

Running Head: THE PROS AND CONS OF ARMY AUTOMATION

The Pros and Cons of Army Automation

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(Eric)

The Army is undergoing change. The Army is transforming into a lighter, more readily deployable and efficient fighting force. These changes are evident when one takes into consideration the vast amount of electronic advancements made within the last couple of decades. Soldiers, once trained in manual techniques and practices, now must learn to change with the advancing technology. These changes lead to increased productivity in many logistical and personnel fields. Situational awareness, and command and control have dramatically increased, due in most part to new automated systems. Many areas of military expertise have decidedly taken to the advanced technology, embracing its effectiveness and convenience. Some Soldiers cannot easily embrace change, and may require additional time and experience with the Army's new automated systems. One fact is certain, the Army will continue to evolve, and technological advancement will be at the forefront of this transformation.

Technology has a major impact on the way Soldiers train and fight. Automation and the drive for new technological advancement have led to many changes in the individual skill sets of modern Soldiers. The Soldier has become more reliant on technology, as this has led to quicker, more accurate results in many areas.

A basic skill taught to every Soldier regardless of Military Occupational Specialty (MOS) is land navigation. Years ago, land navigation was taught using a compass and protractor to read coordinates and gain bearings and direction. While this method is still taught initially in Basic Combat Training, it has been for the most part replaced by the use of Global Positioning Systems (GPS). While many Soldiers are still issued military lensatic compasses at the unit level, the days of the center hold and compass to cheek methods have become a perishable if not non-existent skill. Many Soldiers are unable to read maps or navigate from point to point without the

use of these electronic devices. Although these devices were proven effective and accurate, the reliance on them became the problem. Without the basic skills, Soldiers became technologically dependant. Units that develop land navigation and map reading programs that implement both basic skills and new technology promote a successful environment, producing competent, well-rounded Soldiers.

The process of range estimation has evolved from an art to the ability to take a reading on a laser range finder. Once again, technology has produced a method to get an accurate, timely reading of distance by emitting a laser from source to target and capturing distance in between. Soldiers once learned to use several methods requiring nothing more than their eyes and hands such as the football field method, which is no more than a guess (estimation). The laser range finders are very effective and are definitely a combat multiplier as they take out the guesswork. The downside to using these products is a reliance on batteries, which could wear during a crucial moment. Some of these products also require a level of care when using them that may not be practical for all Soldiers. Damage or excessive jostling may cause internal mechanisms to falter.

Technology has proven to save lives. The process of mine probing used to be a task that required Soldiers to place themselves at great risk to identify the location of landmines. With the advancement of robotics and automated machines, the Army has been able to adopt new methods to identify these hazards. Remote controlled robotics can operate in hazardous situations, such as the removal of an Improvised Explosive Device (IED). By using these devices, Soldiers can remain at a safe standoff distance while performing these operations. The Ground Standoff Mine Detection System (GSTAMIDS) produced by General Dynamics has been tested and trained in Operation Iraqi Freedom, and has proven to be very effective. Some devices such as the Mine

Rover contain chemical and biological agent detectors as well as infrared sensors and ground penetrating radar. These products show that technology has proven to save Soldiers and at little cost to any skills possessed, as this was an extremely hazardous duty anyway.

Reconnaissance is an element of military operations that has always proven to equal either success or defeat on the battlefield. Methods used to gather intelligence have changed through the years. Aerial reconnaissance has continued to improve, from airplanes and helicopters, to the newest Unmanned Aerial Vehicles (UAV). Specially trained Soldiers operate the UAV remotely. Systems such as the Predator have proven to be a tremendous success in both Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), by identifying targets and guiding follow on forces. The Army has employed the Shadow in similar fashion transmitting data and imagery to units on the ground. However, reconnaissance has not only been executed by the use of UAVs, the use of satellite imagery has become commonplace in most unit Tactical Operation Centers (TOC). Unit intelligence officers use satellite imagery in mission planning and situational awareness. The resolution of these satellite images has tremendous tactical value as it clearly illustrates friendly and enemy positions, vehicles, and personnel.

