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# STRIKING THE C2 BALANCE IN 2010

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.



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To aid the future operational commander, this paper analyzes various command and control (C2) styles in an idealistic environment of perfect situational awareness. The theoretical model of perfect situational awareness is then modified by three factors to provide a more pragmatic model from which an enlightened selection of C2 style can be made. Analysis of these models concludes that a decentralized C2 style will best serve the operational commander in 2010.

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Abstract of

STRIKING THE C2 BALANCE IN 2010

Since the publication of *Joint Vision 2010*, most of the national debate concerning command and control (C2) has centered on the system instead of the process. The debate has involved the type of technology required to achieve dominant battlespace awareness and whether dominant battlespace awareness is possible by 2010. While the technology debate is important, the debate over the type of C2 process desired in 2010 has received less attention.

Instead of intermingling the technology and process debates, assume that in 2010 there will be a robust system in place to support almost any C2 style an operational commander may choose. The operational commander would no longer be compelled to select a C2 style based on the technological limitations of his C2 systems. With more freedom of choice in 2010, the operational commander of tomorrow needs to think through today the best style of C2 to be used in the future.

To aid the future operational commander, this paper analyzes various C2 styles in an idealistic environment of perfect situational awareness. The theoretical model of perfect situational awareness is then modified by three factors to provide a more pragmatic model from which an enlightened selection of C2 style can be made. Analysis of these models concludes that a decentralized C2 style will best serve the operational commander in 2010.

*The capabilities of future information systems could provide such a level of battlespace awareness that senior commanders could have the ability to monitor and directly control the actions of junior leaders.*[1]

*--Concept for Future Joint Operations*

*Joint Vision 2010* portrays a future where the operational commander will leverage his information superiority to achieve dominant battlespace awareness.[2] Dominant battlespace awareness would provide the operational commander the capabilities to command his forces from almost anywhere along the full spectrum of control. Historically, the limitations of technology have imposed limitations upon command and control (C2) styles available to the operational commander for effective use. However, with the advent of dominant battlespace awareness, the operational commander would no longer be restricted in selecting options.

With a full spectrum of C2 options to choose from, would a more centralized C2 style be better suited to meet the demands of the future? Centralization may produce a more efficient use of forces. Increased efficiency will be a critical demand of the leaner force structure projected for 2010. Centralization takes the principle of mass to new heights where the operational commander no longer is consumed with the concerns of massing forces, but rather he is empowered with the possibility of massing effects. Conversely, the majority of doctrine published in the wake of *Joint Vision 2010* emphasizes decentralization of execution in order to capitalize on the initiative of subordinate commanders and even individual soldiers in the field. Decentralization, however, fails to maximize the principle of economy of force in order to purchase the promise of rapid action through lower echelon initiative. "The optimal balance between centralized and decentralized command and control will have to be carefully developed . . . " advises *Joint Vision 2010*.[3]

Since the release of *Joint Vision 2010*, much of the national debate related to command and control has focused on the technology of C2 systems. Considerable resources of time, money, and talent have been expended in exploring concepts, such as Force XXI and Network Centric Warfare, to determine the feasibility of system technologies to provide dominant battlespace awareness in 2010. While these concepts of C2 **systems** are worthy of exploration, relatively few resources have been devoted to exploring C2 **processes**. In this paper, the C2 process options available to the operational commander are examined by assuming that the C2 systems in place by 2010 will indeed provide dominant battlespace awareness. By removing the systems issue from the C2 debate, analysis can focus on determining the C2 process that will best serve the operational commander in 2010. Furthermore, by assuming C2 systems will support almost any C2 process, the debate boils down to a personal decision of C2 style selected by the operational commander. First, the range of C2 styles available to an operational commander must be reviewed.

## THE C2 SPECTRUM

The C2 spectrum ranges from total decentralization to total centralization. At the totally decentralized extreme of the spectrum, combat is nothing more than random acts of violence and chaos. At the other extreme of the spectrum, total centralization is a futuristic form of warfare where operational commanders conduct war as if it were a computer game. A few strokes on a keyboard or the deflection of a joystick by the operational commander from the comfort of his office in the Pentagon would instantaneously launch weapons from many sources to mass effects on the targets. It is unlikely that either of these extremes will

be the C2 structure which succeeds in 2010. The totally decentralized extreme may never achieve its strategic goals. The totally centralized extreme is not technically feasible by 2010. Today's systems and the anticipated weapon system acquisitions before 2010 will not be able to provide the level of automation and remote control required for total centralization.

