



**STRATEGY
RESEARCH
PROJECT**

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Department of Defense or any of its agencies. This document may not be released for open publication until it has been cleared by the appropriate military service or government agency.

**IT IS TIME TO ACT:
CHANGING THE WAY WE RECRUIT AND RETAIN
INFORMATION TECHNOLOGY PROFESSIONALS**

BY

**LIEUTENANT COLONEL JOHN A. WILCOX
United States Army**

**DISTRIBUTION STATEMENT A:
Approved for Public Release.
Distribution is Unlimited.**

USAWC CLASS OF 2002

U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050



20020429 154

USAWC STRATEGY RESEARCH PROJECT

**It is Time to Act:
Changing the Way We Recruit and Retain Information Technology Professionals**

by

Lieutenant Colonel John A. Wilcox
United States Army

Colonel David Lopez
Project Advisor

The views expressed in this academic research paper are those of the author and do not necessarily reflect the official policy or position of the U.S. Government, the Department of Defense, or any of its agencies.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

DISTRIBUTION STATEMENT A:
Approved for public release.
Distribution is unlimited.

ABSTRACT

AUTHOR: LTC John A. Wilcox
TITLE: It's Time to Act: Changing the Way We Recruit and Retain Information
Technology Professionals
FORMAT: Strategy Research Project
DATE: 28 February 2002 PAGES: 26 CLASSIFICATION: Unclassified

The federal government is currently fully engaged in an information technology labor crisis that it can't afford to lose. With billions of dollars being spent on the development and acquisition of equipment to support the transformed force of the 21st century, it is imperative that effort also be focused on developing an IT workforce to match the technology. There are many factors contributing to the worker shortfall from an aging workforce to negative perceptions of federal service, but with so many of the Joint Vision 2020 and Transformation concepts hinging on the use of IT to enhance operational capabilities, a solution must be found soon. Study after study has come to almost the exact same conclusions on the critical issues of recruiting, training, and compensation, yet virtually no action has been taken. As with any reform package, there are any number of options available, but to succeed, IT reform must include a radical change in personnel management, a compensation package that reflects the professional status of the IT employees, a plan to keep employee skills current, and a change in how information technology is valued. Any number of reasons can be given for the inaction, but the factor most often stated is that the reform proposals are too expensive. While cost must be considered, General Miegs' summed it up best by saying "Many say we don't have the money to do this, but by a factor of 100 we do not have the money to repair the damage if we don't."

TABLE OF CONTENTS

| | |
|--|-----|
| ABSTRACT | iii |
| RECRUITING AND RETAINING INFORMATION TECHNOLOGY PROFESSIONALS..... | 1 |
| BACKGROUND:..... | 2 |
| RECRUITING ISSUES:..... | 6 |
| RETENTION ISSUES: | 7 |
| PROGRESS TO DATE: | 10 |
| RECRUITING AND RETENTION OPTIONS:..... | 11 |
| CONCLUSION:..... | 14 |
| ENDNOTES | 15 |
| BIBLIOGRAPHY..... | 19 |

**IT IS TIME TO ACT:
RECRUITING AND RETAINING INFORMATION TECHNOLOGY PROFESSIONALS**

Advances in computer technology provide a great opportunity for improving government service. However, we can only take advantage of this opportunity if we have a skilled workforce that can manage and implement high technology products.

— Fred Thompson

The 2001 Quadrennial Defense Review (QDR) repeatedly emphasizes the critical role technology and information superiority will play on the battlefield of the 21st century.¹ Speech after speech from senior military leaders reiterate this thought, yet the conspicuous lack of action in critical human resource support areas is putting this envisioned role of technology at risk. Billions of dollars are being spent on the development and acquisition of hardware and software to support the 21st century force, but without substantial program reform in the way the government, and especially DoD, recruits and retains Information Technology (IT) professionals, reality will fall short of the vision. There will be plenty of new, innovative, high technology equipment in the field to support web-based, network-centric command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), but equipment is useless without the trained people necessary to implement the fundamental changes envisioned by senior leaders.

In the past five years, numerous studies have been published outlining the issues that have contributed to the current, long running IT employee shortage within the federal government. Yet, for any number of reasons, the Office of Personnel Management (OPM) and the federal employment system have been very slow and tentative in response to the problem. While this worker crisis is critical in all areas of the government, it is especially crucial in DoD as all of the services move towards transforming their forces to meet the national security threats of the future.

Even though virtually every vision statement from the Chairman, Joint Chief of Staff's Joint Vision 2020 down to the smallest garrison highlights the role of technology or e-government in making life better, easier, faster, or more efficient for customers, the critical human element required to make the vision a reality is not in place.² Not only are the technologically capable people not in place, but the current human resource management process does not come close to meeting the basic employee support needs of the workforce.