Continued advances in technology have led to automation in unit headquarters, especially in regards to orders production and operational overlays. The process of delivering an Operations Order (OPORD) has remained the same; however, the method of delivery has changed significantly over the past decade. Years ago, paper copies were disseminated throughout the command as leaders gathered for oral orders and mission planning. As computers have become commonplace, so too have electronic delivery of OPORDs. Even the practice of producing operational overlays has changed with the advent of technological advancement.

Force XXI Battle Command, Brigade and Below (FBCB2) is a platform that increases situational awareness and command and control at lower echelons. This system also has the ability to create a common picture of the battle space, sharing common graphic control measures. In this case, individual Soldier skills have been replaced, but at the same time, the necessity to learn new skills has emerged. These new skills have increased productivity, situational awareness, and timeliness of reporting.

(Loma)

Some of the administrative business practices are transforming from a manual process to an automated one. First, PureEdge is the new automated program that allows the Army's Noncommissioned Officer Evaluation Reports (NCOERs) to be paperless. Secondly, next year the Army will field the Defense Integrated Military Human Resources System (DIMHRS), which is a streamline automation system for processing personnel, and pay actions. Lastly, the Army changed the identification card to a secure Common Access Card (CAC).

The NCOER preparation process has come a long way. No longer are we sitting at the typewriter preparing a hardcopy evaluation or at the computer preparing a counseling form and an NCOER. We have moved up to the electronic age and are on our way to a paperless society. The Army is changing its evaluation process to meet its need. PureEdge allows us to electronically submit NCOERs complete with signatures to Headquarters, Department of Army (HQDA). Everyone in the rating chain can sign the NCOER as early as 14 days before the through date but submit the evaluation on the through date. You will need an Army Knowledge Online (AKO) account and a Common Access Card (CAC) to complete the process. PureEdge is very user friendly, you can use the search engine to find your forms by using either the form number or typing the title. The program focuses on data management instead of form format.

FormsFlow the previous forms database was only an electronic form but PureEdge pulls data from our personnel system by social security number and enables the user to minimize keystrokes. Embedded in the program are a wizard and a link to the evaluation regulation, which will assist the user with systematic instructions and speed up the process. The administrative information from the NCOER counseling form feeds directly to the NCOER and reduces the keystrokes and time used to prepare both forms. PureEdge allows the user to email the report to the next person in the rating chain and track it. Complete the counseling form, and save it until you need the data for the NCOER. Save or store the completed forms on AKO in the My Forms portal and update at anytime, from anywhere. The user will need a CAC to electronically sign the evaluation.

A downfall to using PureEdge is that you and everyone in the rating chain needs to have the software and a CAC reader. If you do not have an AKO account or you are not using a government computer with the software loaded, you can get the software from DOIM but you will have to buy the CAC Reader for less than \$30.

The technological evolution for the Army is about empowering their personnel to be independent and take ownership in caring for your records. The Defense Integrated Military Human Resources System (DIMHRS) will provide that opportunity. DIMHRS is the world's largest integrated web-based human resources system that will incorporate or replace over 70 personnel and pay systems. DIMHRS bridges the gap between active and the reserve component; it provides self-service capabilities by bypassing the personnel and pay clerks and allowing the Soldiers to make certain online changes to their record. DIMHRS will benefit the Reserve Component Soldier especially in the pay arena. Currently the RC Soldier on active duty can receive up to eight paydays within one month but sometimes they do not receive the same

services that the active component Soldier is receiving. During deployments, the AC Soldier knows that their pay will remain the same but the RC Soldier will see changes. They will continue to have more paydays per month because the Defense Joint Military Pay System-Reserve Component (DJMS-RC) pay system will not allow them to receive a payment without deducting the taxes and then paying the taxes back to them. Another downfall of the current pay system is that it will not allow the RC Soldiers to have an allotment. DIMHRS will correct these two things for the RC Soldier. It will allow them to be paid the same as their active component counterpart. The RC Soldier will be paid once or twice a month and will have the option of having an allotment. The downside is that DIMHRS will not be available to everyone until 1 Oct 08. There will be criticism and reluctance to use the new system.

