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# Examining Military Retention Rates of It Service Members: Research towards Mitigating the Loss of It Professional Service Members

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**Regis University**  
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EXAMINING MILITARY RETENTION RATES OF IT SERVICE MEMBERS:  
RESEARCH TOWARDS MITIGATING THE LOSS OF IT PROFESSIONAL SERVICE  
MEMBERS

SUBMITTED ON 15, OF AUGUST, 2011

TO THE DEPARTMENT OF SCHOOL OF INFORMATION AND COMPUTER  
SCIENCES

OF REGIS UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF MASTER OF SCIENC  
IN INFORMATION TECHNOLOGY MANAGEMENT

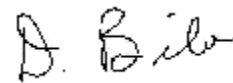
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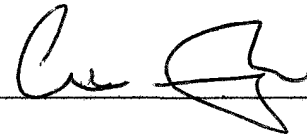
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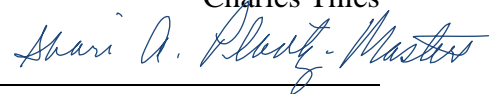


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### **Abstract**

The turnover rate for information technology professionals in the military is high due to a demand for skilled information technology (IT) professionals in the private sector that value the IT training professionals receive in the military, and which can offer the compensation to lure military personnel to the civilian market. The Department of Defense consistently invests a great deal of time and money into Information Technology trained service members, only to lose them to attractive job positions with civilian companies which are in demand for their specialized skills. With a MOS (mission of service) field that requires a larger monetary investment, and longer time in training investment than most other military professions, the question of why turnover is happening, and what the military can do to mitigate the turnover, begs to be answered.

The direct objective of this study is an examination into the reasoning for high turnover amongst Information Technology service members through survey based research. Firsthand survey-based research results of two LinkedIn social network U.S. Veteran groups, Semper Fi Veterans Network, and the U.S. Military Veterans Network show that monetary compensation, quality of life, and job training are significant factors contributing to the loss of qualified IT service members. These results improve upon previous research and give new insight into the continued battle to obtain and preserve a ubiquitous number of qualified Information Technology professionals within the military.

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## Chapter 1 - Introduction

The judicious use of information technology (IT) is essential to the proper functioning of the United States military. IT specialists are involved in the creation, implementation, and use of all technological components of the military, ranging from computer networks to weapons systems. Traditionally, the military uses a combination of private-sector and internal IT specialists to accomplish its goals; civilian IT experts often play a role in the creation of information systems, and military IT personnel utilize these systems in practice, and are responsible for their maintenance. Because of the very nature of the armed forces, many IT tasks cannot be contracted out to civilians, meaning that keeping a pool of experienced information specialists within the ranks of the armed forces is a mandatory goal, although it is one that has not always been prioritized.

In the past decade, there has been a growing realization that many IT personnel in the military are leaving the service to pursue careers in the private sector. The military provides an excellent opportunity for individuals to receive information technology training in a variety of systems, as well as obtaining certification, so civilian IT organizations often value and seek out the experience of former military staff. Many times, the benefits and compensation that these private sector positions can give to their employees is in excess of what the military generally provides, adding a further incentive for military IT personnel to obtain positions in the private sector after their tour of duty is complete.

The Department of Defense invests large amounts of money in training its information technology personnel, as well as to obtain civilian certification for these individuals, with the goal of gaining staff that will lend their experience and qualifications to the armed forces for an extended period of time. The monetary and resource investment to train IT personnel is a mission

of service field that is much larger than for other specializations that are offered within the military, so the turnover of these staff elements represents a much larger “lost” investment on the part of the Department of Defense.

The high turnover rate of these personnel means that the military must constantly reinvest in order to train new soldiers in these systems, while being unable to obtain long-term value from them. The lack of senior IT staff means that many individuals working within information technology systems within the military lack a large amount of experience, and there are other problems that turnover creates as well. The general environment during times of high turnover can lead to lower morale among other soldiers, increasing the risk of their leaving the service as well, a lack of enthusiasm for learning and executing necessary tasks, heightened investment costs for training and operating information systems, and a lack of consistency between individuals and groups with regard to IT practices and performance. These consequences are extremely severe, and they mean that the military must determine why turnover is so prevalent, as well as the reasons behind IT personnel turnover, in order to formulate strategies to reduce turnover rates and mitigate the negative consequences of this phenomenon. Only a thorough investigation of the literature as well as a study of current military personnel can generate the answers to these questions.

Several questions must be addressed in the framework of military IT personnel turnover. The statistical rate of turnover in the United States military must be determined, as well as the turnover rate for IT professionals. These rates must be determined for each branch of the armed forces, since there may be differences between various elements of the services. Since information technology covers a wide field of applications, the fields of IT with the highest turnover rates must also be identified. The factors behind IT personnel turnover must be



identified, such as compensation and pay, opportunities for training and advancement, and quality of life. The impact of personnel loss on the military must be assessed and detailed. The current solutions that the United States military is implementing to mitigate this problem must be identified, as well as prospective solutions and their potential consequences. Finally, areas of further research on this issue should be determined.

## Chapter 2 – Literature Review

Currently, there has been very limited research into the phenomenon of military information technology personnel turnover and the causal factors underlying it. Some information can be found regarding turnover rates, but few researchers have delved into the reasons for military personnel to apply their knowledge and skill sets to commercial positions, or the current and potential future effects that this brain drain could have on the nation's military forces, in IT departments and among other areas of operation, as well as these organizations as a whole. A survey of the existing literature that is concerned with the IT structures within the United States military, with an emphasis on staff turnover and explanations of the causes and effects of this phenomenon, must be the starting point for any serious research that seeks to ultimately yield solutions for preventing or mitigating the outflow of IT personnel to commercial organizations.

The peer-reviewed broad research survey released by the RAND Corporation, "Attracting the Best," provides an in-depth overview of the subject. This paper investigates the problem of retention with regard to IT personnel in the military, and looks for reasons that there has been a disproportionate decline in the retention of soldiers serving in an IT capacity of the military, when compared to those soldiers serving in non-IT roles. Using both peer-reviewed research for quantitative data, and interviews to generate qualitative data, this paper identifies and describes key issues surrounding the retention of IT personnel in the military, and breaks down these key issues along the lines of each branch of the armed forces. For example, Hosek, J., Mattock, M., Fair, C., Kavanagh, J., Sharp, J., Totten, M. (2004) note some of their findings for Army key issues; in particular, the reasons that members of the Army began to decline re-enlistment in the service in favor of civilian positions:

“Overall, our interviews with Army personnel suggested that training and educational incentives, though underused, are essential tools in the management, recruitment, and retention of IT personnel. The interviews indicated that valuable IT training appears to be a significant factor in the choice to enlist and could be better orchestrated to maximize retention. However, our discussions also implied that retention remains a significant challenge because of the imperative of meeting manpower requirements and, for trained personnel, because of the attractiveness of outside opportunities” (p. 54).