The personnel management and compensation system for government employees is hard pressed to support the current population of employees so how can these same processes be expected to support the large increase in employees projected for the future?³ This type of shortfall is especially damaging in the ultra competitive IT segment of the labor pool which is where the largest portion of new employees will be needed as part of an information superiority based force.

The federal government invested over \$42 billion dollars in 2001 on IT related infrastructure and automated systems, yet it continues to inadequately resource arguably the most critical component, people.⁴ Although armed with a multitude of options from numerous reports and studies, the federal bureaucracy continually stifles almost all proposed changes. The one major attempt at reforming the system, a potentially very positive incentive pay program for IT workers, was not well coordinated with the field nor approved for all IT career fields. In many cases what could have been a tremendous help to field managers has actually helped create more discontent among the employees due to a flawed implementation.⁵

The time is up. Without major reform in three critical areas: work environment, training, and compensation, the vision of a technologically superior force is flawed before it ever begins. Whether it is a cultural issue, a monetary shortfall, a combination of multiple factors, or just plain bureaucracy, it is time for the federal government to act, and to act decisively.

BACKGROUND:

Our use of technology has gone from being important to being essential in the performance of our mission.

—Stephen A. Perry

While the advent of the information age delivered tremendous advances in efficiency and productivity for the federal government, it also created a significant human resource challenge for subordinate organizations and departments. Severe shortages of Information Technology workers exist across the government workforce, and studies indicate that without significant reform, the situation will not improve for perhaps as long as twenty years.⁶

One of the issues making reform difficult is the need to define who is an Information Technology professional, and what tasks comprise their core competencies. With automation and telecommunications dominating all aspects of business, life, and the government, it is relatively easy to mal-define the personnel pool and skills needed for a high technology work environment. For the purpose of this paper, an IT professional is a person who has a planning,

technical, or direct oversight responsibility for installation, operation, maintenance, or security of voice and data circuits; local area or wide area networks; and/or the direct strategic planning of the same.

The search for qualified IT workers is not unique to government. It is a national issue with global implications. Across the American IT industry, the current shortage of qualified professionals is estimated to be a half a million individuals and growing.⁷ Virtually every private sector organization from Fortune 500 companies to charities is trying to harness the power of technology, and in the process is increasing the competition for qualified workers. With the number of IT jobs projected to increase by eighty percent, or almost two million positions over the next ten years, the competition between industry and the federal government for the best and the brightest is not going to go away. In 2001, the General Accounting Office (GAO) added strategic human capital management to its list of high risk issues for the federal government. Included in the strategic human capital equation is the critical shortage of IT professionals.⁸

The shortage of IT workers is so acute, industry trade groups have repeatedly gone to the United States Congress for increased visa quotas for immigrants with the requisite IT skills as a way to alleviate some of the critical skill shortfalls. The downturn in the economy and technology sector has temporarily slowed some of the immigrant employee requirements, but the U.S. Immigration and Naturalization Service (INS) still approved a record 138,000 H-1B visas in fiscal year 2001.⁹ While total numbers for 2002 are unknown at this time, the number of approved visas, and consequently the number of immigrant workers, will probably decline somewhat in the current year. This is not through a lessening of demand, but a result of the tightening of entry requirements in response to the 11 September 2001 terrorist attacks. This reduction in foreign workers, and economic recovery will once again create pressure for the government to act.

With the nature of employment changing from an industrial model that requires a preponderance of workers who are mechanically inclined to a technological model which requires a skill set based on automation literacy, finding qualified employees who want to work for the government is not an easy task. The federal government is currently attracting just one qualified worker for every two IT vacancies.¹⁰ With IT employee attrition over the last six years running thirty percent higher than non-IT government employees, the cumulative effect has been a chronically undermanned workforce. If not already considered a crisis by senior leaders, the long term shortages will soon reach crisis proportions that will be impossible to ignore.¹¹

Not only is the current population of IT workers critically short, but the transition in skill requirements from mechanical to automated effectively raises the minimum barrier to entry for a

prospective worker wanting to change professions. In the technical fields, the minimum educational requirements have increased from the traditional high school diploma to either a technical certificate or a bachelor's degree.¹² While this might seem like a minor problem given the higher percentage of people going to college compared to years past, the increase in college graduates is not necessarily translating to a qualified set of employees. Fewer students are seeking hard science or technical degrees so the actual number of immediately qualified graduates is lower. While the government is seeking a broad range of technical competence from basic IT familiarity to true expert class knowledge, the period from 1986 to 1994 saw an alarming forty percent reduction in computer science graduates.¹³ This translates directly into both a tighter labor pool and increased training costs.

Although expensive and time consuming, less technical automation skills can be learned either on the job or through an intensive, internally funded training program. However, it is much more difficult to rapidly develop the complex skills needed in core positions like computer engineering and high level programming. The soft skill shortage is somewhat offset by the increased use of automated systems like home personal computers and video gaming as part of typical life experience. While this everyday use provides a higher baseline knowledge level, thereby reducing some of the training time required for new employees, it can't substitute for many of the critical skills required in the average technical position such as network administrator, or computer security specialist.