Between the two extremes of total decentralization and total centralization lies the C2 style that will be employed in 2010. This region can be subdivided into eight categories as shown in Figure 1. The C2 spectrum presented in this paper was developed by expanding the concepts of Dr. David S. Alberts and Dr. Richard E. Hayes presented in their book, *Command Arrangements for Peace Operations*.[4]

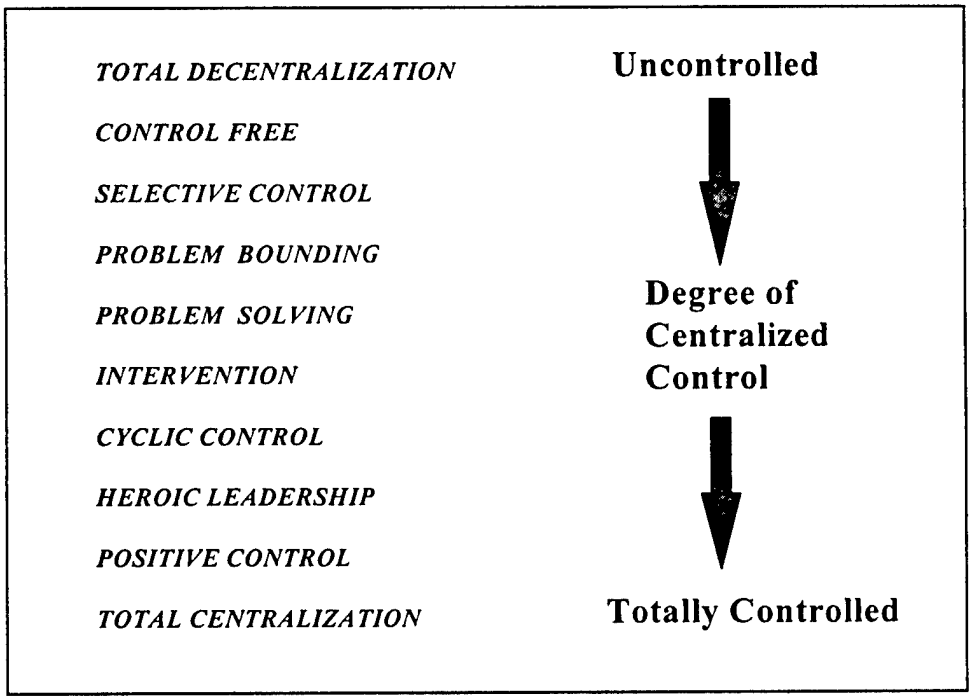


**Figure 1. Command and Control (C2) Spectrum**

In the **control free** style of C2, an operational commander explains his desired results and then allows his subordinates freedom of action to choose their methods to achieve victory. An example of the control free style is the use of blitzkrieg by German forces in

World War II.[5] Directives from operational commanders were issued in the form of mission type orders called *auftragstaktik.*[6] The control free C2 style demands a great deal of competence and initiative by lower echelon commanders. The control free style can succeed only if the operational commander trusts his subordinates implicitly.

In the **selective control** style of C2, operational commanders also issue mission type orders and expect initiative from competent subordinates.[7] However, the operational commander closely monitors the actions of his subordinates to facilitate rapid intervention. The operational commander may select to more tightly control an operation due to changes in the political or military environment beyond the capabilities of the tactical level commanders. The selective control style of C2 requires great self discipline by the operational commander. It is difficult for the operational commander possessing the tactical picture not to intervene except only in cases of strategic or operational environmental changes. An example of the selective control style is the system called "optional control" used by the Israel Defense Forces.[8]

In the **problem bounding** style of C2, the operational commander translates his overall mission into objectives for tactical commanders.[9] The operational commander issues objective oriented directives to place some bounds on the problem of mission accomplishment for the lower echelon commanders. In this style, orders are more detailed than the mission type directives issued under the control free or selective control styles. However, the directives are still expressed in general terms to allow initiative by subordinates. An example of the problem bounding style is the system used by the forces of the United Kingdom.[10]

