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The Automated Army

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The Automated Army

The automation of the U.S. Army has made the job of taking care of Soldiers and equipment more effective while fighting the Global War on Terror. Automation has introduced technology that allows the Army to move into the future. Our paper will introduce several areas that will demonstrate how automation has changed the Army. First of all, Soldiers receive the best services possible with programs like Medical Protection Systems (MEDPROS) and Electronic Military Personnel Office (EMILPO). These programs track medical readiness and personnel data on Soldiers. Automation and the introduction of computers have improved equipment readiness. This gives leadership the tools to accurately track Soldiers and equipment effectively. Furthermore, equipment in tactical operations provides commanders the ability to accomplish the mission while focusing on Soldier safety. Key staff elements can use computers to brief the commander's battle update via internet video without driving through hazardous routes. These capabilities overall reduce casualties and deaths in combat areas. We will also present the negative aspects of automation and how they can affect operations.

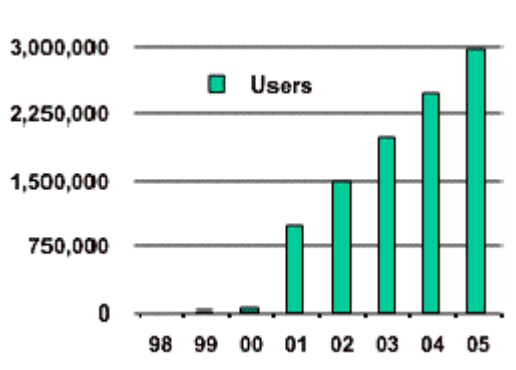
Redefining Administration

Over the past ten years, the Army embarked upon Army transformation with incremental changes of equipment, vehicles, uniforms, basing, doctrines, tactics, training, and institutional thinking. The threats that the nation now faces in this Global War on Terrorism (GWOT) present a natural tendency to devote energies and resources to solving the urgent problems of today. The Army tends to focus on achieving its objectives to the virtual exclusion of the management aspects, on the mission with shortfalls in administration. In the last decade, redefining administration through automation has introduced technology that allows commanders to visualize and disseminate information.

Transformation was not meant to accommodate the old, or carry on with changes in the process, but to move into the future with new standards while simultaneously conducting GWOT operations. Whether at peace or at war, collecting and disseminating information are prime functions of the Army's organization. In search of a more comprehensive and accurate assessment of readiness, the Army has revised several systems to electronically transmit Soldiers data. Visibility of key data and information in the dynamics of wartime is vital in obtaining timely submission of Soldiers evaluation, medical readiness, and knowing that personnel and financial problems can be solved without standing in long lines. It also helps with the demand of limited resources to the appropriate agencies with priorities.

AKO

The Army Portal, Army Knowledge Online (AKO), is a knowledge management system that is a part of the Army transformation. In addition to the Army's mission processes, AKO strategically shares knowledge among Army communities. As of 1 October 2001, the Secretary of the Army and the Chief of Staff of the Army made it mandatory that all active duty Soldiers have an AKO account. The Web site for AKO (2002) made accounts accessible to Army Reserve, Army National Guard, Department of the Army Civilians, Retired Army, and Army sponsored guest accounts. According to the executive briefing for Department of Defense the statistics of AKO users has soared over a five year span in the following chart (2004).



The benefits of AKO promote moral and qualities of life for the Soldiers on any Forward Operation Base (FOB) to stay in contact with family members. The process assists commanders in quicker response to questions without difficulty of time delays, as well as sharing information. The encrypted setting provides the Soldiers with capabilities to communicate using secure instant messaging along with links to outside contractors. This feature provides a lifetime email address along with enhancing personal options to meet their needs at any time, and from every duty station. Some other capabilities extends a range of knowledge from public to secret information in the areas of (a) powerful .mil-focused search engines, (b) personnel locator, (c) hosting over 40 Army Web sites, (d) analysis and collaboration tools, (e) gateway to over 30 Department of Defense knowledge centers, and (f) Secure Army Instant Messaging (2004).