A review of the personnel management process at first reveals a normal number of applicants for each job announcement. What is not readily apparent is that virtually all applicants are from other government agencies. Most vacancies are being filled from within the federal government via a lateral transfer or a promotion, thereby immediately creating a new vacancy. In essence, the federal government personnel management procedures serve to benefit veteran employees over the health of the system. While it is healthy to promote from within when qualified candidates are available, it is imperative that the personnel management system also admit large numbers of qualified outside applicants, otherwise no headway will be made in addressing the critical shortage of IT workers.

Even the current downturn in the technology industry is not likely to drastically change the vacancy picture given the continued expansion of IT requirements throughout the government workplace. At best, the downturn can be looked at as a strategic pause that provides a small window of opportunity to take action before the next wave of shortages occurs. With the Bureau of Labor Statistics projecting a 78 percent increase in new jobs for core IT workers over the next ten years while the rest of the workforce will see only a 14 percent

increase, the federal government can only foresee increasing difficulty in recruiting and retaining IT professionals.¹⁴

The growing shortage of IT professionals seeking federal employment is not a new problem. At least three major studies have been chartered to address this specific question, or very similar concerns, both in the government and private sectors. In January of 1998, the Department of Commerce in conjunction with private sector organizations sponsored a "town hall" type forum to look at the IT human resource challenges for the Information Age.¹⁵ More than two years ago, in the Spring of 1999, General Miegs, Commander, United States Army Europe (USAREUR), triggered an Army study with an e-mail to both the Chief of Staff of the Army, General Eric Shinseki and the Commander of the Training and Doctrine Command (TRADOC), General John Abrams outlining a serious IT manning problem he saw in his Command.¹⁶ From this query, an IT Study Group was formed to research issues and develop solutions for military unique IT shortages. Most recently, at the behest of the Chief Information Officers Council, the National Academy of Public Administration (NAPA) put together a report on how the federal government can be an IT employer of choice for the new millennium.¹⁷ Although all three studies provided valuable input, the NAPA report yields the most comprehensive analysis to date on the issue of government IT employment. Highlighting numerous areas for reform or change, the report ultimately focuses on the entire reward and compensation system as the key element to improving the system.

While all three of these studies resulted in a final or near final report, few if any of the recommendations were implemented. The most commonly cited reason for inaction is that the recommendations were too costly.¹⁸ Cost must be considered, but General Miegs' email summed it up best by saying "Many say we don't have the money to do this, but by a factor of 100 we do not have the money to repair the damage if we don't."¹⁹ This was clearly demonstrated in May 2000 when a relatively benign virus known as "The Love Bug" spread through public and private computer systems across the world. The cost to stop and repair "Love Bug" damage just in Forces Command (FORSCOM), which was not particularly hard hit by the virus, was over twelve thousand man hours and seventy-nine thousand dollars.²⁰

Cost is certainly a factor in making reform decisions, but not all initiatives require additional funding. In fact, most government and non-government studies including the three mentioned above, show that IT professionals are not just interested in money.²¹ Often the areas cited as being critical decision factors focus on the psychological aspects of employment like job satisfaction, job security, and value to the organization.

While the type of changes outlined in the published studies might be taken as controversial or radical, they are not necessarily a revolution in practice because the federal government already uses many of the potential reforms in other career fields like aviation, engineering, and the medical fields, where individual professional expertise is recognized. What are different about the IT field is the potential size of the force which will need to be considered, and a required change in mindset about the role of IT professionals. In the future, the large pool of IT professionals will warrant the same recognition as the flyers, doctors, and engineers.

RECRUITING ISSUES:

With only one percent of the IT workforce under twenty-five years of age, and the average federal employee approaching fifty years of age, it is essential that a new group of young employees be convinced to enter government service.²² Recruiting really boils down to attracting college or technical school graduates as the seed corn for the next generation of mid and senior level leaders. By 2006, fifty percent of the 59,000 federal IT workers will be retirement eligible with the expectation that due to a generous retirement plan the majority of them will elect to retire within three years of eligibility.²³ With current accession rates for young employees actually decreasing, a concerted effort must be made to show college students the benefits of working for the government.

Historically, college graduates have viewed federal service as an unattractive option not in tune with their personal and professional goals. This perception is tied to the view of government employment being a low paying, life long endeavor. Obviously, this image needs to be changed, but as we move towards recruiting a younger workforce, it must be kept in mind that Generation X looks at the work environment in a different way than most of today's leaders. While pay and benefits are still important, survey results from an May 2000 Atlanta Journal-Constitution poll indicate that some IT workers make employment decisions based on criteria as diverse as which company has the nicest game room or who has Starbucks coffee in the break area.²⁴ This focus on more than just work is a common theme with virtually every issue oriented study, and must be considered when developing a strategy for reform.

