

11th ICCRTS
Coalition Command and Control in the Networked Era

Mission Command in the Networked Era

Track: C2 Concepts and Organisation

Keith G Stewart

Command Effectiveness and Behaviour Section
DRDC Toronto
1133 Sheppard Avenue West
PO Box 2000
Toronto, ON M3M 3B9
CANADA

tel: 001-416-635-2130
e-mail: keith.stewart@drdc-rddc.gc.ca

Mission Command in the Networked Era

Keith G Stewart
Command Effectiveness and Behaviour Section
DRDC Toronto

Abstract

Examination of recent doctrinal and scholarly publications indicates a growing consensus across western militaries that the operational capability of network-enabled forces will be optimised by the adoption of a command approach based upon decentralisation. Commonly termed mission command or command by directive orders, this philosophy is based upon the exercise of local initiative within the framework of command intent. The purpose of this paper is to explore some of the human and organisational issues associated with the adoption of this class of command approach by future network-enabled forces in the context of complex operations. Consideration is given to potential costs and benefits across different lines of capability development including structure and process, training, personnel, and concepts and doctrine. The notion of enabling flexibility of command style as a risk control measure is developed and the concept of implicit intent is harnessed in providing a theoretical explanation for how military organisations might move between centralized and decentralized approaches.

Introduction

Examination of recent doctrinal and scholarly publications indicates a growing consensus across western militaries that the operational capability of network-enabled forces will be optimised by the adoption of a command approach based upon decentralisation. Commonly termed mission command or command by directive orders, this type of philosophy is based upon the exercise of local initiative within the framework of command intent. Macklin and Stewart [1] argued that command style itself could be used as a tool to manage the risk inherent in modern operations. They proposed that rather than searching for one best approach to command and control, there may be merit in considering how command approach could be adapted to the requirements of different situations, taking into account the resources available, the ability and experience of the force, and the nature of the operation. This paper builds upon that discussion.

It is argued here that, even with the substantial benefits of net-enablement, forces that have the capability to adopt decentralised approaches to command retain the advantage in a complex, uncertain world owing to their ability to adapt. Nevertheless, a decentralised command approach is not like technology. It cannot be bought off the shelf and it cannot quickly be integrated into a military organisation. Later in this paper, the organisational and cultural enablers of decentralisation are considered. It is argued that military organisations that aspire to decentralisation have little choice but to invest heavily in terms of time and resource to develop the appropriate culture. There can be little doubt that to develop a system based upon moving between command approaches would require even more investment and a more robust culture of trust between commanders and their subordinates.

The last sections of the paper examine the issues associated with shifting between command styles. A theoretical discussion is presented that is grounded in the framework for control and command proposed by Pigeau and McCann [e.g. 2, 3], specifically their development of the notion of command intent. Two simple ideas are introduced here. First, that military organisations have a point of 'command and control equilibrium', based on the extent to which they are optimised for centralised or decentralised operation. Second that the ability to move away from that point of equilibrium differs substantially between organisations and can be characterised as 'elasticity'. Although it argues that there is advantage for military organisations in having the capability to operate across the continuum of centralisation of command approach, this paper is essentially a defence of mission command. While there is little new about promoting the advantages of mission command, it is hoped that providing the beginnings of an argument based in theory, will contribute effectively to a debate that is most often based on experience.

Command Approach

The way in which command is exercised in a military force is a product of at least two factors: the personal approach of the individual fulfilling the command role and the accepted command approach within an organisation which will often be

enshrined in doctrine. This paper is primarily concerned with the latter, although it should be recognised that these factors are by no means independent of one another. For example, although an individual's command style will be, in part, a function of trait variables such as personality, it will also be affected by enculturation and as such is very likely to reflect organisational orthodoxy to some extent. (Conversely, anecdotal evidence suggests that command doctrine can be affected by the personality of senior commanders.)

A simple way to consider command approach is that it comprises two main factors: direction and supervision. Direction deals with the way in which those under command are tasked. In large part it includes the extent to which command intent is communicated explicitly or implicitly; for example, whether command outlines just the desired outcome of a task or supplements this with detail as to the ways and means required to complete that task (McCann and Pigeau [2]). A related factor is the frequency with which direction is given and the ratio of direction to operational tempo. Even where the possible avenues for development of an operation are relatively predictable and options for response are planned in advance, organisations that rely on explicit direction are likely to have a requirement regularly to update orders. Supervision covers the degree to which the command function monitors subordinate units during task completion. Included in this is frequency with which it requests information and the amount of information that is required.

In the terms of the command framework devised by Pigeau and McCann, command approach is part of control, which they define as 'structures and processes devised by command to enable it and to manage risk'[3]. Control is subordinate to command; therefore, where choice is available, deciding how command is to be exercised is a function of command. It is proposed here that choice of command approach should, in part, be driven by the operational and strategic context with a view to achieving an appropriate balance of risk. Thus, command approach is part of a class of control levers that commanders can manipulate with a view to optimizing effectiveness in the light of operational circumstances and as those circumstances change.

A number of authors have examined the different command approaches that are available. Van Creveld [4] (cited in Czerwinski [5]) proposed 3 categories: 'command by direction', characterised by attempts to control the whole force all the time; 'command by plan', an approach that relies on predicting how events will unfold, planning for every eventuality, and providing sub-elements of the force with those plans in advance; and 'command by influence', which is broadly equivalent to mission command. Alberts and Hayes [6] propose that, command approaches can be categorised into mission specific, objective specific, and order specific in ascending order of directive specificity. They sub-divide this categorisation into six command approaches that range from a 'cyclic' approach, characterised by the regular issue of detailed orders from a central command organisation, to a 'control free' system where subordinates are provided detail of command intent relating to mission objectives and are provided considerable

freedom in the planning and execution of the mission within that intent. At the heart of most of these discussions is the key issue of the extent to which command authority is held tightly at the organisational core or is delegated to subordinates as in the WWII German Army's 'auftragstaktik' or the UK's current doctrine of mission command. The former class of command approach is commonly referred to as 'centralised' and the latter 'decentralised'.

Command Approach and New Technology

The question of whether or not new technology, amongst other things, will render decentralised command approaches such as mission command redundant owing to the theoretical possibility of a centralisation of directive authority is very important. Alberts and Hayes [6] observe that, in the modern era, there is more choice as to how command can be exercised. "In general, *greater capability to acquire, integrate, move, and process larger amounts of information rapidly makes more centralized decision making possible.*" (p73, original italics). "Many are now arguing ... that emerging technologies will enable the US to move toward true "information warfare", in which fully centralized, optimal decision making becomes possible because of 'total battlefield awareness' and 'information dominance'" (p66). While we should remember that there is much more to military command than a mechanistic process of moving information and making decisions, we should note the very important general point that these authors do not imply that centralisation is an imperative in future command and control. Indeed, perhaps their most significant observation is that there is no single, correct approach to command, rather optimisation is dependent upon circumstances, a point that they reiterate in a later publication where they emphasise that unless the conditions necessary for self-synchronisation (decentralisation) are met, there is no suggestion that it should be employed [7]. The implication is that, to be effective, forces must have the capability to operate in other ways. Thus, choice of command approach is dependent on characteristics of both the situation and the military organisation that is placed in that situation.

