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“The Evolution of C2”

## A Harmonization Marketplace: C2 goes social

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## ABSTRACT

This paper reviews general experiences of the C2 issues of the Multinational Experiment Series (MNE), summing up 12 forthcoming academic articles, covering its chronological, theoretical and methodological aspects. Against this background, the present C2 challenges within a comprehensive approach to Stabilization and Reconstruction (S&R) operations are addressed. First, the metaphor “A Harmonization Marketplace” is suggested to evoke a realistic understanding of the initial conditions in an operational area. Second, the conditions for coordination in the face of autonomy and legitimacy are addressed. Third, the centrality of trust in a comprehensive approach to operations asks us to reverse the theoretical conceptualization of C2 as a primarily social phenomenon. Fourth, doctrine and the notion of centre of gravity is analyzed by nuancing notions of time and space. Finally, conclusions are drawn also for the methodological consequences for the research community.

## Introduction

The need and the difficulties to coordinate different relevant actors in modern civil-military operations have brought the issue of *harmonization* to the top of the agenda. In the face of the challenge to counter terrorism and establish new order to meet the population’s needs, there is an urgent call for realizing a comprehensive approach (CA) to operations. Actualized by the hearts and minds-approach recently announced in Afghanistan, the task of bringing diverse actors to a unity of effort is paramount. The meaning of the term harmonization is ambiguous, i.e. there is no authoritative definition that is spread among central actors. Furthermore, the implementation of its ideas still waits for realization. In order to facilitate such processes, this work performed within the international research collaboration of MNE 6<sup>1</sup> offers problematizations, discussions and constructive suggestions about what is feasible, not least in relation to military doctrine, established notions of command and control (C2), and the heterogeneity of actors involved in today’s operations.

A practice is both a way of doing and being, typically formed and institutionalized in a social context. A practice can be intelligent without having to involve intellectual abstractions. However, with the professionalization of a practice follows the demand on articulation, to clarify the principles of the practice (Lindén, 1998). In the modern context this means that claims of professionalism are associated with research and theory-based development of the practice. Abstraction and decontextualization creates a distance between theory and practice, facilitating intellectual scrutiny of the basic principles and assumptions of the practice. In other words, while abstraction and theorization will not directly change practice itself, it is a first step towards its research-based development. The famous distinction between single- and double-loop learning may illustrate the point of theoretical problematization. As long as everything works well, there is no practical need for questioning the underlying program of action and (single loop-) learning pretty much means adjusting things to established standards. However, trouble arises when conditions change and established practices are no longer effective. In this case, underlying objectives and policies must be questioned through a double-loop learning, scrutinizing basic assumptions behind the established order (Argyris, 1977). However, as established practices are internalized and tacit, its logic is no longer readily accessible to actors, referring rather to habit than to pure logic. As established orders are taken for granted, unpacking underlying assumption is a demanding and attention consuming task. In other words, problematizations may help in the double-loop learning process.

Recent practical experience clearly illustrates the need to re-think not only war, but also the mechanisms available or possible to create to realize a CA to operations. Recent international research also point at the need to redress C2 theory in order to embrace the realities of civil-military

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<sup>1</sup> MNE 6 is the 6<sup>th</sup> round of the Multinational Experiment Series, led by the United States Joint Forces Command, <http://www.jfcom.mil/about/experiments/multinational.htm>

cooperation. Despite massive efforts, little practical progress is seen. Therefore, there is a need to scrutinize C2 theory and practice to identify what assumptions that need revision in order to formulate new and more functional versions of theory, eventually informing practice. The aim of this paper is to discuss the outcomes of the international research efforts within MNE6 concerning harmonization of efforts. Our claim is that social theory has shown a promising candidate for questioning and reform C2 theory by addressing many of today's crucial challenges. Theory alone will never solve any problems. However, until we get the problem formulation right, neither old practices, nor new solutions will solve anything either. Hence, the contribution of this paper is to illustrate the benefits of using social theory to address challenges of harmonization and C2 within a CA context. Ultimately, our hope is to inspire new conceptions of C2 in the development of C2 theories that also embrace the characteristic challenges of today's operations.

The evolution of C2 will have to follow the evolution of its contextual circumstances. In a simplified short-version, C2 came from a world where enemies were easily recognizable as states, manifest in primarily physical targets which were fairly easily assessed through external measurement. The enemy system was characterized by internal coherence, lending itself for analysis of centres of gravity (CoG), with domino-effects as rewards for striking against the right physical point. With the physical fog of war as major obstacle, C2 became a matter of information systems, generating information flows making decision-making made on abstraction possible, theoretically with a cognitive or technical analytical focus. The vision became to establish a common situational picture or awareness, making tight coordination possible. The direction C2 is going is characterized by very different conditions. Modern operations is perhaps more than ever characterized by a diversity of actors meshed together in an emergent order, where states are only one category of actors and where friends and enemies are not easily distinguishable. The diversity of actors also generates multiple pictures of the situation, making any coordinated action based on distributed interpretation rather than on a common situational picture. Phenomena are dispersed and carried out by at the best loosely coupled systems, making de facto C2 – or coordination – characterized by social interaction with disintegrated command echelons without unity of command. The challenge thus becomes to exploit the distributed selectivity of attention among diversified actors and competencies through an increasingly social and interactive focus. If there still are fogs of war, today these are social and cognitive rather than physical.

## The evolution of C2

### Where have we been?

- Assuming states, enemies, targets, external measurement
- CoG, internal coherence, C2 as information & decision-making, C2 as information systems
- Expecting common situational picture/awareness
- Cognitive or technical analytical focus

### Where are we going?

- Diversity of actors, emergent order, distributed interpretation
- Dispersed phenomena, loose internal coupling, C2 as social interaction, C2 as disintegrated command echelons, no unity of command
- Exploiting distributed selectivity of attention
- Increasingly social & interactive focus

In the following, we aim to illustrate the benefit of social theories to grasp the challenges of the modern situation and its consequences for the development of C2 theory. First, we present the metaphor of a *Harmonization Marketplace*, which aims to evoke a change in mindset not least in relation to notions of C2. To understand the conditions for collaboration, Kilkullen's *conflict ecosystem* is enhanced with Bourdieu's notion of *social fields* explaining human motivation and action, and with the *Cynefin model* to understand the transition of the system between different states of stability and the consequences for knowledgeable intervention.

