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**THE COMMANDER IN THE DIGITIZED BATTLESPACE**

By/par Colonel James Gludo

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## ABSTRACT

The operational commander needs to have accurate and relevant information available to him at all times. Getting accurate information rapidly provides the commander an opportunity to distribute his resources, focus his attention and exploit opportunity. This data contributes to a common operating picture for the force and leads directly to situational awareness. Mission command works to allow subordinate initiative. As the battlespace reaches maturation with digitization mission command will embrace it and create an environment that has a greater common operating picture.

Digitization, technology, multiple data feeds, real-time updates, and a host of other technological enhancements all have an impact on the battlespace. In this digitized era an operational commander gains improved visibility of his area of responsibility. An increased situational awareness is of benefit to the operational commander and his subordinates. Digitization overlaid into the operational command and control structure amplifies agility and assists in the ability to exploit opportunities that may be presented.

Augmenting Mission Command with a fully connected technology structure is a combat multiplier embraced and adopted by modern militaries. Forces are led by intelligent commanders who will continue to focus on a mission command philosophy that exploits the full benefits of a digitized battlespace. The digitization of the battlespace will enable greater situational awareness to commanders throughout and assist tremendously in decreasing the operational commander's decision-cycle.

## THE COMMANDER IN THE DIGITIZED BATTLESPACE

*Groping for terms to address what the unblinking camera so ably depicted, the reporter on the scene gestured over his shoulder at a pair of killer bug-men moving through the television picture frame. "It's like they knew exactly where to land, exactly where to go, and exactly where to shoot."*

*Exactly*<sup>1</sup>

### INTRODUCTION

An operational commander needs to have accurate and relevant information readily available. This information, coupled with the ability to collect, process and disseminate the pertinent data, while denying the enemy's ability to do the same encourages dominance of the information spectrum and also leads to dominance on the battlefield.<sup>2</sup> Getting accurate and reliable information rapidly helps to provides the commander an advantage of realising opportunities to effectively distribute his resources so they may be employed by his force advantageously, focus his forces' attention onto unfolding opportunities, and exploit weaknesses against his enemy as they are presented. This dominance of the information spectrum can become a combat multiplier – and may mitigate against his forces' weaknesses in other areas.<sup>3</sup> All this data and electronic information contributes greatly to a common operating picture for the commander and leads directly to a better situational awareness, which in turn, enables the commander to act decisively before the enemy does.<sup>4</sup>

### AIM

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<sup>1</sup> Robert L. Bateman, *Digital War: A View from the Front Lines*. (Novato, California: Presidio Press, 1999), 115

<sup>2</sup> Michael Frater and Michael Ryan. *Electronic Warfare for the Digitized Battlefield*. (Boston, Mass.: Artech House, 2001), 3

<sup>3</sup> Martin L. Van Creveld, *Command in War*. (Cambridge, Mass.: Harvard University Press, 1985), 4

<sup>4</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 146

Considering the advances in technology and its impact on militaries throughout the world, the military may perceive itself to be at a crossroad. Western militaries embrace a leadership philosophy of Mission Command, primarily founded on trust leadership<sup>5</sup> and subordinate action, yet an unheralded growth of modern technologies that could appear to encourage, promote and reinforce a vertical command model that would leave little room for subordinate initiative.

The question of control versus initiative may directly impact the behaviour and leadership style of the modern operational commander. Regardless of the outstanding advancements of modern technology and the resulting digitization<sup>6</sup> of the battlespace<sup>7</sup> mission command shall remain a dynamic ingredient to a successful campaign. As digitization continues to mature so too does mission command. The benefits of both the digitized battlespace and mission command maturing in concert with each other creates an opportunity for battlespace dominance of the environment by presenting a greater common operating picture.<sup>8</sup> That being said the digitization of the battlespace is somewhat of a misnomer. Digitization is really just a simplified term that equates to modern technological advances (which have consistently been applied to the military art) of digital data provided from multiple sources that capitalize on the ‘speed of light’ transmission of communications, information and imagery.

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<sup>5</sup> Throughout this paper Trust Leadership refers to the leader who has devolved authority and decision-making because he trusts the judgement and actions of subordinates.

<sup>6</sup> Throughout this paper you will find the term digitization equates to technology and vice versa.

<sup>7</sup> The term battlespace is used throughout this paper to represent all aspects of the environment that the operational commander may have influence and responsibility over as well as information provided from.

<sup>8</sup> Department of National Defence, B-GL-300-003/FP-000 *Command*. (Ottawa: DND Canada, 1996), 30

This paper will argue that digitization – leading to information dominance – enables mission command to create greater effectiveness. I will start by looking at mission command followed by technology and warfare. From there I will address that impact on the tempo of warfare and review digitization overall. I will then explore some of the perils that digitization brings and some of the benefits. This will leave the understanding that digitization, coupled with Mission Command, is a combat multiplier.

