



FORSVARSAKADEMIET

BRIEF

Three C2 Models for Military Agility in the 21st Century

By William Mitchell, Ph.D.

BRIEF

**Three C2 Models for
Military Agility in the 21st Century**

By William Mitchell, Ph.D.

The Royal Danish Defence College is the Danish armed forces' powerhouse for education, training and research-generated consultancy. Our research is conducted within a broad range of military-related topics. Our research priorities, such as topics and resource allocation are determined by the Commandant of the Royal Danish Defence College, who is aided by a research council.

Research at the Royal Danish Defence College should enlighten and challenge the reader, whether they are in the armed forces or in the surrounding environment. This is only achievable if the employees have the freedom to administer their own research projects and draw their own conclusions. This is a principle, which is honoured at the Royal Danish Defence College.

We hope you enjoy reading the Royal Danish Defence College's publications!

© Royal Danish Defence College

All rights reserved. Mechanical, photographic or other reproduction or photocopying from this book or parts thereof is only allowed according to agreements between The Danish Defence and CopyDan.

Any other use without written consent from the Royal Danish Defence College is illegal according to Danish law on intellectual property right. Excepted are short extracts for reviews in newspapers or the like.

Copenhagen November 2012

Royal Danish Defence College

Ryvangs Allé 1

DK-2100 Copenhagen

Denmark

Phone: +45 3915 1515

Fax: +45 3929 6172

Editor: Lieutenant Colonel Hans Henrik Møller, chief of Institut for Military Operations

Layout by B-O. Kure

ISBN: 978-87-7147-000-0

Royal Danish Defence College Publishing House

Abstract

Battlespace agility is a warfighting concept defined as *the speed at which the warfighting organisation is able to transform knowledge into actions for desired effects in a battlespace*. It stems directly from 20yrs of transformation and NATO C2 agility research¹ and suggests that transformation should be driven by 4 fundamental capabilities & capacities for warfighting in the 21st century: Jointness; Cyber; Military Intelligence; and Special Operations Forces (SOF/SF). These capabilities form the foundation for the three hypothetical C2 models that reflect the main body of agility research to date. The models **do not** reflect political, cultural, traditional, or *esprit de corps* considerations. The models in this brief are in their most basic form, presented here without subjective nuances, and advocate transitions framework of these models. The briefs main argument is that by making agility the organizational objective, would produce a military capable of tackling the challenges of the 21st century – *come what may*.

(1) The idea of agility as a key Command & Control (C2) -related concept / capability that required research by the military community began almost a decade ago in discussions between U.S. and UK researchers and analysts. These discussions grew to include colleagues from Australia, Sweden, Denmark, Germany, Canada and others. See the acknowledgement section of Alberts, D. S. and Hayes, R.E., *Power to the Edge*, DoD CCRP Publications Series, Washington, D.C. 2003. See the Command & Control (C2) epistemology; Alberts et al. 2011. Mitchell, 2010b; Alberts and Hayes, 2005, 27; Alberts & Hayes, 2005, 218; SAS- 026 NATO 2002; SAS-050 CCRP/NATO 2006; Also see Czerwinski 1998, 1996; Alberts 2011, 1997; Snyder 1993; Coakly 1991; Crumley 1989;

Agility

The need for military operational agility has been acknowledged publically in the transformation of several main NATO member defense policies, responding to a decade's worth of doctrinal research by many countries and researchers.² The modern warfighting environment is seeing the primacy of physical action giving way to the primacy of the resulting discourse surrounding those actions. The advances of information technologies in sharing, discussing, and defining meaning, have pushed the importance of the cognitive domain of the battlespace, to heights. Of course the physical boundaries determined by the technical capabilities of assets brought to a battlespace remain for physical actions; yet *how* meaning is attached to those actions no longer has any physical boundaries due to cyber power. *Actions* have become navigation buoys in an ocean of social media discourse. This rise of complexity has led to numerous fields of research associated with transformation of the military, first dealing primarily with the exploitation of network technologies, and then inevitably focusing on understanding the social and organizational impact of these technologies. The role of rapidly developing information technologies cannot be understated in this regard, it has singlehandedly brought the cognitive domain of the warfighting environment to the forefront - like no other time in history.³ It is from this transitional environment that one constant organizational theme has emerged for dealing with it – *agility*.

Agility is the capability to successfully effect, cope with and/or exploit changes in circumstances.⁴

The following six components of agility were first introduced into the literature circa 2003 as aspects of agility: Timeliness; Flexibility; Versatility; Innovativeness; Adaptability; Resilience.⁵ From this research came the battlespace contribution based on experiments in Afghanistan, to the development of the battlespace agility concept to highlight the role of timeliness and

(2) See Jensen, Lars (2012a;2012b); Canadian Defence Minister Peter MacKay introduction to the new Canadian Joint Operational Command (CJOC) May 11, 2012. National Defence and the Canadian Forces Nr 12.078.; Or the US Secretary of Defence Leon Panetta "more agile, more flexible, ready to deploy quickly, innovative, and technologically advanced. "That is the force of the future." Speech. The Envoy. Jan 5, 2012, Washington D.C.; Agility is the doctrinal centerpiece of the new SOFCOMs see Day & Horn (2010). However, outside of applied research circles, it has been in pipeline for over a decade Robinson Jr. (2003); Lloyd, 2003; McNaughter (2000); Mann (2001).

