

# Attack [Send]!

## Leveraging Computer Capabilities To Address Computer Misuse at Battalion, Company Levels

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Imagine an Army of yesterday, an Army without computers, without Power Point®, without E-mail. A general crouches down on the ground, his battle captains anxiously awaiting his orders. He takes off his gloves and briskly sweeps away the leaves and loose grass that cover the soft dirt at his feet. He reaches into his pocket and retrieves a few small pebbles and begins to draw with his finger in the soft soil.

“Twenty-ninth Regiment, you’ll move up on a wide arc like so,” he states as he drops a pebble at the head of a small row he plowed with his finger. A young colonel nods in total comprehension. The general continues drawing in the earth, carving a violent inverted “T” with a pebble at the bottom. “Fourteenth Regiment, you’ll block the enemy counter-attack here” he states, and is answered by another nod in the affirmative.

Suddenly a courier approaches, and recites from memory a situation update from a unit already in contact. The courier explains in detail the enemy’s current composition and disposition, and gives exact details on the future role of friendly artillery and cavalry. The general responds with two minutes of updates and requests. The courier salutes and departs. The general returns to his briefing, sketches a few more lines, rearranges a few more stones, and dismisses his men.

“There is a danger that too much information, more cheaply provided, could make life more difficult by leading to ‘information overload’ or ‘info-glut.’ Waiting for all the facts to come in can be paralyzing when the facts never stop coming!”



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The scene of a modern-day Tactical Operations Center (TOC) crowded with banks of computers, local area network cables, and photocopiers? No. The scene of an efficient and automated system of battle command and staff that helped win American wars for almost 200 years? Yes.

### Immersed But Not Submerged

Make no mistake about it, the U. S. Army is immersed in the computer renaissance. Just ask any first sergeant how computers impact his operations and he'll show you a field desk full of nifty spreadsheets, laser-printed reports, and memoranda that practically write themselves. Walk into the office of your senior instructor pilot and he'll hit a button and tell you how many hours of required individual training remain for the year and how many hours of flying you have left to work with. March across the hall to your maintenance platoon sergeant, and she'll print you out a list of open faults on every aircraft, show you what parts are on order, and print a list of inspections due for the week.

Although the use of computers improves and streamlines many of the tedious processes inherent in military operations, the expected increase in battle command and staff efficiency remains to be seen. Without a doubt, computer technology in areas such as exceptionally accurate weapons systems and secure communications greatly increases our ability to win wars. But why haven't we seen a comparable increase in the efficiency and conduct of our command and staff functions at the battalion and company levels? Why hasn't the presence of computers in our command posts and TOCs allowed leaders and soldiers to focus less on office functions and spend more time training, maintaining, and leading?

### Computerization — Negative Trends

In many ways, the presence of computers at battalion and company levels has actually diminished and detracted from the ability of units to carry out daily command and staff operations. The following problem areas represent negative trends noted in the field:

**Information overload and paralysis.** Computers provide an incredible amount of finite details to decision makers and staff members. However, some Army leaders and staffs are growing less efficient by taking more and more time to sift through the ever-increasing amount of up-to-date information. Our "one-thirds/two-thirds" planning rule is the leading casualty of this phenomenon.

Appendix I of Field Manual (FM) 101-5, *Staff Organization and Operations*, warns of this problem: "Commanders who demand or allow their staffs to demand perfect information will be more vulnerable to defeat through the loss of initiative."<sup>1</sup> Computer science lecturer Tom Forrester further explains, "There is a danger that too much information, more cheaply provided, could make life more difficult by leading to 'information overload' or 'info-glut.' Waiting for all the facts to come in can be paralyzing when the facts never stop coming!"<sup>2</sup> Likewise, if the normal flow of facts and information is absent or delayed, many staff officers and leaders wait for information that never arrives before proceeding.

**Verbose orders and other correspondence, with less emphasis on analysis.** The computer's ability to quickly duplicate, edit, and "cut and paste" from

other products greatly eases the burden of creating orders and other correspondence. However, many units are simply regurgitating higher headquarters' information and staff work rather than conducting independent data collection and unit-level analysis. Or, units reuse old products without injecting new facts and analysis. The net result is a large volume of information that looks suspiciously like a higher headquarters' document or a previous product. This product is passed down to a subordinate commander who may use perhaps 20 percent of the information.