Additionally, the recruiting methods must be reexamined. Just as the Army has changed its recruiting slogan to an "Army of One" with trendy ad placements on the internet and in popular magazines so too must the federal recruiters change the way they look for tomorrow's IT professionals. As Nortel Network's Wendy Herman says "We're in a war for talent. It's no longer acceptable to do recruiting in the old fashioned passive ways." This explains why Nortel started recruiting at unique venues like brew pubs and recently held its own invitation only, rock

concert in Atlanta with Dennis Miller and Dan Ackroyd to give the Nortel employment pitch to three hundred and fifty techies in the area.²⁵ This change in tactics is targeted directly at the younger generation based on their priorities and lifestyle.

Another important component of recruiting is the relative ease for both employee and employer in navigating a given organizations human resources process. A commonly stated complaint is the lack of responsiveness and focus on each person inherent to the government personnel management system. With many employment options to choose from, an employee is not going to be interested in a bureaucratic organization that can't, or won't, make decisions in a timely manner. Progress has been made in some marginal work environment areas like the endorsement of flexible hours or telecommuting to meet an individual's own personal requirements, but significant reform across the workforce always seems to get bogged down in an inflexible bureaucracy.²⁶

Perhaps the most frustrating aspect of recruiting a quality employee, especially someone from outside the system, is the cumbersome hiring process. With the current personnel system often taking six months to produce a new employee, organizations which lack depth are sometimes forced to limit their selection criteria, or select marginally qualified candidates simply because they are local and can report in days versus the months it might take to get the best qualified individuals. It is not only the hiring organizations who are frustrated by the extended timeline, qualified candidates are often "stolen" from the government because private industry can respond so much faster. Candidates feel compelled to take the sure thing over a superior position that lies elusively in limbo. Reform in this basic area is not only important from a hiring standpoint, but also from a work environment perspective. With the personnel management system often being the first direct interaction with a potential employee, every effort needs to be made to present a positive first impression to dispel the general impression of a "bureaucratic" workplace.

RETENTION ISSUES:

Retention of the current workforce will take more than a marketing slogan. The normal lightning rod issue for sound bites is the pay gap between federal IT employees and the commercial sector, but this is only one, and probably not the most important, of many issues. Training, job satisfaction, cultural bias, well being, job security, and family life are also listed as key factors in the decision to join the federal service for the first time or to stay with government over competing commercial opportunities.

While most individuals do not expect government compensation to match the commercial equivalent, the disparity can't be too large or it will become a critical deciding issue. A recent survey of federal IT jobs showed that while entry level IT job compensation was comparable to the industry average, mid-level and senior-level management compensation was significantly lower than comparable commercial positions with not a single federal job in these categories meeting the industry average.²⁷

Perhaps an even more keystone issue for both current employees and prospective recruits, is the perceived lack of a coordinated training and continuing education program to keep workers proficient in an industry where the technology changes every 12-18 months.²⁸ This is one area where IT is critically different from other government career fields. While all elements of the federal government are in a near constant state of change, very few can match the seemingly non-stop requirement for the continued education and training found in the IT career field.

Unfortunately, this urgent requirement is almost never matched with the resources to execute the training. This leads to worker discontent and promotes the idea of looking elsewhere for better conditions.²⁹ With educational opportunities easily available either commercially or through internal cooperative programs with universities and colleges, the lack of training must be traced to the institutional culture and priorities. Unlike the commercial sector, training within the federal government is normally viewed through a prism of what is mandatory by regulation followed by those training opportunities that can be directly tied to a combat related task or mission. All other opportunities are generally viewed as nice to have training if funding and time allow. Even with the importance being placed on the concept of information superiority and information dominance, IT training is still viewed as support training. Given the constant budgetary pressures, support training is almost always the tradeoff of choice because it is not essential at the moment. Unfortunately, years of these tradeoffs have created a disgruntled workforce that does not feel appreciated nor is at the forefront of technological expertise.

The shortfall in IT training is in direct opposition to the accepted assumption that training to be the best is a primary function of the United States military. Few people will argue that the United States Army infantryman or the United States Air Force fighter pilot is not the best in the world at what they do. They are the best because of continued emphasis on individual skill development, collective implementation, and finally, realistic scenario based practice at places like the National Training Center and on Joint Readiness Exercises. Unfortunately, the same glowing comments can not be made about government IT professionals, and it is not because

they aren't capable, it is a direct reflection on the lack of priority and resources devoted to IT training.

A sub-set of the training issue is the lack of a defined certification standard and associated set of professional credentials required for employment. Without these two benchmarks, the question of technical competency is left open to interpretation when assessing individual records. This is especially critical during the hiring process when non-technical personnel officers are making qualification judgments about who meets the minimum requirements for consideration based on a generalist system. The fallout from this is non-qualified personnel being placed in critical positions with little or no chance of success. Then, both the gaining organization and the individual suffer through really no fault of either.