Noncommissioned Officer Evaluation Report

SMA Preston noted that the “Noncommissioned Officer Evaluation Report (NCOER) is going into its eighteenth year and is preparing to embark on another great milestone for Army enlisted evaluations and automated evaluations are the most recent Army evaluation initiative” (2006). Sergeant Major of the Army expressed this statement to senior leaders to meet the demands and challenges of the future for evaluations in regard to the electronic evaluations. Over time the evaluation report has undergone numerous names changes and formed numbers ranging from (a) Commander Evaluation Reports (CER), (b) DA Form 2166-1 to Enlisted Efficiency Report EER, (c) DA Form 2166-3-6, and now (d) Noncommissioned Officer Evaluation Report, DA Form 2166-7-8 (FY 07)

Over the decades, the Army has changed the way it evaluates noncommissioned officers. The Noncommissioned Officer Evaluation Report (NCOER) will no longer be using paper forms. The electronic NCOER is part of a much larger venture called Forms Content

Management Program (FCMP), run by the Army Publishing Directorate. The program re-engineers Army forms and develops applications that focus on data requirements, and not format. Readiness became the Army's watchword since it has become essential in eliminating paper and paperwork errors.

AKO authorizes leaders and Soldiers by an enabling system to access My Forms which provides a signature enabler, date automatic upon signing, and drop down menu for expediency. Additionally, the report is uploaded into AKO and provided with a routing slip indicating modification, allowing leaders more time to lead Soldiers and focus on the battlefield. Over the decades, the accomplishment of the evaluation form helps ensure timeliness of submission in conjunction with (a) ends evaluations work in Personnel Support Battalions (PSB), (b) improves content and reduce administrative errors, (c) reduce, or eliminate, overnight mailing costs, (e) eliminates need to drive evaluations between FOB, (f) make counseling administratively worth the time, (g) eliminates interim and legacy systems (digital sender, fax), and (h) medical Protection System.

Medical Protection System

Medical Protection System (MEDPROS) is an Army Medical Department (AMEDD) owned web-based system that provides commander's real time, worldwide readiness, and deploy ability data of their organization. This includes all medical and dental readiness requirements in AR 600-8-101. They include immunizations, permanent physical profiles/duty limitations, eyeglasses/inserts, blood type, medical warning tags, personal deployment medications, pregnancy screening, DNA, HIV, and dental status among other data elements. Some data is automatically captured from central Army source systems, such as the Armed Forces Institute of Pathology (AFIP), the U.S. Army Medical Surveillance Activity (USAMSA), the Corporate

Dental Application (CDA), and the Defense Eligibility and Enrollment Reporting System (DEERS). Other data is manually entered into MEDPROS. MEDPROS is designed to track all immunization, medical readiness, dental, and deploy ability data for Department of the Army Civilians, and contractors (MEDPROS).

Electronic Military Personnel Office System

The electronic military personnel office (EMILPO) system gives Soldiers and personnel employees access to personnel data stored in the services multiple accounting, promotions, and reassignment databases. EMILPO provides a centralized database that gives near real-time and Army-wide visibility on personnel information. It also replaced the Standard Installation Division Personnel System better known as the SIDPERS3. Some other key personnel functions provided are Defense Enrollment Eligibility Reporting System (DEERS), the Defense Integrated Military Human Resources System (DIMHRS), and pay management system called Defense Finance and Accounting Service (DFAS). These features provide Soldiers, family members, and civilian's online personnel and pay services instead of getting in-line at separate offices. DEERS maintain timely and accurate information on service members, and dependents that are eligible for military benefits and entitlements. It can also detect and prevent fraud and abuse.

DIMHRS provides inclusive record for 1.3 million Active, Reserve, and National Guard service members a comprehensive record of service that will feature a self-service capability that allows the service member to update portions of their personal information. Personnel records will be available to Human Resource (HR) professionals, combatant commanders, personnel managers, and other authorized users around the globe 24 hour a day. DFAS offers accessible means of finance and accounting services in delivering information in a timely manner. My Pay, a resource of DFAS that provides services for Army, Navy, and Air Force & Marine allowing

services member the luxury of managing their pay information with features such as (a) federal and state tax changes, (b) direct deposit/electronic funds transfer, (c) view/print/save leave earning statement, (d) monitor Thrift Savings Plan (TSP), (e) change or restrict pin number for access. (My Pay)

Automated Army Maintenance

The automation of the U.S. Army has made maintenance management more efficient and has increased equipment readiness while fighting the Global War on Terror. The Army has used automated information systems for years. The majority of these systems existed prior to the development of the internet.