It should be recognised that, as was stressed by Macklin and Stewart [1] the network technologies that are now being procured have the potential to support the full spectrum of command approaches from decentralised to centralised. For example, as Toffler and Toffler [8] point out, Soviet forces harnessed the early "C3I systems to strengthen top-down authority in a system described as 'forward command from the rear'". This paper argues for the pre-eminence of mission command and presents a theoretical argument for why that is the case. However, it is essential to realise that mission command is, as was ever the case, entirely dependent on the capability and culture shared by the individuals making up the military organisation. In this regard, technology is simply one enabler.

Command Approach: Adaptive Control

Indeed, despite the vehemence with which some authors have felt it necessary to defend mission command, it is difficult to find a cogent argument for its abandonment. More common is the viewpoint that, in some circumstances, it is

reasonable to restrict subordinates' freedom of action with a view to managing risk. For example, Burridge¹ [9] points out that there is a requirement for what he terms 'adaptive control'. "There are circumstances in which, on one day, I may need to command certain assets centrally, and on another day, I may not. And there are some strategically important assets which I shall always want to control in an adaptive sense."

British Doctrine states that "Mission command allows' the commander 'the latitude, as well as the means, to select and execute the most appropriate course of action necessary to achieve his objectives. However, reality dictates that the degree of freedom afforded will depend on the nature of the conflict" [10]. This situation specific application of command approach appears to apply in the real world too. In interviews with military personnel from different nations and environments, the author has been provided several anecdotal examples of doctrinally decentralised military organisations operating in a centralised fashion, (not always appropriately). For example:

- in exercises of digitised formations, it was observed that commanders used the new technology to support their own personal command approach. Although decentralisers were reported to have used the technology to assist with the transmission of intent, those with a tendency to micromanagement were able to 'wield the long-handled screwdriver'.
- the commander of a deployed formation reported that, at the commencement of offensive operations, he held command and control tightly at the centre while the initial plan was put into operation and gradually released his grip as events played out, eventually reverting to a highly decentralised approach.
- in one particular environment it was reported that operations were sometimes run in a centralised fashion, with the 2 star commander listening in on the secure net and contributing as he saw fit.
- a formation commander who assumed his command at a highly sensitive stage of an operation described how, at first he and his staff engaged in a high level of supervision of subordinate units and their progress against plan. Intervention was occasionally necessary, but once he had gained confidence in the capability of those under his command and their understanding of his intent, he stressed that he was able to reduce supervision and concentrate his HQ on its primary tasks.

¹ Air Chief Marshall Sir Brian Burridge is CinC HQ UK Strike Command. Between October 2002 and May 2003 he was the UK's National Contingent Commander for operations against Iraq

With respect to this last anecdote, it is also interesting to consider the findings of an interview study by Beausang [11]. He found some consensus within a sample of Swedish and Canadian commanders that they would work hard to ensure that their intent was clear during the early phases of an operation and gradually reduce this effort as the operation continued. In addition, Beausang's interviewees stressed their preference for face to face rather than technologically mediated communication with a view to ensuring that intent has been adequately transferred. Critically, he notes that "many interviewees underlined that initiative and trust are not universally applied; it depends on situation, mission, the intensity of the conflict, experience, shared intent etc." (p60). Thus, Beausang's sample is in sympathy with the idea that in practice, choice of command approach is manipulated in response to a range of situational and organisational factors. The implication is that this manipulation is necessary to manage risk.

Earlier it was proposed that command approaches can be considered in terms of two factors: direction and supervision. Clearly new technology influences both aspects. In terms of supervision, it assists with the collection, collation, and processing of information specific to the operational situation and progress against plan. Direction is aided by the ability to pass information, intent, and orders down the chain of command. Micromanagement, or the 'long-handled screwdriver' effect, is usually considered in terms of an inappropriate degree of direction. Of the examples given above, perhaps only the first provides an example of true micromanagement. The others describe high levels of supervision and a form of 'management by exception'. Perceptions by subordinates that they are victims of micromanagement are probably more often engendered by a regular requirement for information – which here is deemed to be part of 'supervision' – rather than direction.

Like it or not, there is choice in how command and control can be exercised and new technology is facilitating this choice. Moreover, there may be situations in which it is necessary to centralise and so it appears that there is advantage to being able to move between 'control modes'. In order to be able to operate effectively in an adaptive fashion, military organisations must develop criteria for which circumstances make it reasonable to alter command approach. Moreover, they must develop procedures for managing this change. The challenge is formally to control the control function. In so doing, military organisations have the potential to eradicate inappropriate command styles, such as micromanagement through the 'long-handled screwdriver', by defining, and bounding, when and how centralisation should occur and when and how it should stop. For decentralised organisations, there is the opportunity to protect and reassert the predominance of tried and tested approaches such as mission command from any creeping tendency to centralisation.

Command Culture

Wyly [12] suggests that doctrine is not sufficient in itself to ensure that command is successful. For example, he attributes to W S Lind the observation that, although the Germans and the Italians had very similar tactical doctrine in WWII,

they experienced very different levels of success. He ascribes this difference to their contrasting 'ways of thinking'. We might equally invoke the notion of culture². It would be a brave analyst who proposed that national culture was the sole contributing factor in this regard (although recently there has been a trend towards seeking such explanations). It seems more reasonable to propose that organisational culture was the key, specifically that part of organisational culture that influences command philosophy. In particular, we should note Wyly's comment that the appropriate mindset did not come automatically to the Germans, but rather was the product of their military education process. The implication of Wyly's comments is that the German forces had to work to develop the appropriate organisational cultural norms to harness optimally the auftragstaktik doctrine. This is a very important point; the success of the doctrine is a function of progress across all lines of capability development, particularly personnel.

This view is reinforced by Johnston [15] in an article entitled "doctrine is not enough" where he stresses that doctrine has only an indirect effect on actual behaviour. He notes that, while the British Army in WWII is accepted to have been "ponderous and positional", a reading of the 1935 revision of its Field Service Regulations, shows that it possessed doctrine "that Guderian himself or any maneuver theorist today could be proud of". Johnston stresses that the doctrine had little effect on the behaviour of the British Army at war. Moreover, he quotes Sir Michael Howard, who pointed out that "The British Army in the Second World War was not very good, and those of us who were fighting in it knew where its weaknesses lay. Staff work was rigid. There was little encouragement of initiative or devolution of responsibility."³ It follows therefore that it is not appropriate to impose command doctrine top-down without ensuring that it will be appropriate to the culture and capability of the organisation concerned. In this vein, Oliviero [16] stresses that the "conceptual grafting" of auftragstaktik into other nations' doctrine is mistaken unless the fundamental building blocks, including culture and societal influence are in place. Extensive and careful preparation of the canvas is essential to ensure that it will provide an appropriate medium for the artist.