Second, we discuss the realism of established notions of C2 in relation to the need for organizations to achieve legitimacy by being convincingly autonomous and rational. Here we also discuss the possibility of exploiting diversity to achieve superior orientation.

Third, the findings that the social dimension of trust is setting the limits of modern C2 systems is taken as an argument to claim that it is time to reverse the theoretical conceptualization of C2 as to acknowledge the social dimension as primary and the technical as secondary. Such a reconceptualization would also allow for new interpretations of classical works on C2.

Fourth, traditional military doctrine and notably the notion of CoG and the following demand on tight coordination is scrutinized through a nuancing of the concepts of time and space, dividing each of them in concrete or abstract notions. The analysis highlights that while the hearts and minds approach calls for seizing the opportunity in the moments of truth to engage in concrete and meaningful interaction, last decades military research and development has been heading the other direction, towards an increasingly abstract notion of time as clock-time, virtualization of physical space and abstract analysis of both. This ultimately boils down to the epistemological issue of whether such moments of timely and concrete interaction establishing trust can be converted into clock-time and measurement-based C2 and abstract analysis. If not, to efficiently carrying out the hearts and minds doctrine, C2 needs to address the challenge of meeting distributed phenomena with distributed and intelligent interaction.

Finally, conclusions are drawn and implications are discussed, not only for C2 and practitioners, but also for the research community. When C2 goes social, so must scientific method, hence addressing many of the issues of academic disputes during the last decades.

### ***A Harmonization Marketplace: The Social Logic***

The main claim of this paper is to see harmonization as a marketplace, at least initially, rather than to assume hierarchical order that is not in place. However, the metaphor is further extended through a "framework" aiming to trigger a theoretically well founded understanding about the expected mechanisms and behaviours in the marketplace, as well as in the operational environment. The theoretical framework presents a new perspective for perceiving and understanding the context of a conflict environment defined by irregular threats.

The strategic context in which Western armed forces at present are involved in are different forms of peace supporting operations (Egnell, 2008), for example, stabilization and reconstruction operations, counterinsurgency, humanitarian interventions, small wars, and low intensity conflicts. This is a reversal from traditional large-scale warfare between states. To counter irregular threats, the political and cultural aspects of the conflict will be primary. More than combat operations are required to defeat the adversaries. Also, irregular wars or conflicts tend to hit harder on civilian populations, who are often directly targeted by warring fractions (Nilsson et al, 2008). As a consequence of this, many old military doctrines successful in interstate conflicts may not be sufficient for handling irregular threats situations that cannot be addressed solely by military means (ibid). New situations require new conceptual tools to grasp the character and the understanding of

the situation that the armed forces are facing. Viewing or framing (Dewulf et al., 2009; Gideon, 2007; Tversky & Kahneman, 1981) the situation or problem from a different angle and with a different focus or mindset can reveal new and perhaps better methods and strategies for solving the problem or adapting to the situation more effectively.

### The Operational Environment as an Ecosystem

The operational context is best thought of as a *conflict ecosystem* (KilCullen, 2006) with a broad range of diverse actors: government, ethnic, tribal, clan or community groups, social classes, urban and rural populations, and economic and political institutions etc. A systemic view of the conflict seeks to look at an actor's interests or relations through the context of other actors' interests and relations. This also implies that any single change will influence the sphere and possibilities for other actors in that ecosystem. Furthermore, an actor is not set to only one role, but can e.g. be both business man and belonging to some ethnical clan. The roles are not fixed. One day a supporter, the next day an adversary, depending on the possibilities in the operational environment. It is also critically important to realize that the intervening military forces are not outside this ecosystem. **If you try to affect a system, you are by definition a part of that system.** According to the ecological metaphor, these actors (including the intervening military force) are constantly evolving and adapting to the environment and other actors. KilCullen's (2006) model does not include theories about relations and actor's actions. One way to extend the model is to use Bourdieu's *social field theory* (Grenfell, 2008; Martin, 2003) to observe mechanisms and forces behind actor's behavior.

### Social Fields: Extending the Ecological View

**Belonging to a social group is one of the most fundamental human needs** and thus making the social dimension crucial to understand everyday behaviour. To any social group, its social distinction from other groups is at heart of its function. All human actions take place within social fields (Grenfell, 2008; Martin, 2003), which are arenas for the struggle of the resources. Individuals, institutions, and other agents try to distinguish themselves from others, and acquire capital which is useful or valuable on the arena (Thomson, 2008). A social field is a social room with its own unwritten rules, which set the norm for behaviour and what is seen as valued (within that field). The actors' schemes of perception, thought and action within a field forms a composite (habitus) of dimensions central to the way of living formed by the dominant group in the field.

What is valued within the field may be expressed as different forms of capital (social, symbolic, cultural and economic) of the field and is a source of power. Economic capital is money, property and other physical assets; while cultural and symbolic capital are often merged concerns education, skills and other valued advantages; and social capital includes personal contacts, connections and social networks etc. Actors draw actively and skilfully on these different forms of capital as sources of power for advancement of both individuals and groups within the field. Many forms of capital are field specific, which means that the capital form is not recognized outside the circles that constitutes the field. Money, for example, may not work as payment in a society or field that uses bartering. The actors define the field; and the field defines the actors. For example, what is at stake in a chess, tennis, or sumo tournament is not simply which individual will be the winner, but what *kind* of chess, tennis, or sumo (and hence, what *kinds* of players) will dominate the field in the future (Martin, 2003). Here it is important to note that practice (behavior, course of action) is just not the result from one's habitus or how much capital one possess; it is a relation between one's habitus and the current circumstances; one's position in the field (what and how much capital one possess or can upbring) and the current state of play of that social field (Maton, 2008).

