process helps to weed out bias and subjectivity in the interview. Accompanying this is the Pay Analysis Tool and Salary Reference Tables which make certain that Boeing is offering prospective as well as current employees proper competitive salaries. As IT professionals in general tend to job hop looking for the best opportunity to increase salary and increase skills, Boeing works to ensure that their salary offers reflect the current market standards as well as the job skills of the applicant.

It has been noted in recent news articles, that Boeing is involved in a class action lawsuit regarding gender discrimination in their Human Resource processes. The Beck vs. Boeing suit was filed in Seattle in 2000 by women employees between 1997 and 2000 in the Seattle plants for gender discrimination in pay practices. It was alleged that women typically earned $1,000-$2,000 less per year than men for similar jobs. Since the company’s policy of pay increases is based on the employee’s current salary, the gap in pay appears to increase over time. This class-action lawsuit was settled in November 2005 with Boeing agreeing to disburse $72.5 million to 20,000+ current and former female employees. Although the suit involved only female employees in the Puget Sound region (excluding SPEEA engineers and executives), Boeing is realizing the effects enterprise-wide. Boeing does not believe that the claims in the lawsuit were supported by evidence, but has agreed to change current HR practices (e.g. the Pay Analysis Tool above) and improve the work environment. Gail Flinn could not comment on the effects of this case specifically on the IDS IT department, however did indicate that Boeing experiences no significant challenges in recruiting or retaining IT professionals.
One specific way that Boeing seeks new applicants is through Enterprise University Relations (EUR). EUR exists to develop and implement the strategy for corporate engagements with colleges, universities and institutions of higher education that integrate the technical and business needs of the enterprise. EUR interfaces with Global Staffing as well as various other organizations within Boeing. Not only does EUR ensure lifelong learning for Boeing employees, but it also fosters a culture where Boeing can source new IT talent (post graduation as well as internships), thus providing the company with a competitive advantage.

In pursuing our study of Boeing, it came to light that the outsourcing of IT staff which the heritage McDonnell Douglas initiated in 1993 may play a role in today’s recruiting strategies. Back in 1993, 1600 IT staff were outsourced with a ten-year contract with IBM. Those employees were either hired by IBM or found jobs elsewhere, either externally or internally. McDonnell Douglas (as well as the current Boeing company) recognized that to remain a competitive, global enterprise, contracting more routine operations allowed for time and resources to focus on the company’s core competencies. As Boeing’s core competency with regard to IT is involved in high-end design, systems integration and engineering, systems administration and support type jobs were outsourced. The IBM contract expired in 2003 with Computer Sciences Corporation and Dell replacing IBM as Boeing’s mainframe computing operations services provider and desktop support services provider respectively. This outsourcing allows Boeing to partner with companies who are experts in their industry, and devote its internal resources to more strategic company endeavors.

Back in 1998, at the time of the merger of Boeing and McDonnell Douglas, Jim Palmer, Shared Services president (division of Boeing) stated, “The main benefit [of outsourcing IT] is that we might be able to buy nonstrategic services for less than it would cost Boeing to supply them. Our aim is to reduce our computing costs and focus our resources on activities that are considered strategic.” (http://ssg.boeing.com/sgnews/past/1998/06_25.html) Outsourcing has changed the skill sets required for employment in Boeing’s IT department, and the job postings reflect the new demand for skills, certifications and degrees. Gail Flinn reports that the growth in the IT area over the last several years has been in response to the changing technology, environment and business. Current “hot skills areas” include Project Management and Systems Architecture.

**Developing IT Professionals at Boeing**

As discussed earlier, development of an IT professional involves a culture of continued upgrading of technical skills to keep pace with our rapidly changing world. Boeing strives for continuous quality improvement and innovation, and invests in its workforce through many programs.

One such program is Boeing’s Learning Together program, which facilitates advanced learning and career development opportunities for employees at all levels. In 2004, Boeing employees attained nearly 1300 undergraduate, graduate and advanced degrees. More than 22,000 employees are currently enrolled in degree programs. Specifically for IT professionals, certificates in various technology areas aligned with Boeing’s strategic direction, are offered through the Boeing/Washington University in St. Louis Education Partnership at the Center for the Application of Information Technology (CAIT). The
Learning Together program pays 100% of the fees. Figure 9 shows current certifications being offered in the 2006 partnership.