In order successfully to employ decentralised command, it is essential first to understand what the key cultural enablers of such a philosophy are and to ensure they are in place, or at least have some prospect of taking root within the organisation concerned. It is proposed here that such cultural enablers are

² There are many definitions of 'culture'. The following are provided for illustration. Schein [13] has defined culture as "a pattern of shared basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration, that has worked well enough to be considered valid, and, therefore, is to be taught to new members of the group as the correct way to perceive, think, and feel in relation to those problems" (p247). Hofstede [14] defines culture as "the collective programming of the mind which distinguishes the members of one group from another" (p21).

³ Johnston provides the following reference for this quotation: "Quoted in *The Scholarship on World War II*, *The Journal of Military History*, 55 (July 1991), 379."

embedded in the 3 factors underpinning choice of command approach that have been described by Pigeau and McCann [3], in particular 'shared motivation and commitment'. In order to go further and formalise a system of adaptive control, albeit in an organisation that defaults to decentralisation, it is critical to understand whether such a system has the potential to undermine those enablers. Specifically, we should consider what attitudinal changes the experience of centralisation might engender in the minds of commanders and subordinates used to decentralisation.

The notion of trust is emphasised in many discussions of mission command. For example Storr [17] stresses the existence of a mutually-held "contract of trust" (p78). The superior trusts subordinates to act within command intent, even in situations that the commander did not envisage when planning. Completing the contract is the subordinates' trust that they will be given access to appropriate resources and will be supported in exercising initiative, even if they make mistakes. This idea has some similarity to the concept of the "psychological contract" which has been advanced by Rousseau [18]. She invokes schema theory to illustrate how such contracts are developed and fine tuned in response to individuals' experiences in an organisation. To sustain such a contract of trust, its elements should regularly be tested and reinforced. In the military, the main opportunities for such re-negotiation and reinforcement occur in training and the successful application of the contract in action is clearly dependent upon the common military dictum that organisations should train as they intend to operate.

The related and very important question of how resilient such contracts are in the face of their violation is not developed further in this paper. However, it is essential to understand just how easy it might be to 'burst the bubble'. Most relevant to this discussion is the question of how resilient the contract of trust is in an environment characterised by adaptive control. For example: how often and for how long could commanders centralise before subordinates felt that they were not being accorded an appropriate level of trust? How is a contract constructed that ensures subordinates understand and believe that commanders will centralise only when necessary operationally?

In addition, we should consider the extent to which trust is central to other points on a command-style continuum. We should ask whether decentralised command systems have the monopoly on trust. For example, although one conceptualisation of centralisation is that it represents diktat and an absence of trust, another might be that it represents a relationship where subordinates learn to trust the command decisions provided by superiors. In order for a system of adaptive control to operate, it would be essential for the appropriate trust contract to be developed through training. Just as mission command orders should state the reason for the mission, orders under an adaptive control system would need to specify why there was change in the way command was being exercised. It would be cavalier to leave the maintenance of a contract of trust to chance in such circumstances.

Elasticity, Equilibrium, and Intent

The remainder of this paper focuses on the question of what adaptive control implies in terms of the concept of command intent. In so doing it considers what it is that enables organisations to change, in the short term, their command approach and why organisations may differ in terms of this ability. The notion of elasticity is introduced to describe this. Moreover, it is proposed that, no matter what degree of elasticity they possess, all military organisations have a point of command equilibrium and their ability to move away from this point is time limited and stressful for the organisation.

Within their theoretical framework for command and control, Pigeau and McCann [19] have defined command and control as “the establishment of common intent to achieve co-ordinated action”. The implication is that action is both co-ordinated and appropriate, that is the intent that is shared contains the basis for understanding what to achieve, how to achieve it and what others will likely do within overall command intent. Common intent (CI) underpins effective performance. CI is defined by Pigeau and McCann [19] as “the sum of shared explicit intent plus operationally relevant shared implicit intent”. It incorporates the extent to which superior and subordinates’ appreciations of objectives and the means for achieving those objectives overlap. Moreover, the achievement of co-ordination between the various elements under command is a product of CI. CI is therefore central to the achievement of both vertical integration and horizontal integration within the force.

Pigeau and McCann [3] have proposed that control can be defined as “structures and processes devised by command to enable it and to manage risk”. For the purposes of this discussion, risk is considered to include all aspects of performance. Thus, there is a risk that performance will fail to achieve mission objectives or will result in unwanted effects. Moreover, there is the risk that the performance of the various force elements will, individually, be adequate, but will fail to contribute to a successful outcome owing to a lack of co-ordination. Given that CI has a causal relationship with performance, it is appropriate to use it in defining risk. Therefore, we can propose that should CI fall below a theoretical threshold level, risk levels would be seen as unacceptable.⁴ One solution is to alter control by manipulating command approach. Common intent is the sum of Shared Explicit Intent (EI) and relevant Shared Implicit Intent (II).

⁴ Risk is clearly related to both the nature of the scenario at tactical, operational, and strategic levels and the characteristics and capabilities of the force. A major question is how to define a threshold level of risk both in absolute terms and in relation to the scenario – this is a topic for future research and is not developed further in this paper.