In the context of S&R operations, understanding the rules of a specific field (e.g., a political field), what actors that posses what and how much capital informs possible strategies. A field typically contains of four types of actors. There are the most powerful and respected actors (1) which are both

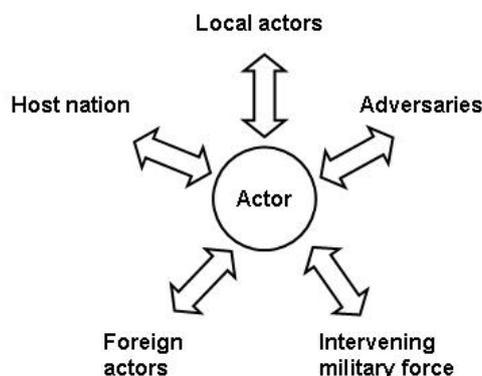
influential and act according to the field's own rules as well as those being loyal (2) to that rules without gaining much influence. There are also the powerful actors that act according to other informal rules than stipulated by the field (3) as well as the least influential ones, acting according to other rules that stipulated by the field not having much capital (4), i.e. the non-respected actors. Changing the conditions of the field so that non-violent strategies quickly accumulate power in the society/field compared to actors following violent strategies. Hence, coalition forces should try to achieve monopoly on violence execution, identify key actors' agendas and offer possibilities for strategy change for violence practicing actors, as well as offer resources to non-violent political actors. How this change or influence of a social field is done is an empirical question that is not easily theorized, because all social fields are unique and must be handled accordingly. But what can be said is that fruitful orientation in a social field needs social interaction to learn and find the rules, norms, and valuable capital that can be used in the specific field in question, as well as have understanding about actors habitus and cultural heritage.

A basic consequence of social distinction and seeing actors as inhabiting a social field is that **a change in position also means a change in social distinction, self-perception, identity and thereby also interests**. In other words, identity and interests should not be seen as emanating from individuals or groups in themselves, but through an interaction with the environment. With this systemic and interactionist view (Dewulf et al., 2009), a change of an actor's path of action means a change also in the rest of the social field. Hence by interacting in specific ways, actors may be pushed to change or get locked into frozen positions through the action of other actors (Enkvist et al, forthcoming – a)

### Influencing the Social Field

All actors have some sort of value star or value constellation that describes their connection and relations to other actors, see Figure 2. **An actor (individual or group) is actively involved in a value creating process towards other actors**, where actions and transactions are evaluated and forming relationships to others as well as affecting the actor's position in the social field(s). Here it is important to remember that the intervening military force is entering an already existing context of relations, and that the military force must find ways to orientate for interaction in order to influence relevant actors.

One of the main intellectual, if not emotional, challenges of S&R operations may be the **blurred border between "us" and "them"**. Including actors in, or excluding them from the host nation oriented coalition may be one of the most powerful tools of fostering stabilization aiming at reconstruction of a failed state. Hence, what has been said above about e.g. behaviour, social fields and harmonization is as applicable for coalition partners as for other stakeholders in the operational environment.



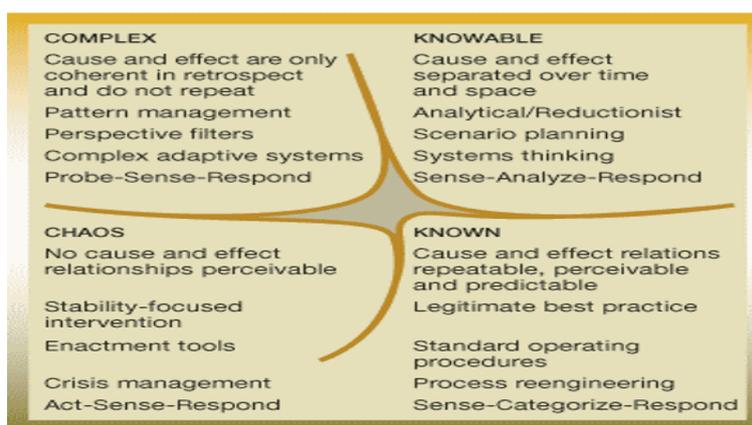
**Figure 2.** The Value Star illustrates the constellation of parallel actors relevant for value-creation, where the actor is active himself in creating value in relation to values in the social field (after Normann & Ramirez, 1993).

By interacting at the harmonization marketplace, actors create shared experience as a basis for understanding and trust creating increasingly stable patterns of interaction. As interaction is repeated, the alternative cost of betrayal increases and the mutual benefit of the transactions forming a relationship increases. As trust is built (e.g., Dirks et al, 2009; Khodyakov, 2007; Ren & Gray, 2009), certain behaviour is excluded (such as deception) from expectations, hence lowering the costs of control associated with the transactions. As risks are lowered, interaction becomes increasingly predictable as long as actors play according to the unwritten rules of the emerging social field. This also has consequences for the character of the social system: **as trust and understanding emerges, the system stabilizes, making analysis and planning more functional again.** Ultimately, through the mechanisms of inclusion and exclusion, influential actors agree on what is seen as legitimate measures for pursuing self-interest: finding political solutions rather than violence and fostering stability to stimulate economic growth.

### The Challenge of Orientation

**The character of the solution of any practical problem will be associated with assumptions of the character of the challenge.** Although often not explicitly stated, such assumptions are both necessary and decisive for human thinking and problem-solving. While orientation shaping a practically useful understanding of the environment is crucial in any conflict, it is an even greater challenge in the case of irregular threats. We use the so called *Cynefin* framework (Kurtz & Snowden, 2003; Snowden & Bone, 2007) to help grasp the character of such an environment. The open-ended character of human activities are especially limiting to attempts to analyse, design or program human behaviour. **Humans are not limited to one identity; they are not limited to act in accordance with predetermined rules or local patterns and may come up with qualitatively new ways of being and acting.** Thus, relaxing the assumption of an orderly world is at heart of the framework, offering the opportunity of recognizing that not all effective solutions are efficient ones.

The Cynefin framework consists of five domains, four that are named and a fifth which is the domain of disorder in the centre of the graph. The Cynefin graph can be divided in term of domains that are of order (right-hand, the domains of known and knowable) and domains that are of un-order (left-hand, the domains of complex and chaos). The character of any social field can be analyzed with the Cynefin framework.



**Figure 3.** The Cynefin framework (Kurtz & Snowden, 2003) illustrates conditions of order and unorder and their consequences for action strategies and knowledge.

In the ordered domain of the *known* (lower, right) cause and effects are mainly linear and allows for predictive models, also allowing for best practice to evolve. Efficiency is in focus, as is single-point forecasting, field manuals and routines. Structured techniques are mandatory and decision-making

here means categorizing incoming data and responding in accordance with predetermined practice. Sense (perceive a phenomena) then categorize and respond, a process similar to implicit and intuitive decision making.

In the ordered domain of the **knowable** (upper, right), although cause and effects are stable, they may not be fully or generally known. Here, relationships are separated over time and space in chains that are generally difficult to understand in context. While it is possible to move into the *known* domain, time and resources sets a limit. This is the domain of experiment, expert opinion, fact-finding, scenario-planning. Although patterns are relatively stable, decision-making requires analysis, expert-advice and interpretation. Here, a simple error in an assumption can lead to a false conclusion that may not be seen. After perceiving a phenomenon you can analyze data before responding.