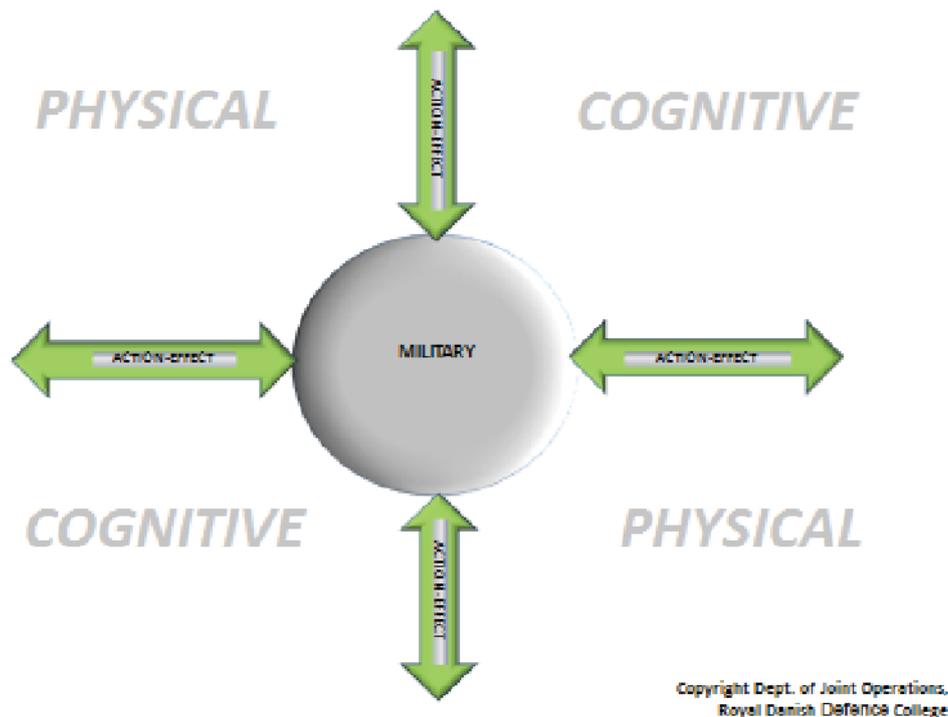
(3) See Arquilla's *Netwars* 2008: Ch.1; Smith 2006, 2005; Goodman 2003; Potts 2003; Moffat 2003;Alberts 2001;Treverton 2001;Rogers 1996 for different takes on the impact of information technology on both the internal and external environments.

(4) **Organizational agility** is the capacity to react more effectively in a rapidly changing operating environment. (*Understanding Information Age Warfare*, Alberts 2001, p197); **Agility**: adjusting to changes in the operational situation in a timely manner. (*Understanding Information Age Warfare*, Alberts 2001, p217); **Agility** is a key characteristic of an Information Age organization; a characteristic to be sought even at the sacrifice of seeking to perfect capabilities associated with specific missions or tasks. (*Information Age Transformation*, Alberts 2002, p82; **Agile** can be used to describe each component of an organization's mission capability packages (MCPs), and/or an organization that can instantiate many MCPs. (*Power to the Edge*, Alberts, 2003, p123); **Agility**: an ability of the forces to adapt, to learn and to change to meet the threats that they face. (*The Agile Organization*, Alberts 2005, p164); **Agility** presumes effective actions and implies a degree of self-synchronization. (*Understanding Command and Control*, 2006, p201)

(5) See Alberts 2011, Ch.14, for a more detailed discussion.

precision, in the relationship between *knowledge, actions, and effects*. Battlespace agility refers to the speed at which knowledge is turned into actions for desired effects.⁶ The onus is on building an organisation that can learn and adapt fast through situational understanding and the generation of desired effects. The organisation must adapt to the situation in order to understand and generate the desired effect; not adapt the situation to the organisation and hope for the best.

Fig.1.0 Battlespace Agility and the Action-Effects Dynamic



On The Models

There are 4 common elements to all three C2 models presented here that lay the foundation for an agile military, this is based on 10 years of research, including experimentation, field studies, and trials.⁷ The models themselves are in their most rudimentary forms and will be open to finite tweaks and contextual adaptations.

1. Jointness. Stemming from the flexibility, adaptability, and timeliness components of agility, it is clear that 21st century C2 must be based on *universal jointness* principle. This is where one's defence is built completely on cross service (environmental) cooperation in all

(6) NATO SAS-085 contribution (Forthcoming); Mitchell 2008; 2012 a, 2012b;

(7) For examples of supporting research see Moffat 2011; Atkinson & Moffat 2007; Lloyd 2003; for doctrinal development examples see UK DCDC JDP 2-00, 2011; NATO AJP-2.7, 2007; US DoD JP5-0, 2006.

stages of the military processes, from research, through procurement and into operations, particularly network centric warfare. Understood from a universal jointness perspective is a military that organises and reorganises itself as needed using plug and play frameworks, and mission specific Task Force (TF) approaches to capacity building. Therefore all three models adopt a TF approach as a basic principle to ensure agility for effect in the battlespace, and all three models aim to be task centric.

JOINTNESS	
Timeliness	
Flexibility	
Innovativeness	
Versatility	
Adaptability	
Resilience	

2. Cyber. All three models have a new cyber command element that must deal with both the technical and social media capacities to attack and defend technical networks, but also tasks related specifically to narrative defence and attack, intelligence driven denial and deception activities.⁸ It ultimately has responsibility for the power of discourse surrounding actions, as well as to communicate the who, what, when, why, and where of executing those actions.