This study notes that, despite the relatively high turnover rate present in the armed forces, the military, on the whole, has been quite successful retaining the majority of its IT personnel (Hosek et al., 2004, p. 18). They state that potential recruits to the military that later end up in IT positions are generally attracted to these positions due to the training in this field that they are offered before signing up (Hosek et al., 2004, p. 18). Interestingly, the training for IT positions seems to be the main incentive for joining for these individuals, and other enlistment benefits, such as bonuses and educational benefits, are less important factors in enlisting than they are for individuals that join up with the goal of serving in a non-IT capacity (Hosek et al., 2004, p. 18). The assessment of the current state of IT jobs in the military, including their availability and benefits, as well as the unique service-by-service analysis of the factors underlying retention of IT specialists and potential turnover, makes this document particularly useful as a starting point for the analysis of this phenomenon.

Other more concise academic papers elucidate specific issues in the IT turnover problem endemic in the military, although these documents do not always provide a broad spectrum of research, nor point to specific solutions that could assist the military in alleviating this problem

or mitigating its effects. The paper “The Information Technology Program Manager’s Dilemma” by Peake (2010) depicts some of the IT problems faced by the modern military, with the implication that these areas could be affected by the difficulties in retaining experienced IT personnel. The policy makers for the Department of Defense and sundry branches of the military have not always viewed information technology as a critical element to national security, instead deeming it a utility, although this paradigm is beginning to shift in the other direction (Peake, 2010, p. 28). As a result, the military may not have been paying as much attention to the issues of personnel retention as would be necessary to fully investigate this problem and come up with operable solutions.

Several main areas that are affected by the lack of attention to information technology are presented in Peake (2010). First, the ever-increasing capabilities of IT are often overlooked, meaning that security matters are sometimes not fully considered in operations; in one case, insurgents in Iraq were able to view feeds from unmanned aerial vehicles simply by using a publicly downloaded software package (Peake, 2010, p. 28). Technology, both hardware and software, advances so quickly in the commercial market that the military cannot always keep up with these evolutions in a timely fashion, due, at least in part, to the lengthy and involved acquisition process (Peake, 2010, p. 28). Experienced personnel are essential to identifying which technological components, ranging from software packages to weapons systems, are the most pressing needs for the military to acquire, and to expedite the process by which these can be acquired. Systems engineering processes, including the necessary upgrades from obsolete systems, also mandate more experienced IT staff than the military currently has; at present, there is not even a fixed process to identify and implement changes to software systems, or to monitor their effects (Peake, 2010, p. 29). Finally, there are major difficulties in budgeting for IT

programs, particularly in the Department of Defense, where the lengthy budget approval process is scarcely able to keep up with the dynamic nature of information technology advancements, or to anticipate future budgetary requirements (Peake, 2010, p. 30). As the system stands at the present moment, there is still a changing perception about the need for the integral role that IT plays in the military, which will likely change the previously aloof stance that higher-level military personnel have traditionally had toward it, thus potentially generating a cascade effect that will have positive impacts on IT budgets and the attention paid to the soldiers that utilize IT systems.

A 2003 report by the United States Government Accounting Office (GAO) entitled “Major Management Challenges and Program Risks: Department of Defense” outlines issues facing the military in terms of the structure and operation of the information technology systems it utilizes. It emphasizes that the role of IT in the military is currently undergoing a change from an older, centralized architecture to a more modern IT system of more independent components functioning in a network (Major Management Challenges, 2003, p. 3). Among the management challenges that the GAO identified as being major components of the IT system was the need to hire, train, and retain not only military, but also civilian IT personnel that would function as contractors (Major Management Challenges, 2003, p. 3). Although the Department of Defense has attempted to increase the level of available, experienced IT staff, they have experienced shortages of junior officers, and difficulty retaining trained personnel; additionally, there have been uneven civilian workforce levels, and both of these shortages have “created a workforce not balanced by age or experience that puts at risk the orderly transfer of institutional knowledge” (Major Management Challenges, 2003, p. 3). However, these shortages appear, according to the report, to be symptomatic of a larger issue, that of personnel shortages across the federal

government that have, in the words of the report, “eroded mission capabilities” (Major Management Challenges, 2003, p. 6).

This in-depth report seeks to define this problem further, and notes that, as of 2001, all branches of the military except the Air National Guard did not have difficulties in meeting recruitment and retention quotas, but that these branches also had problems in retaining individuals with scientific and technological skills that were highly desirable in private sector work (Major Management Challenges, 2003, p. 19). The benefits program, including compensation, that was instituted by the Department of Defense in 2002 was developed without a strategic overview, and as such, was unable to meet the types of compensation that the private sector could offer in some fields, particularly in the information technology industry, which may have led to some of the difficulties in retaining IT personnel (Major Management Challenges, 2003, p. 20). The extended combat situation that the United States has been involved in, although now winding down, has impacted the level of recruitment as well; after 2001, many more enlisted soldiers were coming directly from high school and were to be involved in combat roles, meaning that these individuals did not have the background education, or the ability to train while in service, in information technology skills, so the specialties of soldiers since that time have fulfilled many other roles, generally relevant to combat, while at the same time leaving IT systems sorely underrepresented (Major Management Challenges, 2003, p. 20). Reservists called into duty during this period of time also began to be focused on combat specializations, leaving the military unable to make up information technology specialist shortages by training reservists (Major Management Challenges, 2003, p. 20).

Although this report emphasizes the state of information technology in the nation’s military, many of the causes of, and recommended solutions to, human capital shortages are

generalized to the military as a whole, due to the perspective taken in the report that the IT retention issues are indicative of, and therefore identical to, those faced by the entire military. Some of the recommendations for retaining experienced IT personnel, then, include increasing compensation and benefits packages, particularly for servicepersons with families, as well as recruiting not only the right levels of, but also the right qualities, of personnel (Major Management Challenges, 2003, p. 25). This latter recommendation would probably require a specific focus in advertising and recruiting operations in the military on targeting individuals with the educational background appropriate for, interest in, and skill sets conducive toward acquiring information technology specializations. This report also states that reducing the number of reservists sent into combat would help mitigate the IT personnel shortage, since these individuals may be more likely to refuse to re-enlist following their tour of duty, due to the disruption that deployment places on their personal lives (Major Management Challenges, 2003, p. 25-26). Were the military better able to retain some of its reserve personnel, it could focus on training interested soldiers in information technology specializations, which could partially, but not wholly, make up for the current shortage; at best, it would palliate the situation, but not serve as a panacea.

A more specific look at one of the branches of the armed forces is provided in the article “U.S. Navy: Navigating Technology Careers” (Summerfield, 2006). This article details the use of information technology in current Navy doctrine, with an emphasis on the importance of human capital within this network. The Navy uses both military personnel and civilian contractors in its IT tasks, with their roles in this system determined by their status (Summerfield, 2006, p. 38). Civilian contractors are expected to already have a working knowledge of the information systems that they will be utilizing in a project, whereas military personnel can receive training;

this difference in expectations reflects the lack of current servicepersons with IT specializations and training, and also suggests that, since civilians are limited in the tasks they can perform by their military status, the Navy will have to find a way of solving the IT personnel shortage, or risk finding its operational capacity compromised (Summerfield, 2006, p. 38).

One possible option that could contribute toward training and retaining IT personnel for the Navy involves a change in how funding can be used. Many times, the armed forces used money provided through the GI Bill to ensure that enlisted men and women could receive training in information technology systems while going to a university or college, using this money to prepare for and obtain certifications in certain systems. Now, however, the Navy can apply funding to directly train these personnel in IT roles, as well as pay for their certification exams and training; this allows the Navy to help sailors that are not enrolled in school to become certified, as long as this certification would be relevant to the tasks they would be performing, and could serve as a powerful incentive for sailors with an interest in IT work to enter this function while enlisted (Summerfield, 2006, p. 38).