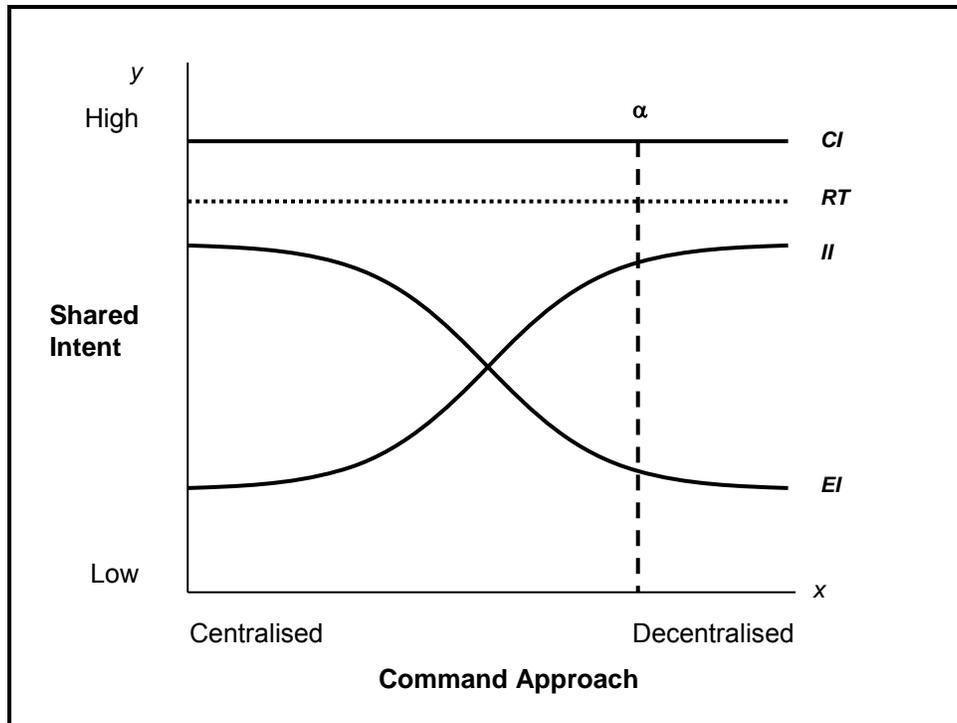


Figure 1

The relationship between II, EI, and CI is depicted in Figure 1 (adapted, and simplified, from Pigeau and McCann [3,19]). Units of Shared Intent are plotted on the y axis and degree of centralisation on the x axis. A 'risk threshold' (RT) level of CI has been overlaid on this diagram. This demonstrates that the range of organisational forms depicted will all, in theory, maintain CI above the threshold level. The hypothetical military organisation illustrated has chosen to operate at point ' α ', that is, it has a decentralised approach to command. As will be discussed later, this point can be considered to be where the organisation has 'equilibrium'. For organisations at this end of the continuum, best practice in terms of training, selection, procedures, organisation structure and even equipment, ensures that II is maximised.

Given that risk is a function of scenario, we can propose that, in theory at least, performance (CI) will remain constant while the scenario stays constant. Thus, we need to consider how scenarios can change and what consequence this might have. The essential issue is that the organisation is optimised, by design, to operate at this point on the continuum. Recent British Army Doctrine [20] has provided a simple, yet elegant, description of operational situations. In the past, there have been various attempts to define a 'spectrum of operations' in the hope that any military scenario could be placed at a discrete point on this spectrum. This requirement was emphasised by a growth in the number of 'operations other than war' in the 1990s and the difficulty in identifying an appropriate categorisation for such operations⁵. The British Army's approach recognises that,

⁵ For example, see the discussion of UN "Chapter VI½" operations in Connaughton[21])

although the major theme of a military campaign may be ‘peace support’, at any one time the force may be required to engage in a range of tactical activities including offensive and defensive operations. For the purposes of this paper, a simplified version of this is illustrated in Figure 2 which shows that as the theme of a hypothetical campaign shifts from combat to peace support, the relative proportion of tactical activity also shifts from offensive and defensive operations to stability operations. The key point, however, is that all three elements are represented to different degrees at all times. This idea is clearly in sympathy with General Krulak’s characterisation of a ‘3-block war’ [21].

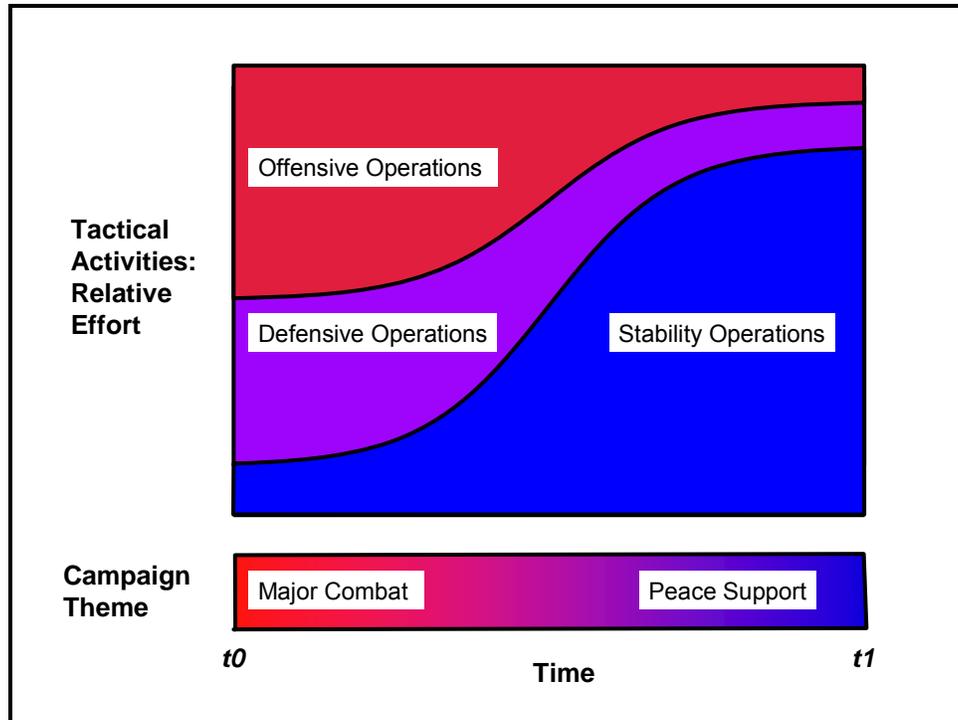


Figure 2

Performance risk is determined both by features of the scenario and by features of the force. In Figure 3 below, the effects of a change in scenario on a hypothesised military force are described. We assume that the Pigeau and McCann graphic (Figure 1) has been rotated so that we see the elements of intent plotted on the y axis with time plotted on the z axis. The military force is the same decentralised organisation represented in Figure 1. At t_0 we see the organisation at equilibrium at point α . As in Figure 2, this force faces a transition from war fighting to peace support. In this hypothetical example, it is proposed that the force and its commanders are optimised for combat operations (for example owing to their doctrine, training and experience) but have less experience of stabilisation. Here we see that, as the transition occurs, while EI remains constant, II rapidly falls away with an effect on CI. As a consequence, CI falls below RT, the threshold level we have defined as presenting unacceptable risk.