The next electronic transformation for the Army was changing the identification card to a smart card. Early in 1999, the Secretary of Defense signed a memo about smart card adoption and implementation. Today that smart card technology is called the Common Access Card (CAC) and it replaced the DA Form 2, identification card. The CAC enhances deployment process and personnel readiness; provides a more secure form of identification with access to Department of Defense (DOD) computers, networks and certain facilities. The old identification card had certain limitations but with this card, you can verify your identification, electronically sign documents, and encrypt email messages. The CAC can store about 64 KBs of information on the chip built within the card, and can be read through a secure CAC application.

With this new technology, the Soldier can now swipe their card to validate their arrival into theater and start their deployment entitlements. The CAC enables the Soldier to sign an evaluation, a leave form or an award from anywhere in the world. Because of the information on the CAC, you can speed up the process of obtaining access to the unit's network. With this card,

you can log in on the majority of DOD computers, whether you are assigned to a unit in the United States or overseas. The CAC is one of those cards that you do not want to leave home without because when you do not have it you are limited by what you can do. The disadvantages of the CAC; the microchip can be easily damage, and sometimes the CAC reader does not read the card. As we can see, the Army has entered the automation age and the advantages outweigh the disadvantages. Each automated system will benefit the Soldier in the end.

(Wylie)

Since 9/11, the U.S. Army was forced into a high tech fight. The U.S. Soldier had to become more technically proficient than ever before. Now, more than ever, it is imperative that our Army is a technically proficient force that can keep up with the tactical systems on today's battlefield. The advanced technology has more than proven its worth in today's fight on the Global War on Terrorism. It can be argued that some of this technology has taken away basic skills from boots on the ground, but some of these minor setbacks do not come close to the benefits that this new technology brings to the fight. No longer is the infantryman thought of as a "dumb grunt" that needs to know just how to shoot. He has evolved into a very technical Soldier. One that not only has to think outside the box and defeat an asymmetrical enemy, but one that also needs to know how to employ the technology designed to help him do this. Sure, there are pros and cons of anything we do in life and the way we do it. We will look at some of these pros and cons of Army Automation Systems designed for the tactical fight at Brigade level. We will look at some of the systems that are designed to be used in both the defensive and offensive roles.

At the Infantry Brigade Combat Team (IBCT) level, the Army had adopted the digital Tactical Operations Center (TOC). This concept is a direct reflection and result of 9/11 and

where Army Automation has developed in the last six years. The Army Tactical Command and Control System or ATCCS has proven quite beneficial on today's battlefield. It is used in both an offensive and defensive role and provides key intelligence, force protection, tracks units, supplies, and helps the commander make timely decisions based on the current situation on the battlefield.

We will first look at two systems in this package that are used in a force protection and counter fire/surveillance role. The first system is the Rapid Aerostat Initial Deployment (RAID), which is nothing more than a big blimp with camera and radio relay equipment attached to it. The second is the Counter Rocket, Artillery, and Mortar (C-RAM) which is used to defeat rockets, artillery, and mortars. The C-RAM uses target acquisition sensors such as the Q-36 radar to acquire launches from a mortar or rocket site at a designated area like a FOB. This system is linked in with an intercom system that will alert Soldiers and can give them up to a ten second warning prior to an impact. It can also have a Phalanx system that can shoot down an incoming round and has a 60-70% shoot down rate. On a defensive role when these two systems are linked together, they can be used as a counter fire system such as a SLEW (Army's slang word for acquisition) to POO (point of origin). Once the POO is acquired, the RAID will turn its camera to the area that the enemy fired from and the radar feeds information to the counter fire battery, which allows them to return fire in a timely manner. The RAID can also be used as a radio relay station and can observe Known Areas of Interest (NAI's), Main Supply Routes (MSR's), and watch for emplacement of possible Improvised Explosive Devices (IED's).

It is easy to see the immense benefits of these systems and hard to argue any downfalls these systems have. Although there is a few, as with any systems, they do not come close to outweigh the good that each of these systems bring to the fight. As with all technology, there are

a few restrictions on these systems. The C-RAM can only detect launches of 1000 meters or more from the POO. The enemy will fire closer to the FOB or area they are trying to destroy. The RAID is limited by weather and is down as much as it is in the air. Due to it being grounded for winds of 40 knots or above and its intense maintenance program, it cannot be a dependable asset. It has also been debated that it is used by the enemy as a reference point for mortars and rockets. Also at times, these systems foster complacency and give Soldiers a false sense of security. Wearing of full gear or the building of bunkers sometimes is not as important because of this sense of security. The personnel required and intense maintenance of these systems takes personnel from their assigned jobs.