Also very high on the list of employee concerns are job security and job satisfaction. Long considered a natural strength of government service, the aspect of job security is now perceived to be in question due to the trend toward downsizing and outsourcing. While IT employees normally do not have to worry about downsizing, the threat of privatization is very real as many information management functions across the government have been outsourced to contractors. While many individuals in and outside government feel that outsourcing is the answer to the IT employee dilemma, to date, it has been more of a detractor than benefit. While clearly there is a place for privatization within the federal structure, there will always be a large percentage of jobs that are inherently governmental and will require a federal employee to fill the position. What does need to be done with the commercial activities process is to make it less painful to organizations. At exactly the same time management is trying to solve personnel vacancy and infrastructure modernization issues, they are also forced to work through tremendous morale problems associated with fear of the outsourcing process.

Job satisfaction ties in with job security, but goes even deeper. Employees want to be valued both professionally and personally. Reports show workers are very frustrated working for leaders who either don't understand the complexity of IT operations or don't care. As is often the case, in the area of job satisfaction, actions speak louder than words. Although routinely asked to work long hours of overtime, employees have seen virtually no attempt at the senior levels to increase manning or to invest in those automated systems that could reduce the workload. Often, even when an approved manpower survey dictates an increase in manning for an IT organization, the funding is not provided to meet requirements due to other priorities.³⁰ In fact, the opposite is generally true, the IT resources are often the first to be cut if an unprogrammed requirement emerges that needs funding. This type of management decision making sends a distinct message about how the IT contribution is valued by leaders. As

mentioned in the opening paragraphs, virtually all the vision statements and organizational slogans tout the importance of IT operations, yet these words are rarely translated into action when it comes to resources and priority.

PROGRESS TO DATE:

The Office of Personal Management (OPM) and the Chief Information Officers (CIO) Council have made some progress in the fight to reform the human resource system. The most significant of the recent proposals was the addition of incentive pay for certain job specialties.³¹ This is a great step in the right direction, but it was limited in scope and did not provide any significant flexibility to managers on setting the level of pay for truly high performing employees.

It would be a mistake to think that the federal government has not attempted to solve the IT personnel shortage, but to date, almost all of the solutions have been ineffective. Whether it is recruiting retirees, paying a little more overtime, or allowing flexible hours, the majority of adjustments have been on the margin instead of tackling the problem. While all of the policy changes are beneficial in one way or another, a much more decisive program of initiatives is needed to really make a difference.

As mentioned earlier, one program held tremendous potential for inducing IT professionals to stay with the government. On 1 January 2001, certain IT career fields were granted the authority to increase individual compensation through the use of an incentive pay program.³² Unfortunately, this initiative was extremely limited in scope and not well coordinated with the implementing organizations. The small number of career fields and grades included in the program caused many IT employees to feel left out at a time when unity of effort was needed. As a commander in the field at the time with responsibility for the Army networks in Hawaii, this program was very frustrating because the command was not aware of the incentive pay plan until it was announced to the public at which time it was too late to mitigate the problems.

While the incentive pay program was initially a disappointment, steps are already being considered to make the program more inclusive both in depth and breadth. The long planned consolidation of core IT career fields into a single functional area known as GS-2210 and the expansion of the incentive pay grade structure to include GS-13s and selected GS14s will truly make the program management of IT careers easier. The consolidation will place the majority of IT professionals under one umbrella and permit the incentive program to reward the full spectrum of IT employees as initially expected. Additionally, actual job classification criteria have been rewritten to better describe actual roles, responsibilities, and professional

requirements.³³ While still new, these initiatives have the potential to drastically reduce the frustration level of employees and managers over work expectations. Care will still need to be taken in all these new programs to insure those individuals such as IT project managers and IT analysts working in non-IT pure organizations and under non-core classifications are not forgotten.

While not strictly an IT workforce issue, the 2000 Congressional decision to eliminate the dual compensation pay reductions for retired military officers is already paying dividends for IT organizations. Immediately after the implementation decision, the Directorate of Information Management (DOIM), United States Army, Hawaii saw a large increase in the number of former military IT professionals interested in staying affiliated with the government. By June 2001, the DOIM had capitalized on this interest by hiring one former DOIM battalion commander and one senior service college graduate to work in the plans and policy branch of the DOIM Operations Section.³⁴ Without the change in law, hiring two individuals with the same experience level would have been impossible.

In the area of recruiting, the Federal CIO council has initiated a program called High School Outreach Team for Information Technology (HOT-IT) to promote interest in the IT career fields and specifically interest in government IT. While still in its infancy, the program has held two Shadow Days for students in the Washington, DC area. Forty five employees from five federal agencies participated in the event which allowed students to follow an IT professional around the workplace for a day.³⁵ The CIO Council is also sponsoring a scholarship program in selected IT specialties like cyber security that helps fund college studies in return for a specified commitment to work for the federal government. The current program funds the final two years of undergraduate work or two years of masters work in exchange for two years of service.³⁶

Another area with more potential is the Army's intern program. With technology changing at a rapidly increasing pace, it is very difficult for the government IT workforce to maintain competency without an almost constant influx of new personnel. Given the tremendous competition from the commercial sector for talented individuals and some lingering negative perceptions of government employment, it is essential to have programs in place that both encourage people to remain in civil employment and also to provide incentives for young people considering government service.

