Position Paper: A complex systems approach to operational planning

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This workshop provides a good opportunity to rethink operational planning. Currently, there are many efforts to tweak operational planning, whether by providing a greater emphasis on desired effects, on operational design that precedes planning, or through automation and battle management systems. These efforts are all likely to increase the efficiency of the current operational planning process. They amplify our ability to prosecute the objectives of warfare towards simple objectives by achieving synchronisation across the force. However, Western military dominance has contributed to an increasing preference for belligerents to engage in asymmetric warfare, in which irregular forces seek to increase the fine scale complexity of operations (Ryan, 2006). A substantially different approach to planning – not just incremental improvement – is required if this underlying challenge of complexity is to be addressed.

Operational planning refers to the process of analysing a situation and developing a course of action to achieve an explicit goal, supported by intelligence about the environment and other actors. Zhang (2002) offers the following definition:

An operational plan is a description of military operations, with a prescribed order, that are intended to achieve a desired end state. Operational planning is one of the functions in military command and control (C2).

The Joint Military Appreciation Process (JMAP) is the Australian doctrine for operational planning. The JMAP has four consecutive steps: Mission Analysis (MA), Course of Action (COA) Development, COA Analysis, and Decision & Execution. These steps are continuously supported by the Joint Intelligence Preparation of the Battlespace (JIPB), which provides operational level intelligence. A COA is a description of actions, along with a partial order of execution, which is designed to transform the initial state to the end state with the available resources. Operational planning creates a set of planning products that support the decision of which COA should be executed.

The current planning process develops a series of synchronised plans at multiple levels of command. These plans are developed through a waterfall process, where the decision and execution phase of the plan at one level sets the desired end state and resource allocation for the level below. Warning orders are issued to lower level units at the end of each phase of the Military Appreciation Process, which allows some parallelism in planning. However, the overall intent is to produce a single “monolithic” plan, which is consistent and synchronised from the top down.

Insights from complex systems science suggest an alternative approach to planning that may be more flexible, and engender greater adaptivity and agility. The need for adaptable planning is captured by Helmuth von Moltke’s observation that “no plan survives first contact with the enemy”. Rather than developing a single plan from the top down, “planning fragments” could be developed in parallel at all levels of the
organisation (Houghton, 2007). Each of the planning fragments would explicitly identify their underlying assumptions so they could be frequently checked for validity. This approach is designed to support mission command, whereas the current approach is predominantly designed for planning to support control (Houghton, 2007).

The advantage of this approach is that the planning fragments form a network. The plan can change by changing one of the fragments, but it can also change by restructuring the way the fragments are connected. This allows coherent plans to emerge from local self-organisation of the planning fragments. The self-organising approach to planning is inherently a more dynamic process and allows for continuous learning. The commander still sets the end state and has considerable influence over the planning process. However, he is better able to harness all of the planning resources in his command to develop a plan that can rapidly adjust to unforeseen changes in operations. In addition, a fragmentary approach to planning allows for a closer integration between planning and operations because time lags are drastically reduced.

**References**