FM 101-5 highlights this problem, stating: "Army operations produce tremendous volumes of information. Much of this information is useful, but not pertinent, to the commander during decision making. Commanders and staffs who understand this can avoid potential information overload by using effective systems to accurately and rapidly convey information."<sup>3</sup>

**Fascination with flashy presentations and graphics.** The Power Point® slide show, complete with fancy color schemes and animated graphics, is becoming the standard for military briefings. Like any visual aid, computer slide shows can help increase the effectiveness of a military briefing. However, units are substituting

| STANDARD DIRECTORIES ON THIS COMPUTER – DO NOT REMOVE |  |
|---|--|
| C:\Personnel  | Personnel-related files (memoranda, rosters, etc.)                         |
| C:\Training   | Training directory – Misc. training memoranda, spreadsheets                |
| C:\Training\Schedules                                 | Training schedules   |
| C:\Training\Orders                                    | Training-related Operational Orders (OPORD)                                |
| C:\Training\METL                                      | Mission Essential Task List (METL)–related training, assessments, guidance |
| C:\Operations   | Operations directory – Misc. operations memoranda, spreadsheets            |
| C:\Operations\Orders                                  | OPORDs   |
| C:\Operations\Taskings                                | Unit Taskings  |
| C:\Supply   | Supply-related files (memoranda, hand receipts, etc.)                      |

FIGURE 1. Hard-Copy Legend for Standardized Directory Structure

slide shows for more functional visual aids such as tactical maps, overlays, hand-drawn objective sketches, and sand tables. Worse yet, overlays, concept sketches, and maps created with the straight lines and autoshapecs of presentation software are terribly inaccurate, misleading, and erroneous. We are excusing a serious lack of attention to detail in the name of eye-pleasing presentations.

To demonstrate, think back to the last time you followed a landing zone/pickup zone sketch or strip map that someone generated with computer graphics. How accurate was it compared to the actual terrain? Undoubtedly, the product appeared extremely linear and two-dimensional, which is very unlike Mother Nature.

### **Computers aren't always the answer.**

Units often turn to computers as a magic panacea that can solve any problem. However, throwing computers at problems may cause us to ignore or discount larger issues linked to areas such as leadership, personnel, or standard operating procedures. Author and computer consultant James Green argues: "Every office has its problems with poor quality, missed due-dates, lost files, and countless other dilemma that are crying for a solution that no one seems to have the time to develop ... If you have problems now, fix them, then automate. Otherwise you'll find the problems remain, but you may not be able to see them so clearly because they have vanished into the bowels of a computer."<sup>4</sup>

### **Leveraging Computers As Combat Multipliers**

The lack of tangible improvements and the problems magnified by computers in company and battalion operations are not caused by the *presence* of computers but instead by the *misapplication and mismanagement* of computers. With careful planning, leadership, and inspection, companies and battalions can realize the true combat multiplying potential of computers. The following 10 principles represent essential considerations and important building blocks in the use of

computers at the battalion and company levels:

#### **PRINCIPLE 1 — ESTABLISH AND ENFORCE AN AUTOMATION POLICY**

Maximizing the potential use of computers at the battalion and company levels starts with a clearly defined task and purpose for unit-level automation. This policy can take the form of an automation standard operating procedure, policy letter, or mission statement. The end goal of a company or battalion automation program should also be measurable. Examples of automation goals include allowing more time for leaders and staffs to monitor and serve subordinate units or creating more time for subordinate unit planning.

Automation policy must also address when to automate and when not to automate. This guidance must contain specifics. For example, the policy might contain the following clause: "If an activity takes more time to complete on the computer and the time won't be repaid through later reuse, then don't use a computer." Or, "Soldiers will not draw tactical overlays or maps with the computer."