In the un-ordered domain of **complex** relationships patterns emerge through the interaction of many agents. Cause-and-effect relationships defy analytic techniques: emergent patterns may be perceived, but not predicted. Instead, probing actions may reveal patterns and we may then try to destabilize the unwanted patterns and stabilize the desired ones. Understanding this space requires us to gain *multiple perspectives* on the nature of the system and require other methods and tools. *Narrative* techniques are particularly powerful in this space. In a complex environment you must first probe the surrounding for information that you can sense or perceive and respond to.

The un-ordered domain of **chaos**, as the system is turbulent; no cause-and-effect relationships are perceivable. There is nothing to analyse and waiting for patterns to emerge is a waste of time. The decision model, hence, is to act, quickly and decisively to reduce the turbulence; and then sense immediately the reaction to that intervention so that we can respond accordingly. Do something and see what's happens. And respond to the feedback in the best way possible.

Each domain requires different actions (Snowden & Bone, 2007). As we move from the ordered into the un-ordered, we also will have to accept complexity which will be dissolvable only through action, for example social interaction in form of communication (Snowden & Bone, 2007). While processes, agreements or tools may be developed to support efforts to cope with such an environment, only skilful actors may develop higher levels of artistry. This also has epistemological implications: as no pattern is to be seen, the focus shifts from the analytical, cognitive domain into *action itself as a way of being and knowing*. As transactions with other actors repeat, stable patterns of action can evolve which reduces uncertainty and increases trust between the parties involved. **It follows from the very need of stabilization operations that the states of the relevant social fields are most likely complex or even chaotic.** If it were that information itself would tell the entire story about the situation, orientation would rather be a technical matter. However, as human capacity for attention is limited (Simon, 1997 [1947]), perception and processing in working memory (Baddeley, 2003) will build on a selection of stimuli in any situation. **This selection of stimuli will be implicitly guided and controlled by a composite of a number of conditions in an individual's history and social environment (Boyd, 1995). As Weick put it, rather than saying "seeing is believing", we ought to say "believing is seeing" (Weick, 1979, p. 135, 1995, p. 133).** Hence, holding on to a monolithic picture of what is going on will mean taking unconscious risks.

*Summing up, the ecological view, extended with Bourdieu's notion of social fields and the Cynefin model's explanation of different states of (social) systems nuances and addresses new challenges to harmonization efforts. Anyone attempting to influence the system will become a **part of it**, and actors' possibilities will be **affected and interpreted** in different ways, making **prediction** of consequences hard if not **impossible**. Hence, although the mission will typically be to stabilize the social system and thereby gaining greater predictability of actors, initial conditions will be **complex if not chaotic**, thus setting a **limit** for what can be **known**. Instead, skilful actors may develop higher levels of **artistry** in the **interaction** within and between **social fields**. However, **no actor** can expect to*

*outsmart* every other in every move. Rather, every actor will be part in an **ongoing game of mutual adaptation**, from the coalition's view ultimately aiming at a **transformation** of actors' **identities and interest** as to **include them** into **political** rather than violent means for **conflict resolution**. Hence, in successful operations, the borders between **"us"** and **"them"** will be blurred.

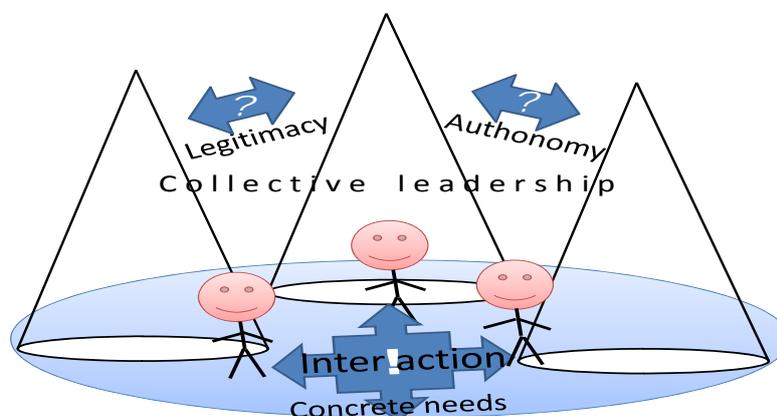
### ***The social logic of harmonization-through-interaction***

As stated above, we argue that C2 is about to go social, both in practice and theorization. The main reason why C2 has come to this point is that it cannot remain what it was in the contexts discussed here. **Traditional military notions of C2 must be scrutinized, as hierarchical order can no longer be assumed. Rather than being the point of departure, the organizational and structural order will emerge out of the interaction between relevant parties.** If there is going to be control, it must be of a kind that preserves the autonomy of the parties that take part, hence making the formal chain of command less firm and thus more dependent on social mechanisms. However, this may also be seen as continuum, not least as viewed through the long acknowledge social mechanisms of leadership and mission command.

#### A disintegrated mode of parallel organizing: a social logic

As shown in Figure 4, the organizations contributing in the local value constellation should be seen as a number of parallel structures, each with their tasks, routines, structures, nomenclatures, roles and specific culture. Furthermore, they also have their own local and global stakeholders. Hence, while working side by side in the same region, serving the same people, they are also **tied up in sometimes radically different norms and expectations**. This means that to understand the organizations respectively, we also need to understand the logic of their value-creation in relation to relevant stakeholders, not least the ones contributing financially to their activities. These conditions also underline the social logic of the possible interaction between the organizations at place.

Organizations are often viewed as designed, rational instruments for solving a specific task. This may be true about the initial intentions behind the establishment of new organizations, e.g. for humanitarian disaster relief. However, over time, organizations also take on an internal life with a specific stance, embedding the practical doings in routines, perspectives, understandings, norms and a more or less specific organizational culture. Furthermore, as the organization faces beneficiaries, employees, supporters, they also co-create an image of the organization in relation to expectations and norms of those stakeholders. Hence, **there is a broad range of relevant stakeholders influencing practices of decision-making and activities, also concerning decisions to collaborate with other organizations.**



**Figure 4:** Conditions for C2: Legitimacy, autonomy and collective leadership through interaction

We intuitively understand that studying a single wolf would render a rather meager picture of the behavior of wolves. In similar vein, although being rational creatures within the limits of their span of attention (Ocasio, 1997; Simon, 1997[1947]), human behavior can hardly be understood without considering the social logic of behavior. March & Olsen (2004) called this social dimension **the “logic of appropriateness” whereby individuals and organizations are de-facto controlled through the need to legitimize one’s behavior**. What is specifically important to understanding organizational survival is that organizations not only have to be effective in delivering their goods and services, but also need to gain and maintain their legitimacy to ensure their survival.