CYBER	
Timeliness	
Flexibility	
Innovativeness	
Versatility	
Adaptability	
Resilience	

3. Intelligence. Many NATO militaries have recognized that the importance of doing the right things, and the right time, at the right place, is essential to achieving desired effects in a modern battlespace. All three models recognise that future battlespaces will require quality sense-making capacities to ensure battlespace agility in military operations in the 21st century. It is not simply a matter of more and better ISTAR⁹; one poorly trained all-source analyst could undermine the totality of the investment or negatively affect an entire campaign from the start in terms of situational awareness and understanding.

(8) See US DoD 2011a, 2011b; Background to environment see Netwars 2008; Albert & Hayes 2006; Nicholson 2006; Alberts 2002; Albert et al. 2001; Alberts & Papp 1998. Also see Ch.1; Smith 2006, 2005; Goodman 2003; Potts 2003; Moffat 2003; Treverton 2001; Rogers 1996 for different takes on the impact of information technology on both the internal and external environments. For cyber narrative responsibility see Nissen 2011, 2012.

(9) Intelligence, Surveillance, Target Acquisition, and Reconnaissance.

In this regard, all three models call for a *defence intelligence agency* of to ensure a high level of professionalism.¹⁰

INTELLIGENCE	
Timeliness	
Flexibility	
Innovativeness	
Versatility	
Adaptability	
Resilience	

4. Special Operations Command (SOFCOM). SOF/SF military formations are already inherently *joint* by definition and therefore at their core, very *agile*. They also give us the most effect for our money - as long as they are used. Therefore the inclusion of a SOFCOM in all three models assumes that more assets can be assigned to the SOF/SF community that will increase their operational tempo in all facets, direct action (DA), military assistance (MA), special reconnaissance (SR), and possibly nuclear, biological, chemical (NBC) response units.¹¹ It really is an issue of how large we can make it without undermining the agility advantage or OPSEC. To date, we have learned that SOFCOMs can manage over 16000 persons.

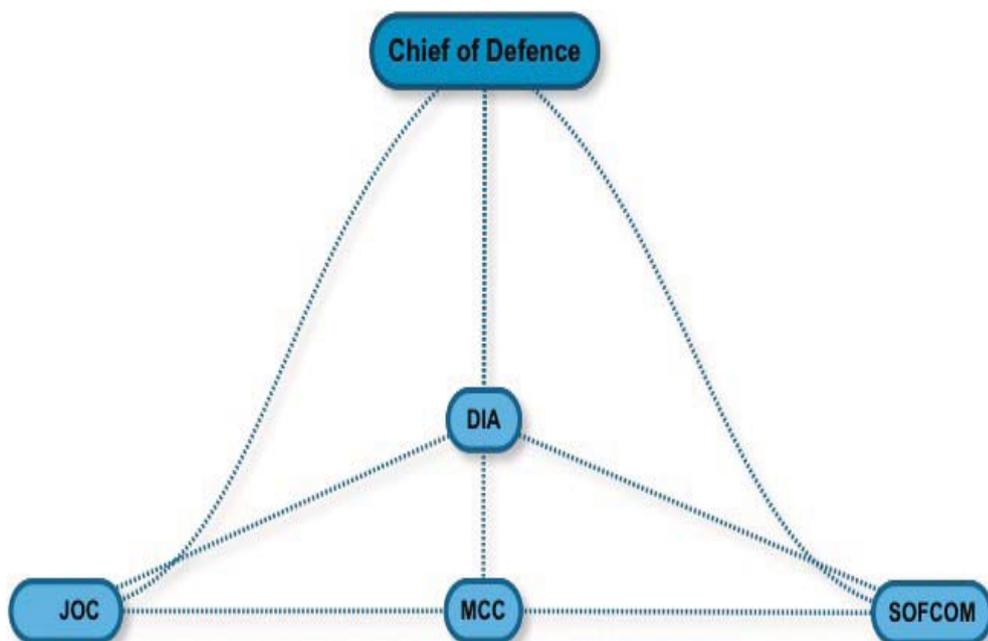
SOFCOM	
Timeliness	
Flexibility	
Innovativeness	
Versatility	
Adaptability	
Resilience	

(10) See Schoffner 1993, 31-35. Phsiter (2004):2. Known as Intelligence Preparation of the Battlespace (IPB), its purpose is to keep the commander aware of recent, current, and near term events in the battlespace. See Mitchell 2012 a,2012b, 2010b, 2008, 2002, 480-485;. See Smith 2006, 149-193. See Libicki 1996 for the starting point to focus on knowledge development with doctrinal implications. See doctrinal development line stretching 20 years, UK DCDC JDP 2-00, 2011; NATO AJP-2.7, 2009; Mitchell 2012b, 2010b; Phister 2004; SAB-TR-02-01 2002; Owens 1995; and Schoffner 1993.