Guidance should focus on what price the unit is willing to pay for an automated product. As Army Capt. Michael C. Dorohovich refers to in his "Commonsense Approach to Automation," units should ask the following question: "Will automating a particular action save time or manpower? If not, then do not change the way you are currently doing business."<sup>5</sup>

Additionally, the unit must decide if computerized products and other forms of automation are worth diverting soldiers and leaders away from their primary wartime mission. Lastly, an automation policy should establish specific standards for computerized products. These standards must focus on improving productivity rather than on making something pleasing to the eye. For example, the battalion and company should set a standardized template for all computerized briefings. This template should include a standard font size, color scheme,

and limit on graphics and other niceties. This will prevent "recreating the wheel" and force subordinates to focus on content rather than appearance.

#### **PRINCIPLE 2 — MAXIMIZE THE PRINCIPLE OF REUSE**

One of the greatest selling points of the computer is its ability to store and manipulate information electronically. Individuals can easily and quickly recall, edit, and reuse information stored in electronic form. To maximize productivity, all computer usage at the battalion and company levels must address this principle whenever possible. Constantly ask two questions when using the computer: "Am I able to reuse this product later?" and "How can I design and store this product to facilitate reuse?" When reusing old electronic products, ensure they are properly updated and reformatted to adequately address the task at hand.

#### **PRINCIPLE 3 — USE SOFTWARE TO FULLEST POTENTIAL**

A major obstacle to increased computer productivity stems from a failure to use software to its utmost potential. As software improves, we are still tied to techniques and habits learned with older products and programs. For example, people are still limiting document filenames to a maximum of eight letters as called for in early operating systems. The results are cryptic names that require opening each file to determine its contents. However, Windows® 95/98 operating systems now allow longer file names (up to 255 characters). Therefore, instead of naming an important training document file "req4tng.doc," save it instead as "Memorandum for Record Requesting Night Vision Device (NVD) Driver Training Area."

Additionally, users can save files with author, title, and descriptions to make classification and organization easier. By taking advantage of these features, units will maximize and facilitate reuse and later reference. Longer file names also facilitate the ability to search a storage device for keywords relating to a topic. Other important and overlooked software features include:

- The ability to make and track document changes (complete with audio-voice commentary) without having to print a single piece of paper.
- Synchronizing personal and professional schedules via E-mail.
- Sharing and consolidating common unit documents via a local network.
- Document and spreadsheet template features that will automatically include and update common fields such as letterhead, date, and signature block.

#### PRINCIPLE 4 – USE THE RIGHT TOOL FOR THE RIGHT JOB

Units will gain immediate improvements in computer productivity by simply using the right software tools for the right job. When using computers to perform battle command and staff functions, select an application with features that best address your problem. For example, units should store large amounts of similar information about a set of objects (such as Physical Training [PT] scores) using spreadsheets, not word processors. This facilitates sorting and mathematical analysis (totals, averages, highest, lowest). Units should use databases, not spreadsheets, to record a large amount of varying information about a set of objects (such as soldier information). This facilitates data retrieval and general cataloging. Finally, units should not use computers at all if other forms of filing and recording are faster and more efficient.

#### PRINCIPLE 5 – STANDARDIZE FILE AND DIRECTORY STRUCTURES

Like a cluttered filing cabinet, an unorganized computer directory structure

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frustrates the retrieval, review, and reuse of information. Addressing this problem with standardized directory and file

structures will help battalions and companies realize increased productivity.

To prove this point, examine the file structure on a computer other than your own. Undoubtedly you'll find it cryptic and appalling, and would rather type a new document from scratch than sift through existing information. If you do find something that looks useful, there's no way of telling if it's a draft document or a piece of accurate information. This problem is magnified with computer storage devices growing larger and larger.

Units should organize all computer directories in the unit according to a simple standardized scheme. Examples of possible efficient directory structures include organizing files by traditional staff functions, by document type, or according to the Modern Army Record Keeping System (MARKS) model. The unit should develop a hard-copy legend for the chosen directory structure and post it near each computer. This will help enforce standardization and greatly facilitate the retrieval of information. Figure 1 lists a hard-copy legend of an example directory structure.

#### PRINCIPLE 6 – DEMAND THE PROPER USE OF COMPUTERIZED GRAPHICS AND PRESENTATIONS

Units must ensure oral presentations accompanied by computerized applications such as Power Point® are accurate in content, efficient in terms of time invested, and maximize the principle of reuse. If a computerized presentation will not be reused, seriously consider using butcher-boards or hand-drawn overhead transparencies.