#### A harmonization marketplace: looking for legitimate integration

Brunsson (1993, 2006) has repeatedly reminded readers of the pressure on organizations to appear as rational and autonomous bodies: **as if organizations were individuals**. Organizations are often thought of as a type of individual, in legal terms often even called “legal persons”. The features of having a special task, a business concept, a way of working, special expertise and a special culture are all constitutive features of an organization and help us identify something as an organization. If a group of people lack these characteristics, lacking a task, specific characteristics, no clear boundaries or management, lacking freedom of choice, we will hesitate to call it a real organization. Hence, to gain respect as an organization we will have to evoke this model (Brunsson & Sahlin-Andersson, 2000). This is especially important in relation to specific stakeholders such as the people supporting the organization’s activities financially. Hence, general expectations on professional organizations and **the need for legitimacy through an image of autonomy may impede the possibilities for organizations to collaborate to achieve higher efficiency in operations**.

While the social logic of appropriateness, legitimacy and notions of organizations-as-individuals may help the reader understand the motivations behind some organizations, there is hesitation regarding tight collaboration e.g. with military forces. The same expectations on organizational rationality as expressed in traditional notions of C2 may be an obstacle to improvement as well. While hierarchy is tightly associated with rational order, it is far from certain that top-management collaboration would be easier than collaboration on the grass-root level. Experience from disaster relief work also indicates that the local knowledge about the needs and conditions at hand leads to a renegotiation of power which is hardly ever discussed (Suparamaniam & Dekker, 2003). Hence, there is an obvious **risk to strive for tight coupling and coordination, without asking whether it is demanded by the task**. Different activities and actors may well create value for beneficiaries without being tightly coupled in their production processes, but only by their complementary outcomes. Earlier research within the MNE5 has suggested that the solution to coordination (and harmonization) challenges is spelled ‘leadership’. However, the leadership that has the best chances to survive would rather be a collective leadership, exploring legitimate synergies in relation to their respective stakeholders. Furthermore, **there is a possibility that local solutions will show more possible than central ones**.

While formal agreements cannot be excluded, harmonization and legitimate integration will be emergent phenomena over time. The metaphor of a Harmonization Marketplace is meant to evoke those more realistic expectations of what kinds of conditions that will probably exist at the initial phase in a new operational area. Rather than having the idea of one big organization containing all the relevant actors present, **we should envisage this organizing as more a market-like situation where people meet to interact and do deals one-at-the-time**. If successful, the emerging structures of a Harmonization Marketplace will result in more stable patterns of interaction over time. As shown by the example of UN ReliefWeb, organizing does not necessarily require the existence of formal organizations (Bjurström & Skoog, *forthcoming*). Rather, both resource allocation and decision-making may be based on common information and rating of contributions, possibly fostering social structures of control over time. In other words, **control may not demand formal organization**. Thus, while having shortcomings on large-scale issues (e.g. logistics), the ad-hoc

interaction, prepared through connections of established social interaction may result in a well-functioning decentralized organizing process.

### An answer to the challenge of orientation?

**One of the major challenges to modern operations is to handle an increasing variance in the environment.** Local understanding of the situation must be generated by a bricolage of hints and cues in the environment, refined into interpretation through the application and testing of different framings (Enkvist et al, forthcoming-c) and feelings (Enkvist et al, forthcoming-b) in the decision-making and harmonization processes. A comprehensive approach requires a broad range of actors generating a broad repertoire of expertise within the coalition. Although the development and use of communicative skills may be an art too complex to describe, communication can be supported by a toolbox for enriching communication and build trust among parties. By pointing at maps, drawings or examples, the point of the message gets underlined in more dimensions. Also, declaring interests, making deals and following up on them may be illustrative devices for regulating trust and social prestige among coalition partners. Among the most important and practical tools available is the understanding of what strings and instruments there are at hand to play on to build trust. Some of it may refer to individual characteristics, some of it may refer to earlier experiences of the organization or the specific profession represented in the interaction (Roxström et al, *forthcoming a*).

Whatever possibilities that are at hand, harmonization-through-interaction as well as winning hearts and minds of the population is about striking the right key at the right moment – in real interaction in real time. Hence, a distributed solution may have major strengths compared to centralized ones. However, the character of tasks and the production technology, i.e. the tight or loose coupling of means to achieve the goal, are decisive for judging such strengths and weaknesses of different modes of organizing. Nevertheless, **the distributed character argued for in this paper brings not just shortcomings with it. Rather, in a complex environment, the multiplicity of expertise and their perspectives and contacts with the population may be a major strength in the efforts of orientation, i.e. to make sense of the operational environment via the diversity of perspectives and contact.**

*Summing up, the social logic illustrates that not only the task-solving aspect, but also the dimension of **legitimacy** is crucial to organizations. Furthermore, respectable organizations are expected to carry certain traits of **rationality** and **autonomy** rendering legitimacy. Projecting **traditional expectations** on the coalition may become an **obstacle** to real harmonization by questioning the autonomy of the participants. **Neither formal hierarchy nor informal leadership** can be expected to create any tight organizing process, which may even be proved **unnecessary** in relation to the tasks. Rather, a well functioning decentralized organizing process may show more efficient, not least where skilled actors understand how to use instruments of **trust** and **prestige**. Furthermore, **harmonization at a grass-root level** does not necessarily demand formal agreements on higher hierarchical levels. The most likely mechanism may be a **collective leadership** manifested in the **horizontal interaction**. Acknowledging such **loose coupling** and **diversity** may have **strengths** in relation to the challenges of **orientation** through the **multiplicity of expertise, perspectives and contacts with the population**. Hence, social theory helps explaining the **limits to organizing** and addresses the **external challenge** to C2: the capacity to **orient and adapt** to the environment.*