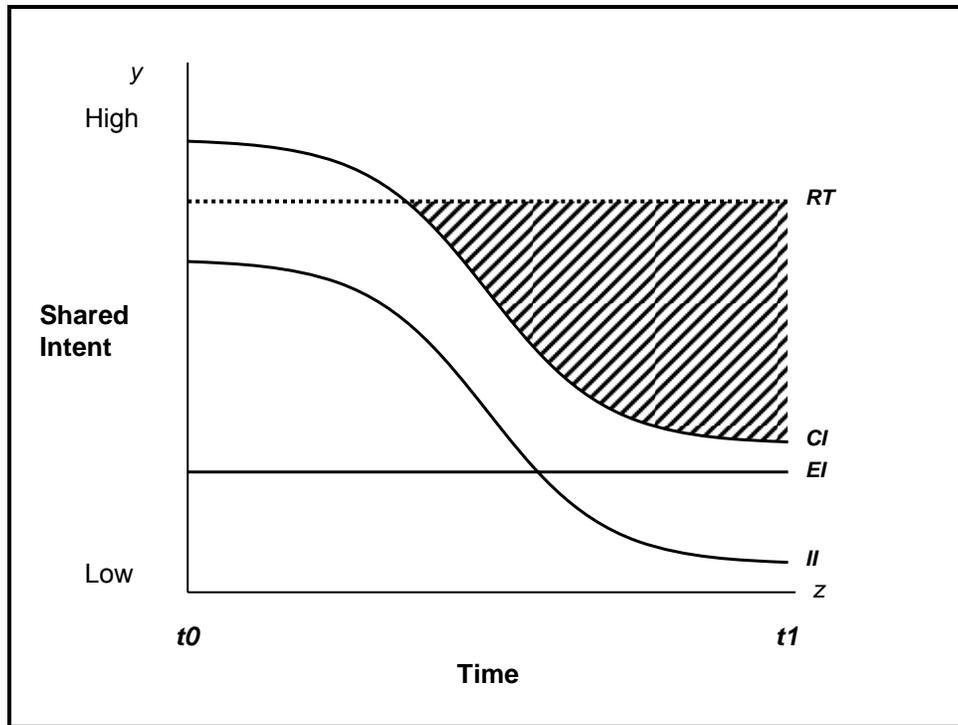


Figure 3

In the past, a force placed in this position might have been left to fend for itself, gradually building its knowledge and expertise. In the modern era, technology provides the facility for reachback and allows an element of centralised control to be implemented. This situation is illustrated in Figure 4. Here we see losses in terms of II being compensated for by an increase in EI to EI_1 . The result is that CI ($CI_1 = EI_1 + II$) is maintained above the threshold of acceptable risk.

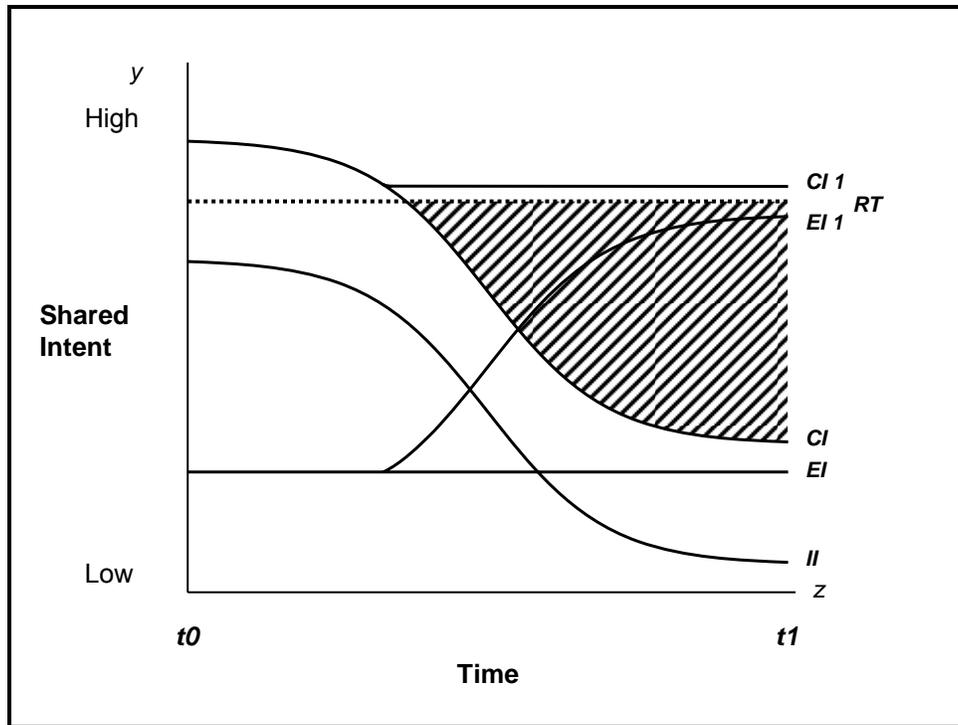


Figure 4

If we re-consider what has happened in terms of the x axis, we see that the organisation has shifted in the direction of control centralisation as is illustrated in Figure 5 with the move from equilibrium at point α to point β .

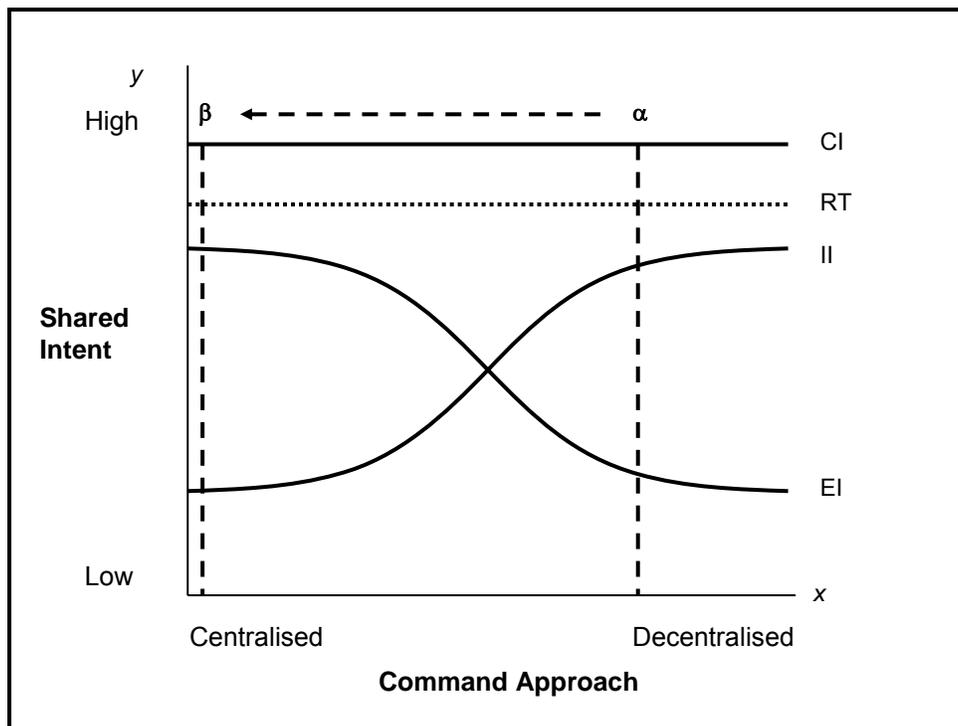


Figure 5

For this organisation, however, operating in this way is alien. Not only does it over-tax the C2 hierarchy in terms of capacity, it is de-motivating for personnel whose organisational culture is based on expectations of a certain level of autonomy. Thus, the organisation must work to achieve a move back to position α as soon as that is possible. For this organisation, position α is 'equilibrium'. Thus, the force has the ability to move to position β and operate in a centralised fashion, however such a move can only be temporary otherwise permanent changes to organisation and personnel might be necessary. It is proposed that such 'elasticity' becomes brittle over time. Moreover, given the organisational culture and capability of the personnel required by a decentralised organisation, it is highly likely that this force would begin immediately to rebuild its shared implicit intent in the light of the unfamiliar scenario. This would gradually see a shift back towards decentralisation and a release of the tension associated with pulling the organisation in the direction of centralisation.