Instead of developing new training and credentials for information technology systems, the Navy has saved time and money by simply using civilian certification processes (Summerfield, 2006, p. 39). This conservation of resources allowed the Navy to use them toward the ends of actual certification; for example, assisting this branch of the services to obtain 2,000 certifications for information assurance credentials in response to a mandate from the Secretary of Defense (Summerfield, 2006, p. 39). While the use of civilian training and certification allows military personnel to use their skills and credentials outside of the armed forces, which, by some, could be seen as a detriment, since it allows personnel to immediately leave the services for a civilian position, this flexibility is seen by most individuals as a positive aspect of the military,



and, as noted in Hosek et al. (2004), is actually an impetus for some individuals enlisting in the first place.

There are various other benefit areas in the Navy that could be adjusted, increased, or highlighted in order to attract recruits for IT positions, and retain extant members that are addressed in this article, which, if applied to the rest of the armed forces, could contribute to a solution to IT shortages. The Navy emphasizes leadership skills-building, which is not always provided in civilian positions, meaning that individuals remaining with the service for some time would not only have a large IT skill set, they would also possess experience and personality qualities needed for management or leadership roles (Summerfield, 2006, p. 40). Additionally, the Navy also encourages the acquisition of many different IT skills, and familiarities with many components in the IT network, as well as the evolution of software and technology in these areas, would increase the marketability of individuals that have remained with this branch for longer periods of time (Summerfield, 2006, p. 40). Due to the size and scope of the Navy, every type of technology is represented, and could conceivably be trained in, by IT personnel, which means that this branch of the armed forces can offer a degree of experience that surpasses any private company (Summerfield, 2006, p. 40). By emphasizing these points to recruits and enlisted personnel, and designing a comprehensive program to facilitate certification, training, and diversity of roles and skill set development, the armed forces could potentially improve its retention ratios.

The eventual utility of military training as an incentive for retention is touched on in the article “The War for Talent: Department of Defense and Private Sector Battle for Survival” (Armstrong, 2000). This article focuses on addressing the desire for military members to leave their military occupations and join the civilian job market, as well as some of the underlying

causes. The McKinsey report places emphasis on the retention problems amongst the military, and seeks to identify some of the causes; like the report compiled by Hosek (2004), Armstrong (2000) points to compensation, benefits, and the appeals of civilian life as reasons for the turnover that places personnel into civilian, private-sector IT positions (p. 12). There are, however, opportunities to remedy these problems that directly address the desire for eventual employment in the private sector. As Keith Armstrong (2000) states:

“The retention climate is a challenge for all of the services, but it is not insurmountable. The discipline associated with the military, the level of responsibility placed on today’s members, and the technical training they possess, all serve to make the military experience a valuable commodity in the civilian labor market” (p. 20).

The article “Achieving Procurement Diversity Using Institutions of Higher Education” details one way in which the Department of Defense has begun to address the shortage of IT personnel and increase both military and civilian IT staff. The Department of Defense has quotas for contracts that it awards to universities and colleges each year, and in the past decade, it has focused on awarding contracts to those schools identified as minority institutions, or historically African American colleges and universities. These procurement diversity goals are not necessarily quotas, but they are encouraged standards by which the Department of Defense operates (Achieving Procurement Diversity, 2001, p. 54).

The Department of Defense has successfully used this strategy to fulfill some of its IT roles that can be taken up by civilians; however, there are ways in which the military could utilize these connections to increase its available military IT personnel, as well (Achieving Procurement Diversity, 2001, p. 58). These institutions could receive assistance in forming ROTC programs if they do not already have them in place, and recruitment officers could

specifically engage in conversations with students and IT staff involved in contracts with the Department of Defense or other military branches. The level of enthusiasm for the military would likely be higher among this population, and these individuals would already possess some of the IT training, and possibly the certification, to be able to make up the current skill deficit immediately.

### **Chapter 3 - Methodology**

The effort to investigate the high rate of turnover among U.S. military personnel with specializations in information technology is one that requires several steps in order to yield any productive answers. The first step toward understanding this phenomenon is to perform a comprehensive review of the literature in order to identify the current knowledge surrounding the high turnover rate in the military, as well as to determine gaps in the extant literature that must be addressed with firsthand research. This firsthand research took the form of a survey that was sent as a survey link to individuals that have retired from the military, but who received their training in information technology services while in the armed forces. A copy of the survey questions can be found in Appendix A.

This survey consisted of 21 questions, including the branch of service that the individual was a part of, as well as how long they were in the service. Determining the rank that these veterans attained by the end of their military service was important as well, since it was expected that many civilian IT specialists with military backgrounds would have only had one tour of duty, and may not have advanced to high-ranking positions. Their military occupation or IT field of specialization was determined, along with their reason or reasons for leaving the service, or, if they had more than one tour of duty, their reasons for remaining in the military beyond the minimum length of time.

Several questions were presented to determine how a military background prepared these individuals for civilian careers. The number and types of employment opportunities following their transition to civilian life was asked as well as the compensation differences between the military and civilian positions. The skills obtained while in the service was another question, along with the applicability of these skills to their civilian position. Questions about the ease of

their transition to the civilian IT market and their satisfaction ratings of their military and civilian jobs, on a 1 to 10 Likert scale, assessed whether most military personnel were satisfied with opting for a civilian career. Finally, these individuals were asked about their suggestions for retaining IT specialists in the ranks of the military, since this result could yield actionable ideas for the armed forces.

Although a random selection of civilian IT professionals with military backgrounds would be ideal for determining responses that are indicative of the retired military IT professional population as a whole, this type of survey distribution would be impractical on the grounds that it would be difficult, if not impossible, to identify all of the current IT personnel with military training. Instead, two sample groups were utilized, since their responses were likely to be generalizable to the entire aforementioned population. The first group consisted of former military IT personnel that are now working for civilian IT organizations that were identified through the U.S. Military Veteran's Network on the business-oriented social network LinkedIn. The second group was more specific; it had the same requirements of military IT experience and current employment in a civilian information technology position, but consisted of Marine Corps veterans from the private group, Semper Fi Veterans Network, on LinkedIn. The use of these two groups permitted this research to reveal information about IT professionals across the entire military, along with those veterans from a single branch, to determine if there are differences between specific branches and the military population as a whole in their decisions to pursue a civilian IT career.

Having identified the groups that this survey was distributed to, the next step was to send the survey to the 7,821 members of the Semper Fi Veterans Network, along with the members of the U.S. Military Veterans' Network. Individuals had one month to respond to the survey, and it

was expected that 50 to 100 individuals in total will respond, which would provide an accurate depiction of the military IT staff turnover from a qualitative perspective, and allow for sufficient power for any statistical analysis that would be performed utilizing the quantitative data.

Individuals were contacted prior to sending the survey, and they were messaged with a link to a private online survey which tabulated their responses. Should insufficient replies be obtained, another group of civilian IT personnel with military backgrounds would be identified from business-oriented social networks such as LinkedIn.