The next systems in the ATCSS are used in an offensive role and are used for planning, tracking, and gaining intelligence. These systems are used in the TOC or Command Information Center (CIC). Systems such as the Command Post Of The Future (CPOF), Maneuver Control System (MCS-Lite), and the Force XXI Battle Command, Brigade and Below (FBCB2) all help to plan, execute, and track current operations on the battlefield.

These systems help track friendly and enemy units within an AOR. They allow friendly units to know each other's position on the battlefield, which results in less fratricide. It also gives the commander a view of where all his subordinate units are within the battle space and allows him to see what they are doing. When these systems are linked with the Tactical Unmanned Aerial Vehicle (TUAV), they give timely intelligence on enemy activities, IED sites, and are able to observe NAI's. This allows the intelligence community to take an educated Course of Action (COA) on current and future enemy activities.

On a logistical aspect, these systems allow each subordinate commander to report their current strengths and weaknesses with men, weapons, and equipment. It allows the IBCT S-4 to

track what each unit requires and what needs to be ordered to bring that unit to a combat readiness level. The Air Force Liaison Officer (ALO) also uses the systems in the Close Air Support fight (CAS) to bring fast and accurate CAS to the boots on the ground.

It is easy to see the benefits of each of these systems, and what they bring to the fight, and as mentioned before, it is hard to find weaknesses in these systems. Since they are all satellite based and power driven, things such as weather, lack of power, and maintenance, can bring a TOC to its knees and will affect the fight. Experience on these systems also becomes a factor when operating these computers. A good battle staff will not be built overnight, and usually it will take many trial and tribulations to start clicking. A luxury you may not have in combat. These systems also take away from basic battle staff skills and without a good battle drill or backup plan in place, can cause many problems on the battlefield. It can effect communications to the Soldiers in the field and can deny them of vital support needed in the fight. If the weather is bad or if the power goes out the battle staff must be able to run the battle “old school” style. It takes a good Operations SGM to be able to plan for these contingencies and have good battle drills in place to counter all problems that can and will arise in keeping the TOC operational at all times.

The pros and benefits of all these systems far outweigh any negatives or downfalls of technology on today’s battlefield. The American lives saved and destruction of enemy forces that each of these systems has contributed is irreplaceable. Restrictions like technology, weather, and “Murphy’s Law” can be countered by using basic battle drills and planned contingencies. All this shows that Army automaton is saving lives and helping win the Global War on Terrorism.

(Robert)

The Army began to use logistical automation around the middle of the 20th century. Logisticians who use these various systems have mixed feelings and different ideas on how to improve the systems. The Military Occupational Specialty (MOS) 92A (Automated Logistical Specialist), receive training on automated systems when they go to Army Initial Training. The automated logistical specialist supervises and performs management or stock record/warehouse functions pertaining to receipt, storage, distribution, and issue and maintains equipment records and parts. Leaders expect MOS 92A Soldiers to maintain a technical proficiency equal with their skill levels. They have up to 85 skill-level-dependent critical tasks with required subtasks. These subtasks include supervising and performing warehouse functions in order to maintain equipment records and parts, operating the automated systems that facilitate the management of supplies or maintenance, and manually receiving, storing, and issuing supplies.

Automated systems technology improves almost every day. What is the Army doing to keep the logistic specialist trained? It seems that in some cases the newer logisticians have more automation training than their supervisors have. Logistic noncommissioned officers (NCO's) receive training on automated systems through the Noncommissioned Officers Education System (NCOES) and "train the trainer" classes that the Army offers. NCO's can learn new information from subordinates when they graduate from NCOES. Senior logisticians are learning how to take advantage of NCOES by having their newly graduated Soldiers give classes during Noncommissioned Officer Performance Development (NCOPD) training on the updated changes to automation systems. Several logisticians have written articles about the overwhelming job of the 92A and logistical automation.