## MISSION COMMAND

Using the Canadian Forces as an example, their operational methodology is best described as a manoeuvrist approach that is designed to destroy an enemy's cohesion. This approach does not relegate attrition style warfare to the history books; rather, the focus is to use the strength of forces to exploit the enemy weakness. The manoeuvrist method works on a combination of destroying the enemy's will and his ability and desire to carry on with the battle. In context; the manoeuvrist approach is to pit your strength against enemy weakness, with a view to disrupt and dislocate him. In contrast the attritionist approach is to destroy the enemy by using military might, or strength, against the enemy's strength. To accomplish manoeuvre a commander must exploit the enemy weaknesses that in turn will indirectly influence the enemy Centre of Gravity<sup>9</sup>. Neutralizing or destroying<sup>10</sup> the enemy centre of gravity would dissolve the enemy's will to continue any military action.

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<sup>9</sup> As described in B-GL-3-003/FP-000, *Command*, Centre of Gravity is the source of the enemy's freedom of action, physical strength or will to fight.

<sup>10</sup> Department of National Defence, B-GL-300-003/FP-000 *Command*. (Ottawa: DND Canada, 1996), 28

Overall, mission command is a philosophy, but also a method by which mission guidance is assigned to subordinates. Commanders exercise trust leadership and encourage the subordinate to use their initiative to accomplish the superior's intent and end-state. The subordinate commander is responsible to analyse explicit and implicit tasks, review resources, gain further clarification from the higher commander, and plan his actions so that he may achieve the commander's intent and end-state. The manoeuvrist operational commander will not detail to the subordinate how to accomplish the mission or task. This mission command approach guides subordinates in the use of their own initiative and judgement in ensuring they are pursuing their commander's intent; however, it does not preclude, nor excuse, the higher commander from maintaining close personal supervision. When giving his orders, the commander should be very clear on his intent and end-state, but he must allow subordinates to identify the method of execution and establish self-coordination.

Mission command, based upon decentralization, is used to achieve unity of effort at all levels. Basic to mission command is mutual understanding and trust between all levels of the hierarchy supported by effective decision making in a timely manner so that the decision cycle is faster than the enemy's.<sup>11</sup> Essential to the mission command construct is an understanding throughout the force of the terminology used. This explanation of terminology is encapsulated within four key statements which are: Commander's Intent, Concept of Operations, Mission Statement, and Task. Further clarification is contained at Figure 1 and describes these four statements in more detail.

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<sup>11</sup> Ibid, 28

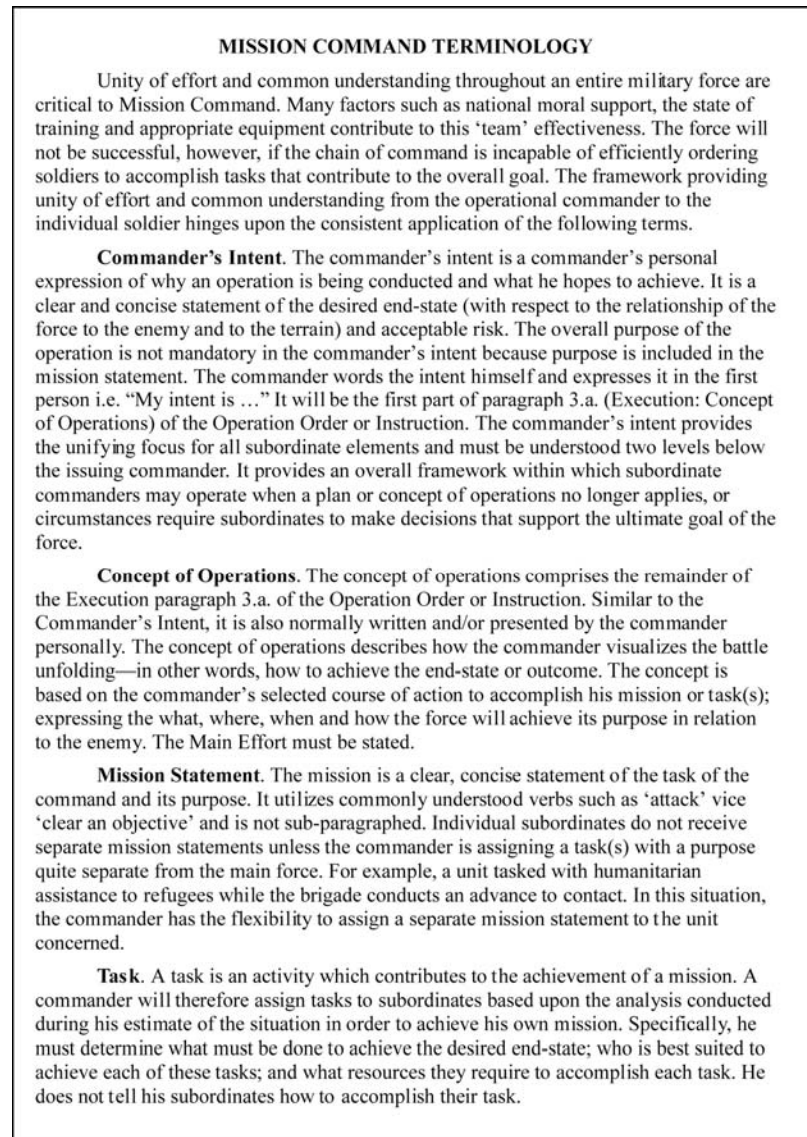


Figure 1<sup>12</sup>

Mission command is an approach to command that affects the commander's control. Essentially mission command is a style of command that replaces active control with implicit control and a shared intent. As shown in Figure 1, the commander's intent is his personal expression of what he, as commander, hopes to achieve. Intent is designed to facilitate mission success by reducing the amount of control required with direct