All survey data was strictly confidential to protect participant identities and because participants' personal information was not needed for this study to obtain the desired results. In order to ensure anonymity, no personal information was requested on the survey. The survey was sent from an encrypted survey account that was deleted upon the end of the survey period, after all data had been compiled. Additionally, all survey traffic was deleted with the deletion of the online survey account.

The survey data having been collected, it was then reported in the results section of the thesis, and any relevant quantitative data was analyzed and discussed. The implications of the reasons for these individuals' leaving the armed forces for civilian IT positions was discussed, and the suggestions for the military to help it retain experienced IT personnel was presented and assessed for practicality. These results, along with the information gathered from the literature review, were combined to detail the reasons why the military is experiencing high turnover of its IT personnel, and what solutions could be implemented in order to allow the military to retain these qualified individuals.

### Chapter 4 - Results and Analysis

After receiving a copy of the survey back from 140 participants in both the LinkedIn Semper Fi Network and the LinkedIn Military Veterans group, several surprising findings have come to light that could provide ideas as to how the United States military could better retain its information technology personnel. Out of the 140 individuals, some 120, or 85.7 percent, were veterans that had an IT position while in the military. For the next question, regarding whether these individuals currently hold an information technology or information systems position as a civilian, regardless of their position in the military, 108 responded in the affirmative, and 12 negative, with 20 not responding, so 90 percent of those surveyed (that answered the question) had an IT position. Even with non-respondents accounted for, this shows that the majority of individuals in the survey that formerly had an IT position went on to another IT job after leaving the service; this is consistent with the reports stated in the literature. In fact, 100 respondents said that they transitioned to their IT position after leaving the military, although 32 declined to answer; out of responding participants, this 92.6 percent affirmative response backs up the second answer that they did transition to a civilian IT position.

According to studies such as that described by Hosek et al. (2004), the military has, in particular, a paucity of senior-level IT personnel due to trained individuals leaving the service for civilian positions. One would therefore expect to see a skewing toward younger individuals in this study holding civilian IT jobs, which is what seems to be reflected in the survey results. Out of 100 respondents, 9 percent were between 18 and 25, 35 percent were between 26 and 35, 24 percent were between 36 and 45, and 32 percent were between 46 and 55 years of age. The age ranges of survey participant are outlined in Table 1.

Table 1

*Survey Participant Age Groups*

<b>Age Range</b>	<b>Percentage</b>	<b>Number</b>
18-25	9%	9
26-35	35%	35
36-45	24%	24
46-55	32%	32
56-65	0%	0

These numbers seem consistent with individuals undergoing one or two tours of duty while receiving IT training, but not opting to make a lifelong career out of military service, instead opting toward putting their information technology skills toward more lucrative and widely-available civilian positions.

Similarly, many of the individuals polled would be expected to not have worked in their civilian IT positions for long periods of time, with many of them being younger and possibly only recently out of the armed forces. Out of 92 individuals that responded to the question asking about the length of time they have been employed in their current position, 32, or 34.8 percent, have been in their position less than five years. About 30 percent, or 28 individuals, have been in their current IT job from 6 to 10 years, and 24 individuals, or 26.1 percent, have served in their current IT position from 11 years to 15 years; only 8 individuals have been in their current position for longer than 16 years. These statistics are listed in Table 2.



Table 2

*Survey Participant Time in Occupation*

<b>Time in Occupation</b>	<b>Percentage</b>	<b>Number</b>
Less than one year	0%	0
1-5 years	34.8%	32
6-10 years	30.4%	28
11-15 years	26.1%	24
16-20 years	4.3%	4
Longer than 20 years	4.3%	4

This skew toward fewer years in their current IT position reflects having only recently left the military for a civilian role, which is consistent with the timeframe reported by Hosek et al. (2004) for individuals, and particularly those individuals with IT experience, beginning to leave the military in larger numbers, with this phenomenon beginning in the mid-2000s.

There was a disparity revealed in the prior branches of service of the individuals polled which merits discussion. Out of 88 people that answered this question, 8, or 9.1 percent, were Army veterans, 19 individuals, or 26.1 percent were veterans of the Navy, 48, or 54.5 percent of those polled were veterans of the Marines, and 13 individuals, or 14.7 percent, were Air Force veterans. The respondent's former branch of service is illustrated in Table 3.

Table 3

*Survey Participant Former Branch of Service*

<b>Military Service Department</b>	<b>Percentage</b>	<b>Number</b>
Army	9.1%	8
Navy	21.6%	19
Air Force	14.7%	13
Marines	54.5%	48
Coast Guard	0%	0

This particular question shows a difference from other studies, perhaps, due to the sampling method. Because one of the LinkedIn social network groups, the Semper Fi Veterans Network, which this study was sent to, was specifically intended for Marines, this survey has a disproportionate number of Marines as compared to a truly random sample of military veterans with information technology experience. However, since it is not expected that Marines receive substantially different IT training than other branches of the service, and because the Marines likely have similar motivating factors behind leaving the armed forces for a civilian position, it is not expected that this numeric disparity will influence other results to any significant extent.

This study indicates that many of the survey respondents were enlisted men that had advanced throughout the course of several years before retiring to civilian life. Out of 88 individuals that answered the question regarding their highest rank attained when they left the service, the vast majority were E4, E5, and E6 ranks, with 33, 12, and 20 individuals in these groups, respectively. Ten individuals had attained higher enlisted ranks, however, and 4 of the respondents were actually O3 ranking, denoting officer status. Trained enlisted men are quite valuable toward the proper functioning of the military IT structure, and literature such as Hosek et al. (2004) and Major Management Challenges and Program Risks (2003) have identified one of the problems facing the current military is a lack of junior officers and trained enlistees with

experience in the IT department. The number of higher-ranking enlisted men with several years of experience in the military having a presence in this survey, then, can scarcely be said to be surprising.

There was a wide range of answers when these individuals were questioned about their satisfaction level with their military experience. Answers were rated on a 1 to 10 Likert scale, with 1 denoting “not satisfied at all,” and 10 denoting a response of “extremely satisfied”. Out of 88 total individuals responding, only 1 person rated their experience as a 1, 8 ranked it as a 5, 15 as a 6, and 4 as a 7. The majority of respondents felt that their military experience had been quite satisfying; 32 individuals, or 36.4 percent, rated their experience as an 8, 19 individuals, or 21.6 percent, rated their experience as a 9, and 5 individuals representing 5.7 percent of respondents gave the maximum rating of 10. The respondents’ satisfaction levels are illustrated in Table 4.

Table 4

*Survey Participant Satisfaction Level with Military Experience*

<b>Likert Scale</b>	<b>Percentage</b>	<b>Number</b>
1	1.1%	1
2	0%	0
3	4.5%	4
4	0%	0
5	9.1%	8
6	17%	15
7	4.5%	4
8	36.4%	32
9	21.6%	19
10	5.7%	5

The responses to this question are interesting because they show that the individuals polled were not dissatisfied with their military experience; indeed, many reports in the literature show that individuals enjoy the training they receive through their service, and even the service experience itself (Hosek et al., 2004). So, these individuals are not necessarily departing the military in favor of civilian jobs out of any particular dislike for the military, but because of other factors; potentially, the higher pay offered by civilian IT organizations could be a major cause.