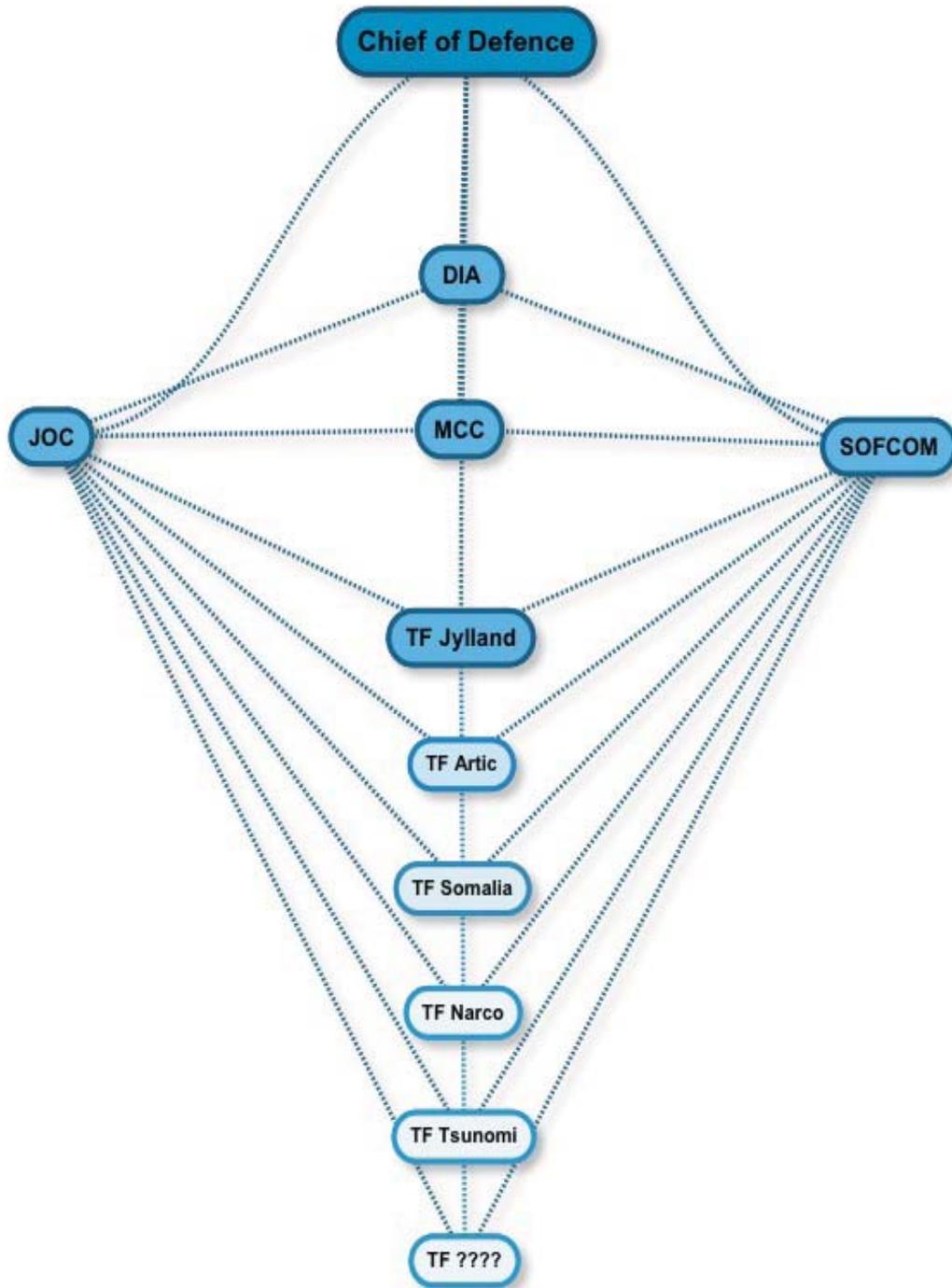
(11) See Lars Jensen 2012a, 2012b. Other views on a SOFCOM transition process, Day &Horn 2010; Horn 2009; NATO Doc 2008; CDN Forces Doc, 2008.

MODEL 1 “JOC-SOFCOM”

This model is probably the most comprehensive model in its ability to cope with future scenarios that span both long and short term participation. In terms of the long term, home defence is the most common, while contributions to long term peace-keeping mission are rare. The JOC accommodates well the longer as well as short term missions. Most interesting in this model is how one chooses to integrate services, and though not illustrated here it is perfectly possible to maintain a joint operational command while individual services retain their own recruiting and training structures. The primacy of situational awareness and understanding to the execution of operations is substantiated by the separate intelligence and cyber commands that form the essential elements of knowledge development to support the commander. Finally, by having a separate SOFCOM, the organisation has the capacity to provide maximum timeliness when the situation needs it. The SOFCOM has the advantage over the JOC where it concerns timeliness and innovativeness, but is less suited to longer duration activities on a large scale. Currently this rudimentary model is being employed by Canada with several adjustments for the management of service recruitment, the cadet program, and cyber.