instruction and supervision and replace it through clarity of a mission statement that works within a context that facilitates spontaneous, self-disciplined cooperation based on trusted low-level initiative. When conducted properly, all members of the commander's force, down to the individual sailor, soldier or aircrew member has a relative understanding of the commander's intent and end-state. This ability is reinforced by mutual trust throughout and an implicit understanding of what needs to be accomplished. All this is fully supported by effective communications.<sup>13</sup>

Effective mission command enables the commander's force to work as a whole, contiguous, organization spanning across the battlespace and not to operate as discrete components within their own realm oblivious to the strengths and weaknesses of others within their force. An effective operational commander will capitalise on the unity of effort of the forces under his control and decentralise his authority to subordinate commanders. Through the application of trust and a good mutual understanding of the

Technology and the military have gone through a constant evolutionary cycle and have served to compliment each other. Many theoretical writers within military circles view technology, coupled with its associated advantages as revolutionising the conduct of military operations<sup>14</sup> In fact, there has historically been a ‘push and pull’ relationship between technological advances and military abilities. On many occasions a defined military need drove the development of a technological solution, while at other times a technology break-through in the private sector, and unrelated to the military, was adopted by the military to aid in their war fighting ability.<sup>15</sup> Advances in technology, military and private sector have been mutually beneficial and complimentary to each throughout history and have often given the advantage, as long as the use was properly incorporated and adapted too, to the early adopter. For example, when the tank was first introduced into the environment and used in a static position as pillbox is proof of a technology that did not provide much benefit; however, when tanks where concentrated and used as a mobile platform they provided tremendous ‘shock action’ giving the commander a great combat multiplier. Technology, and all of its associated advances, has now arrived at a position in history where it is forever integrated directly and throughout all military efforts – both as an enabler within existing systems and as unique stand-alone tools. To paraphrase Toffler, “We fight wars they way we create wealth<sup>16</sup>”, as all western cultures now fully embrace technology within business and their lives.

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<sup>14</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 198

<sup>15</sup> Van Creveld, *Technology and War: From 2000 B.C. to the Present*. (New York: Free Press, 1989), 37

<sup>16</sup> Alvin Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century*. (Boston: Little, Brown, c1993)

The role of any commander is to win the battles his nation asks him to fight.<sup>17</sup> With each era of battle, indeed with each skirmish, new tactics, techniques and procedures were often developed and adopted to assist in achieving a decisive victory by the commander. This was especially true if that military adapted and incorporated that technology effectively in a tactical, operational and strategic sense. History is replete with the many evolutions of weapons and the corresponding technological advances, but weapons, regardless of their lethality, are not the only piece in the orchestra of warfare used, or to benefit from, technology. An example of an unrelated technology benefit is that in the 17<sup>th</sup> Century more accurate and reliable timekeeping (beyond the simple sundials, hourglasses and other such devices) provided the operational commander with a method of coordinating his force.<sup>18</sup> For the first time in history formations under command that were unable to see the position of the other accompanying formation could now be planned within their campaign to have independent movement and yet be coordinated to arrive at a specified location at a time dictated by the commander. This enhanced and enabled a massing of effect and mutual support (concentration and cooperation) of force at a decisive point in mission command fashion freeing the operational commander from daily force control tasks.

The communication of the commander's overall intent to his dispersed forces became much more difficult as time progressed and military forces increased in size. Along with this the corresponding ground they covered became too large to observe and direct rapidly or effectively. Communication with dispersed forces by simple signals, such as

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<sup>17</sup> LCol A. Caravaggio, Subject Matter Expert at CFC Toronto. 6 Oct 2006

<sup>18</sup> Van Creveld, *Technology and War: From 2000 B.C. to the Present*. . . , 43

smoke, flags or mirrors were used but their utility to pass information quickly and accurately was limited by many factors such as distance, weather, and the basic requirement of having someone available to see the signal and relay the message in a timely manner. A commander was therefore limited to a set of simple messages that corresponded to a set of pre-designated drills that were driven by set-piece signals so that the force reactions would be quicker. Having the ability to use these remote signals for communication was helpful, but more was still needed by the commander to exploit opportunities on the battlefield.