The responses to the overall satisfaction with the military can be seen as internally reliable when compared to the responses to the next question, which asks about the quality of life that these individuals experienced while in the military. Only 4 out of 88 respondents, or 4.5 percent, said that their experienced quality of life was “very poor”. Fully half of the respondents, or 44 individuals, claimed that their experience was “average”, 32 individuals, or 36.4 percent, said that their experience was “above average”, and 8, or 9.1 percent, said that their quality of life was “excellent”. Quality of life seems to have a strong correlation with the respondents' satisfaction with military life, although this is not an exact correlation, since there were far more

“average” responses than would be predicted based on the upper tier of ratings being favored in terms of overall satisfaction. Satisfaction with military life involves several components, however, and individuals with an “average” quality of life in the military may be more likely to pursue a civilian information technology career if they feel that it could afford them a better quality of life.

The next question deals with the question of re-enlistment while in the military. Like the previous questions, 88 individuals out of 140 polled responded to this particular query. Out of these 88 people, 55, or 62.5 percent, had re-enlisted in the military at some point during their career, and 33 people, or 37.5 percent, had not. Earlier responses indicated that some of these individuals seem to have only had a few years of experience in the military, and more may have had additional tours of duty, while at the same time not opting for a lifelong career in the military. The skew toward re-enlistment supports this concept, although there is a sizable group that did not re-enlist, over one-third. Quality of life in the military may have been one reason for this, as well as the threat of being deployed in a combat position, given that many of these soldiers served during the Iraq and Afghanistan wars, or better pay in civilian life could have contributed toward not re-enlisting; all three of these reasons have been identified within the literature as potential factors in leaving the military.

The military trains individuals in a wide variety of information technology and information systems positions, and this fact is reflected in the responses to the question about respondents' civilian IT specializations. There is probably not a one to one relationship between military IT career paths and civilian IT jobs, but the military does provide training in almost all IT fields used in civilian life, and it could be expected that, in many cases, civilian IT positions are not dissimilar from those tasks undertaken while respondents were in the military. Of the 88

individuals responding, 8, or 9.1 percent, are currently IT managers, 7 people, or 8 percent, are computer programmers, 17 individuals, or 19.3 percent, are network administrators, and 4 individuals, or 4.5 percent, hold the positions of network engineers or systems architects.

Another 19 individuals are involved in systems resources, with 12, 3, and 4 individuals employed as systems administrators, engineers, and analysts, respectively. Computer technicians were also in abundance in the civilian IT field, with 16 people, or 18.2 percent serving in this capacity. Another 4 individuals, or 4.5 percent, hold current positions in telecommunications, and another 9 individuals, or 10.2 percent, have other positions within the IT industry. The variety of military IT jobs probably contributes to this diversity. These statistics are presented in Table 5.

Table 5

*Survey Participant Civilian Occupation*

<b>Job Title</b>	<b>Percentage</b>	<b>Number</b>
IT Manager	9.1%	8
Computer Programmer	8%	7
Database Administrator	0%	0
IT Security	0%	0
Network Administrator	19.3%	17
Network Engineer	4.5%	4
Systems Architect	4.5%	4
Systems Administrator	13.6%	12
Systems Engineer	3.4%	3
Systems Analyst	4.5%	4
Computer Technician	18.2%	16
Telecommunications	4.5%	4
Other	10.2%	9

The concept of military IT experience being related to civilian IT jobs is discussed in the literature, and seems to be borne out by the results of this survey. When individuals were asked whether military IT training and experience were conducive toward receiving a civilian IT position, responses were largely affirmative, with 68 out of 88 individuals, or 77.3 percent, saying that they were. Only 4 individuals, or 4.5 percent, said categorically that this training was not helpful for getting a civilian IT job, and 16 people, or 18.2 percent, said that this experience and training was “somewhat” helpful. This lends credence to the concept that, while military and civilian IT jobs may not overlap exactly, military IT experience does much to prepare individuals for a career in civilian life.

Interestingly, while the survey respondents said that military IT training and experience was helpful in acquiring civilian positions, these same respondents did not agree on the extent of military IT training quality. When the 88 survey respondents were questioned as to whether or not they felt that their military IT experience and training was similar to, or on par with, civilian

IT training, only 45 individuals, or 51.1 percent, said that their answer was an unequivocal “yes”. A fair number, 27 individuals, or 30.7 percent, stated that they felt that the military IT training was not on par with civilian IT training, and 12 individuals, or 13.6 percent, said that they was “somewhat” on par or similar. Four individuals, or 4.5 percent, said that they were “unsure” as to whether it was. It may be difficult to interpret too much from this response with regard to actual quality of military IT training; due to the phrasing of the question, individuals may have responded based on perceived similarity between IT training methods, actual IT tasks, which could vary widely in some fields, or even the quality of training as it would pertain to specific military and civilian tasks.

The next question addressed the ease of the transition from military IT positions to the civilian job market. This transition was rated on a Likert scale of 1-10, with 1 being “very difficult” and 10 being “very easy”. There was a wide range of responses to this question, which may help to explain the variety of results to the previous question; 6 individuals gave scores of 1 to 3 for this question. A substantial number of the 88 respondents felt that the transition was moderate in difficulty, with 6, 8, and 11 individuals giving responses of 4, 5, and 6 respectively. Many more respondents felt that the transition was somewhat easy, with 16 and 20 individuals giving responses of 7 and 8. A surprisingly high number of respondents felt that this transition was very easy, with 9 and 12 individuals giving responses of 9 and 10, respectively. The ease of transition could reflect an eagerness to transition to civilian life, but more likely, this transition was facilitated not only by the pay rates that could be found in civilian jobs, but also their previous relevant IT training.

The question concerning whether the civilian IT job market provided more attractive opportunities than those provided by the military at the time those individuals left illustrates the



problems being faced by military information technology systems today. The responses to this question were quite overwhelmingly affirmative; out of 88 respondents, 72 individuals, or 81.8 percent, stated “yes,” that civilian job prospects were much more appealing to them. No respondents actually answered in the negative, but 12 individuals, or 13.6 percent, said that civilian jobs were “somewhat” more attractive, and 4 individuals, or 4.5 percent, said that they were “not sure”. These responses correlate strongly with literature that states that civilian IT job prospects are not only readily available, but provide positions, compensation, and benefits that the military simply cannot match (Hosek et al., 2004).

The primary factor that influenced individuals' decisions to transfer into the civilian IT industry from the military varies by individuality, but the next question reveals some of the most common factors. By and large, a major factor identified by the 84 respondents for this transition was the financial benefits that were provided in civilian IT positions; 68 individuals, or 81 percent, stated that “monetary compensation” influenced their choice. Quality of life was another major factor, as could be predicted by the subjective perceptions of life in the military, with 43 respondents, or around 50 percent, stating that this factor influenced their transition to civilian life. Another 40 individuals, or 47 percent, said that the variety of job opportunities in civilian life was a deciding factor, and 25 people cited job training as a major factor. This last result may indicate that military IT training seems to be adequate in many situations, but may not be extended to the point that all individuals in the military could make good use of it to land advanced positions in civilian life. Forty-four respondents, or over half, stated that job advancement influenced their decision, and 32 people said that job benefits were another factor. Forty and thirty-seven individuals stated that job recognition and geographic location of civilian

positions helped them to make their decision, and 11 people stated that other factors were at work, as well. These results are illustrated in Table 6.

