

Annex C

Overview of UK C2 Agility Work

UK C2 Agility work provides the following ‘tools’ to develop a socio-technical systems approach to effect change:

1. A set of *organizing principles* to define (in advance) how to respond to *unknown* and *unknowable* future situations.
2. Two models for change through which to exercise C2 Agility:
 - a. The first is based on a set of candidate classes of agility (called ‘proto-concepts’) to recognise where you are in terms of overall C2 capability and to point to where you might need to be moving towards.
 - b. This is then supported by a second model for change that looks at six perspectives of C2 Agility (called “centres”) that may need to be addressed and changed and yet may be inaccessible to change (e.g. fixed C2/HQ constraints or rigidly held or institutionalised processes).

C2 Agility cannot be divorced from an understanding of the organizational context (in institutional cultural terms) within which C2 is conducted. Mechanistic models of organizational change overlook half of the story, which, according to military practitioners, is often the more important half of the story.

The proto-concepts are briefly described below using reference to useful metaphors:

- **Dynamic construction/factory:** where an agile operating capability is developed ‘at the point of use’, and what is delivered into the operation is the ‘factory’, i.e. the capacity to develop whatever is needed when it is needed.
- **Dynamic invention:** This is the ‘factory of the mind’ in accounts of mental acuity and so what is delivered into the operation are the humans’ capacities for invention, based on their innate qualities, training and experience.
- **Genericity and late commitment/tailoring:** Gaining agility through engendering the capacity to exploit and adapt generic capabilities ‘at the point of use’. Capabilities are agnostic about their precise future employment and are in a form, which permits rapid configuration and/or tailoring to allow practical adaptation to specific circumstances.
- **Bend-and-stretch:** The emphasis here is on scalability and deformation, implying that some ‘looseness’ or capacity for adjustment has been left ‘open to tolerance’ as an avoidance of unnecessary over-particularisation and over-specification.
- **Dynamic construction/chef/artist/composer:** The emphasis here is on synthesis of something new and original from extant materials, guided by an instinctive or experiential appreciation of how this original

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creation might be received in the Endeavor space. It depends on having humans' capacities for invention, based on innate qualities, training and experience, plus the raw materials, 'kitchen'/'studio' (i.e. means of manipulating the available 'materials').

- Self-governing system/market/ecology: Agility here is a naturally emerging property; there are (for example) 'mechanisms' for change built in as an intrinsic part of the system. Markets and ecologies may be used to integrate participating elements or components.
- Modularity/building blocks/composability: This 'golf-bag' approach to agility does not seek to deform or adjust the 'building blocks' themselves, so the capacity for change rests entirely with the compositional variety, which can be generated at the interfaces.
- Operate the agile machine/organism: This posits a machine or organism, which has specific movement, fluidity or generality to enable it to cope with changes in the environment without re-configuration, but requiring self-monitoring.

Different agility proto-concepts appear to be representative of relevant capability 'solutions' for different circumstances; indeed they can be linked to each other to present portfolios for choice in C2 agility decisions to determine how to move from one position in the C2 Approach cube to another position. The socio-technical systems map provides six centres to:

- Help to define the boundary between "Self" and "Endeavour Space";
- Understand what constitutes "Self";
- Support thinking and reasoning about how to move to be more C2 agile;
- Express and manage relationships affecting agility (blockers/enablers);
- Guide and direct balanced change across the "Self" as a whole.

Figure VIII.2: Socio-technical Systems Map of C2 is shown below:

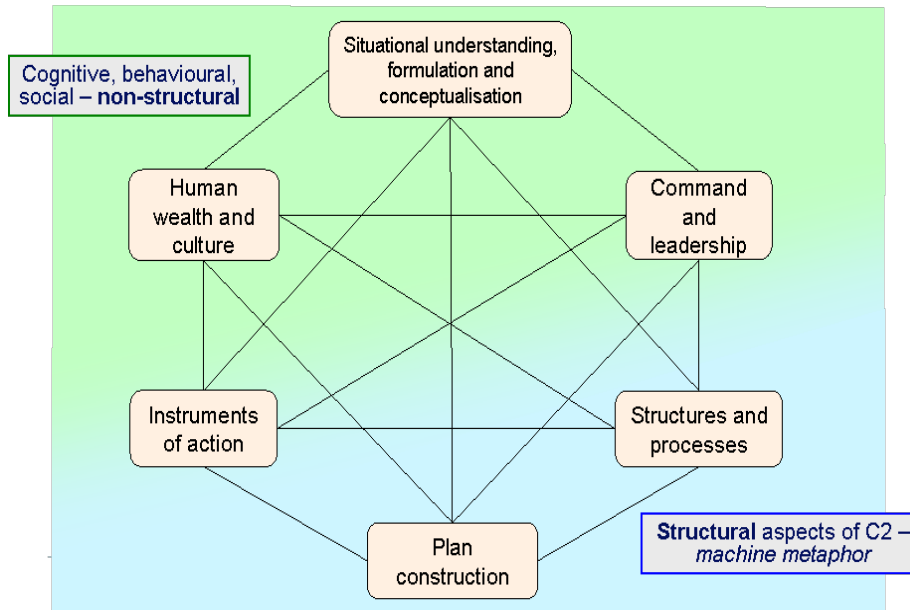


Figure Annex C 1: Socio-technical Systems Map of C2

The six *centres* are perspectives on C2, rather than parts or components. Each of the centres has a unique set of characteristics, falling into two broad categories of structural (coloured blue above) and non-structural (coloured green above).

All six centres are present wherever there is a need for C2 and C2 change:

- No single centre provides all that is required to support the key functions of C2 (such as command management, sensemaking and management of effective collaborations).
- None of these key functions can be delivered through any one of the DOTMLPF.
- Neither can the individual centres be regarded as ‘sub-systems’ in any sense: there is (for example) no ‘structures and processes sub-system’, still less a ‘leadership subsystem’. The structures, leadership and the other centres are all wrapped around and within each other.

Instead, each of the six centres reflects a particular way of viewing or considering C2, according to where any changes need to be made and can or cannot be made.

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The lines between the centres are influences and inter-dependencies (rather than, for example, information flows). Many of the challenges with C2 Agility can be related back to these influences and inter-dependencies.

The set of *principles for C2 Agility* fall into two groups:

- A group of ‘over-arching’ principles that are independent of the ‘six centres’;
- For example, ‘*Recognise that none of the core functions of military capability that contributes to C2 agility can be delivered through any one of DOTMLPF*’
- A further sub-set grouped under the ‘six centres’ of the socio-technical map.
- For example: ‘*Encourage and promote development and acquisition of mental acuity (e.g. through training, education, experience)*’

The principles can be viewed on two levels:

- Firstly, they distil into a single coherent set all of the messages from the military practitioners concerning the aspirations for C2 Agility.
- Secondly, they set up (through the potential tensions between pairs or sets of principles) a focussed analysis of the challenges and the choices to be made in adopting any appropriate proto-concept solution.

In terms of NATO-strategic C2 Agility, such principles need to be promulgated and periodically reviewed and refined. They aim to help with the realisation and prioritisation of C2 Agility requirements. Over time the principles are likely to change as we learn how best to prosecute C2 Agility, and will also give rise to more specific policies and ways to effect C2 Agility.

In summary, the proto-concepts, the six-centres socio-technical map and the agility principles provide ways forward as SAS-085 theory moves into the world of practice when problems occur; for example, when “Self” adapts to respond to changes in the Endeavor Space. Any socio-technical balance achieved at a particular point in time¹ could be destroyed or disturbed by incompatibilities between different change models. The principles and six-centres map can then be used to identify the imbalances and the proto-concepts help to find new positions of balance and appropriate C2 Approach to effect C2 Agility.

¹ An agile organization (which is responding to *continual* change) will not reach a state of static equilibrium, but nevertheless will be maintaining balance within the prevailing circumstances.