As history marched forward one of the major improvements in command and control was realized with the arrival of the two-way radio. This was a major technological breakthrough that now gave the operational commander the ability to communicate almost instantly with subordinate commanders even when they were dispersed throughout the battlespace<sup>19</sup>. The two-way radio facilitated better control and situational awareness for the commander. Some evolutionary examples of the immediate benefits of the two-way radio is that artillery fire could now be easily adjusted by a forward observer using a radio and that force protection was enhanced as unexpected attacks by the enemy could be countered with reinforcements being called upon much more rapidly. In *Breaking the Phalanx*, Douglas Macgregor states, “Information is always an important feature of force protection as well as an important strategic goal in all future military operations. Digitization is in many ways the centerpiece of this effort”<sup>20</sup>. Thus the radio

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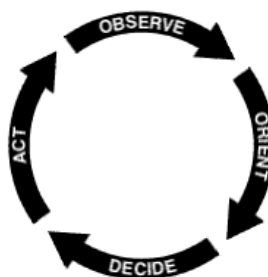
<sup>19</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 14

<sup>20</sup> Douglas A. Macgregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. (Westport, Conn.: Praeger, 1997), 174

was able to provide battlespace situational awareness that permitted quicker reaction and decision-making by the commander.

## TEMPO

The OODA Loop, created by Colonel John Boyd,<sup>21</sup> came from observing fighter pilot action in Korea. His theory developed from the marked ability of the American pilots who were able to defeat the superior MIG-15s flown by the Chinese. Colonel Boyd believed that they were able to defeat the better aircraft because of American pilots' ability to observe, orient, decide and act faster and more effectively than their opponents.<sup>22</sup> This four-step 'intuitive' process is shown in Figure 2.



**Figure 2 OODA Loop<sup>23</sup>**

The OODA Loop is frequently interchanged with the term decision cycle or decision-action cycle. In essence, if a commander is able to observe a given situation, orient himself and his efforts to that observation, decide on an effective course of action and act

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<sup>21</sup> Col. John Boyd, USAF (Ret) created the Observe, Orient, Decide and Act theory of manoeuvre warfare. Many militaries incorporated his four-step model into doctrine to help describe the military command and control process.

<sup>22</sup> Major R. B. Polk, "A Critique of The Boyd Theory – Is It Relevant to the Army?" (Fort Leavenworth, Kansas: School of Advanced Military Studies United States Army Command and General Staff College, 1999), 6

<sup>23</sup> Also known as the Boyd Cycle

decisively quicker than his opponent then that commander would win the engagement even if the commander's forces or weaponry was less capable his opponents. The loop is continuous and each evolution starts the complete observe, orient, decide and act process anew. To act in a mission command environment a commander's success is dependant upon a smaller and tighter, or faster, decision cycle and be able to bring effective and decisive action against an enemy too quick for the enemy to react – in effect creating a tempo that the enemy cannot react to and has no chance of gaining the initiative.

The four steps of the Boyd Cycle may also be aligned to digitization and mission command. Observation is key to any action. This is often referred to as 'sense' and is supplemented by digitization throughout the battlespace. Once an action has been observed the commander must orient himself to it, and this too, is facilitated through digitization. Deciding on the response to the observation relates directly to mission command. Carrying through with the decision, or acting, is a combination of digitization and mission command. With this, the initiative and tempo are being controlled by the operational commander enabling him to use manoeuvre warfare to its best effect. As stated by Brian Steed in, *Armed Conflict: The Lessons of Modern Warfare*, "The increase in the most technologically advanced observation devices has effectively reduced time in the decision cycle"<sup>24</sup>. In essence, the commander is manipulating time in his favour.

The result of a tighter OODA Loop creates an enemy that is reacting to actions and unable to take the initiative in the conflict. According to William S. Lind the Boyd Theory defines what is meant by manoeuvre in his *Maneuver Warfare Handbook*,

“Maneuver means Boyd Cycling the enemy, being consistently faster through however many OODA Loops it takes until the enemy loses his cohesion – until he can no longer fight as an effective, organized force”<sup>25</sup>. An increased tempo driven by a faster decision cycle exploited properly is seen as an effective combat multiplier. The faster decision cycle also benefits from mission command in that any commander who understands the intent and end-state of a superior may observe, orient, decide and act to exploit an opportunity which has presented itself and bring his forces to bear in an effort that helps to achieve the superior commander’s intent.

Mission command, coupled with information technology, creates a tighter OODA Loop that permits independent and rapid action. This action works towards the commander’s end-state; facilitated by the common operating picture held by the subordinate. As Mark McNeilly states, “If an army is to act with speed the commanders must focus on improving its information-decision-cycle times. Even if all other execution cycle times are shortened, failure will result”<sup>26</sup>, thus a tighter OODA Loop enables success.

For a commander to be able to act decisively as a result of a fast decision cycle he needs the ability to coordinate his resources and assets rapidly so that they may reinforce his actions. Coordinating and controlling the entire force has always been the operational commander’s purview and chief among a commander’s assets are subordinate troops and their equipment throughout the battlefield. Positive control of these assets has been a requirement since the early days of battle. The Roman commanders controlled the

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<sup>24</sup> Brian Steed, *Armed Conflict: The Lessons of Modern Warfare*. (New York: Ballantine Books, 2003), 55

<sup>25</sup> William S. Lind, *Maneuver Warfare Handbook*. (Boulder, Colo.: Westview Press, 1985), 6

movement and action of their legions on the battlefield by the use of ‘war councils’.<sup>27</sup>

War councils were normally held the evening prior to the battle and the commander would meet with all his subordinate commanders. This war council is where the commander would outline his plans for the impending campaign and create amongst his subordinates an over-arching understanding of his intent. This allowed subordinate commanders to use their own initiative<sup>28</sup> when the superior commander was unable to provide direction due to limitations in time and space – or mission command. Relaying the commander’s desire, or intent, became even more essential once military formations became so large, and spanned such frontage, that directing forces that were visible to the commander was no longer sufficient to effect command and control. Any proficient commander will do his best to ensure his subordinate commanders are capable of doing his bidding despite the ensuing confusion, excitement and fear of combat.