Table 6

*Survey Participant Factors for Transitioning*

<b>Transition Factor</b>	<b>Percentage</b>	<b>Number</b>
Monetary Compensation	81%	68
Quality of Life	51.2%	43
Job Variety	47.6%	40
Job Training	29.8%	25
Career Advancement	52.4%	44
Benefits (i.e. 401k)	38.1%	32
Job Recognition	47.6%	40
Geographic Location	44%	37
Other	13.1%	11

Note. Survey Participants were allowed to choose more than one factor.

While Hosek et al. (2004) generally notes that civilian IT jobs can provide superior compensation and benefits to military IT roles, it seems that there are many more factors that the military will have to address in order to make information technology specializations more appealing, and thus, maintain higher numbers of experienced IT personnel in the ranks for many years.

The final survey question, answered by 88 respondents, asked about the primary reason for transitioning from the military to civilian life. Not surprisingly, 29 people, or 23.9 percent, stated that monetary compensation was the main reason for taking a civilian IT position. Sixteen individuals, or 18.2 percent, stated that their quality of life was the deciding factor in transitioning to civilian life. Twelve individuals, representing 13.6 percent of respondents, identified the variety of job opportunities in civilian IT positions as their main reason for leaving the military. Career advancement and benefits are two more important aspects of professional life that were identified as respondents as being the major reason for taking on civilian roles, with 8 and 5 individuals citing these as their top responses, respectively. Civilian IT jobs also allow

freedom of movement and geographic location in a way that the military, by its very nature, cannot, particularly during times of war; this led to 16 individuals, or 18.2 percent of all respondents, stating that the geographic location of their civilian IT job was the main reason for leaving the military. Another two individuals cited “other” reasons as being their primary reason. Like the responses to the last question, this question's responses show that while compensation and benefits are important, and IT personnel may have to attain better assistance in both categories to want to stay in the military, there are other factors that the Department of Defense will have to address to reverse the problem of the drain on experienced, trained information technology personnel.

From an analysis of these responses, several trends become apparent. There seems to be a trend toward training enlisted individuals for IT positions, with a far lower proportion of officers being trained for these positions. Granted, one would expect to find many more enlisted men than officers in most samples of a military population, but the fact that there were only 3 officers out of a sample of 88 is intriguing, and may reveal something about the military's selection process for which individuals are trained for information technology positions. Across all the branches of the military, it seems that enlisted men are far more likely to be trained for IT roles, with officers taking on other roles. While it is a possibility that the officers who are trained in IT roles stay in the military longer and turn their IT jobs into careers within the armed forces rather than within civilian life, one would expect a greater proportion of officers in this sample than the 4.5 percent in this case, especially considering that much of the sample demographic is in middle adulthood. Many pieces of research in the literature identify one of the problems facing the military today is not only maintaining IT personnel, but also maintaining officers, since the government can often not match the compensation and benefits, particularly to families, that can

be afforded by employment through private corporations (Hosek et al., 2004). For this reason, equal proportions of officers and enlisted men may be assumed to be leaving the armed forces in any given year; the lack of officers in this sample, then, would speak not to a sampling bias but to a disproportionately large pool of enlisted soldiers and sailors being trained for information technology positions. Given that enlisted individuals are less likely to make a career out of the military, it is interesting that the Department of Defense (DoD) would not emphasize training officers in IT usage to a greater degree than it seems to be doing. One possible suggestion for the DoD based on these results would be to increase the proportion of officers that are trained in information technology positions, since these individuals are more likely to pursue military careers, and thus, be able to lend their years of experience in their IT positions toward training new information technology personnel, establishing standardized protocol for systems and networks, and contributing toward a more standard, less chaotic information technology paradigm in the military, which may be part of the reason that IT systems are in such dire straits in the current armed forces.

Another point of interest in these survey results pertains to the length of time that individuals spend in the military before leaving to pursue a full-time IT career. Just over a third of the respondents were in the 26 to 35 year-old age range, and this is almost the same proportion that have been working in their civilian IT position from 1 to 5 years. Similarly, about 24 percent of the respondents are in the 36 to 45 year-old age range, which is the same number that have been working in a civilian IT career for 6 to 10 years. Finally, there were 32 respondents that are ages 46 to 55, and 24 individuals that have been working in their civilian IT position for 11 to 15 years. Although the survey results were confidential, and respondents were not linked between responses, these groups are likely composed of roughly the same individuals. From these results,

it can be inferred that many individuals that had a military information technology career only stay in the service for one or two tours of duty before leaving to pursue a civilian IT position. Indeed, only 55 of all 88 respondents stated that they had re-enlisted, but these numbers support many veterans serving for two tours of duty, at the most. These survey results support the opinion in Hosek et al. (2004) that “ it appears that retention is the most significant problem faced by the military’s IT sector.” While the Air Force is somewhat unique among the branches of the military in that it offers additional financial incentives for IT training, it seems that neither this benefit nor the normal compensation for enlisted servicepersons is sufficient to match the potential compensation and benefit incentives that civilian IT positions can offer (Hosek et al., 2004). Paramount among the military's priorities, then, should be to identify qualified IT personnel during their initial years in the service and provide powerful incentives for reenlistment that match personnel needs, in addition to providing extra compensation for undertaking IT training.

Issues surrounding the appeal of a military IT position versus pursuing a civilian IT career also surface from these results, and through this survey, aspects of the military IT training that soldiers view as positive and negative come to light. The vast majority of veterans surveyed state that their military training was useful and applicable to their civilian positions, although only half of the respondents stated that they felt that this training was on par with the training that they underwent after transitioning to civilian life. Currently, the branches of the armed forces do not have a standardized process by which information technology training is implemented, nor are there even improvement processes that are active in all branches (Major Management Challenges, 2003). This could explain why far fewer veterans felt that their military IT training was at the same level that could be found in civilian life; in all likelihood, certain branches of the

armed forces are more effective at providing pertinent training that has a regular level of quality. Creating a system of process improvement to be used across all branches of the military would be a first step toward ensuring that enlistees and officers receive high-quality IT training and the next step would be to attempt to institute standardized training and use procedures within branches for the systems used there. Receiving training that could equal civilian IT training could be an incentive for some individuals to choose to remain in the service, since they would have the knowledge that their skills would continue to be built in their military career in a comparable manner to what they would receive in civilian life, perhaps relieving some of the pressure to shift directly to civilian IT training for fear of missing out on the latest developments and systems in the IT world.

What at first seems to be a disparity between the results of questions 8 and 9, pertaining to the satisfaction with one's military career, and the overall rating of their military experience, may reveal more about the reasons that qualified IT personnel are departing the service for careers in civilian life. A majority of respondents, 51, rated their satisfaction with their military career in question 8 as an 8 or 9, or "very satisfied," with the only other peak being 15 individuals that rated their satisfaction as a 6, corresponding to "somewhat satisfied." However, the responses to question 9 indicate that half of the respondents felt that their overall experience was simply "average," and 32 felt that their overall experience was "above average." These results state that although most respondents did not have a highly-rated experience in the military, they were satisfied with it nonetheless. This satisfaction could relate to the job preparedness that they were able to receive through the IT skills training in their military career, which allowed them to procure employment quickly after they left the military. This theory seems to be supported by the responses to question 14, which indicate that most of those

surveyed did not have a difficult time transitioning to the civilian job market. Other aspects of the military experience, however, seemed to be less desirable, and led to a lower overall opinion of time spent in the military. In order to address this issue, the branches of the military would likely have to conduct further research with veterans to identify areas of military life that could be improved, specifically for IT personnel, to encourage them to consider longer careers in the service.