In the **problem solving** style of C2, the operational commander issues objective oriented directives but in greater detail than those issued in the problem bounding style. The operational commander focuses not only on the actions of the next echelon below him but also on the echelon below that. He communicates his intent so that it can be understood two echelons down. The United States since World War II has tended to issue problem solving directives to its conventional forces.[11]

In the **intervention** style of C2, the operational commander is much like a football coach calling plays from the sidelines. The actions of his forces are based on a collection of preplanned, rehearsed plays. The operational commander closely monitors the action and selects the play most appropriate to the situation. The operational commander issues orders to his next lower echelon commanders to execute a given play. These commanders then direct their subordinates to perform the preplanned actions. Action continues according to the plan until the operational commander chooses to intervene again by calling another play. The Cold War era Soviet system is an example of the intervention C2 style.[12]

In the **cyclic control** style of C2, the operational commander issues orders to all subordinates at the same preset cyclic times. The Chinese Army and the Soviet World War II forces are examples of this style.[13] In this very centralized form of C2, subordinate commanders cannot act, except in self defense, without direction from higher command.

In the **heroic leadership** style of C2, the operational commander personally leads the action of his forces against the enemy. Historically, heroic leadership was used with smaller armies. The operational commander would physically position himself so he could see the entire battlefield. From this vantage point, he would direct the actions of his troops. When

the desired conditions for attack appeared, the leader would physically position himself in front of his decisive unit and lead his troops by example into battle. Subordinate commanders would follow or support by performing actions preplanned by the commander. The heroic leadership style of C2 was used by the ancient Greeks, Alexander the Great, the Roman Empire, and Frederick the Great.[14]

In the information age, heroic leadership is transformed. The battlefield is replaced by the battlespace where all physical actions and entities are translated into computer data. The physical based data is combined with intangible based data, such as communications, to form the battlespace within the infosphere.[15] The operational commander positions himself on the digital high ground to best sense all of the battlespace. Even though there are new terms in describing this transformed heroic leadership C2 style, the basic concept is not new. Field Marshall Alfred von Schlieffen nearly a century ago envisioned a future where "the Modern Alexander will have the entire battlefield under his eyes on a map."[16] From this computerized vantage point, the operational commander can exercise a heroic leadership style of C2 as the modern Alexander.

In the **positive control** style of C2, subordinates are prohibited from using their weapons even in self defense. Weapons are used only upon higher authority orders. The higher authority is typically the strategic leadership of the state. The positive control C2 style is used to control nuclear forces of the United States.

Any one of the eight less extreme C2 styles discussed has the potential for victory in 2010. However, the style chosen must match the task and environment to succeed. The operational commander of 2010 must prepare himself to employ a general type of style

before the hostilities begin. Once called to action, the operational commander can tailor his general style to meet his needs. To help a future operational commander select his general style, it is beneficial to examine centralized and decentralized styles in a theoretical 2010 world with perfect situational awareness. Following the example of Sir Isaac Newton, a theoretical world will be constructed for initial analysis. The theoretical world, one in which perfect situational awareness exists, is an oversimplification of nature. Yet, this oversimplified model yields valuable insights into reality just as Newton's model of a world without friction was able to describe the laws of motion. Selection of a C2 style can then be based on the theoretical 2010 world. Once theoretical conclusions have been developed, the theoretical construct will be modified with other forces to provide a model which is more in conformance with reality. An examination of the complicating factors of imperfect situational awareness, human nature, and reliance upon coalitions will be used to transform the theoretical choice of C2 style into an option more suitable to the probable world of 2010.

## C2 IN A THEORETICAL 2010 WORLD

A theoretical world of 2010 can be constructed by assuming that the operational commander has perfect situational awareness. In this theoretical world, the operational commander can sense all actions occurring within the battlespace. Such omniscience enables the commander to make optimal decisions concerning the employment of his forces. The operational commander can use this advantage to better orchestrate the actions of his forces to mass effects and maximize economy of force. With a centralized C2 style, the operational commander can position his forces like pieces on a chess board to achieve precision and

fewer casualties. In such a style of centralized C2, the operational commander would not have to worry about subordinate errors. Subordinates would be limited in their initiative and therefore less likely to make mistakes that could escalate the conflict prematurely. Also, the centralized style would provide the operational commander the ability to rapidly respond to changes in strategic guidance on the one hand and unforeseen tactical and operational developments in the battlespace on the other.