RECRUITING AND RETENTION OPTIONS:

While there are compensation and benefit areas in which the federal government does not compete well, there are clearly segments that can be highlighted. With young potential

employees already predisposed against federal service, improving how the federal employment story is told will be fundamental to any solution set.

The HOT-IT program shows a lot of potential, and when coupled with monetary aid in the form of scholarships and grants can provide a conduit for developing the interest of high school students, getting them into college, and finally, into federal service.

Probably the most appealing aspect of federal service to new workers besides the competitive entry level pay is still the up front responsibility given to members of the federal workforce. Few commercial firms can match the almost immediate feeling of being a contributor which is attached to working on projects that can benefit millions of people or affect history.³⁷ With this kind of responsibility, individuals can make, and feel, their immediate impact on organizations simply through their effort and energy.

The method of delivering the federal government story is also critical. As demonstrated by Nortel Networks with their concert promotion, a more proactive campaign is needed to be competitive in the IT labor market. While the government is probably not going to sponsor concerts, recruiting teams should be heading to college campuses to tell the federal service story. The major technology firms in the country dominate recruiting at the top universities, but they don't even stop at the next tier of quality schools. These schools are where government recruiters should concentrate their efforts for the next group of federal IT leaders.

Clearly monetary compensation is a critical part of any retention package. Although it is not essential to match the commercial sector dollar for dollar, it is important to provide a reasonable pay package that shows a person's individual contributions are valued. The NAPA study recommends a market adjusted approach using four broad employment levels that provide managers the flexibility to place an employee within a band based on the employee's experience, knowledge, and skills. Pay increases would be based solely on an increase in competency or performance rather than an automatic, across the board increase. While the previously mentioned NAPA recommendation would probably yield the most benefit, it is also probably infeasible as written given the size and complexity of the federal system. That being said, using the banding approach, combined with the expanded incentive pay program described earlier, could easily produce a system that provides a competitive compensation package when coupled with other benefits.

With IT workers placing a lot of emphasis on their ability to grow professionally, training becomes critical to the retention plan. A flexible, but structured program must be developed and resourced to provide both the organization and individual opportunities to grow as technology advances. Just as a doctor has continuing education requirements to improve both immediate

patient care and those skills and services he or she rarely uses, so too does an IT professional. While formal education and schools are necessary, and must be funded to the appropriate level, training goes beyond vendor offered classes. Training can be made more readily available and less costly through the use of "internal" universities focusing on those skills required on a regional basis. Additionally, cooperative training programs with major corporations like Microsoft or Cisco allow a leveling of knowledge across the workforce at a very reasonable, shared cost. Cisco in particular has established Cisco Networking Academy agreements with numerous community colleges and some government agencies to develop a core workforce knowledgeable in network fundamentals.³⁸

In the case of IT organizations, training must become more than a list of courses on an individual development plan (IDP). The whole organization must become a learning organization in the sense that individual development can take place in any number of locations from the traditional school environment to a trouble call on a weekend. Managers must appreciate this and make assignments to facilitate both mission accomplishment and to grow their employees even if it means some things don't get done as quickly as they would like. Additionally, growing on the job means mistakes will happen. Unfortunately, IT organizations don't have the luxury to practice off-line like most other elements so when a mistake is made it does affect day-to-day operations, but supervisors must be willing to underwrite those honest mistakes as part of the learning process.

While providing advanced training to improve competency and increase the knowledge base of employees is critical, it is not a one way street. Currently, there are generally no longevity clauses tied to training unless the course is part of a formal leadership development program sponsored by the government. Just as we should take other lessons learned from the corporate world, the federal government should require a payback period for any technical classes that are more than a short seminar or refresher training.

Even as the tangible factors like pay and training are addressed so must the intangibles be addressed. One way is to provide opportunities for advancement through the government intern programs. In the IT functional area, the Army Information Technology Management (ITM) Intern program, a sub-set of the Federal Civilian Intern program focused at the GS-5/GS-7 level, is one such program.³⁹ Open to both potential recruits as well as existing employees, expanding the program would really enhance the ability of current workers to get ahead. Overall the program benefits are two-fold. First, it virtually guarantees a well rounded and government experienced IT employee at the end of the one or two year process. Second, the program shows a commitment by the organization to giving internal employees a fair chance to

move up. Unfortunately, the current program is very limited in scope with each theater MACOM hoping to get one intern each year. Even a minimal expansion would be extremely beneficial by simply demonstrating the federal government's commitment to employees.⁴⁰

Just the existence of ITM Intern program demonstrates a commitment by Army senior leadership to the future. This, coupled with providing two years of specialized IT training based on both individual and the gaining MACOM's needs, completes the intended message to potential employees.⁴¹ Upon graduation from the program, the Army not only has a well-trained employee, but also a relatively loyal employee who has been exposed to various perspectives of the Army culture including Army values.