<table>
<thead>
<tr>
<th>Boeing/Washington University Education Partnership 2006 Certifications:</th>
</tr>
</thead>
<tbody>
<tr>
<td>.NET Programming Using C#</td>
</tr>
<tr>
<td>.NET Programming Using Visual Basic.NET</td>
</tr>
<tr>
<td>Advanced Java Development</td>
</tr>
<tr>
<td>ColdFusion Application Development</td>
</tr>
<tr>
<td>Computer Networking and Security</td>
</tr>
<tr>
<td>Data Warehousing</td>
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<tr>
<td>Database Development Using Oracle</td>
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<tr>
<td>Database Principles</td>
</tr>
<tr>
<td>Enterprise Networking</td>
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<tr>
<td>Enterprise Web Application Development in Java</td>
</tr>
</tbody>
</table>

Figure 9

Boeing also maintains a Library and Learning Center service, which provides a more self-paced study option. In the Library and Learning Center, employees can check out courses on various media, train on-line, order publications, and get information on various topics. Specifically for IT professionals there are preparation courses and materials for several certification programs such as CCNT, CIW, CompTIA, Cisco Career Certifications, Microsoft Certified Professional, Oracle Certification and PMI (Program Management Institute) Certification. All or these options allow the employee to further develop the skills needed for their current positions, future promotions, and even future employment outside of Boeing.

Boeing recognizes the need for all employees to have an avenue to express and achieve their personal and professional goals. The Performance Development Partnership (PDP) exists to foster development of an employee’s skills and abilities that will benefit him personally as well as professionally. PDPs are a partnership between the employee and management, and are used as a tool for career development by identifying and tracking employee’s goals and objectives. IT professionals use the PDP to focus on their development activities throughout the year, while management uses the PDP to clarify development expectations and responsibilities. Many of the courses available in either the Library and Learning Center or the Learning Together Program will appear on a PDP as milestones to chart progress.

Retaining IT Professionals at Boeing
With respect to the strategies Boeing utilizes to retain their IT professionals, we have categorized them in accordance with the five strategies mentioned earlier in this paper.

Work Content Retention Strategy
Feedback, mentoring and leadership from management are essential in this strategy. By utilizing the PDP mentioned as a development technique at Boeing, IT professionals and managers can open the lines of communication and provide feedback to one another.

Another feature of the work content retention strategy is the ability of the IT employee to participate in a variety of challenging assignments. We found this exemplified in Boeing’s IS Career Foundation Program. This program aims to recruit and develop
highly skilled leadership candidates by taking participants through a range of assignments that provide the scope, challenge and experience necessary for their IT career to take flight. Participants experience six exciting IT assignments over the course of two years – functional analyst, project management, software configuration management, architecture, and systems integration and validation. The final assignment is an elective of the participants choosing. Throughout the program, the participant is assigned a mentor to assist with development and provide an avenue for questions. This program is particularly good for retaining recent college graduates who may not possess all the technical skills available. In fact, it even allows new graduates to apply during the fall semester of their senior year.

Boeing also utilizes the Boeing IT Rotation Program to offer a variety of new challenges to the IT personnel. This program’s goal is to ensure well-rounded IT personnel in all of the IT disciplines. An added benefit is that the program drives continuous process improvements by providing an opportunity for rotated employees to infuse new ideas into another group. Participants complete three rotations, each with a duration ranging from 12 – 15 months. Participants also are assigned a mentor for the duration of the program.

**Financial Retention Strategy**

Boeing has recently undergone several initiatives in their Human Resources department to ensure that employee’s salaries are commensurate with industry standard salaries as well as with co-workers. Annual performance evaluations review the business goals and objectives along with the employee’s skills and offer salary increases. Salary increases are based on the new Pay Visibility Tool created this year for managers to compare the performance evaluation and other data to make salary recommendations.