A 92A holds almost sixteen supply MOS's from the Vietnam War era. Twenty MOS's from supply Soldier to senior supply/service sergeant covered the spectrum of Army supplies. The basis of the entire maintenance program is still the proper care of the unit's equipment by a trained operator. Soldiers involved in the automated maintenance tracking and supply missions now share the same MOS-92A, automated logistical specialist. The automated accounting systems and the developing user-level communications planning that supports them have changed the 92A Soldier from an automated record keeper and inventory manager to an information technology worker with important skills. The forces pushing the change of the 92A MOS are the advances in the information technology field, and the continued attainment of well-educated and trained Soldiers.

Many 92A Soldiers and their leaders do not like rotating well-trained Soldiers to other units or even within the same unit. Logisticians agree that proper planning and knowledge of training systems used by the Army Training and Doctrine Command and Army trainers at all levels will provide logisticians with technically and tactically competent 92A warrior logisticians for future operations. Many logisticians suggest dividing the MOS 92A into a dual system, one for unit and the other for direct support Soldiers. Soldiers in each system receive assignments based on their experience. The separate assignments would develop the skills required of 92A Soldiers and ensure more specialized and technically competent NCO leadership in their respective areas.

Many logisticians have spent most of their career working the Unit Level Logistics System (ULLS). They do not receive a chance to attend training for more advanced systems until their promotions to E-6 force their battalions to release them to assignments corresponding with their rank. Leaders expect these NCOs to have the level of technical

competence necessary to manage a supply activity effectively. Due to their lack of training, these NCOs struggle to gain the knowledge they need to accomplish the mission. Better assignment management at all levels will provide logisticians with more opportunities to learn the skills they need at the different levels. More than 11,000 slots in the Army personnel inventory are 92A positions, and half of those authorizations are in the ranks of specialist or below. Logistician CW3 Timothy N. McCarter, SR (2006) states that the introduction of new technologies and equipment into a military organization that spans the globe presents a difficult challenge for the Army's institutional and unit training programs. The Army must find a way to train Soldiers resourcefully on new systems and equipment while maintaining the current operating tempo. CW3 McCarter (2006) also states that the Battle Command Sustainment Support System (BCS3) has many applications for providing logistics commanders a more complete real time picture of the situation within an area of operations than they have had in the past. Onsite training teams provide BCS3 training. Installations provide funding for onsite training. CW3 McCarter (2006) states that this can present a training dilemma for Soldiers deployed forward in the Iraq area of operations because they may not have access to onsite teams but still must train on new systems. The time spent by the Army to manage and sustain the training of proficient operators will be more important than the benefits of the training. Job consolidation works well until the amount of knowledge required to perform well in each of the combined areas becomes too great for most Soldiers to master.

After basic training, a 92A Soldier completes 12 weeks of advanced individual training (AIT) at the Quartermaster School located on Fort Lee, Virginia. They learn the basics of automated supply and receive training on some of the automated supply management

equipment. They train on the Unit-Level Logistics System (ULLS), Standard Automated Maintenance System (SAMS), and the Standard Army Retail Supply System (SARSS). They also learn about the procedures for managing rations under the Army Field Feeding System. One Army solution for continued technical MOS training is the Distributed Learning System (DLS). DLS provides computer-based training at hundreds of digital training facilities. Developing and implementing installation-level MOS workshops can enhance technical knowledge among 92A Soldiers serving in a number of key positions. These workshops would help logisticians who cross-train in unit supply rooms.

Logistics automation in the Army has come a long way. However, some logisticians feel that automation is moving so fast that it is more of a con to the fight than a pro due to training incapability. On the other hand, the Army continues to transform its logistics system to enhance the fight. Though some consider logistic automation a load on operations, the automated logistics system is becoming an advantage that can support innovative ways of deploying and fighting the war.

(Rufus)

The United States military, in particularly the United States Army, has completely transformed from a manual to an automated Army. Every aspect of the way this Army is recruited, trained, maintained, deployed and wages war is now automated. The development and investing in countless automated systems has ensured that the U.S. Army has the ability to accomplish its missions in the most expeditious and efficient manner possible. This paper will attempt to provide a general overview of some of those systems and their overall effect on Army personnel and readiness, as well as weight their benefits against any potential downfalls. We will examine Global Positioning Systems (GPS), Army Knowledge On-line (AKO).