### **Reversing C2 theory: seeing the social as constitutive of C2 systems**

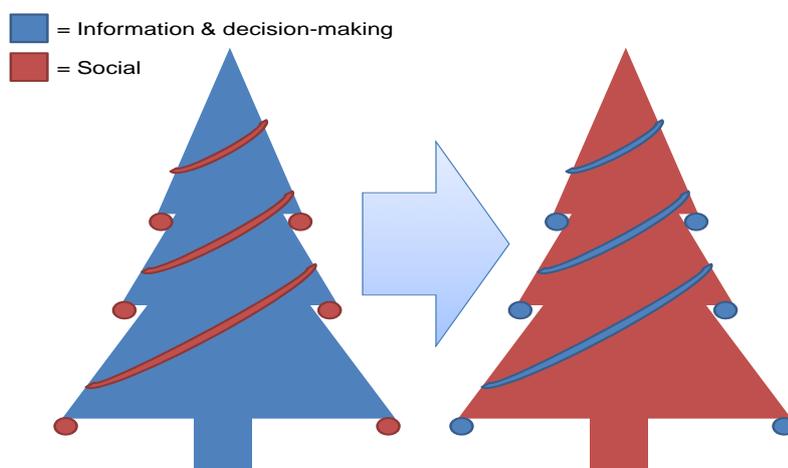
The Information Exchange Architecture and Technology Concept in the MNE5 environment (IEAT) suggested a technical solution (FMV, 2008) for improving exchange of information to be used among a broad range of coalition partners. The concept assumed centrally coordinated operations, but guaranteed participating parties their own sovereignty. Instead, the technical solutions allowed

participating parties to decide themselves how much information they would share with others and who should have what kind of access to their domains. The technical solutions were also based on modular principles allowing legacy technology and different standards to merge through bridges and gateways. These solutions proved to be successful both in MNE5 and later experiments. Hence, **harmonization on a technical level no longer needs to mean standardization of equipment or organizations.**

The IEAT project also identified the basic challenges to such collaborative endeavours in addressing the limits to such a C2 system. Namely not differences in national laws and regulations or semantic differences in nomenclature, but the hesitation to share – or rather give away – information, i.e. the lack of trust between parties. In other words, the concept which emanated in the ideas of Revolution in Military Affairs (RMA), Network Centric Warfare (NCW) and Network Enabled Capabilities (NEC) concluded: **“The technique is already there, the biggest challenge is our ability to change our minds about the way we are thinking and using information”** (FMV, 2008, p. 22). The solution suggested by the authors was to give this problem full management attention and trust leadership to solve the situation. However, as shown above, informal leadership or formal centralization, (i.e. the re-creation of hierarchical structures within networks), may be problematic in relation to the contributing parties’ need for legitimacy and autonomy.

### Rethinking the conceptualization of C2

**From a practical perspective this is an embarrassing reality. From a principal viewpoint it is a call for rethinking C2 theory.** C2 has been defined as a matter of information and decision-making in the first place. In the second place, comments have been made about the social or moral dimensions of waging war and the subsequent needs to motivate the troops. If C2 could be illustrated with a Christmas tree, the structures and flows of information and decision-making would be the very tree with its structures, its trunk, branches and needles keeping the whole together, while leadership and camaraderie, i.e. the social aspect, would rather be the decorations on the surface of the structure. The MNE5 experiments showed that this situation has changed in modern conditions. Rather than being superficial decorations, the social dimension of ‘trust’ showed to define the C2 system almost entirely, setting the borders for the system by delimiting its uses. **In other words, the picture has changed: from having been the decoration, the social dimension has risen to become the backbone of C2 systems, defining both their reach and quality and being constitutive of its entire structure.** Hence, under modern conditions of a comprehensive approach, the social dimension is the very tree, the trunk, the branches and the needles, while information flows and decision-making have become the more superficial decorations. (Bjurström et al, forthcoming)



**Figure 5.** Shifting perspective on C2: the social aspect defining the very structure of the C2 system.

This shift of emphasis does not mean that issues of information flows and decision-making are irrelevant, only that they can no longer stand in the foreground, shadowing the social dimension by reducing it to simple behaviouristic notions of motivation as Pavlov's dogs. Rather, taking the social practice aspect of Weick's sensemaking theory (Weick, 1993) seriously, **motivation is hardly separable from cognition** (e.g., see Bargh et al, 2010). Through the logic of appropriateness (March & Olsen, 2004) actors learn their identity through their roles and the actions associated with those roles and the available tools used in such a role. In other words, decision-making and motivation are parts of an ongoing, collective and social practice, telling us who we are and thereby what to decide and to do. From the constructive perspective, such **sensemaking processes may well also help forming new roles, new expectations and new repertoires of collective action in social systems of emerging horizontal control mechanisms, through the logic of appropriateness** (Bjurström & Skoog, *forthcoming*).

### Returning to the social story of C2

**One of the most important things about the social perspective on C2 theory is to acknowledge the role of social and practical context in the very processes of cognition, forming identities, roles, and viewpoints.** Throughout the C2 literature, there are statements emphasizing such aspects. However, until now none has put them at the centre of C2 theory. For instance, van Creveld (1987) commented that while he described the C2 process as a rational process where information is used to control people to accomplish their tasks, war must be understood as irrational. Forgetting the **moral factors** would mean totally misunderstanding the very character of C2. In similar vein, Middledorf (1956) asked whether technology and rational analysis would put old rules aside and concluded that too detailed instructions from superiors would eliminate the **joyful acceptance of responsibility**. Also, instead of focusing on information, Boyd displayed a focus on the myriad factors influencing internal cohesion (Osinga, 2007); and, for Clausewitz, **decision-making was as much a moral issue** as a matter of optimization (Sumida, 2008). Hence, new readings rather than new literature may be needed to renew C2 theory.