## DIGITIZATION

*Mission tactics will have died with the last nondigital company command.*<sup>29</sup>

Confusion whilst in battle is commonplace and has the ability to disrupt command and control. Clausewitz has labelled this confusion as ‘friction’ and states, “Friction, as we choose to call it, is the force that makes the apparently easy so difficult.”<sup>30</sup> No organisation is exempt from friction or confusion; although, technology assists in reducing it. Large military organisations always have to guard against debilitating

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<sup>26</sup> Mark McNeilly, *Sun Tzu and the Art of Modern Warfare*. (Oxford: Oxford University Press, 2001), 111

<sup>27</sup> Caravaggio, . . ., 6 Oct 2006

<sup>28</sup> Van Creveld, *Command in War*. . ., 44

<sup>29</sup> Bateman, *Digital War: A View from the Front Lines*. . ., 21

<sup>30</sup> Carl von Clausewitz, 1780-1831. *On War*. (Princeton, N.J., Princeton University Press, c1984), 119-121



confusion and its effects during the preparation for battle. Thus, clarity of unfolding events is rare at all levels of command and within conflict. To mitigate ‘uncertainty’ commanders at all levels attempt to gain a better understanding of what is truly happening within their area of interest. Some commanders attempt to constrain the confusion by enforcing rigid control, but this is a fallacy and unachievable due to friction. When any commander attempts to tightly control subordinates during periods of confusion and uncertainty it normally results in inaction and spontaneity and initiative will be lost leading to a slower decision cycle. This may even have the effect of impacting upon the subordinate’s ability to exploit unfolding opportunities that are not seen directly by the operational commander.

To assist in gaining a better situational awareness an effective operational commander will have an increased demand for all information that may impact directly or indirectly upon the battlespace around him. As a result of increased information availability, the commander<sup>31</sup> may better coordinate and influence the forces under his control. This need for better, more accurate and timely information becomes even more acute when operating in joint and multi-national forces. Increasingly technological advances have provided new and enhanced methods to feed information to the operational commander so that he may have improved situational awareness, and as a result, be much more capable of developing a faster decision cycle, relative to the enemy, which will enable the commander to create additional opportunities for victory. The commander will also work

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<sup>31</sup> North Atlantic Treaty Organization. *Allied Joint Doctrine*. (Brussels: North Atlantic Treaty Organization, 2002), 3-7

to enable information availability to the lowest tactical level so that the lowest level too can develop a smaller OODA Loop.

These technological advances, referred to as digitization, provide a plethora of various information inputs to the commander and his staff. The operational commander who was formerly limited to viewing multiple maps taped together, overlaid with a large plastic sheet, and filled with markings from various coloured grease pencils now has the ability to view his entire battlespace, in several dimensions, on multiple large coloured electronic screens. Modern technology has now facilitated the truly 'big picture' for the commander so that he may see and gain better situational awareness and be better positioned to exert his will.

Technology enhancements are not limited to operational commanders only. Any of the combatants in his force, coupled with the correct electronic components, will have the added benefit of improved clarity of the battlespace and be better able to identify actions and visualise movements that were rarely seen and seldom understood. Many modern militaries are putting this digitization into the hands of all members of their force; however, limits to the personal physical environment may have limits on the enhanced ability to gain a similar visibility as to what the operational commander has. Robert Scales agrees and states, "Each soldier in contact with the enemy will receive as complete a picture of the enemy as technology will allow"<sup>32</sup>. An example of what technology will allow is the screen the operational commander has in his headquarters shows much more

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<sup>32</sup> Robert H. Scales, *Yellow Smoke: The Future of Land Warfare for America's Military*. (Lanham, Md.: Rowman & Littlefield Publishers, c2003), 154

information than the light armoured vehicle (LAV) commander's small screen. The images on the LAV screen can be scrolled up, down, left and right to show the entire picture, but due to the screen's physical size it is incapable of providing a one-glance visibility of the 'big' picture of the situation. The subordinate commanders would be hard pressed to suffer from information technology overload; rather, they may be short-changed due to size limitations and not able to receive enough simultaneous information to aid in their decision cycle<sup>33</sup> to affect their actions on a larger scale. Overall the digitization of the battlespace is a benefit to the entire force, but it is an essential asset to the operational commander. The multiple information and data inputs, capitalising on the capable technology, contribute directly to the commander seeing and interpreting the 'big picture' unlike at any other time before. Now the commander has gained an improved situational awareness and may wage warfare as he intends and when he decides.<sup>34</sup>

The digitized battlespace is able to facilitate, if used correctly, mission command. The use of digitization may best be described as enhancing mission command and mission type orders. Technological improvements give everyone in the force, from strategic to tactical, full access to a common operating picture with the beneficial result of encouraging self-coordination amongst all levels.<sup>35</sup> Resources located throughout the battlespace may relay information to the operational commander and others with the benefit of increasing overall awareness. These inputs contribute to the understanding of the unfolding battle and encourage coordinated action. Self-coordination can create a

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<sup>33</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 17

<sup>34</sup> Carol McCann, and others, *The Human in Command: Exploring the Modern Military Experience*. (New York: Kluwer Academic/Plenum Publishers, 2000), 18

unity of effort that is guided by the superior commander's intent that will drive all efforts towards the operational commander's end-state.