Introduction of Computers

During the early 1980s, The Army's maintenance management program consisted of a manual system of paper forms and records. With the introduction of the Unit Level Logistics System (ULLS), maintenance operations and efficiency changed drastically. Prior to the introduction of ULLS, repair parts would take weeks to months to arrive. The Army currently uses the Unit Level Logistics System Ground (ULLS-G) and Unit Level Logistics System Air (ULLS-A). ULLS-G covers all ground equipment and ULLS-A supports all aircrafts. Both of these computer systems are located at the unit level. The ULLS computer is mobile, and it goes with the unit during deployment. Prior to the Global War on Terror, these systems were never truly tested in a combat environment. Maintenance of military equipment is an important part of the Army's defense capability. The ability of the Army to react is extremely important. This ability can't exist without equipment that is mission ready.

Equipment Readiness

The measure of a deployed unit's success is its equipment readiness. Any unit

commander can get an accurate picture of a unit's readiness by printing a Non- Mission Capable (NMC) report from the unit's ULLS computer. The NMC report will give the commander an accurate snapshot of all unit equipment that is not mission ready. In addition, the NMC report gives a listing of the number of days a particular piece of equipment has been unavailable and all parts that are due in or received. Another automated ULLS report that gives the commander an accurate assessment of the unit's equipment readiness is the Army Material Status System (AMSS) report. The AMSS report is ran on the 16th of every month. This report monitors unit readiness and provides non-mission capable information on all of the unit's reportable equipment. In addition, the AMSS report supplies all the data that the unit needs to complete the monthly Unit Status Report (USR). The USR is probably the most important report a unit will produce. The USR measures equipment readiness and personnel strength.

Class IX Parts

Prior to the introduction of the ULLS computer and the World Wide Web, ordering repair parts was a time consuming process. Unit clerks would receive work orders from the mechanics. The clerk would manually research part numbers and fill out a DA 2765 (request for issue). In addition, the clerks would manually maintain an open document register for all ordered parts. The ULLS computer automatically does these tasks. Furthermore, with the introduction of the World Wide Web, requests for Class IX parts are sent out directly to suppliers. Deployed units can receive parts in just a few days or weeks rather than months. This allows units to maintain a high level of equipment readiness. Most units have a prescribed load list (PLL). The PLL is a listing of class IX parts that a unit stocks to maintain readiness. Most deployed units will stock 150 to 300 PLL lines. ULLS maintains the unit's PLL and automatically reorders parts when a demand occurs. Another useful automated report is the Commander's Financial Transaction

Listing. This report is generated whenever a parts request is generated. It lists the individual cost of all the parts ordered. The Commander's Financial Transaction Listing is an important tool that puts a dollar spent value on a unit during a given time period or deployment.

Operational Processes

Operational processes cover vehicle dispatching and the unit's drivers license program. This is an important area in the ULLS program. Dispatching unit equipment has a significant effect on readiness. The dispatching process tracks equipment mileage. In turn, mileage is a primary indicator for servicing or changing oil on a vehicle. The other area covered in Operational processes is the drivers license program. This program tracks drivers qualifications and license expirations.

Tactical Operations Center

Automation equipment in a tactical operations center provides commanders the capabilities to focus on Soldier safety. This automation equipment provides many advantages in modern tactical operations centers. Keeping Soldiers out of harms way, minimizing combat patrols, and providing accurate enemy information overall increases our capabilities.

Breeze Software

With the use of computers and the Breeze software, commanders can conduct Battle Update Briefs (BUB) at home station, minimizing the number of combat patrols. This program is a computer web based program that is loaded into computers in tactical operations centers at all levels (Breeze, 2007). Once the programs are installed, TOC operators must be trained and become proficient on the use of Breeze. The battle captain inside the tactical operations center will publish the battle update brief slides to the breeze website. This allows all staff sections within the tactical operations center to update their slides with researched accurate information.