If a computerized briefing is chosen, ask yourself what the cost of producing the presentation will be in terms of time and effort. If you're on the receiving end of one of these computerized briefings, ask the briefers how much time they took to produce the slides. Then ask them when they last took PT, the date of their last weapons qualification, or the last time they logged flying hours in their particular aircraft.

#### All graphic presentations should:

- Display symbols, graphics, and terminology consistent with FM 101-5-1.
- Display essential information.
- Display information clearly and understandably.
- Display information accurately, reliably, and in a timely manner.
- Be able to be changed promptly and easily as the information is updated.
- Be rapidly distributed to higher, lower, and adjacent units.

**FIGURE 2. FM 101-5 Characteristics of Graphic Information Presentations**

Don't just assume higher headquarters and senior officers expect a large volume of pretty slides. Most senior leaders only expect a briefing that is well rehearsed, contains valuable information, and is briefed by someone who knows the material better than how to use the computer platform upon which it is presented. Army doctrine gives us clear guidelines for developing graphic presentations. Figure 2 lists the characteristics of graphic information presentations as listed in Appendix I of FM 101-5.<sup>6</sup>

If computerized slides are required, then higher headquarters units must push slide templates containing as much format as possible down to subordinate units on disk. This will standardize content and minimize the time subordinates must invest making a slide show.

Finally, never use computerized slides as the primary medium for tactical briefings or mission planning. This includes using computer graphic applications to make strip maps, concept sketches, engagement area sketches, and overlays. No substitute exists for the fidelity and detail of maps, overlays, and hand-drawn sketches. Additionally, a map is always present in a briefing room for constant reference, where a computerized slide is quickly replaced by the next slide in the show. Lastly, the more times a map is scanned or duplicated with graphics, the more it loses its accuracy.

#### PRINCIPLE 7 — ESTABLISH ARCHIVING AND DATA MINING

Encouraging the efficient archiving of electronic files will lead to a long-term increase in command and staff productivity. Periodically collect, classify, and store computerized information such as memoranda, orders, and after-action reviews. Then print out a consolidated catalog of all documents stored in the archive with a description of each file. This catalog will serve as a quick desk-side reference and will encourage later reuse or "mining" of information.

The standardized directory structure mentioned earlier will help in this endeavor. This type of large-scale archiv-

ing will positively affect unit productivity in three ways:

- First, it will allow individuals to retrieve, analyze, and reuse information and products.
- Second, today's computer operating systems have the ability to search for key words *within* the contents of individual documents, presentations, and spreadsheets. This might allow a staff officer to search the unit archive much like using a search engine to explore the Internet. This same officer might then examine key lessons learned and points of contact when planning a major training event similar to one the unit may have conducted three years ago.
- Third, storing electronic copies will eliminate much paper documentation. This cuts down on needless office clutter. However, ensure regulations do not require a local hard copy before destroying paper copies.

#### PRINCIPLE 8 — TRAIN SOLDIERS IN EFFICIENT COMPUTER USE

Like most tasks in the Army, the efficient use of computers requires effective training. Units should establish organized and informal training sessions to improve and standardize computer usage. These training sessions might mean formal classes integrated with military occupational specialty training, consisting of a task, condition, and standard that supports the staff or unit Mission Essential Task List. Or, training might include self-teaching workbooks designed to drill users on certain computerized procedures.

Focus the training on actual organizational procedures and policies and not just on how to use the software. Knowing how to use a word processor is one thing. Knowing how to use it to create an OPORD in the proper format and then save it in the right place is another. This minor investment in good computer training will save time later and increase command and staff productivity.

#### PRINCIPLE 9 — IMPLEMENT VERSION CONTROL

As previously mentioned, one of the biggest selling points of computers is

their ability to quickly recall and edit existing information. One can easily recall an existing document, edit a few pieces of information, and produce an updated yet similar product. Access to a good laser printer or copy machine gives us the ability to mass-produce the information and quickly place it into distribution. Future changes are also easily implemented, and new documents are quickly reproduced and distributed.

Before long, several like versions of the same document are on the street. This cycle causes a great deal of confusion as leaders and soldiers struggle to determine which version is the most current. This problem usually arises with movement manifests, OPORDs, or training calendars.