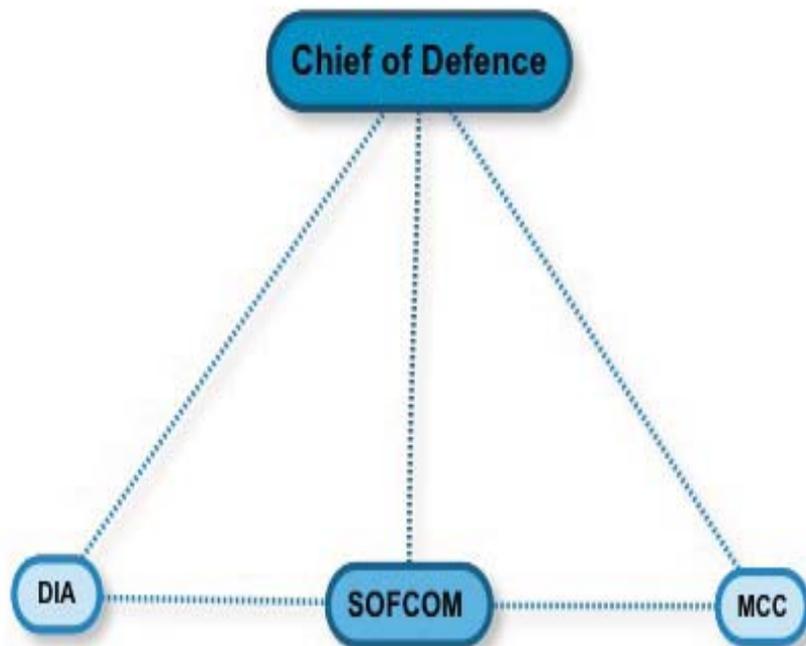


MODEL 1 IN ACTION

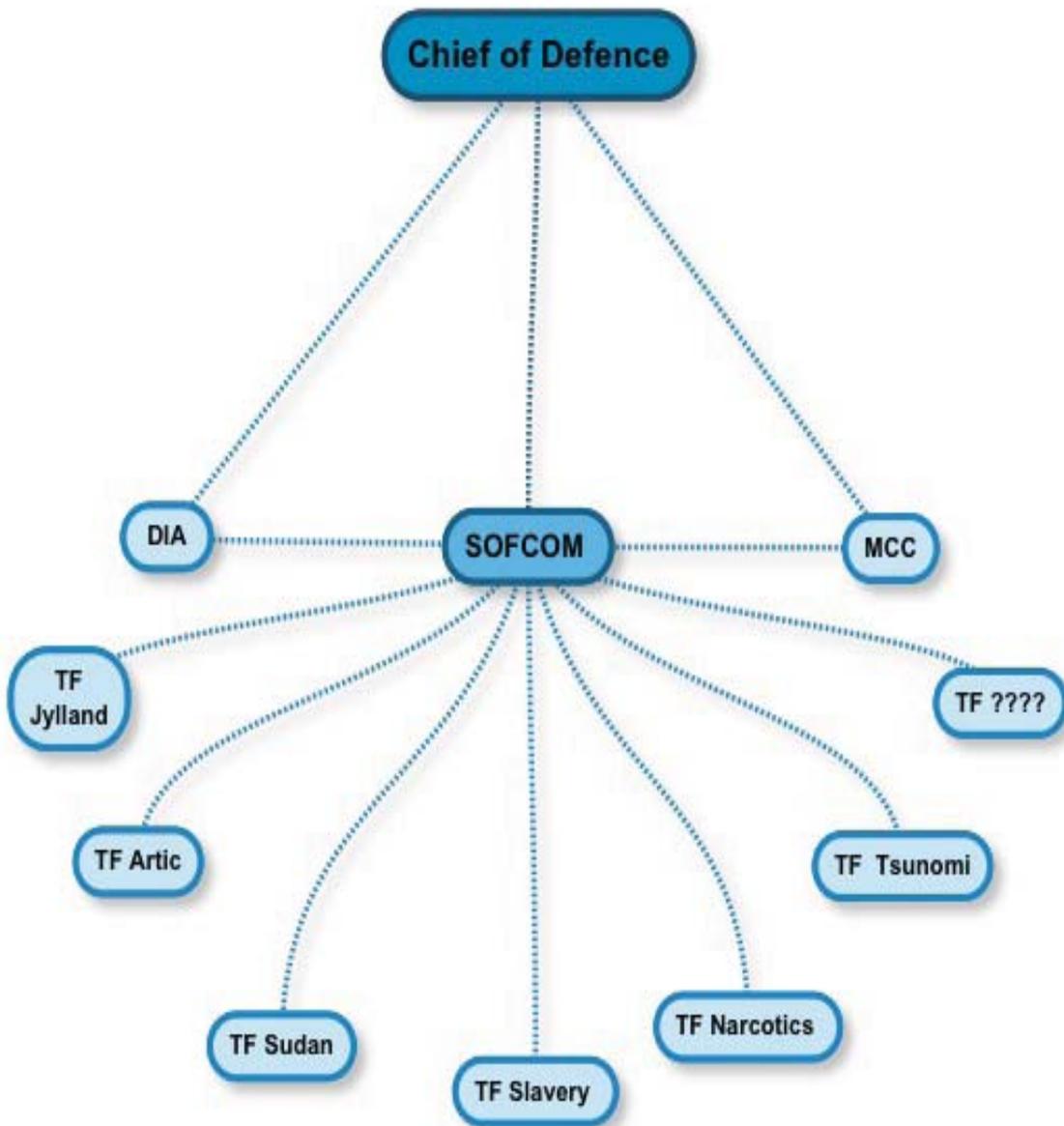


MODEL 2 "SOFCOM ALONE"

Lessons from the last 10 years have illustrated that a SOFCOM can managing over 16000 personnel without endangering the key advantages of SOF employment. Therefore nations with small armed forces can realistically go over to SOFCOM through the expansion of capacities. However where the SOFCOM is not suited to long duration low intensity operations, it will unlikely be the most effective use of your forces. One thing is certain is that as SOFCOMs are joint by nature, under this structure units will find it relative easy to adapt to international coalition JTFs. Our experience has seen a SOFCOM effectively in theatre over 16000 personnel. It should be noted here that the greater part of SOF expansion over the last 10 years has been increased numbers of military assistance specialists, as well as special reconnaissance specialists with slight increases in the direct action capacities.