Once all the slides are prepared and the battle captain sees a finished product these slides are saved using the battle update brief date and timeline. The battle captain sends a computer link <http://www.breezesoftware.com> to all participants throughout theater. For example, divisions would invite brigade commanders and key personnel. Brigade tactical operations centers would invite battalions. Battalions can send the links to individual unit tactical operations centers. Participants of the battle update brief will log on the website and conduct communications test with the battle captain. This is done by the use of the key board by sending a text message and also the use of headsets with a microphone. The voice will be heard live over head sets without any interference. Once it is time for the Battle Update Brief, unit leaders and staff sections throughout the area of operations will participate in the brief providing information to the commander. Each work station will have the capabilities to view the slides and provide feedback as needed.

Communications thru Secure Chat Rooms

Another capability that the Breeze software provides is the ability to use secure chat rooms. This allows leaders and battle staff to communicate and become fully aware of everything happening within the area of operation. The battle captain can create as many chat rooms as needed, for example operations chat rooms, intelligence chat rooms, executive officer chat rooms, certain operation, or even combat patrol information chat rooms. There is no limit of how many chat rooms can be used on line. This capability allows tactical operations centers and commanders to continue fighting and monitoring the fight without stopping to brief. A major advantage of this secure video teleconference Breeze capability is that commanders and staff sections at all levels can brief higher commanders without compromising safety. Without this capability Soldiers would spend hours to conduct action on contact rehearsals, PCC, and

PCIs on equipment, refuel vehicles, and driving through hazardous roads just so the commander can attend a meeting. With today's state of the art equipment Soldiers can concentrate on other missions, while commanders and staff sections conduct on-line battle update briefs.

Blue Force Trackers

Command and control in the battlefield is a key and focal point for all commanders. Each commander and staff section must know and see where their vehicles are located throughout the battle area. Blue force trackers are used in key combat patrol commander's vehicles, key personnel, and inside tactical operation centers. Blue force trackers provide the capability to see your location and all friendly forces with blue force trackers. Information can get uploaded into the system with grid coordinates of forward operating bases and installations. This information is critical in case of any attacks. Knowing the nearest aid station, field hospital and supporting friendly elements within a route is critical. Routes can also get input into the system by the use of wave points. This allows drivers to know the route and not make a wrong turn into a hazardous area. This equipment also shows elevation and congested populated areas. Intelligence personnel can gather information on type and number of attacks in each area of the route. This information will provide Soldiers accurate hot spots and choke points. The enemy builds trends in the locations they attack. Soldiers can view the map on the blue force tracker and know they must increase their level of awareness due to suspected threats and trends.

Command and control is a vital to survive. Depending on the location of the combat patrol, radio communications might be limited. Battle staffs can use blue force trackers to send text messages to any vehicle in the battlefield. These systems use satellite and AWACS feed to develop the image. Information such as recent attacks, increase of force protection levels and combat patrol information can get sent in urgent messaging.

Blue force trackers give Soldiers the capabilities to upload MEDIVAC, sheriff, and air support information. With these capabilities combat patrol commanders can easily push the panic button on the screen and alert friendly forces in the local area. This message is sent to tactical operations centers, local combat patrols, and air support. This equipment will send a message to the nearest security force on the ground alerting them of hostile action. Quick immediate response is critical. Every second saved in combat can mean fewer Soldiers killed. The days of placing sticking notes on maps on the wall has been replaced by electronic moving icons that are up to date with the current situation (Blue Force Trackers and Army Aviation, 2007). As the vehicle or aircraft is traveling the icon will continue moving through the screen and if a vehicle stops moving, the icon will stop. This allows commanders and the battle staff to see the last known location of a particular element. When combat patrols are attacked or aircraft are shot down, a 10 digit grid coordinate is displayed.

Automation in Special Forces

The automation of the U.S. Army has made the Special Forces Soldiers and their equipment more effective in how they shoot, move and communicate, while fighting the Global War on Terror. In the fall of 2001 President Bush sent Special Forces Soldiers into Afghanistan to oust the Taliban regime and crush the al-Qaeda terrorist network that was operating in the country. This task would have not been achievable in the two months time without the technology automation brought to the battlefield to help the Special Forces Soldier shoot, move, and communicate.

Shooting

The area of shooting automation has greatly changed the weapon systems available to the

Special Forces Soldier and the accuracy with which they use them. The palm pilots or pocket PC's Special Forces snipers use to input data on the targets they are going to interdict gives them the data needed to shoot these long range targets. These palm pilots have programs in them to calculate distance, slope or shooting angle, wind speed, and other metrological factors to help snipers calculate the data need on his weapon to make the shot.