The most important thing to developing a model of how to harmonize efforts is to get the problem description right in the first place. Our view on what a renewed C2 theory should look like very much **echoes the view of the John Boyd**, suggesting that command organizations should consist of people with different frames of reference, ensuring different interpretations of one and the same observation, ultimately seeing truth as dialogical (Osinga, 2007). **This would also mean a paradigm shift away from the notions of a common situational picture or situational awareness.** If everybody had the same picture of the situation, it must be a laymans' picture rather than a professional one. Professionalism lies in the informed selection of relevant aspects (Bjurström, 2007). Given the increased uncertainty and challenges to orientation and assessment in the modern environment (Bjurström & Nilsson, *forthcoming*), **a new theorization of C2 should also shift focus from being mainly preoccupied with internal coherence, in favour of external adaptation and orientation.** Truly, the limit of human rationality is set by the ability to move beyond established categories. This challenge is also present in Boyd's definition of orientation as a quite messy process:

*"Orientation is an interactive process of many-sided implicit cross-referencing projections, empathies, correlations and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances."*  
(Boyd, 1987, italics added)

*Summing up, international experiments call for **rethinking C2 theory by putting the social dimension of trust at its centre.** This also reverses the relation between information and decision-making on one side and the **social dimension** on the other, making the latter **the backbone of C2 systems.** Social theory helps moving beyond narrower notions of **motivation**, seeing it as **intertwined with cognition***

and the roles, tools and identities available in the ongoing social practice in which cognition takes place. The **logic of appropriateness** which constituted an obstacle for integration may also provide possibilities of **forming new roles**, expectations and repertoires of collective action, eventually resulting in an emerging **horizontal control** mechanism, demanding people to do the right thing. Getting the problem description right is the most crucial step towards a sound renewal of C2 theory. Our suggestion echoes John **Boyd's** insistence on the **usefulness of different frames** of reference. A social view on cognition also **questions** the popular notion of a **common situational picture**. Professionalism means **selectivity of attention** leading to different perceptions of the same situation. The challenge of orientation highlights the need to emphasize **external adaptation** and **orientation** over internal coherence. To **look beyond established categories** remains a permanent challenge to human rationality.

### ***Doctrine and different ways of knowing***

Military C2 has become so associated with hierarchy, positivistic notions of knowledge-as-measurement and doctrine as a matter of logistic that **it demands considerable effort to try to think out of the box**. Not least, the notion of Centre of Gravity (CoG) is deeply rooted, typically implying a view of organizations (and enemies) as tightly coupled systems, rather than loose-coupled, distributed and dispersed ones, making the concentration of efforts to one point in time and space a central notion of C2. In relief to established assumptions Bjurström & Rämö (*forthcoming*) scrutinizes military doctrine as an obstacle to control in network constellations on the basis of the understanding of time and space, drawing on ancient Greek distinctions between concrete and abstract time and space respectively.

#### Concrete or abstract time and space?

The division between time/timing and space/place can be traced back (at least) to the ancient Greek division of time into an abstract chronos time and a meaningful kairos time, and their spatial counterparts, topos and chora, terms that roughly correspond to a division between concrete place and abstract space. The characterization of time as clock-time (i.e. chronos time) is, however, only one delimited way of understanding time, eventually creating blinders. In contrast, kairos is a more timely and non-chronological aspect of time. These two concepts of time, chronos and kairos, should be seen as a complementary pair of human time concepts. All managers have to also seize new opportunities, in 'windows of opportunities' – opportunities that exist for a finite period of time. Furthermore, all managers face timely situations characterized as 'moments of truth', which might imply judicious actions beyond the mechanically learned and beyond timetables. The chronological time of chronos remains inadequate in such timely situations. Instead, it must be complemented by such a non-chronological notion of time as kairos.

In a similar fashion the difference between abstract, virtual spaces and in concrete places can be distinguished. The difference is illustrated by using the two ancient Greek spatial notions of chora (space) and topos (place) in which the former is an abstract geometric or cartographic spatial extension and the latter (topos) a concrete contextual placial localization without sharp demarcations. Thus, they serve as a useful distinction between abstract space (chora) and concrete place (topos). In this paper the concepts are used to call attention to (1) the distinction between management in theoretical spatial models and in real-world places and (2) the distinction between management and military action in virtual Internet space and in concrete place.

Abstract space

Concrete Space

<b>Abstract Time</b> (clock time)	<b>Chronochoric</b> (episteme) e.g. mathematics, logic, economics	<b>Chronotopic</b> (techne) e.g. business management, logistics
<b>Concrete Time</b>	<b>Kairochoric</b> (techne) e.g. visual media	<b>Kairotopic</b> (phronesis/mantike) e.g. ethic holism, environmentalism, humanitarian values

**Figure 6.** Nuanced notions of time and space.

**Military development during the last two decades marks a striking contrast to the present need to win the hearts and minds of host nation populations.** Time and space in a chronotopic sense of abstract clock time and concrete space has arguably always been central to warfare, through the coordination of energy to specific points. This interest in technological improvement for the sake of timeliness and precision through a logistic logic has been at heart of much military development since the 1990s.

However, at least since the Vietnam war, media's ability to make a direct and sentimentally engaging impression of things not really being there has been acknowledged and addressed in the military's media relations. Hence, the kairochoric aspect of concrete time and abstract space has also been an important part of military development.

With the advent of effects-based approaches to operations, the military took a leap from the traditional interest in logistic issues into the chronochoric of both abstract time and space. This is the realm of calculation and establishment of predictions of future outcomes through the application of theory and general laws, hence relying on total abstraction, such as in the insistence on doctrines of centre of gravity, virtually excluding the possibility of distributed phenomena demanding distributed and varied responses.

What becomes clear in this analysis is the lack of development into the kairotopic dimensions of concrete, meaningful time and concrete face-to-face meeting with people and their realities. This lack also means an inability of practical wisdom, drawing on own experience to consider the mode of action to invoke change, especially to improve the quality of life. This capability also includes the ability to reflect upon and determine an end to achieve one's goals. Intriguingly, this is also the notion of decision-making with the greatest proximity to the development of character and moral aspects of both decision-making and warfare, in stark contrast with ideas of centralized C2 relying on measurement and abstraction rather than concrete and wise interaction in the meaningful moment.

#### Failure and flawed views on knowledge in C2 systems

Bjurström & Piella (*forthcoming*) argued that this mismatch between military C2 doctrine and what is actually needed to win peoples' hearts and minds may be an explanation to present difficulties. Furthermore, they argued that this amounts to a matter of epistemology in C2 doctrine: the belief that the concrete meeting and wise interaction can be converted to information gathering, abstract analysis and top-down instruction. Such a view contradicts accumulated experience even on traditional military C2 and must be even more misplaced in an era where the nuanced, agile and wise interaction may be more important than ever before. Bjurström (*forthcoming*) further argued that a revision of the established reliance on measurement in favor for direct observation and the need for development of personal character, experience-based discretion and broader repertoires of acting and thinking in fact would be a return to the roots of Clausewitzian thought (c.f. Sumida, 2008) and Goethe's phenomenology. Such a development of C2 theory into the realm of social interaction and a view of operations within a comprehensive approach as distributed and skillfully adaptive responsive to local needs, building trust and social stability, would benefit enormously from what social science has learned during the last decades.