Potential Intent

The previous, hypothetical, example described a situation where a major change in operational scenario affected the level of CI within a military force owing to a reduction in shared II. This change in CI had the potential to affect performance by undermining the force's ability to operate appropriately within an acceptable solution space and in co-ordination with other elements of the force. It is important to explore further why II was reduced in the previous example. Pigeau and McCann define CI as EI plus *operationally relevant* II (emphasis added). Thus, at any time there is likely to be a residual store of shared II. Some of this is redundant owing to EI, some is irrelevant, however, some of it represents a pool of potential capacity; for example deep, tacit, knowledge of tangential relevance, and attitudes and previous experience related to adapting to new situations. Adding this pool of potential capacity to 'relevant II' provides a 'potential' level of implicit intent (PI). The difference between PI and II provides an indication of reserve capacity and therefore of 'elasticity'. Reserve capacity is also a function of scenario. In the example provided in Figure 3, we can hypothesise that reserve capacity was used up quickly in maintaining a constant level of II initially, but was not sufficient to prevent II reducing rapidly thereafter. Thus, as the scenario alters, the PI is dried up as the majority of shared knowledge is rendered irrelevant.

The previous scenario illustrated how an organisation might respond to a situation characterised by a rapid reduction in shared II. It is possible to draw upon the Pigeau and McCann framework to understand what happens if EI is similarly affected. In Figure 6 change in the command parameters is again necessitated by a scenario change. At t_0 we assume that the decentralised force is at equilibrium at position α . At t_0 they are primarily engaged in defensive operations however, later they are suddenly faced with an unforeseen opportunity and the balance of the operation shifts to offence.

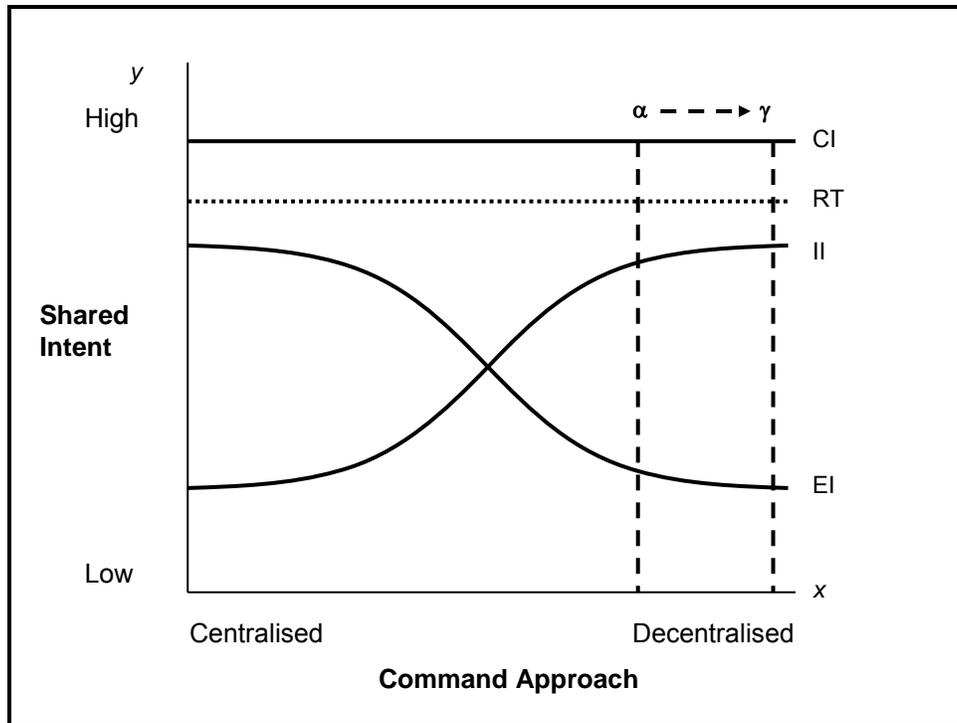


Figure 7

The extent to which this is possible will depend, in large part, on the culture that pertains within the organisation; the beliefs and attitudes that subordinate commanders have developed over time, the extent to which they feel comfortable in grasping the opportunity presented. Even the most knowledgeable, capable officers within an organisation that rewards risk aversion are not likely to be motivated to act without approval from above. Such cultural aspects should not be underestimated. The clear implication is, as Oliviero pointed out, you cannot simply graft mission command on to an organisation that has not learned it. As one of the participants in an interview study by Stewart, Cremin, Mills, and Phipps [24], pointed out: "...if you try and adopt a Mission Command style to command people who don't really understand it, or are uneasy with it, you are likely to have chaos. And so this leads coalitions, generally speaking, into command by detailed orders".

We have considered how a decentralised organisation might respond to changes in scenario that affected their 'supply' of implicit and explicit intent respectively. We saw that, this hypothetical organisation was able rapidly to adapt to its circumstances in the short term either by drawing on reserves of II or by harnessing technology to increase EI. It was also proposed that this capability was indicative of the organisation's 'elasticity'. Moreover, it was stressed that this elasticity is time-limited, and that the organisation should seek to return to its point of equilibrium to avoid performance deterioration. For example, a super-ordinate HQ designed for mission command may have the capacity to operate in a centralised fashion, however the increase in workload entailed may not be sustainable. Unless a return to equilibrium is possible, the strain is likely to result

in performance decrement. Alternatively, the subordinate HQ could re-structure, perhaps using new technology to ‘plug in’ extra planning resource as described by Christie, Macklin, and Fidock [23]. However, assuming that overall the force is resource-limited, such changes may not themselves be sustainable. At the risk of over-taxing the metaphor, it might be suggested that over time the stress could result in irrevocable deformation of the organisation – if not in terms of structure, in terms of an adverse effect on the culture of decentralisation: for example by denting individuals’ faith in their freedom for action and their motivation to exercise this freedom.

Having considered the case of an organisation that is at equilibrium at the decentralised end of the continuum, we should consider one that is at equilibrium under a centralised style of command. The notion of shared intent is invoked to illustrate why, in theory at least, such organisations would have less elasticity than the decentralised. Moreover, in doing so, we will provide an argument for why decentralised approaches such as mission command still, potentially offer the most powerful command arrangement.