To further assist in achieving mission success across the battlespace, technology contributes and presents information gathered from areas such as: human intelligence, satellite imagery, electronic listening and signals, and situational reports from friendly forces. Data is gathered, analysed and provided to the commander so that his situational awareness is enhanced and he is more able to make timely decisions. The relevant information is then incorporated into a greater command understanding and then transmitted rapidly, in context, to his subordinates. The subordinate commander's ability to respond to a higher commander's influence and information is facilitated by good equipment, effective organization and realistic training<sup>36</sup> which in turn leads directly to combat effectiveness. The whole force then works as a cohesive entity working to achieve a decisive victory.

Technological advances within the military context are much more than the automation of normal processes; rather, it is an increase in the ability to collect, analyse, present and distribute relevant information – overall an enhancement of intelligence and awareness. In the modern military environment confusion can reign supreme and digitization providing clarity should enable commanders to facilitate subordinate actions wherever

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<sup>35</sup> Ross Pigeau and Carol McCann, "Re-Conceptualizing Command and Control", *Canadian Military Journal*, (Spring 2002): 53-64., 57

<sup>36</sup> Department of National Defence, B-GL-300-003/FP-000 *Command*. (Ottawa: DND Canada, 1996), 29

they may be within the battlespace<sup>37</sup> to create decisive results in concert with the commander's end-state. Situational awareness can be improved through the use of timely satellite imagery, the access to secure and robust data, and communications from the political to tactical level. All of it connected to the instantaneous tracking of the commander's entire force. The result of these improvements will be a commander that has a greater overall view of the battlespace and a better-informed situational awareness, and thus, the ability for a faster decision cycle and tighter OODA Loop; all based on a greater comprehension of the overall situation relative to his enemy.

These digitized technological advances have also provided benefits to the operational commander's headquarters. Prior to digitization orders were produced by the commander's staff, and signals<sup>38</sup> were the most effective method of distributing the new, or modified, orders to the force. This process was effective but frequently resulted in a time lag from creation to dissemination to confirmation. With the far-reaching benefits of technology that are included within the digitized battlespace the 'flash to bang' time of create to disseminate to confirm results in a quickening of the decision cycle to provide a faster reacting, better coordinated, and more cohesive force. Modern technology, when properly integrated and applied within a military force, enables rapid, more complete, planning and control of orders<sup>39</sup> that is better than at anytime in the past. When technology, digitization and the soldier are viewed as a network, it provides for an OODA Loop improvement at all levels of command. Accurate and relevant information

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<sup>37</sup> Department of National Defence, *Future Force: Concepts for Future Army Capabilities*. (Kingston, Ont.: Directorate of Land Strategic Concepts, 2003), 101

<sup>38</sup> Radio and dispatch riders carrying paper copy were a common method of transmitting orders to the force.

and data processed at a high rate of speed with improved factual findings presented in a timely and effective manner<sup>40</sup> to the commander so that he can shape and influence the battle as it unfolds.

The application of technology and the resulting digitization of the battlespace is not a panacea. Digitization may provide enhanced and improved information faster and in quantities greater than has ever been available to an operational commander previously. However, this mass amount of information could be overwhelming to an operational commander and be quite useless if the information provided is not properly and accurately analyzed. Without proper filtering the information may be completely overwhelming to the recipients, create strategic interference and result in tighter control from higher.

#### THE "PERILS"

The advent of relatively instant verbal communication now permitted operational commanders to influence the actions of subordinate commanders unlike any other time. A superior commander now held a two-way radio that allowed him to direct the actions of his subordinates with little need or requirement other than an update on the situation that was unfolding. The danger with this technology was that if not used properly the two-way radio system of control could have negated the model of trust leadership and had a crippling effect on any initiative on behalf of a subordinate. The increased use of two-way radio communication – throughout all levels of command – encouraged some

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<sup>39</sup> Department of National Defence. *Purpose Defined: The Force Employment Concept for the Army: One Army, One Team, One Vision*. (Ottawa: Dept. of National Defence, 2004), 17

operational commanders to use the radio for close supervision and tight control. In some situations detailed supervisory control flourished<sup>41</sup> and the façade of the two-way radio gave way to a one-way passage of direction that created a method of constrained supervisory control much to the dismay of some of the tactical commanders, and with it, the operational commanders.

Regardless of the failing of some commanders who fell into the trap of using technology to control and detail actions of subordinates, the acceptance of mission-command type orders continued to evolve and soon became central to western military thought and acceptance within military doctrine.<sup>42</sup> With time the two-way radio communication moved from a higher commander's controlling mechanism to one that enabled the expansion of improved situational awareness. The two-way radio quickly evolved from a controlling mechanism to that of a technology based tool that now enhanced the operational commander's visibility of the battlespace and provided him with a method to 'see' beyond his immediate view.