The extension of Kilcullen's notion of a conflict ecosystem into social theories acknowledging the agency of human actors, seeing them not as passive expressions of general theories, cultural habits or our interventions (Enkvist, Bjurström, & Roxström, *forthcoming-a*) will have consequences not only for how we understand the conditions for C2 in networks as well and potentially influence general C2 theory as well, partly returning back to the original works of Boyd and Clausewitz.

*Summing up, nuancing notions of time and space into concrete and abstract versions of them respectively reveals a particular stance of **traditional C2**. Furthermore, it illustrates that latter decades' military development has moved **towards the abstract** either in time (clock-time), space (virtualization) or both (theory and analysis). At the same time, the practical challenges of a **hearts and minds** doctrine would need a return to seeing the importance of exploiting temporary **windows of opportunity**, and convincing in **moments of truth** in the many, distributed face-to-face meetings with the population. This mismatch between doctrines of warfare and C2 respectively amounts to a problem of **epistemology**, i.e. the way to knowledge about the world. The belief that such moments of truth in human interaction can be abstracted and measured is not a neutral view, but a very specific perspective on the character of knowledge. A new turn in C2 theory would also mean a challenge to such ideas. A development of C2 theory into the realm of **interaction rather than abstraction** would also address **C2 as a genuinely distributed phenomenon**, hardly conceivable with traditional views. Here social theory will be helpful in addressing such alternatives.*

### ***What becomes different when C2 goes social?***

Throughout this paper, we have tried to convey or view that a broad array of social theories can enrich both the understanding of the modern context for C2, as well as its most crucial mechanisms which become highlighted first as we challenge established notions of C2. The value star, harmonization-through-interaction and the notion of concrete time and space all illustrate the modern condition with lacking unity of command, the need for distributed legitimate interaction without necessarily having to coordinate action tightly to a single point. Hence, many established truths about C2 may need revision. Furthermore, the notion of social fields sheds new light on the inner life of actors, as well as the Cynefin model explains the changing conditions in the same system as well as its implications for coordinated action. The social view emphasizes that actors are knowledgeable and that action should be seen as an outcome of both what the situation allows for and what the actor chooses to do. Hence, knowing a lot about a social field may help understand, but not predict action and as long as routine behaviour, expectations and relations are not established, there is no room for analysis but the situation can instead only be known by interacting with it. Hence, in complex and chaotic situations, C2 must emphasize distributed external adaptation over internal analysis and coordination. **As the roles, interests and relations of actors transforms, so does also the comfortable distinction of "us" and "them", making external orientation an issue far more challenging than only identifying targets. An interactive view on framing, acknowledging also the role of emotions in decision-making, may open up for new possibilities of performing operations as a means to redefine actors, rather than cementing roles and conflicts through static notions of targeting.**

As the social dimension of trust will be decisive for the reach and depth of technical C2 systems, the social dimension must be seen as the backbone of C2. In other words, **the social dimension can no longer be relegated to behaviourist notions of motivation and leadership, but must be seen as intertwined with cognition.** Hence, we act not because of shortsighted calculations of pleasure and pain, but because of what our identity and worldview tells us about our interests, ultimately generated in the everyday social practice in which we take part. Hence, this practice is also what calibrates our selectivity of stimuli, generating different perspectives on the same situation, which in turn makes **the very notion of a common situational picture a highly unlikely and even unwanted**

**one:** professionalism lies in the selectivity of attention tuning the professional mind to the aspects relevant for its expertise. Hence, rather than generating and distributing a common view of everything, C2 must instead be a complex process of interaction between different perspectives, as suggested by Boyd. In this way, the acknowledgement of social and cognitive heterogeneity may be good news for the increased demands on orientation in the new environment. Hence, social theory shows us how to address the increased need for distributed external adaptation and orientation as a response to uncertainty. Furthermore, the cognitive challenge of looking beyond established categories and generate learning here becomes a social context of the everyday doing shaping perception. Hence, surviving in complex and changeable conditions may not only be a matter of creativity, but of organizing interaction between different communities with their respective expertise.

The present mismatch between the hearts and minds doctrine and the established notions of C2 can certainly be seen as an epistemological problem, i.e. how we think we get to know something about the world. Cybernetic notions of control rely on assumptions of the world as known or at least knowable. In practice, what we got is at the best a complex, if not chaotic, situation in which interaction is the very road to knowledge, which in turn becomes indistinguishable from action itself. **A new turn in C2 theory would also mean a challenge to such ideas. A development of C2 theory into the realm of interaction rather than abstraction would also address C2 as a genuinely distributed phenomenon, hardly conceivable with traditional views.** Here social theory will be helpful in addressing such alternatives. Looking back on the development of the Multinational Experiment Series, there has been a clear evolution from more conventional notions of C2 systems and their challenges. However, as the problem formulations have changed, so has the relevant knowledge, finally addressing methodological issues about how to anchor concepts theoretically, formulate problems and perform rigorous method to ensure the quality of experiments and conclusions (Roxström et al, forthcoming-b). While some outcomes of this process will be the search and testing for practical tools for building trust (Roxström et al, *forthcoming-a*), other consequences will be more principal and permanent.

The above reflections on the conditions for harmonization and S&R operations have deep methodological consequences for future research (Roxström, Enkvist, & Bjurström, *forthcoming-c*). As people make a difference, any suggestion about administrative routines will have to assume a less than self-evident behaviour. Typically, organizational routines are assumed to govern if not predict human action within organizations. This also brings new challenges to military research more generally, both in terms of theoretical foundations and methodological issues. **If people make a difference, organizations should not be understood as highly integrated phenomena. Rather, although routines may prescribe certain behaviour, action will typically be under-defined,** thus leaving room for individual style and even innovation. In other word, organizational design will create some of the conditions for decision-making, without being able to eliminate any other influences on actual behaviour. **Hence, validating concepts and organizational design cannot mean prediction of its outcome in practice.** The new challenges on military organization to deal with a broad range of actors also for tasks far from the traditional warfare, brings news to the entire business. It is argued that the health of a discipline is dependent upon a balance between problems, knowledge and methods. We therefore talk about **new horizons in military research: practical challenges call for new theoretical approaches engaging new methodological instruments.** With this new orientation come also a possible redefinition of method and its tasks itself (Roxström et al, *forthcoming-b*). Hence, as new theories are applied to come to grips with practical challenges, so will the methods applied also be.

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