The next weapon system automation has had an effect on is the MARK 47. This is a grenade launcher with a built in automated fire support system. This weapon is used by Special Forces as the main gun on some Ground Mobility Vehicles (GMV's) and for base defenses at some Firebases. This weapon uses a fire control system somewhat like the palm pilots snipers use. The gunner uses the laser range finder on the system to get a distance to the target. This laser also detects wind conditions down to the target and the computer calculates this data to give the gunner a reticle in the view finder to place on the target. All the gunner needs to do is place the reticle on the target, pull the trigger and bang a 40mm sniper system.

Automation also has affected the tools Special Forces Soldiers use to guide 500 to 21,000 pound bombs to their targets. These systems are relatively simple compared to the automated systems used by planes or ships to deliver these bombs. The equipment a Special Forces Soldier needs to know how to use is a Global Positioning System "GPS", laser range finder, a target designating device and the call for fire format for the different delivery system used. The Special Forces Soldier gives the information to the delivery system being used and the automated systems in the delivery platform will calculate where and how the bomb will get to the target. This automated technology gives the Special Forces Soldier the ability to take on an enemy with superior numbers.

Movement

Special Forces Soldiers can arrive on the battlefield by land, sea, and air. The platforms used, whether they are planes, helicopters, ships, or vehicles have sophisticated navigational systems, but the bottom line is they use a GPS. These automated navigational systems enable this delivery platform to maneuver through and around impassable terrain. In turn, this enables the Special Forces Soldier to get to areas in minutes or hours rather than days or even weeks if they walked. It also enables the team to evacuate wounded soldiers to hospitals in minutes, not hours which has saved many lives. Once on the ground, the Special Forces Soldier uses a small hand held GPS navigational systems for many purposes. The biggest use of these GPS's is for navigation through terrain at night. Navigating at night through mountainous terrain or vast open deserts with no illumination is hard enough with a GPS, never mind with just a map and compass. The GPS saves time by avoiding teams from getting lost, or stopping every one or two kilometers to do a map check.

Communications

There are two main radios that Special Forces Soldiers use and they are the AN/PSC 5 and the PRC 148. The AN/PSC 5 radio is an Army/ Navy/ portable single channel radio with UHF, VHF, FM, and Satellite communications capabilities. This radio can be carried dismounted but mostly are used in GMV's and Non- traditional Vehicles (NTV's) Special Forces Soldiers use. The AN/PSC 5 radio enables the Special Forces team to communicate with anyone with satellite communications capabilities anywhere in the world. With this technology Special Forces teams can pass on and receive timely information in seconds not hours. Also with the radio's UHF, VHF and FM capability Special Forces teams can talk with any aircraft in the area to control the all important Close Air Support (CAS) when they are in contact. The AN/PSC 5

also gives the Special Forces team the ability to call in a medevac helicopter within seconds which saves not only American lives but coalition, host nation military, and civilian lives anywhere in country.

Negative Aspect of the Automated Army

The failure of automated systems would have catastrophic effects on the operations of today's Army. The automation of today's Army is inevitable. Leading Armies will embrace the implementation of a network-centric force in order to remain competitive. Automation will provide the future force with the ability to generate tempo, precision, and combat power but to what cost? The more a nation's defense depends on the automated system, the more vulnerable they become regarding those systems.

System Failure

The implementation of automated systems regarding administration can have devastating effects when the system fails. In today's Army the management of administration such as pay, evaluations, and status reporting are electronically managed. When the system fails and there is no back up, available information becomes outdated and in some cases unattainable. Difficulties also arise with the maintenance of current data. In most cases the alternative is to have a manual backup system but this can become very labor intensive and human error will occur. Most training establishments do not have the time and resources to teach antiquated systems so new Soldiers are unaware of manual alternatives should the system fail.

Soldiers are placed into dangerous situations when systems fail on the battlefield. The use of automated systems has enabled commanders to brief their subordinates through satellite systems. This occurs throughout any AO where communications are available. It allows the subordinate commander to remain in the safety of his base while receiving those orders or

passing information to the rear. When the system fails, the subordinate commander must get himself and his escorts to the commander which involves taking unnecessary risks.