The operational commander and the forces under his control are not the only ones with access to the digitized battlespace. Key within the digitized environment is enhanced communications ability. Secure and robust communications are now available at the elected politician level in the home nation and can reach across the spectrum (strategic, operational and tactical) all the way to the individual soldier holding the ground in the

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<sup>40</sup> Ibid, 10

<sup>41</sup> Paul Cornish, Dick Applegate, and Combat Studies Institute (Great Britain) *"Cry, 'Havoc!' and Let Slip the Managers of War": The Strategic, Military and Moral Hazards of Micro-Managed Warfare.* (Camberley, England: Strategic and Combat Studies Institute, 2006), 12

battle. Essentially everyone engaged in the battlespace can now communicate with everyone else.

The strategic and political leadership have access to the full span of digitization, and not just communication. The operational commander's superiors are able to gain an even larger picture of the battlespace as satellite imagery is frequently more prevalent at the strategic level than at the operational level. The elected politicians can now see, communicate with, and instantaneously track the entire force regardless of where it is located in the world. Some at the higher levels may see this technological ability as an invitation for comment and instruction as direction will be instantly returned to the operational theatre just as quickly as the higher level received the picture.<sup>43</sup> In some cases, and primarily in the early stages of adopting digitization, the tendency for higher levels of command to use the 'long handled screwdriver'<sup>44</sup> to adjust what appears to be underway may be the case and the impact of this 'assistance' from the political and/or strategic level could have unintended impacts throughout the force.

The ability to engage, and even participate, across the war spectrum by the commander's leadership, political and strategic, may have an unanticipated behavioural impact on the operational commander, and in fact, may modify the current political-military dynamic that leaves the force to fight the battle. As Martin L. Van Creveld states in, *Command in War*, "The impact of technology, the nature of weaponry, the strategy and tactics of the

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<sup>42</sup> Ibid, 21

<sup>43</sup> Ibid, 15

<sup>44</sup> Also known as the six (or seven, eight, nine or ten) thousand-mile screwdriver. It is the ability of a senior commander or elected politician to monitor and direct tactical actions far from his desk.



day, the organization, training, and discipline of the armies intermeshed with the political construct of the society and the social values of the soldiers will affect the choice of command and control<sup>45</sup>”. The expansion of the strategic realm encompassing operational and tactical realms through the exploitation of technology is a phenomenon. Prior to digitization there was a slight overlap between the three levels and as digitization moved into the entire military structure the overlap changed drastically as seen in Figure 3.

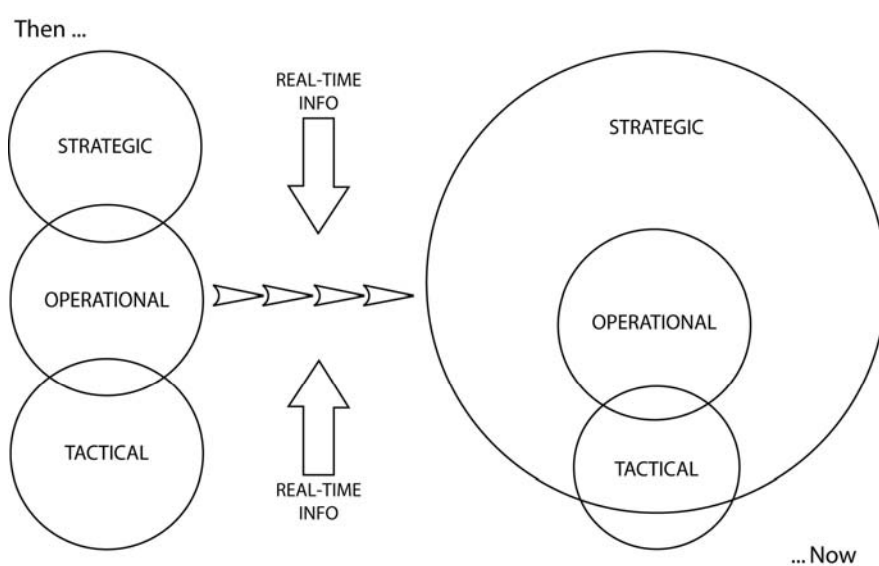


Figure 3 Army War College Presentation on Strategic Leadership (Commandant’s Course Introduction) LTG Holder<sup>46</sup>

First and foremost this construct of digitization and command and control may have a tendency to impede the operational level benefits provided by digitization. It could detract the benefits of mission command by discouraging a subordinate commander’s initiative and judgement as every action he performs is viewed by all levels. Secondly strategic direction to the tactical level operator may result in lengthened decision cycle

<sup>45</sup> Van Crevelde, *Command in War*. . . , 261

<sup>46</sup> Presented to AMSP9 26 September 2006

times<sup>47</sup> and a reduction in the effectiveness at the operational level. This may create a strategic paralysis which will result in growing the OODA Loop. As stated by LGen Natynczyk, “The further you are away from the sound of the guns, the longer it takes you to figure it out”<sup>48</sup>, thus the effect of the ‘long handled screwdriver’ is counter-intuitive to mission command due to its impact on the OODA Loop.