On the other hand, the operational commander could achieve more rapid action from his subordinates using a decentralized C2 style in the theoretical world of perfect situational awareness. Subordinates understanding the operational commander's intentions would react to situations as they developed without the delay of decision making by the operational commander. A decentralized style would be able to exploit fleeting windows of opportunity which might close before a centralized decision could be made and execution orders dispatched. Another advantage to a decentralized style would be that the initiative of subordinates would better cultivate their minds for future roles as an operational commander.

In the theoretical world of 2010, the operational commander may choose to change his C2 style to meet the situation and environment at the time. In any conflict there is a pre-hostilities phase followed by a hostilities phase followed by a post-hostilities phase. In the pre-hostilities phase, diplomatic negotiations attempt to defuse the situation and maintain peace without resorting to the application of military force. Errors made by subordinates acting on their own initiative could lead to war in the pre-hostilities phase. During the pre-hostilities phase, an operational commander needs a more centralized C2 style to prevent undesired escalation to hostilities.

During the hostilities phase, a more decentralized C2 style may best serve the operational commander. During hostilities many actions occur simultaneously and at a very rapid pace. While the operational commander in the theoretical 2010 world may know all actions, there is no guarantee that he will make all the right decisions fast enough to keep pace with the hostilities. Physical endurance by the operational commander also plays a role in the hostilities phase. The operational commander cannot make all of the decisions in a fast paced war lasting more than a few days. With an overwhelming number of rapid decisions required, the operational commander would be better served by employing a decentralized C2 style. The initiative of subordinates would reduce the number of decisions demanded of the operational commander. Once relieved of the burden of making all the decisions, the operational commander could use his perfect situational awareness to properly intervene at any time he deemed necessary. Another advantage to a decentralized style would be that a lower echelon commander may show imagination in his initiative that was not considered by the operational commander.

Conversely, if actions during the hostilities phase were slow paced like the trench warfare of World War I, then the operational commander may be better served by a centralized C2 style in the theoretical world of 2010. A centralized style would enable the operational commander to minimize casualties while maximizing economy of force. Even though the centralized style failed when tried by the British in World War I, the operational commander of 2010 could potentially succeed with perfect situational awareness.

During the post-hostilities phase, the operational commander needs a more centralized C2 style. For this discussion, the post-hostilities phase begins upon the

implementation of a cease fire. An operational commander must restrict the initiatives of his subordinates to prevent re-igniting the fighting during the tenuous period following a cease fire. For reasons similar to those discussed in the pre-hostilities phase, a centralized C2 style would best serve an operational commander in the post-hostilities phase.

## COMPLICATING FACTOR #1: IMPERFECT SITUATIONAL AWARENESS

> *From Plato to NATO, the history of command in war consists essentially of an endless quest for certainty.*[17] *--Martin van Creveld*

In 2010, the operational commander will not possess perfect situational awareness. Perfection is impossible to achieve in our imperfect world. *Joint Vision 2010* acknowledges this fact and describes a future with dominant battlespace awareness instead of **perfect** situational awareness. "Although this will not eliminate the fog of war, dominant battlespace awareness will improve situational awareness, decrease response time, and make the battlespace considerably more transparent . . . " according to *Joint Vision 2010.*[18] The lack of perfect situational awareness must factor into an operational commander's decision concerning a C2 style. The operational commander must deal with uncertainty.

There are two basic approaches to dealing with uncertainty. One approach is to try to become more certain. An operational commander could operate with a more centralized C2 style which demands subordinates report and act in ways to increase the operational commander's level of certainty. The other approach in dealing with uncertainty is to accept it. An operational commander would employ a decentralized style of C2 to allow the initiative of subordinates to overcome the obstacles created by the operational commander's uncertainty.