CONCLUSION:

The federal government is currently fully engaged in an information technology labor crisis that it can't afford to lose. There are many elements contributing to the worker shortfall from an aging workforce to negative perceptions of federal service, but with so many of the Joint Vision 2020 and Transformation concepts hinging on the use of IT to enhance operational capabilities, it is imperative that a solution be found soon. Study after study has come to almost the exact same conclusions on recruiting issues, training management, and compensation, yet virtually no significant action has been taken.

As with any reform package, there are a variety of options available, but to succeed, IT reform must include a radical change in recruiting techniques and hiring practices, a compensation package that reflects the professional status of IT employees, a plan to keep employee skills current, and a change in how information technology is valued. Many elements of the personnel management system need modification, but without significant reform in the four listed critical areas, change would only be working the marginal issues.

Any number of reasons can be given for the inaction, but the factor most often stated is that the reform proposals are too expensive. While clearly cost must be taken into account, it will be far more expensive both in dollars and operational failure if the issue is not addressed decisively, and soon.

WORD COUNT = 6118

ENDNOTES

¹ Department of Defense, Quadrennial Defense Review Report (Washington, D.C.: U.S. Department of Defense, September 2001), 30.

² Department of Defense, Joint Vision 2020 (Washington, D.C.: U.S. Department of Defense, June 2000), 3.

³ National Academy of Public Administration, The Transforming Power Of Information Technology: Making the Federal Government an Employer of Choice for IT Employees (Washington, D.C.: National Academy of Public Administration, August 2001), 3.

⁴ *Ibid*, 7.

⁵ The ideas in this paragraph are based on the author's personal experience as the Commander, 30th Signal Battalion/Director of Information Management (DOIM), United States Army, Hawaii during the implementation of this program.

⁶ National Academy of Public Administration, 12.

⁷ Office of Technology Policy, Update: The Digital Work Force: Rapid Expansion of U.S. Core IT Work Force to Continue (Washington, D.C.: U.S. Department of Commerce, August 2000), 1.

⁸ Federal CIO Council IT Workforce Subcommittee, 2001 Update of the Plan for Implementing the Federal IT Workforce Challenge Recommendations, (Washington, D.C.: Federal CIO Council, September 2001), 1.

⁹ Patrick Thibodeau, "Despite Economy, H-1B Visa Record Set," Computerworld, 29 October 2001, p. 1.

¹⁰ Jennifer Jones, "A Federal Call for IT," InfoWorld, 1 October 2001, p. 44-45. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.

¹¹ Office of the Deputy Chief of Staff, Operations. "Information Operations: Army IT/IA Workforce Issues Study." Briefing slides, Washington, D.C.: General Officer Steering Committee, 1 August 2000.

¹² Office of Technology Policy, Update, 1.

¹³ National Academy of Public Administration, 12.

¹⁴ Office of Technology Policy, Update, 1.

¹⁵ Office of Technology Policy, The Digital Work Force: Building Infotech Skills at the Speed of Innovation. Washington, D.C (U.S. Department of Commerce, June 1999), v.

¹⁶ Office of the Deputy Chief of Staff, Operations, GOSC Briefing.

¹⁷ National Academy of Public Administration, 2.

¹⁸ Office of the Deputy Chief of Staff, Operations, GOSC Briefing.

¹⁹Office of the Deputy Chief of Staff, Operations, "Information Operations: Army IT/IA Workforce Issues Study," Briefing slides, Washington, D.C.: General Officer Steering Committee, 11 June 1999.

²⁰ Major General Julian H. Burns, "FORSCOM 'I Love You' Virus Lessons Learned Report". Fort McPherson, Georgia, 20 July 2000.

²¹ Jim Battery, "Retaining Your Most Valuable Assets," InfoWorld, 24 July 2000, p. 46. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.

²² Jones, 44-45.

²³ National Academy of Public Administration, 13-14.

²⁴ Tammy Joyner, "Horizon Leaders Poll: Luring Workers Takes Creative Recruiting," The Atlanta Journal-Constitution, 14 June 2000, p. E6. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.

²⁵ Ibid.

²⁶ Jones, 44-45.

²⁷ National Academy of Public Administration, 20.

²⁸ Ibid, 19.

²⁹ Ibid, 18.

³⁰ The ideas in this paragraph are based on the author's personal experience as the Commander, 30th Signal Battalion/Director of Information Management (DOIM), United States Army, Hawaii.

³¹ Federal CIO Council IT Workforce Subcommittee, 4.

³² Ibid.

³³ Ibid, 3.