Many of the factors that were concerns for those surveyed are identified in this survey; one of the foremost is the variety of job opportunities. A large majority of respondents, 72 out of 88, felt that there were more appealing job prospects in civilian life, as opposed to the military. The regularity and pertinence of job training that one receives in civilian IT jobs could be one reason for this; the military often must implement redundant processes and systems that are not up-to-date, since budget constraints and the immense size of the military organization preclude regular system and network overhauls (Major Management Challenges, 2003). Without a complete overhaul of the way that the military approaches its IT systems, these points would be difficult to address. Standardization of training would be a relatively minor step in this direction, but much more work would be needed to shift the entire IT paradigm; as Peakes (2010) points out, even installing a new piece of Microsoft software into the Department of Defense system would require making changes to hundreds of thousands of computers in a limited time frame, and a simple upgrade could cause problems through a lack of compatibility with existing systems. Clearly, then, the military may have to search for expedient compromises between budget, feasibility, and improved systems in order to improve its information technology environment and maintain its personnel.



Questions 16 and 17, in particular, identify areas that the veterans have deemed important in their decision to transition from civilian life. Although the most important factor, as stated in question 17, was held to be monetary compensation, job variety, and geographic location in most cases, the totality of factors that these veterans felt were important were identified in question 16. Over half of the respondents stated that monetary compensation, quality of life, job variety, career advancement, and job benefits were major components of deciding to leave the armed forces for civilian IT careers. Although quality of life is a somewhat nebulous term, many of these other components could be addressed directly by the military through incentives and compensation.

While job variety in the civilian IT field was named as a major reason for pursuing a career in this industry, there seems to be a large number of different military IT job types that these veterans were involved in. From the results to question 11, there is a diffuse array of various information technology jobs that these individuals pursued in the service. The careers of network administrator, systems administrator, and computer technician were the most popular, although several other network and systems positions employed the respondents, as well. In the military, individuals are generally trained for one type of IT career, and there is little flexibility within that position, at least for some time. Were the military able to begin retaining qualified personnel for longer periods of a time, a system where individuals could be promoted to greater IT responsibilities and receive a greater variety of training could serve as an incentive to remain. Allowing individuals to receive training in areas outside of their main skill set could not only promote flexibility among personnel, but could also be a reason for individuals to re-enlist, since they could continue to receive training that would be useful to them upon eventually entering civilian life, and they would not have the same concerns about falling behind in terms of systems

they are familiar with. To some extent, the Air Force has already begun this process, assisting airmen in the training and certification for certain systems that are valid in civilian IT careers as well, but the military will have to make changes beyond simply increasing certification opportunities to provide a sound incentive to stay (Summerfield, 2006).

Job recognition was cited as another reason among 40 out of 84 respondents to question 16 for leaving the military. This response seems to point to individuals in military IT careers feeling undervalued in their position. The lack of additional financial compensation for IT professionals, and the lack of training opportunities in most branches could be contributing to these sentiments; while the Air Force has made inroads toward offering both of these benefits to their airmen, it seems to be the only branch of the military that has (Major Management Challenges, 2003; Summerfield, 2006). Were the Department of Defense to require that all branches of the military offer similar benefits to their personnel, current IT specialists may feel a greater sense of job recognition while enlisted, and be more likely to re-enlist. Only 13 of the survey respondents served in the Air Force, and without tracking responses by respondent, it is difficult to know whether there is a correlation between branches and the sentiment of receiving adequate job recognition; however, the fact that the majority of respondents served with the Marines shows that this branch has not taken enough steps to make IT specialists feel that their contributions are valued.

## Chapter 5 - Conclusion

The problems and consequences facing the United States military due to the high turnover of its experienced and qualified IT personnel are certainly serious issues that require proactive strategies to mitigate. Although the military could potentially continue to train new IT staff, the loss of experienced individuals could eventually lead to problems with operational capacity if the turnover rate becomes higher. The literature review, combined with the results of the survey, identified several reasons that military IT staff were willing to transition to civilian positions after just a few years of service, in many cases.

One of the foremost reasons for individuals seeking out IT careers in the private sector was due to compensation differences. Although the military has recently increased compensation and benefits packages for all branches, particularly for soldiers with families, there is no system that singles out IT professionals for additional compensation; some of the survey responses indicated that military IT personnel felt that their contributions were undervalued by the military, since they were performing difficult tasks requiring a high degree of technical knowledge and training, which civilian contractors were unable to perform, but that they were still receiving the same pay grade as other personnel with the same rank, but performing relatively unskilled tasks in comparison.

This rationale would seem to be borne out by quantitative data; although individuals in the active military often have limited expenses, the enlisted soldiers were earning around \$25,000 per year on average. This contrasts sharply with the introductory pay for a certified IT professional, which is often \$40,000 to \$50,000 per year at the beginning. Given that several years of experience are needed to rise in pay grade in the military, and that compensation

increases in civilian life, as well as bonuses can occur much more quickly, there is a definite financial appeal to undertaking a civilian IT position.

Another important factor underlying military IT personnel turnover was the quality of life, both with regard to business careers and personal factors. Although many individuals had grown accustomed to military life and its unique effects on the individual, the prospect of combat deployment and the stressors of IT positions, including a lack of standardization between civilian and military procedures, and even between-group military procedures, meant that soldiers often had to re-learn protocol for information systems as it varied by the individuals that they were collaborating with at any given point in time. Standard procedures and “best practices” are more widely used in civilian IT companies, and the fact that the military doctrine does not include standard procedural guides for most network and weapon systems installation and maintenance means that the civilian IT careers often seemed more sensible and less stressful. The expenses for living that individuals had to deal with in civilian life were offset by the prospect of higher pay and a wide variety of IT jobs available, as well. Many of the individuals surveyed felt that if a career at one organization did not work out, their certification and experience would allow them to easily find another, more enjoyable career. In practice, this situation seems to have borne out the veterans' predictions.

Generally, the military, as well as outside analysts, tend to identify compensation and benefits as the largest factors that are problematic in preventing those military personnel trained in IT tasks past one or two terms of service. However, the quantitative data revealed in this survey shows that the overall picture is somewhat different. Certainly, most individuals cited financial compensation, as well as job benefits, as major reasons that they chose to pursue a civilian IT career instead of a lifelong military one. However, there was not the sizable majority

that cited financial compensation as the main reason for leaving the military that would be expected by reading the literature. If anything, financial compensation formed a plurality of responses as the main reason for pursuing civilian IT career goals, but many other respondents found that other reasons were even more important, including the quality of life, career advancement, and geographic location.