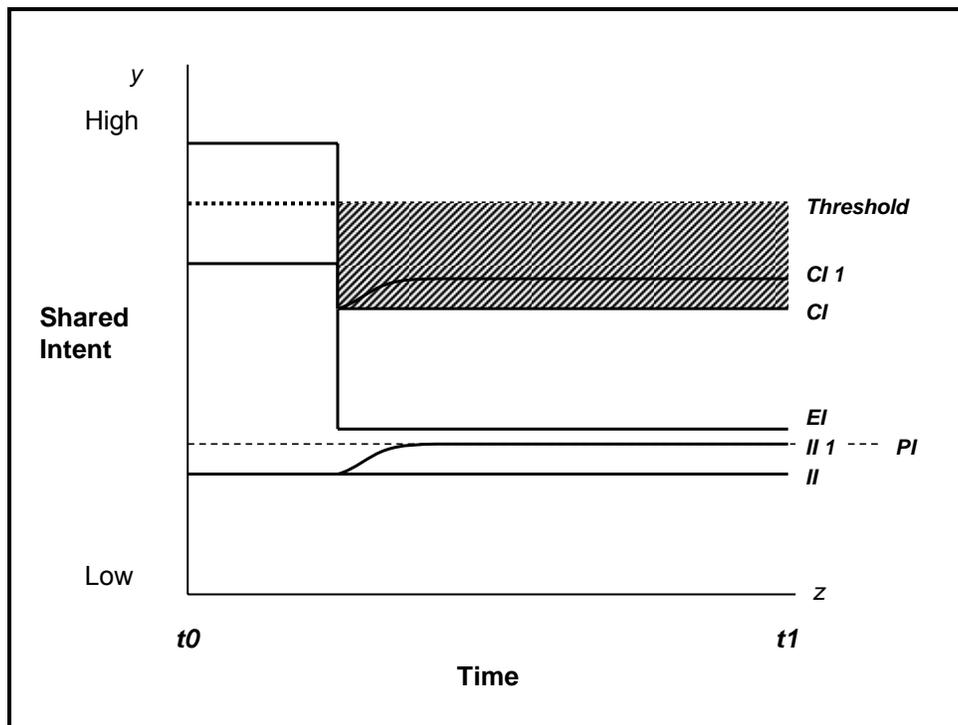


Figure 8

At equilibrium, achievement of CI for this force is built upon shared EI with only a small amount of relevant II contributing. Most importantly, in terms of this discussion, we see in Figure 8 that this organisation has very limited reserves of shared II as indicated by PI. As was illustrated in the example of the decentralised organisation, the need to shift command parameters is occasioned by a change in scenario that renders available EI irrelevant. Again CI is degraded and the organisation falls below the threshold of acceptable risk. The only

immediate option is to rely upon II by moving away from equilibrium at point δ as illustrated in Figure 9. Compared to the decentralised organisation however, this force has much smaller reserves of II and consequently, even using the full reserve by moving to II1 is insufficient. Until EI can be re-established, the force is at risk of inappropriate and / or uncoordinated action. Moreover, it is noted that, as with the decentralised force in Figure 7 moving in the direction of increased decentralisation is very difficult.

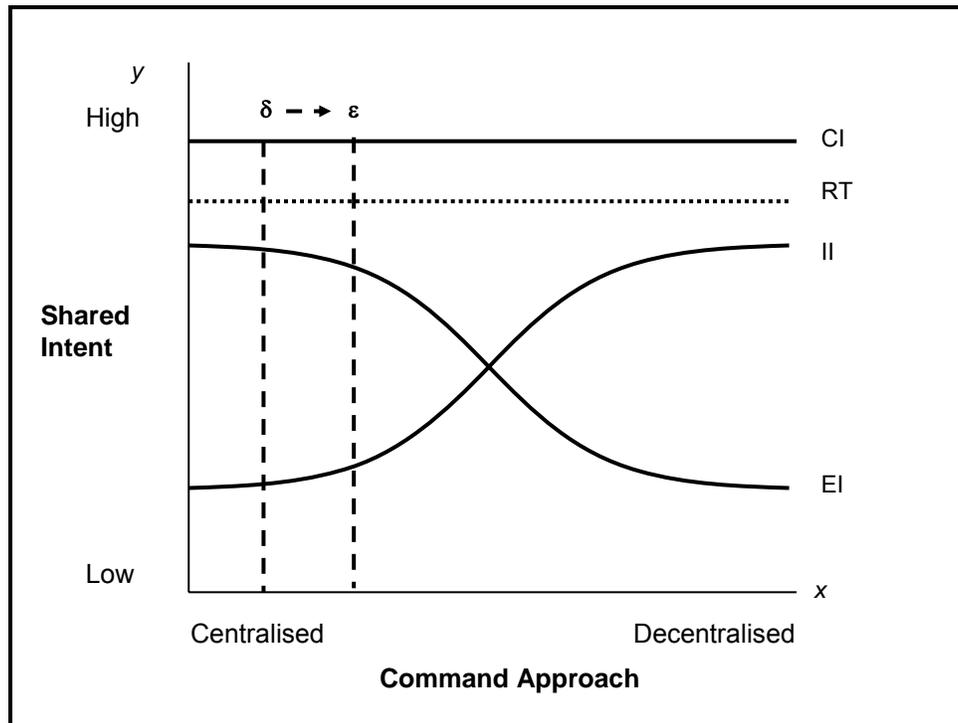


Figure 9

It is important to consider why such a force would have low PI. Pigeau and McCann [3] have proposed 3 factors that influence a commander's choice of the balance of EI and II. These are: shared knowledge, comparable reasoning ability, and shared commitment and motivation. Such organisations tend to operate in a centrally controlled fashion, perhaps relying on a 'playbook' of set piece tactical manoeuvres to prosecute their aims.⁷ As a consequence, there is unlikely to be any significant development of reasoning ability and creativity among junior commanders since it is rarely demanded. Furthermore, if this is rarely necessary, it is unlikely to be used as the basis for promotion and selection decisions. Such organisations might even have distinctly 'inflexible' characteristics such as predictability and lack of initiative as promotion criteria. Likewise, in terms of motivation and commitment, personnel in such organisations are likely to be motivated mainly by the rewards (or at least the absence of punishment)

⁷ Consequently, such organisations tend also to be inflexible in terms of the range of operations across the spectrum of conflict that they can undertake. The ability to undertake stabilisation operations where the 'playbook' has been written for combat, is likely to be very limited.

associated with successful implementation of the plan provided. Organisation culture is unlikely to reward doing anything out of the ordinary and mistakes, even well-intentioned ones, are potentially career-limiting events for junior officers. Perhaps, most importantly, owing to the limited experience of the force, there is unlikely to be any significant degree of shared knowledge developed. Pigeau and McCann's 3 factors heavily influence and / or restrict the choice of the point of command equilibrium for any military organisation. Moreover, it is proposed that these factors are the primary determinants of PI and therefore underpin the degree of elasticity that the organisation has. The range of command approaches an organisation can adopt can be described in terms of 2 important variables: its point of equilibrium and the degree of elasticity it has to move away from that point. Elasticity reduces steadily as one travels along the x axis in the direction of the origin since it is a function of PI and PI is highest for organisations that build the ability to operate based on II owing to the redundancy that they must create. Conversely, organisations with their point of equilibrium at the centralised end of the continuum tend to have less elasticity because they have lower PI.

It should be reiterated that choice of where to operate on the x axis is in part a balance of investment question. The investment includes time and resource. The aspiration to achieve equilibrium further to the right on the x axis is expensive. An efficient system of training and education is essential to build shared knowledge, to reinforce appropriate behaviour and values, and to ensure that personnel are appointed to positions that suit their talents. This all takes time and is costly. Lucas [25] has stressed the heavy investment in training that was required before the Germans could reap the benefits of their auftragstaktik doctrine. Decentralised command approaches are expensive. To repeat Oliviero's comment one last time, they cannot simply be grafted on. Rather, they must be nurtured and, once established, carefully maintained. Economically, therefore, it is relatively cheap to operate at the centralised end of the continuum. Indeed where large scale conscription is required, for example in times of national crisis, centralisation is probably the only option available in terms of time and training resource.