³⁴ The ideas in this paragraph are based on the author's personal experience as the Commander, 30th Signal Battalion/Director of Information Management (DOIM), United States Army, Hawaii.

³⁵ Federal CIO Council IT Workforce Subcommittee, 11.

³⁶ Ibid, 10.

³⁷ Jones, 44-45.

³⁸ The ideas in this paragraph are based on the author's personal experience as the Commander, 30th Signal Battalion/Director of Information Management (DOIM), United States Army, Hawaii.

³⁹ Jones, 9.

⁴⁰ Federal CIO Council IT Workforce Subcommittee, 9.

⁴¹ Ibid.

BIBLIOGRAPHY

- Battery, Jim. "Retaining Your Most Valuable Assets." InfoWorld, 24 July 2000, p. 46. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.
- Burns, Julian H, Major General. Deputy Chief of Staff for Operations, United States Army Forces Command (FORSCOM). "FORSCOM 'I Love You' Virus Lessons Learned Report." Fort McPherson, Georgia, 20 July 2000.
- Federal CIO Council IT Workforce Subcommittee. 2001 Update of the Plan for Implementing the Federal IT Workforce Challenge Recommendations. Washington, D.C.: Federal CIO Council, September 2001.
- Federal CIO Council IT Workforce Subcommittee. Plan for Implementing the Federal IT Workforce Challenge Recommendations. Washington, D.C.: Federal CIO Council, September 2000.
- Jones, Jennifer. "A Federal Call for IT." InfoWorld, 1 October 2001, p. 44-45. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.
- Joyner, Tammy. "Horizon Leaders Poll: Luring Workers Takes Creative Recruiting." The Atlanta Journal-Constitution, 14 June 2000, p. E6. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.
- Larson, T & Haedtler, D. "Symposium Best Practices Finding." Gartner Interactive 7 October 1997. Available from <<http://www.gartnerweb.com/bp/static/rdnews1.html>>. Internet. Accessed 26 November 2001.
- Miller, Russell F. Developing and Retaining Information Warriors: An Imperative to Achieve Information Superiority. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 29 February 2000.
- National Academy of Public Administration. The Transforming Power Of Information Technology: Making the Federal Government an Employer of Choice for IT Employees. Washington, D.C.: National Academy of Public Administration, August 2001.
- Office of Technology Policy. The Digital Work Force: Building Infotech Skills at the Speed of Innovation. Washington, D.C.: U.S. Department of Commerce, June 1999.
- Office of Technology Policy. Update: The Digital Work Force: Rapid Expansion of U.S. Core IT Work Force to Continue. Washington, D.C.: U.S. Department of Commerce, August 2000.
- Office of the Deputy Chief of Staff, Operations. "Information Operations: Army IT/IA Workforce Issues Study." Briefing slides. Washington, D.C.: General Officer Steering Committee, 1 August 2000.
- Office of the Deputy Chief of Staff, Operations. "Information Operations: Army IT/IA Workforce Issues Study." Washington, D.C.: General Officer Steering Committee, 11 June 1999.

- Shand, Dawne. "Snag the Best Talent." Computerworld, 1 January 2001, p. S26-S30. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.
- Solomon, Melissa. "H-1Bs Need Not Apply." Computerworld, 3 December 2001, p. 1, 28-29.
- Thibodeau, Patrick. "Despite Economy, H-1B Visa Record Set." Computerworld, 29 October 2001, p. 1, 61.
- Thibodeau, Patrick. "Feds Cast bait to Lure IT Workers from Private Sector." Computerworld, 6 August 2001, p. 7.
- U.S. Commission on National Security/21st Century. Road Map for National Security: Imperative for Change. Washington, D.C.: U.S. Commission on National Security/21st Century, February 2001.
- U.S. Congress. United States House of Representatives. Committee on Government Reform, Subcommittee on Technology and Procurement Policy. Testimony of Mark Forman on the issue of managing the Federal Information Technology (IT) and Acquisition Workforces. 4 October 2001.
- U.S. Congress. United States House of Representatives. Committee on Government Reform, Subcommittee on Technology and Procurement Policy. Testimony of Stephen A. Perry, Administrator of GSA, on the issue of recruiting and retaining Information Technology (IT) associates. 31 July 2001.
- U.S. Department of Defense. Joint Vision 2020. Washington, D.C.: U.S. Department of Defense, June 2000.
- U.S. Department of Defense. Quadrennial Defense Review Report. Washington, D.C.: U.S. Department of Defense, September 2001.
- U.S. Office of Personnel Management. "Building and Maintaining a Diverse and High Quality Workforce." Available from <http://www.opm.gov/diversity/diversity-1.htm>. Internet. Accessed 15 October 2001.
- White, Ronald. "Always in the Job Market; The Internet has made it easy for Workers to regularly search for better opportunities." The Los Angeles Times, 9 September 2001, p. W-1. Database on-line. Available from UMI ProQuest, Bell & Howell. Accessed 31 October 2001.