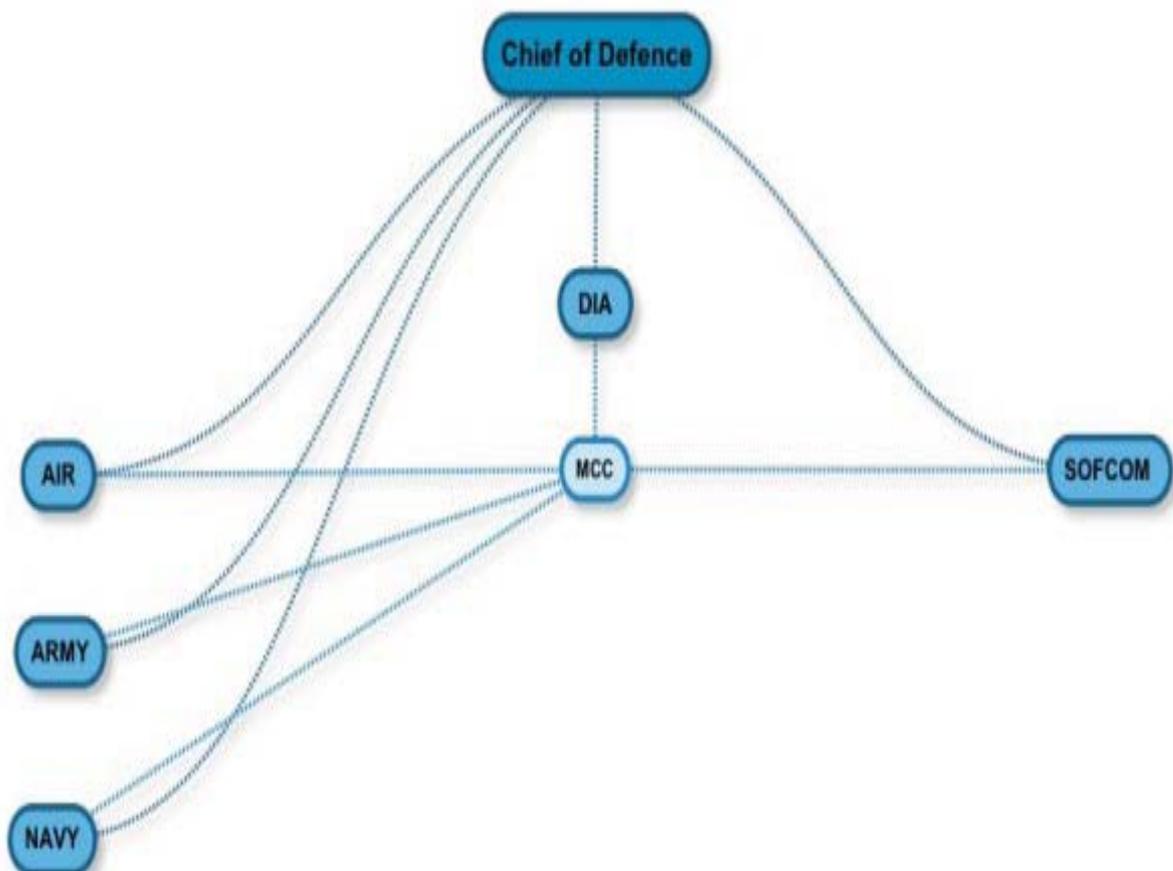


MODEL 2 IN ACTION

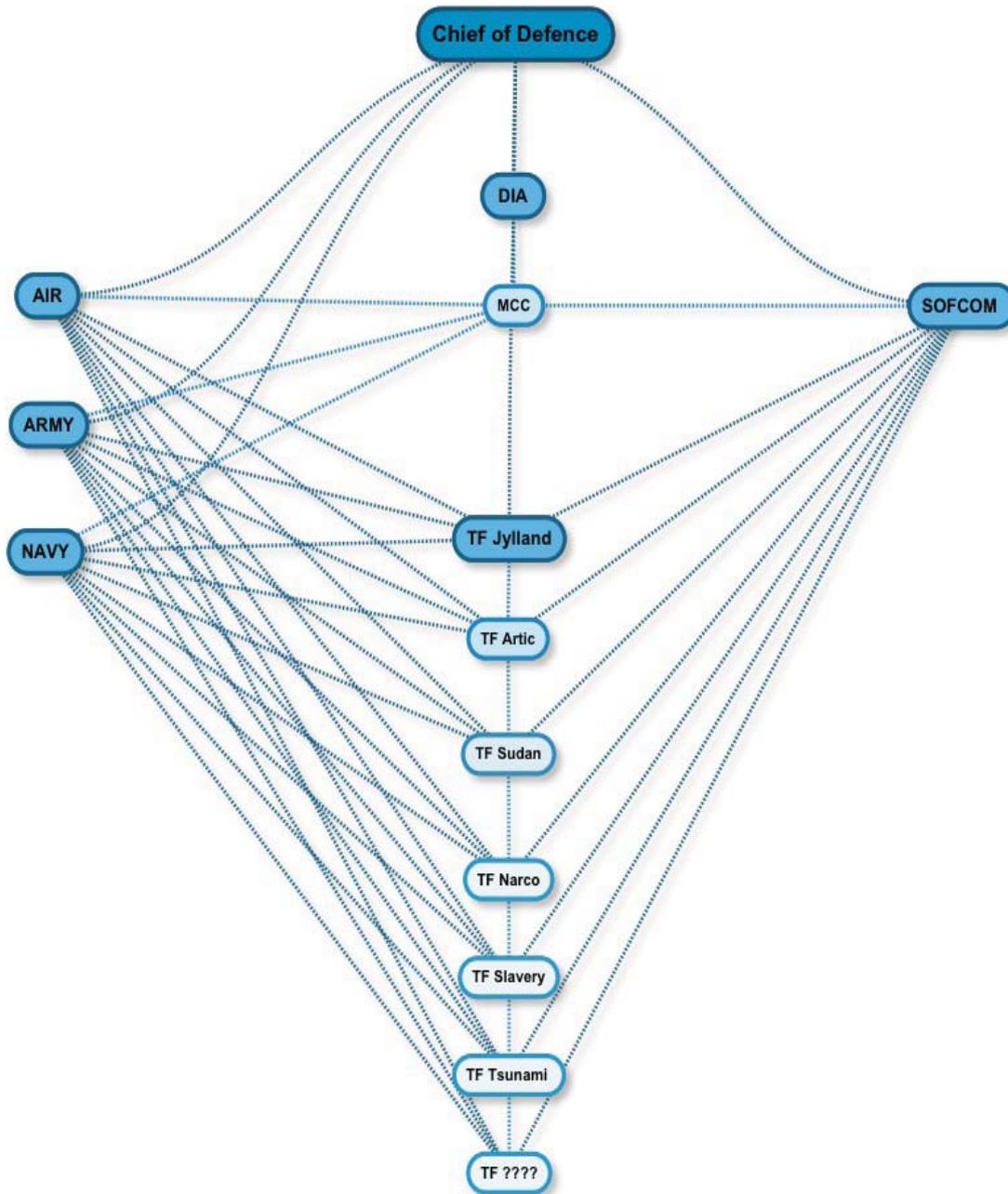


MODEL 3 “TRANSITIONAL”

This model represents an intermediate position whereby militaries that still have operational commands by service can make the transition over time. The immediate agility is increased through the separation and reinforcement of the SOFCOM and its capabilities, however there is risk that if transformation is prolonged, you end up having 4-5 competing operational commands instead of 3-4 operational commands. Moreover the organisation continues to be one that is significantly insulated and rigid that it will try and fit the situation to its institutional needs rather than adapt to the situation. In other words, there is a short term risk that you end up far less agile than when you started, until the transition is completed.



MODEL 3 IN ACTION



Conclusion

As we enter the final stages of transition there are certain dynamics that have been identified that form the foundation for the requirements on our armed forces for future conflicts. In the spring of 2013, one should expect a NATO research report that will summarize the better part of 10 years of research pertaining to *agility*. It is from this body of research that we should be striving to identify how we build agile and adaptable military organisations that give the desired effect for the cost. The generic models presented in short form here, are an introduction to a framework for considering one's own structures vis-à-vis proven principles of agility.

Works Cited

- Alberts, David. (2011) *The Agility Advantage*. Washington DC: CCRP
- Alberts, David S. & Richard E. Hayes. (2006) *Planning: Complex Endeavors* Washington DC: CCRP.
- Alberts, David S. and Richard E. Hayes (2005). *Campaigns of Experimentation*. Washington, CCRP.
- Alberts, David S., et al. (2003) *Power to the Edge*. Washington, CCRP.