In the more centralized styles, disruption of communication links with subordinates can be disastrous. Corruption of the operational commander's picture for situational awareness can lead him to make wrong decisions. A severing of communication links between the operational commander and his subordinates would drastically reduce any offensive actions. Subordinates would be limited to only actions of self defense under the more centralized styles such as cyclic control and heroic leadership. A severing of communication links in the positive control style would lead to paralysis. In the more decentralized styles, problems with communications would not significantly inhibit subordinate actions. Subordinates would continue to act on their own initiative, making decisions based on their understanding of the commander's intent. While a decentralized style would be less precise, a loss of precision is usually preferable to inaction. Therefore, the complicating factor of imperfect situational awareness makes a more decentralized C2 style appropriate for 2010.

## COMPLICATING FACTOR #2: HUMAN NATURE

> *The hardest thing I have to do is to do nothing. There is a terrible temptation to interfere.*[19] --*General George S. Patton, Jr.*

Human nature will make an operational commander gravitate toward a centralized C2 style. The operational commander has the burden of responsibility weighing heavily upon his shoulders. In war the stakes are very high and the margin for error is low. An operational commander with a clear picture of the battlespace would want to avoid mistakes and minimize casualties. As discussed in our theoretical world of 2010, a centralized style would best meet these desires.

The inertia of history will also push an operational commander toward a centralized style. Before and during World War II, the trend in C2 style was to become more decentralized. This trend was more out of necessity than choice. As the size of forces grew, the operational commander could no longer see his entire battlespace and was compelled to decentralize. Since World War II, two factors have come together to reverse the trend and shift it toward centralization. These factors are the specter of nuclear war and the rapid growth in communication technologies.[20] The threat of an accidental outbreak of nuclear war forced centralized C2 upon both nuclear and conventional forces. The positive control used for nuclear forces is an obviously necessary style. Less obvious, the centralization of conventional forces was necessary because an escalation in conventional warfare could push a state into using nuclear weapons. This centralization was seen to approach extremes during the Cuban missile crisis of 1962 when President Kennedy personally supervised the location of each naval vessel involved in the blockade.[21] Commenting on unauthorized acts by subordinates during the crisis, President Kennedy justified his centralized style by stating, "There is always some so-and-so who doesn't get the word."[22]

The rapid growth in communication technologies has facilitated more centralized C2 styles. Global communications have allowed post World War II leaders to intervene in ways not previously possible. The trend toward centralization following significant improvements in communication capabilities can be readily seen throughout history. Three recent examples include the telegraph, the telephone, and wireless communications. With the advent of the telegraph, President Lincoln sat in the War Department telegraph office and ordered his generals all over the battlefield via telegrams during Stonewall Jackson's Shenandoah

Campaign of 1862.[23] With the telephone, World War I commanders found they suffered from "telephonitis, a tendency by higher headquarters to interfere in every small detail simply because it was so easily done."[24] President Kennedy was not the last to favor a centralized style in the 1960's world of wireless communications. His successor, President Johnson, micromanaged the bombings in Vietnam.[25] It should be no surprise that the operational commander of 2010 and his superiors will also be tempted to employ a centralized C2 style.

## COMPLICATING FACTOR #3: RELIANCE UPON COALITIONS

"Our history, strategy, and recent experience suggest that we will usually work in concert with our friends and allies in almost all operations."[26] Our reliance upon coalitions in 2010 will have an impact on the type of C2 style that should be selected. In coalition operations, unity of command is normally not possible. Interests will vary among nations thus requiring consensus for any semblance of unified action. Unity of effort is the best that can be expected from a collection of nations loosely bound by a coalition. Consequently, the operational commander is not capable of exerting the same degree of control over another nation's forces as he is over his own forces. Thus, a more centralized C2 style would be difficult to execute in coalition operations. Due to national interests, culture, language, and differences in doctrine, coalitions are inherently decentralized. The operational commander should select a decentralized C2 style to be in harmony with the innate tendencies of a coalition.