Units must implement version control procedures to ensure increased information flow does not cause increased confusion.

- First, ensure every document contains a date/time stamp. Many software applications allow special fields that automatically print this information in the margin of the document.
- Second, brief changed information as opposed to tossing it into an in-box. Thoroughly announce the changes and instruct subordinates to destroy previous versions.
- Third, if the changes are minor, call the affected units and instruct them to make a pen-and-ink change.

#### PRINCIPLE 10 — REMEMBER, WE'RE A FIELD ARMY!

Although computers may help achieve a high level of productivity in garrison, we must always consider what happens when we go to war.

A dependence on computers in battle command, mission planning, and the military decision-making process can destroy warfighting abilities when deployments, weather, or indirect fire eliminate our ability to use computers. Simply planning to bring more generators, plastic bags, and plywood to protect our machines is not enough. We must plan for and rehearse "computerless" opera-

tions in garrison and during field problems.

Leaders and staffs must practice and develop good command and staff procedures that capitalize on pen, paper, acetate, and grease pencil. Units can also minimize the drastic effects of suddenly not having computers by not incorporating computers into daily operations when other means are available.

### Harnessing the Potential

Computers are powerful machines that retain the potential to serve as combat multipliers in all facets of military operations. However, active leadership, planning, and training are essential to ensure we harness the absolute potential of these useful tools.

Likewise, we must remember that unmanaged application of automation or dependency on computers can have debilitating effects on the way we do business. Army leaders at the battalion and company levels must ensure computer usage is guided by clearly defined goals, sound policy, and standardized and supervised procedures. These steps will help bring dramatic increases in battle command and staff effectiveness.

**Editor's Note:** The author welcomes questions or comments concerning this article. Contact him via E-mail at [stevehenderson@digitalblacksmith.com](mailto:stevehenderson@digitalblacksmith.com).

### REFERENCES

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## DSMC HOSTS SINGLE PROCESS INITIATIVE WORKSHOP

Civil-Military Integration of government-industry business practices and processes has been a longstanding goal of Acquisition Reform. The Single Process Initiative (SPI) is the mechanism by which DoD expedites the transition of existing government contracts to common best processes. Based on input from military servicemembers of the Block Change Management Team, Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform); Navy Rear Adm. Leonard Vincent, Commandant, Defense Systems Management College (DSMC); and Air Force Maj. Gen. Timothy Malishenko, Commander, Defense Contract Management Command (DCMC), co-sponsored an SPI Workshop Jul. 19-21 at DSMC's main campus, Fort Belvoir, Va.

Approximately 150 people attended the three-day workshop, representing the working-level SPI community from the military services, Defense Logistics Agency (DLA), DCMC, Defense Contract Audit Agency (DCAA), Department of Defense Inspector General, other government personnel, and invited industry representatives. "Streamlining the SPI Process" was the theme for this

"working" workshop, which focused on ways of streamlining and improving SPI through communication, education, and sharing of lessons learned.

Institutionalized by Dr. Paul G. Kaminski, Under Secretary of Defense (Acquisition & Technology) in a December 1995 memorandum, SPI allows contractors to have existing contracts modified to replace multiple government-unique management and manufacturing systems with common, facility-wide systems. Contractor proposals are reviewed and approved by a Management Council, which is composed of senior representatives from customer buying activities and program management offices, DCAA, DCMC, and contractors. After approval of a contractor's SPI proposal, the Administrative Contracting Officer executes a block change modification that modifies all affected contracts at the facility.

DCMC has the lead for implementation of SPI. For more information on Civil-Military Integration of government-industry business practices and processes, go to the SPI Center Web site at [http://www.dcmc.hq.dla.mil/dcmc\\_o/oc/Spi/index.htm](http://www.dcmc.hq.dla.mil/dcmc_o/oc/Spi/index.htm) on the Internet.



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FROM LEFT: AIR FORCE MAJ. GEN. TIMOTHY MALISHENKO, COMMANDER, DCMC; JILL PETTIBONE, COMMERCIAL DESIGNATIONS INTEGRATED PROCESS TEAM (IPT); STAN SOLOWAY, DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM); NAVY REAR ADM. LEONARD VINCENT, DSMC COMMANDANT.