- Alberts, David S., et al. (2001) *Understanding the Information Age*. Washington, CCRP.
- Alberts, David S. & Daniel S. Papp. (1998) *Information Age Anthology* .Washington DC: CCRP
- Alberts, David S. and Thomas J. Czerwinski.(1997) *Complexity, Global Politics, and National Security*. June 1997.
- Arquilla, John & David Ronfeldt (Ed.). *Networks and Netwars: The Future of Terror, Crime, and Militancy*. (Rand Corp, 2010)
- Atkinson, Simon & James Moffat (2007) *The Agile Organisation*.Washington, DC: CCRP.
- CDN Forces Doc. (2008) 2007-2008 Report on Plans and Projects. Ottawa, 2008.
- Coakley, Thomas P. C3I: Issues of Command and Control. (1991) Washington, DC: National Defense University Press, 1991
- Crumley, Lloyd M., and Sherman, Mitchell B. (1989) Review of Command and Control Models and Theory. Fort Leavenworth: US Army Research Institute, Fort Leavenworth Field Evaluation Unit, 1989
- Czerwinski, Tom. (1998) Coping with the Bound: Speculation on Nonlinearity in Military Affairs. DoD Command and Control Research Program, Washington, D.C., 1998
- Czerwinski, Tomas J. (1996) "Command & Control at the Crossroads," *Parameters*, Autumn 1996:121-132
- Davis, Paul K. (2010) "Military Transformation? Which Transformation, and What Lies Ahead" RAND National Security Research Division, 2010
- Day, Michael & Bernd Horn (2010) "Canadian Special Operations Command: The Maturation of a National Capability." *Canadian Military Journal*. Vol.10, No.4. Autumn 2010.
- Forsvarskommandoen Udviklingsafdelingen Notat (2009)
- Goodman, Alan E., (2003) "Shifting Paradigms and Shifting Gears: A Perspective on Why There is No Post-Cold War Intelligence Agenda," by in *Intelligence Analysis and Assessment*, Eds.David A. Charters, Stuart Farson, and Glen P. Hastedt. Milton Park, UK: Frank Cass Publishers, 2003
- Horn, Bernd (2009), "CANSOFCOM", *On Track* Vol.14, Number 2