Army Knowledge Online is the U.S. Army's official private computer network (intranet). AKO is the world's largest network of its type providing more than two million Soldiers, Army civilian employees, Army retirees and Soldier's family members with a centralized website and search engine for Army news and information, training, secure email and many other products. Since the Secretary of the Army and the Chief of Staff of the Army directed that all Army personnel will have an account in 2001, which they will maintain for a life time, AKO has revolutionized the way that all Army personnel conducts military and personal business. Since its inception, AKO has quickly become the Army's one stop information center and the preferred reference and research source for personnel at all levels of the service. The Army leadership has directed that all essential regulations, manuals, and vital hard-copied information be digitized and placed on AKO to allow for 24-hour access and retrieval by Army personnel worldwide. AKO has significantly reduced the work force, time, funding, and resources required maintaining military personnel records and actions. This automated system has given Soldiers unprecedented speedy control of their personal affairs that was unthinkable ten years ago. Soldiers now have the ability to access, review and change personnel, promotion, financial, educational, medical, legal and others services 24 hours a day. No system is without its downfalls. AKO is now firmly entrenched into the Army culture and any long-term interruption in this service would be a severe hindrance to the U.S. Army and its personnel. This brings up the question of possible vulnerabilities and reliability. As the Army continues to speed toward more automation, AKO will continue to grow and assimilate even more into every aspects of Army life. AKO is susceptible to the same potential vulnerabilities as any other digitized automated system. It will become increasingly more difficult to safeguard this system against cyber terrorist, hackers, and

intruders. Accidental deleting, overwriting, or anything resulting in a permanent loss of information could potentially be catastrophic for the Army.

The United States Department of Defense (DOD) developed Global Positioning Systems (GPS) to enhance the military's ability to command and control all mobile assets on the land, on the seas, and in the air and space. In 1973, DOD began a program to launch a space based navigational system that is made up of what are now 24 satellites orbiting 12,000 miles above the earth. These systems of satellites continuously transmit radio signals to receivers on earth. Using a minimum of three satellites, the receivers are able to calculate the longitude and latitude and determine their location on the earth.

Almost every weapon system in the Army's inventory is somehow connected to Global Positioning Systems. Some variation of GPS is now integrated into nearly every military vehicle and aircraft. Commanders at all levels are able to use these systems to identify the exact location of all friendly forces on the battlefield reducing fratricide to nearly zero. GPS is the heart and soul of the all Army offensive and defensive missile systems. It is used for acquiring targets as well as tracking and guiding missiles. The pinpoint accuracy of GPS guided missiles have saved countless human lives by decreasing collateral damage as they destroy their intended targets.

As with any other system that relies heavily on automation, there is risk involved with dependency on GPS. If the satellites that are used to link and control these systems are not accessible, the Army will quickly be paralyzed. Many of the manual skills that are required to accomplish the operations and task are no longer prevalent in the Army. Some of these skills are considered antiquated and Soldiers are no longer trained to do them. Any emergency that required a return to the conventional ways of operating that are now being achieved through the GPS could render the Army ineffective. Without the use of GPS, the Army's ability to command

and control forces would be seriously diminished. The perishable basic soldiering skills such as land navigation and map reading that were essential less than 20 years ago no longer have the same importance.

The U.S. military, especially the Army, has long been aware that in order to stay ahead of the competition and possible adversaries it must continuously evolve and find new ways to conduct business more efficiently. The Army has always been willing to commit a lot of time and resources to research and development. The American civilian sector has always been a beneficiary of military advancements, especially in the areas of computer automation. Unlike the civilian sector, the Army must be aware of and plan for possible failures in automation. Over reliance on automation and inadequate back up plans could be catastrophic for the Army and the nation.

In conclusion, the advent of computers, the development of associated technologies and the innumerable advances in automation has affected nearly every living being on our earth and revolutionized almost every aspect of human life. These advances are developed for military applications. They have significantly transformed the armed forces of nearly every nation around the globe, especially the armed forces of the United States. Weapons, machinery, and equipment that were not imaginable just 40 years ago are now made possible due in large part to advancements in automation. In fact, it can be argued that the United States of America possesses the most powerful military in the world today mainly due to its ability to outpace every other nation in the world in the development and application of automations and computer technologies.

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