Technology has historically been used to overcome inherent force limits faced by the operational commander. These limits are not so much actual inabilities; rather, they amplify areas the operational commander would like to improve upon such as: time and space, visual and audible control, and effective communication of the commander’s intent and end-state. The digitized battlespace has the added benefit of providing enhanced communications ability. Communications is now more robust and secure and better able to reach all within the commander’s force. An increase in the ability to pass accurate and timely information to subordinate commanders, regardless of their location, will permit the commander to virtually be in many places at once<sup>49</sup> and provide the added benefit of increasing his and his subordinates overall understanding of what shape his area of responsibility is taking. Further, it enhances situational awareness of all commanders throughout the force.

## THE “BENEFITS”

Data without analysis is just data. The operational commander and his staff must develop an effective method of processing, coordinating, and interpreting all the received

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<sup>47</sup> Carol McCann, and others, *The Human in Command* . . . , 113

<sup>48</sup> Presentation to AMSP 09, 27 Sep 06 on Coalition Warfare.

information before the commander is overtaken by the sheer quantity and volume<sup>50</sup>. Regardless, digitization is only one more tool at the commander's disposal. Like all tools it must be able to assist in his work and prove to be beneficial in his construction of a successful campaign. The effective operational commander will exploit all the benefits of digitization coupled with the enhancements it provides to mission command so that he may provide the conditions to better orchestrate tactical actions towards achievement of the strategic end-state. Digitization complimented with accurate processing and interpretation of information, will allow the commander to reinforce his intent to subordinates so that when they are presented with an opportunity they can, and will, exploit it rapidly and effectively<sup>51</sup>. The benefit of the digitized battlespace is an increased situational awareness and shortened decision cycles – to commanders at all levels. Digitization provides great benefit by quickly feeding the most pertinent information to the operational commander so that he may manoeuvre his forces within a common operating picture to exploit the enemy's weaknesses.

The digitizing of the battlespace, despite some appearances and actions at higher levels, is not an attempt to increase a vertical command influence or create more restrictive command and control; rather, the technological enhancements and the digitized battlespace are another great tool that, when used correctly and in conjunction with effective mission command, will increase the operational commander's overall situational awareness. Historically t

commander regardless if the technological solution was being driven by a military need or became a military benefit due to a technological advance. Technology has frequently assisted military operations whether that technology was horses, mirrors, radios, or satellite photographs. Any tool to increase the situational awareness allows the operational commander a better and timelier ability to make decision, influence actions and exploit opportunities as they present themselves. In the technological spectrum – situational awareness – is probably the most revolutionary of all technological impacts<sup>52</sup> to a modern military force.

## CONCLUSION

Digitization, technology, multiple data feeds, real-time updates, and a host of other technological enhancements all have an impact on the battlespace. These resources impact directly on all aspects of the operational commander's campaign, the methods he selects to use to achieve mission success, his politicians ability and desire to influence the commander's actions, and virtually all his force's actions: tactical, operational and strategic<sup>53</sup>. In this digitized era, for the first time since the 19<sup>th</sup> century, an operational commander may have better visibility of his area of responsibility than his tactical commanders<sup>54</sup>. An increased situational awareness benefits not only the operational commander, but all of his subordinate commanders engaged in the conflict. Digitization fully incorporated into the operational command and control structure allows for increased agility and the ability to exploit opportunities across the operational spectrum,

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<sup>52</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 136

<sup>53</sup> Van Creveld, *Technology and War: From 2000 B.C. to the Present*. . . , 1

<sup>54</sup> Bateman, *Digital War: A View from the Front Lines*. . . , 17

due in a large part, to the resulting benefit of a quicker decision cycle and improved synchronisation.

Augmenting Mission Command with a fully connected technology structure is a combat multiplier that all modern militaries embrace<sup>55</sup>. Modern militaries are led by smart commanders who will enhance mission command with the benefits provided by digitization. Any propensity to proscribe restrictive command and control at the operational level will disappear as familiarity with digitization grows just as it did when the two-way radio entered the battlefield<sup>56</sup>. The digitization of the battlespace will enable greater situational awareness to commanders at all levels and assist tremendously in decreasing the operational commander's decision-cycle. Our institutional culture of mission command is based upon trust leadership; therefore, digitization will be a benefit; although, we may have to suffer through some birthing pains.

Mission command in a manoeuvre warfare construct is effective. With accurate and reliable information the commander has the advantage of realising opportunities and effectively distributes resources so they may be employed by his force to exploit weaknesses against his enemy as they are presented so that the commander can win the battles his nation asks him to fight. Mission command without technology works, whereas technology without mission command does not work. Technology, enabling information dominance through digitization, connected directly to mission command is a combat multiplier that will aid an operational commander in winning battles.

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<sup>55</sup> Woodworth, "Canadian Army Command in Operations Other Than War and Realdoktrin." . . ., 20

<sup>56</sup> Van Creveld, *Technology and War: From 2000 B.C. to the Present*. . ., 18

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