- Jensen, Lars. 2012a. Specieloperationer kan forøge DNKs strategiske muligheder. København: FAK Brief 08-10-2012.
- Jensen, Lars. 2012b. Specieloperationer - luftkapaciteters centrale role. København: FAK Brief 26-09-2012.
- Libicki, Martin C. and Stuart E. Johnson, eds. (1996) "Dominant Battlespace Knowledge". April 1996.
- Lloyd, Merfyn (2003) "Commanding Agile Mission Groups." *Journal of Defence Science* Vol. 8 No.3
- Mann, Paul. (2001) "Defence Reform Stresses Speed, Agility, Jointness." *Aviation Week & Space Technology*, 6/18/2001, Vol. 154 Issue 25:72
- McNaughter, Thomas et al. (200) *Agility by a Different Measure*. RAND Issue Paper 2000
- Mitchell, William. (2012a) *Kitae I: Battlespace Agility in Helmand: Network vs. Hierarchy C2*. (Copenhagen: Royal Danish Defence College Press, 2012)
- Mitchell, William. (2012b) *Kitae II: Battlespace Intelligence: Social Network vs. Traditional Time & Space Analysis in Helmand* (Copenhagen: Royal Danish Defence College Press, 2011)
- Mitchell, William. (2012c) *Kitae III: Unit Construction for Effect in a Complex Battlespace*. (Copenhagen: Royal Danish Defence College Press, 2011)
- Mitchell, William. (2009) "Swinging the Tomahak". *Militært Tidsskrift* 138.årgang-Nummer4- December 2009
- Mitchell, William. (2008) *Comprehensive Approach Capacity Building*. (Copenhagen: Royal Danish Defence College Press, 2008)
- Mitchell, William (2010a). *Ch.3 The Comprehensive Approach Dilemma: No Unity of Command -No Unity of Effort*. *Comprehensive Approach*. Edited by Flemming Splidsboel Hansen. Spring 2010
- Mitchell, William(2010b). Agile Sense-Making in an Intersubjective Environment. *International C2 Journal* (IC2J). Spring 2010. http://www.dodccrp.org/html4/journal_v4n1.html
- Mitchell, William. (2004) Instrumental Friend or Foe? Constructivist Activism in Security Policy Means Analysis. *Politica*, Aarhus University, 2004
- Mitchell, William. (2002) An American Intelligence Community Back on Track? *Militært Tidsskrift* Oct./2002:480-493
- Moffat, James. (2011) *Adapting Modeling & Simulation for Network Enabled Operations*. Washington, DC:CCRP.
- Moffat, James. (2003) *Complexity Theory and Network Centric Warfare*. Washington DC: CCRP
- NATO DOC (2009) AJP-2.7 Allied Joint Doctrine for reconnaissance and Surveillance. July 2009.
- NATO (2007) Bi-Strategic Command Pre-Doctrinal Handbook "Effects Based Approach to Operations" 2007
- NATO SAS-085 (Forthcoming 2013) Operationalizing Agility
- NATO SAS-050. (2006) Final Report: Exploring New Command and Control Concepts and Capabilities
- NATO SAS-026. (2002) Code of best practice for C2 assessment. Washington: CCRP.
- NATO (2002) Code of Best Practice of C2 Assessment Analysts Summary Guide, Washington: CCRP
- Nicholson, Peter. (2006) "Effects Based Strategy: Operations in the Cognitive Domain." *Security Challenges*. Volume 2, Number 1, 2006:133-146

-
- Nissen, Thomas (2012) *Tactical Information Operations in Contemporary COIN Campaigns*. FAK Research Brief. Copenhagen: Royal Danish Defence College Press
- Nissen, Thomas (2011) *Black and White and 256 Shades of Grey in Between*. FAK Research Brief. Copenhagen: Royal Danish Defence College Press
- Owens, Adm. William A. (1995) "The Emerging Systems of Systems," *Proceedings*. May 1995:35-39
- Phister, Paul W. Jr., Timothy Busch, & Igor G. Plonisch, (2004) *Joint Synthetic Battlespace: Cornerstone for Predictive Battlespace Awareness*., Rome, NY: Air Force Research Laboratory/Information Directorate, 2004
- Potts, David. (2003). *The Big Issue: Command and Combat in the Information Age*. Washington DC: CCRP
- Robinson, Clarence Jr. (2003) "Military Marches Towards Agility". *Signals Magazine*. May 2003
- Rogers, Marc. "NATO On The Verge of A New Era", (1996) *Jane's Defence 96: The World In Conflict*. *Jane's Defence Magazines*, 1996, 22-23.
- SAB-TR-02-01, "Predictive Battlespace Awareness to Improve Military Effectiveness, Air Force Scientific Advisory Board, August, 2002.
- Schoffner, Wilson A. (1993) "Future Battlefield Dynamics and Complexities Require Timely and Relevant Information", *Phalanx*, 26(1). 1993, 31-35
- Smith, Edward A. (2006) *Complexity, networking, and effects-based approaches to operations*. Washington: CCRP.
- Smith, Edward A. (2005) *Effects Based Operations: Applying network centric warfare in peace, crisis, and war*. Washington: CCRP.
- Treverton, Gregory F. (2001) *Reshaping National Intelligence for an Age of Information*. (Cambridge, UK: Cambridge University Press, 2001)
- Snyder, Frank M. (1993) *Command and Control: The Literature and Commentaries*. Washington, DC: National Defense University Press, 1993.
- UK DCDC (2011) JDP 2-00. *Understanding and Intelligence Support to Joint Operations*. 3rd Edition.
- US DoD (2011a) *Dept. of Defence Strategy for Operations in Cyberspace*, July 2011.
- US DoD (2011b) *Cyber Operations Personnel Report*, April, 2011
- US DoD (2006) JP-05. *Joint Operation Planning*. 26 December, 2006.