C2

“A major tenet of command and control is centralized direction and decentralized execution. But there has been steady movement in the last decade toward increased centralization on all levels” (Milan N. Vego, Command and Control in the information age). Centralized C2 is proactive regarding decision making and it allows for effective use of all assets within the available force. The largest advantage is that it maximizes control. The most serious problem is the trend toward over centralized decision making. Unfortunately, with maximum control, the subordinate commander on the ground does not have the normal ability to make decisions as he or she sees appropriate. When higher commanders are dictating orders from areas away from the battlefield their perception may differ from the reality of what is occurring on the ground. There is also a high probability that they may not have a true representation of the impact of their decisions in the future. An example of this is when a gunfight occurs and the commander on the ground chooses a COA that he believes may help him in the future. This becomes more relevant when he and his soldiers have to continue to work in an AO for an extended period of time. During OAF some Afghanistan men became fighters because the Taliban forced them to. Their training was minimal and the Taliban were holding their families as hostage to ensure that they would fight against the coalition forces. In a gun fight a competent commander can assess quickly whether they are up against a well trained enemy or not. By proper assessment of the threat and then reacting accordingly, there were incidences where once these untrained soldiers were identified, the decision was for them to be fought less aggressively and hopefully captured. This allowed the coalition to gain effective intelligence. Had the

commander not had the ability to assess the level of competence of the force that he was fighting, all enemy would have been killed. All vital information would have been lost. A senior commander watching the battle from a satellite link and receiving information real time does not have the capability to access such aspects.

One of the greatest disadvantages of the automation of the Army will be information management and overload. If every Soldier and system on the battlefield is networked and is sending information to a central location there could be the probability of information overload. The challenge will be to know what information is exploitable and what information can be turned into actionable intelligence. The next challenge will be to process this intelligence and send it to the relevant unit in a timely manner in order for that information to be exploited.

Situational Awareness

With greater technology comes greater situational awareness. Everyone in the battle space needs to be able to create and exploit the information that they have available to them. There is no evidence to state that an increase in networked systems will replace the ability of a force to kill or survive any better, especially in close combat. During OIF, despite available intelligence, most contacts occurred when Soldiers came across the enemy unexpectedly. There was no previous intelligence information involved.

Administration Management

Army's are so reliant on information systems today that when something as simple as power becomes unavailable, productivity declines rapidly. In some cases it even grinds to a halt. Today's Army relies on automated systems to allow the management of Soldiers careers, monitoring of personnel programs, recruiting, leave, flagging action, evaluations, and numerous other electronic programs to be able to achieve the day to day running of a unit. When these

systems are not available due to the automated system not working, the outcomes will have devastating effects. When these systems cannot be managed electronically there are only time and labor intensive alternatives available. Automated systems replace hard copy documentation. Constant reviews and updating of automated administrative systems is costly. The other issue with automated systems is there is the constant duplication for systems that seem to be easier. Unfortunately this introduction is by higher levels and by commanders who do not use administrative systems on a daily basis. An example of this is that the individual U.S. services have spent over \$82 million each to design, develop, operate, and maintain their own automated information systems for military recruiting. With each separate system there have been duplications regarding problems that result in additional cost and time delays. This is an example of the duplication of systems that ultimately waists money and resources while trying to complete the same job.

Conclusion

Automation of the U.S. Army has made the job of taking care of Soldiers and equipment more effective. Visibility of key data and the capabilities of the military have maximized the power of the information age. This has allowed leaders to convert vision to reality for their administrative needs and simultaneously respond to the Global War on Terror. Furthermore, modern day technology and automation aids commanders in making critical decisions that affect Soldier's lives. Leadership relies on the automation of equipment in tactical operations centers to provide accurate information. Soldiers at every level must stay proficient by training and using automated equipment to provide the fullest capabilities of today's Army. Throughout this document we have addressed many positive aspects that encompass the automation of the U.S. Army. However, when systems fail it has the capacity to delay and in many cases halt

effectiveness. Leaders need to have backup plans to insure mission accomplishment. The Automated Army will provide the present and the future force with the ability to ensure mission success and provide combat power but we must be mindful of the cost.

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