## RECOMMENDATIONS

In our theoretical world of perfect situational awareness, the operational commander would have capabilities to employ any style of C2 and succeed. For optimal performance, an operational commander should select several different styles of C2 to best match the changing situation. During the pre-hostilities phase, a centralized C2 style would be best. During a fast paced hostilities phase, a decentralized style would be best even with perfect situational awareness. During a slow paced hostilities phase, a more centralized style would be preferable to reduce casualties. During the post-hostilities phase, a more centralized C2 style would again be the best choice.

In a theoretical world of 2010, the operational commander could change his C2 styles rapidly to meet the situation at any given time. However, in reality, changing styles in the middle of operations defies the time honored principle of simplicity and can lead to disorder instead of synergy. The potential for disorder is even more pronounced in coalition operations where a centralized style goes against the nature of a coalition. Furthermore, the more probable world of 2010 will not provide perfect situational awareness. Imperfect situational awareness can create critical vulnerabilities in a centralized C2 style. While human nature may drive an operational commander toward a centralized style, this tendency must be resisted. In a centralized C2 style, subordinate commanders would be deprived of initiative and hence their professional growth may be stunted. "By reducing subordinates to automatons, . . . the leader destroys their morale, stifles their initiative and curbs their professional development."[27] While it may seem appropriate at the time to use a centralized C2 style, it is only at the expense of future operational commander capabilities. In the

centralized C2 style, a subordinate's imagination and initiative would atrophy. In 2010, the subordinate will also possess much greater situational awareness than he does today. His situational awareness will nearly equal that of the operational commander. If the subordinate is deprived of initiative while possessing the big picture, he will constantly second guess the operational commander and become dissatisfied with his occupation. Such an environment would be detrimental to the morale of an all volunteer force such as we have today and will probably have in 2010. Therefore, in the more probable world of 2010, the operational commander must go against his natural tendencies and base his organization on a decentralized C2 style. "If twenty five centuries of historical experience are any guide", a decentralized C2 style will be superior to a centralized style in the future.[28]

Instead of changing styles as the situation changes, the operational commander must adapt his decentralized C2 style to meet the control needs of the new situation. The adaptation of a decentralized C2 style to achieve centralized control is evident in the Israel Defense Forces of 1973. The operational commander, General Elazar, operated from the decentralized style category of selective control. However, General Elazar distrusted his subordinates so much that he intervened excessively. His interventions adapted his decentralized C2 style into a very rigid, centralized C2 system which Martin van Creveld called "reverse optional control."[29] While reverse optional control was not successful, it demonstrates the ability of a leader to shift a style from one end of the C2 spectrum to the other through adaptations.

Theoretically, the debate of centralized or decentralized C2 has already been settled. Doctrine clearly advocates a decentralized style. However, the espousal of a decentralized

C2 philosophy does not necessarily mean that a decentralized C2 style will be practiced. The operational commander must be extremely careful not to succumb to his natural tendencies for centralization. The case of General Elazar should serve as a warning of how easily a well meaning commander can transform into a centralized style.

In order to achieve the optimum level of control for the given task and environment, modifications to the decentralized C2 structure should be provided by commander's intent and rules of engagement. The operational commander must exploit his information superiority to more clearly communicate his intent. Commander's intent must be unambiguously and clearly stated frequently to subordinates. Rules of engagement must be used to provide the necessary control required by strategic and operational concerns while not squelching the initiative of subordinates.

The biggest battle the operational commander in 2010 must fight will be the human nature of his superiors. We must not forget that superiors will also possess dominant battlespace awareness in 2010. The civilian leaders, armed with dominant battlespace awareness, may want to adopt a heroic leadership style to bolster their standing in the public eye. The operational commander must constantly keep his superiors informed so they will be more confident in the operational commander's capabilities and be less inclined to intervene. While Clausewitz demonstrated the need for a primacy of politics over the military, we must not overlook the kernel of truth in the warning by Sun Tzu that "no evil is greater than commands of the sovereign from the court."[30]

## CONCLUSIONS

Would a more centralized C2 style be better suited to meet the demands of the future? Centralization offers the promise of greater efficiency in a theoretical world. However, the realities of imperfect situational awareness, human nature, and coalition reliance demonstrate that a decentralized C2 style will best serve the operational commander in 2010. Decentralized command and control must be the standard in 2010 to capitalize on the initiative and flexibility of lower echelon commanders.

## NOTES

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