Conclusions

There has always been choice in command approach, however, in the past 200 years, decentralised forms, such as 'mission command' have proven to be the most efficient in the context of the way military forces have structured both physically in the battlespace and organisationally. More recently, communications and information technology have widened the choice by making centralised approaches to command more feasible. Nevertheless, this paper has argued that forces that have the capability to adopt decentralised approaches to command have the advantage in a complex, uncertain world owing to their ability to adapt to novel situations. It is now possible for forces to use a system of 'adaptive control' in order to alter command approach in response to changes in scenario risk. Shifting along a continuum of command approaches from

decentralised to centralised represents one form of organisational adaptability, which has been dubbed 'elasticity' in this paper. In short, forces that have the capability to be decentralised can, in the short term, step down to centralisation (and, to a limited extent, step up to be less centralised). However, they retain the same point of 'equilibrium' in the decentralised region of the continuum – that is, such a force is optimised for decentralised operation, for example because of its training, its organisation structure, its organisational culture, and its equipment. Moreover, during the period that the organisation moves away from its point of equilibrium, it is under stress and should seek to return to the equilibrium point or risk permanent deformation. These two aspects of a military force – elasticity and equilibrium – provide an indication of its capacity for flexibility of command approach. In theory, elasticity increases as the point of equilibrium shifts towards the decentralised end of the continuum.

The roots of this elasticity lie in the concept of command intent, specifically implicit intent. The ability to operate in a decentralised fashion requires that forces create a deep, broad, reservoir of implicit intent. This provides a reserve capacity of potential intent that forces can draw upon if required. This potential intent is heavily dependent upon the 3 factors identified by Pigeau and McCann [3], namely shared knowledge, shared reasoning ability, and motivation and commitment. All of these are costly to develop in terms of time and resources – for example time required for training. Thus, amongst other things, the choice as to how to command (equilibrium and elasticity) is an economic consideration. Forces that have their point of equilibrium in the centralised region cannot be expected to step up to decentralised command and remain efficient, but they are relatively cheap, and quick, to train. Therefore, even in an age when centralised command is theoretically possible owing to technological advance, forces with the capability for decentralisation will retain the advantage. There is no good reason to undermine mission command. However, it should be remembered that forces with the capability for decentralised command cannot be created quickly on demand – *no matter how much technology is available*. Decentralised command is built on intangible qualities of the force such as trust, expertise, and broad experience, all of which take time to develop and are fragile, thus requiring careful maintenance.

References

1. Macklin, C. & Stewart, K. (2003). *The impact of NEC on decentralised command concepts: Towards a flexible approach to command*. Unpublished QinetiQ working paper.
2. McCann, C., & Pigeau, R. (1996, September). Taking command of C2. *Second International Command and Control Research & Technology Symposium 24 - 26 September, 1996. Market Bosworth, UK. Washington, DC: Institute for National Strategic Studies, pp 531-545*

3. Pigeau, R., & McCann, C. (in press). Establishing common intent: The key to co-ordinated military action. In Allan English (ed.), *Leadership and Command and the Operational Art: Canadian Perspectives*. Kingston, ON: Canadian Defence Academy Press.
4. van Creveld, M. (1985). *Command in War*. Cambridge, MA: Harvard University Press.
5. Czerwinski, T. J. (1996, Autumn). Command and control at the crossroads. *Parameters, US Army War College Quarterly*, pp121-132.
6. Alberts D. S., & Hayes, R. E. (1995). *Command arrangements for peace operations*. Washington DC: CCRP Publications Series.
7. Alberts, D. S., & Hayes, R. E. (2003). *Power to the edge*. Washington D. C.: CCRP Publications Series.
8. Toffler, A., & Toffler, H. (1994). *War and anti-war*. Time Warner Paperbacks.
9. Burrige, B. (2004, Autumn). Iraq 2003 – Air power pointers for the future. *Air Power*, 7(3),1-15.
10. United Kingdom Joint Doctrine and Concepts Centre (2004, March). *Joint operations execution*. Joint Warfare Publication 3-00 (2nd Edition).
11. Beausang, P. (2004, June). *The role of intent and the ideal command concept in military command and control: Canadian and Swedish commanders' perspectives*. FOI – Swedish Defence Research Agency, FOI-R—1069—SE.
12. Wyly, M. D. (1991). Thinking like marines. http://www.belisarius.com/modern_business_strategy/wyly/thinking_like_marines.htm.
13. Schein, E. H. (1991). What is culture? In P. J. Frost, L. F. Moore, M. Reis Louis, C. C. Lundberg, & J. Martin (Eds.), *Reframing organizational culture*. London: Sage.
14. Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
15. Johnston, P. (2000, Autumn). Doctrine is not enough: The effect of doctrine on the behaviour of armies. *Parameters, US Army War College Quarterly*, pp 30-39.
16. Oliviero, C. D. (1998, August). Trust, manoeuvre warfare, mission command and Canada's Army. *Army doctrine and training bulletin* 1(1).

17. Storr, J. (2003). A command philosophy for the information age: The continuing relevance of mission command. In D. Potts (Ed.), *The big issue: Command and combat in the information age*. Washington DC: CCRP Publications Series. (Originally published in 2002 as Strategic and Combat Studies Institute Occasional Paper Number 45).
18. Rousseau, D. M. (2001). Schema, promise and mutuality: The building blocks of the psychological contract. *Journal of Occupational and Organizational Psychology*, 74, 511-541.
19. Pigeau, R., & McCann, C. (2000). Redefining Command and Control. In C. McCann and R. Pigeau (Eds.) *The human in Command*. New York: Plenum Press, pp. 163-184.
20. United Kingdom Directorate General Development and Doctrine (2005, May). Army Doctrine Publication 'Land Operations'. AC 71819.
21. Connaughton, R. (1995). *The nature of future conflict*. London: Leo Cooper.
22. Krulak, C. C. (1999, January). The Strategic Corporal: Leadership in the Three Block War. *Marines Magazine*.
23. Christie, M., Macklin, C. and Fidock, J. (2003, June) The future of military HQ: An exploration of the organisational design implications of modularization. *Proceedings of 8th International Command and Control Research and Technology Symposium June 17 – 19, 2003, National Defense University, Washington, DC*
24. Stewart, K., Cremin, D., Mills, M., & Phipps, D. (2004, September). Non-technical interoperability: The challenge of command leadership in multinational operations *Paper presented at the 10th International Command and Control Research and Technology Symposium: The Future of C2. Copenhagen*.
25. Lucas, J. (1998). *German Army Handbook, 1939-45*. Sutton Publishing.