Given the nature of military positions, particularly during wartime, there may not be much that the military can do to address this last point; certainly, soldiers cannot be expected to have the final say on where they are to be stationed. However, some of these other points could potentially be addressed by the military in its effort to maintain experienced IT personnel. The fact that many individuals cited the quality of life in the civilian world as a main reason for leaving the military is one such point. Despite many survey respondents stating that they were satisfied with their military experience, by and large, the quality of life did not always seem to be a main factor in this satisfaction. This can be seen in the results to another question inquiring about the quality of life in the military, where fully half of the respondents simply stated that their quality of life was “average”. More research would have to be conducted by the Department of Defense to discover exactly why these lackluster responses would be given, and what could be done to improve the military quality of life for IT specialists so that they would be more likely to pursue lifelong IT positions in the armed forces. Perhaps providing greater opportunities for lifelong career advancement could help, since this was another major concern identified by survey respondents.

Many respondents of the survey indicated that “job recognition” was a main reason that compelled them to pursue careers in the civilian IT industry. This reason likely is related to several other reasons stated for leaving the military for civilian life, notably, job variety, job

training, and job advancement. Responses to other questions indicated that these individuals felt that, while the military IT training adequately prepared them for civilian IT careers, this training was not up to the same standards as what they have received in their civilian positions. The nature of the military is such that positions are much less flexible than they are in civilian life, which is a reason for having fewer job varieties and career advancement options available in the military; however, a standard system could potentially be implemented by the Department of Defense to address this issue. Allowing military personnel to receive continuous training on a variety of systems, including systems that they do not necessarily use on a daily basis for their job duties, could increase the quality of training, and perhaps even create a way for the military to allow experienced IT specialists to transfer careers or duties after a certain amount of time, or provide greater advancement opportunities, especially for enlisted men, who constitute the large majority of individuals leaving the military.

The systems currently being implemented by the Air Force could be a template for the Department of Defense to use when determining how best to offer its IT specialists in different branches of the armed forces ways to expand their training and job opportunities. The Air Force provides classes that allow personnel to be trained according to civilian standards in a variety of systems, and to take certification exams that are paid for by their branch. These training programs help airmen to keep their IT skills relevant; as the military often uses outdated systems and hardware due to budget constraints and the Sisyphean task of implementing large-scale upgrades or changes, there may be a prevailing feeling among servicepersons that their skills will become outdated if they continue to re-enlist, eventually leaving them unqualified for a civilian IT position. A system that would allow these soldiers to continue to acquire contemporary skills and work with current systems could do much to alleviate these fears, and even encourage more

periods of re-enlistment. Even if most of the individuals enrolled in these programs only re-enlist a few times, as opposed to pursuing military careers until retirement, this system would still allow the military to retain its IT specialists for longer, and allow for smoother transitions between personnel as they begin to leave the military on a less frequent basis. The current situation makes for abrupt changes where large numbers of relatively inexperienced individuals take over systems with only a minimal number of experienced specialists to assist in familiarizing them with systems and ensure the effective operation of these systems, which is not a paradigm that can be allowed to continue.

The additional benefits that are paid out to IT specialists in the Air Force is another possible option for the Department of Defense to institute across all branches of the military. Budgetary concerns may limit the amount of compensation that can be provided at the moment; however, without additional compensation, it is highly likely that the military will continue to lose its experienced IT specialists. In the survey employed by this study, a plurality of respondents, or 29 out of 88, mentioned that monetary compensation was the main reason that they left the military for a civilian career; were a larger survey to find results that reinforce these findings, which is highly likely, the military will have to take steps to work such benefits into its current budget scheme. One option is to institute a rolling system of benefits contingent on the length of time that IT specialists have been in this field, similar to the rising levels of compensation that are dependent on time served within the military. Because there will be a bottom-skewed distribution of individuals that are still in their first term of service with the military, perhaps non-financial benefits could be provided in the form of additional IT training and compensation, and for re-enlistees, an additional series of financial compensations,

dependent on task responsibilities, the length of time spent as an IT specialist, and number of times re-enlisted.

More information than what is available in the survey used in this study would be needed to determine exactly why there is such a large disparity between numbers of enlisted men and officers represented in the IT field here, although the available information does point to possible solutions that the military could utilize in order to increase its retention rates of experienced IT personnel. It is expected that there will be, in any random sample of the military population, far more enlisted men than officers; however, the fact that only 4 out of 88 respondents to this study were former officers seems to suggest one of two things. Either the military is doing a more effective job at retaining its officers than it is its enlisted men, or the military may not be training proportional numbers of officers when compared to enlisted men. Given that much of the literature mentions that the military is having problems retaining officers across all branches, the former possibility seems less likely than the latter. Officers tend to have a greater variety of tasks within the military available to them, and it may be that, given the lack of compensation and benefits available to IT personnel, officers are choosing to pursue career paths that will involve superior skills training or more appealing benefits. Providing additional training and compensation could do much to address this disparity if that is the case, although additional research will certainly have to be performed by the Department of Defense to identify reasons for officers to re-enlist versus retire, and determine whether these reasons are substantially different from those of enlisted soldiers and sailors.

Like any study utilizing surveys, this study is not without its limitations. One large limitation was the inability to randomly sample individuals from all branches of the military across all civilian IT organizations that they might be working for. A survey distributed in this



manner would have much more generalizability to the entire veteran population, but, for reasons mentioned in the methodology section, this would not have been practical to execute. The use of individuals from a single defense contractor as well as Marines from the LinkedIn group was an effort to replicate a within-group and population survey. However, the generalizability to other branches may have been compromised without taking individual group samples of Navy, Army, and Air Force personnel. Another limitation was the number of responses. Larger samples tend to better represent the general population, and have greater reliability and validity, as well as a larger power value in statistical analysis. The samples obtained may not accurately reflect the military veteran IT population, although the concordance of the data obtained with that detailed in the literature, which also relied on survey data, suggests that this limitation did not significantly impact the results of this study.

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## Appendix A

### Survey questions provided to former military IT personnel

1. Are you a U.S. Military Veteran that has held an Information Technology or Information Systems job position during your prior military service?
2. Are you a U.S. Military Veteran that is currently working in a civilian Information Technology or Information Systems job position?
3. Did you transition to a civilian Information Technology/Information Systems job after you left the military?
4. What is your current age range?
5. How long have you been in your Information Technology / Information Systems occupation?
6. What was your former branch of service?
7. What was your rank at the end of your service?
8. On a scale of 1-10 how would you rate your overall satisfaction with your military career experience?
9. How would you rate your quality of life during your military service experience?
10. Did you ever re-enlist during your military career?
11. What was your Information Technology/Information Systems job occupation after leaving the military?
12. Did your military job experience and training provide a significant benefit to receiving your civilian IT job?
13. Do you feel that you received IT education and training in the military that was on par with, or similar to, civilian IT job training?

14. On a scale of 1-10 how would you rate your transition from the military to the civilian job market? (1 being very difficult and 10 being very easy).
15. Do you feel that the civilian IT job market provided more attractive job opportunities than the military at the time you left the military?
16. (If Yes or Somewhat from question 18) Please choose the factors that influenced your previous choice.
17. Out of the previous choices from question 19, what single factor do you believe was the most influential in your choice to pursue a civilian IT career?
18. Now that you are working in a civilian IT occupation, do you find your job more satisfying overall than you previous military occupation?
19. (If you answered Yes or No in the previous question) Please provide a brief explanation as to your answer.
20. In hindsight, what factors may have had a positive influence on your decision to stay in the military rather than transition to the civilian job market?
21. In your opinion what steps could the military take to mitigate the loss of qualified IT professionals to civilian IT job markets?