Boeing also offers a gift of shares of stock for completion of a degree through the Learning Together Program.

**Career Focus Retention Strategy**

The Career Focus Retention Strategy places training, development and career opportunities in the limelight. Many of the strategies already discussed fall into this category – PDP, Learning Together Program, Library and Learning Services, IS Career Foundation Program and rotation.

Some IT professionals may want a career path that leads to management. Others choose a path that leads to technical superiority. Boeing recognizes the individualistic needs and offers support and guidance in both career paths. Two examples of programs are discussed below.

IS University, launched by Don Imholz in 2001, was designed for managers. Boeing IT leaders teach seminars which provide in-depth views of the organization they lead as well as broader business perspectives. This program was developed to help managers on their way up to improve their understanding of Boeing strategies and operations, learn more about Boeing IT strategies and issues, and improve their thinking, presentation, project management, negotiating, leadership and teaming skills.

Boeing’s Technical Excellence Program (Figure 10, sourced from Boeing’s company intranet) opens up new opportunities for technical professionals as well as engineers. The
Boeing Technical Fellowship Program recognizes, vitalizes and rewards employees who want to focus on technical excellence. This Program allows the participant to continue growth by applying specific expertise to many of the technical challenges facing the aerospace industry. Boeing provides benefits and privileges to Fellowship members that correspond to their contributions. By striving for technical excellence and providing a diverse opportunity for professional growth, Boeing provides a more attractive place to work for a broader spectrum of talented people. Technical ideas get greater exposure and technically focused employees are provided opportunities for continuing their technical roles. They receive the satisfaction of knowing their long-term contributions to the company are appreciated and rewarded. Most of all they get to do what they enjoy – pursue the goal of excellence in their chosen field.

Affiliation Retention Strategy
Employees want to feel like more than just a “number” at a company. To feel attached to the organization, supported by management, and cared for as an individual are important aspects in today’s workplace.

Boeing encourages a balanced work/life culture. Proof of this exists in their flexible scheduling, where some employees work a “9/80” which is 9 hours a day for 9 days, and have either a Friday or Monday off work. Other employees participate in the Virtual Office Environment. Virtual Office not only allows Boeing to save millions of dollars by eliminating office and parking space, but it has proven to increase productivity and reduce absenteeism. Virtual Office allows employees to work away from the office, thus
saving on transit time and empowering the employee with a more flexible schedule
without the office interruptions. Virtual Office is available to all employees, but up to the
discretion of each manager.

**Benefits Retention Strategy**
The Benefits Retention Strategy encompasses standard benefits (health care, 401(k), etc)
as well as perceived and non-cash benefits.

Many of the aforementioned strategies at Boeing have benefits attached to them. Virtual
Office Environment offers more flexibility. The Learning Together Program will pay
100% for most classes and degree programs. A degree earned thru the Learning Together
Program comes with a specific amount of shares of Boeing stock. Boeing also offers
health care plans, which are 100% paid for by the company, and 401(k) plans contributed
to by the company. Certain managers will work with employees to set a flexible working
schedule to enable a work/life balance. All of these monetary and non-monetary
strategies are evidence of Boeing’s dedication to their employees.

**Recommendations / Best Practices for Managers**
As a result of gathering secondary data and analyzing the Boeing case study, the
following checklist of Best Practices for Managers has been compiled:

- **Recruiting**
  - Define job description
  - Use all recruiting resources available
  - Hire the best match for the position; appropriate pay range

- **Developing**
  - Managers need to understand needs and skills of employees
  - Managers need to determine motivators for employees
  - Opportunity for defined career path

- **Retaining**
  - Development and retention always requires a partnership between the
    employee, the manager, and HR
  - Create a work environment where employee can work and grow
  - Develop financial and non-financial incentives

**Conclusion**
Utilizing the benchmark practices outlined in this paper, as well as other creative
methods, will assist managers in recruiting, retaining and developing IT professionals.
High quality employees will be attracted to high quality employers. Employers can make
themselves attractive to employees by doubling their efforts to remain highly competitive
by providing the best combination of cash and non-cash benefits.
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