

Canadian
Forces
College

Collège
des
Forces
Canadiennes



POLICY CHANGES IN THE SYSTEM OF SYSTEMS

Maj G.H. Harlow

JCSP 40

Exercise Solo Flight

Disclaimer

Opinions expressed remain those of the author and do not represent Department of National Defence or Canadian Forces policy. This paper may not be used without written permission.

© Her Majesty the Queen in Right of Canada, as represented by the Minister of National Defence, 2016.

PCEMI 40

Exercice Solo Flight

Avertissement

Les opinions exprimées n'engagent que leurs auteurs et ne reflètent aucunement des politiques du Ministère de la Défense nationale ou des Forces canadiennes. Ce papier ne peut être reproduit sans autorisation écrite.

© Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale, 2016.

EXERCISE *SOLO FLIGHT* – EXERCICE *SOLO FLIGHT*

POLICY CHANGES IN THE SYSTEM OF SYSTEMS

Maj G.H. Harlow

“This paper was written by a student attending the Canadian Forces College in fulfilment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions, which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied, except with the express permission of the Canadian Department of National Defence.”

Word Count: 3081

“La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale.”

Compte de mots: 3081

POLICY CHANGES IN THE SYSTEM OF SYSTEMS

INTRODUCTION: POLICY MAKING IN THE “SYSTEM OF SYSTEMS”

The engineering theory of a “system of systems” stems from the concept that “multiple, heterogeneous, distributed systems [are] embedded in networks at multiple levels that evolve over time.”¹ The system of systems perspective acknowledges the complexity of the organizational components including the myriad of interconnected higher level policy problems. The complexity of organizational policy within this context means that the interconnected nature enables organizational requirements to be rationally shaped but may also result in chaos when interconnectivity is not considered. This paper will prove that when policy is part of a system of systems, those in charge of the governing policy of one portion of the system must consider the impact change will have on other parts of the system to mitigate any negative impact. Although any Canadian Armed Forces policy development might be studied to support this argument, the policy surrounding job performance analysis, specifically the recent policy changes to the manner in which Job Based Specifications are devised within the Military Employment Structure, will be used to prove the far reaching impact policy change may have beyond its immediate purpose. In essence, this proposition will explore how the change of one policy impacts specifically training but also career management, liability and probity in the context of the complex nature of inter-related organizational responsibilities and policies. Supporting the importance of policy considerations, the concepts of change

¹ Datu Buyung Agusdinata and Daniel DeLaurentis. “Specification of system-of-systems for policymaking in the energy sector.” Retrieved 15 May 15 from http://journals.sfu.ca/int_assess/index.php/iaj/article/viewFile/256/248.

management principles and capability integration will be examined in the context of the analysis of job performance requirements and systems integration activities within the complex policy matrix. This will further be explored in the context of how the changes to one policy within the complex policy system influence change and even force a complete change of practice in other portions of the system. As an exemplar of the influence Military Job Based Structure policy change has had, the impact on the Canadian Forces Individual Training and Education System (CFITES) and related policy will also be examined. Finally, the impact of changes in the system of systems will conclude the argument of the inter-related nature of policy in the maintenance of CAF organizational capabilities.

CASE STUDY

Background. The Directorate of Personnel Generation Requirements (DPGR) is responsible for the creation of Job Based Specifications as set out in DAOD 5070-0 and its framework in DAOD 5070-1. DAOD 5070-1 outlines the need “to establish policies, procedures and processes, meet current and future CAF work requirements for operational effectiveness, training and development of CAF members; and rationalize the progression of work for employment.”² Policy governing the process is established in A-PD-055-001/AG-001, Canadian Forces Military Employment Structure, Volume 1, General. This policy enables the creation of the Job Based Specification which is a tool used in the complex CAF employment structure to select, recruit, career manage, train, pay, educate and retire personnel.

² DAOD 5070-0, Military Employment Structure Retrieved 11 Mar 2015 from <http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5070-0.page>

As a tool for training, the original process for developing the Job Based Specification involved job analysis which identified the tasks related to a discrete segment of work with a definite beginning and an end, and supporting skills and knowledge with a measured degree of proficiency. A proficiency scale of one through five was used to describe the levels of expertise that is expected for individual performance across the spectrum of a career. Tasks, skills, knowledge and proficiency combined for the decomposition of a job; this enables training to prepare courses to meet performance requirements and operational imperatives.

Problem. Within the last five years, personnel reductions at DPGR have impeded the ability to do a full analysis of occupational performance requirements. In response, DPGR re-wrote A-PD-055-001/AG-001, Canadian Forces Military Employment Structure, Volume 1, General, to accommodate the reduction in personnel by eliminating vital portions, such as skills, knowledge and proficiency, that require deeper and more time consuming analysis. The original version of A-PD-055 is cited in the DAODs as a reference available only in paper copy. If one asks for a copy, it is not available for distribution. The new draft of the policy has not been distributed but the Job Based Specification process has been modified and now excludes skills, knowledge and proficiency levels. DPGR acknowledges that full analysis is no longer conducted but is unwilling to revisit the process change based primarily on their lack of resources. As noted by Skaburskis, this is a complex problem because although “stakeholders agree on the nature of the problem, [they do] not [agree] on solutions”³ which poses a problem for all of the related policies that use the Job Based specification as a tool for the production

³ Val Morrison. "Wicked Problems and Public Policy." *National Collaborating Centre for Healthy Public Policy* (June 2013): 1.

of other work within the complex CAF human performance system. Using the tool analogy, the situation may be depicted as follows:

- a. The old specification was like a hammer;
- b. The components of the training system can be constructed using a hammer;
- c. The new composition of the specification is now a screwdriver; and
- d. The training system still needs a hammer to construct product. It is not a question of which policy is right. It is a question of the pitfalls of functioning as an interdependent policy system rather than part of a system that supports the institution.

CHANGE MANAGEMENT PRINCIPLES AND CAPABILITY INTEGRATION

According to Strebel⁴, resistance to organizational change is entrenched in the culture. In the context of complex policy governance across an organization, change requires facilitation not imposition by a single entity. The view of control over a given policy undermines the overall functioning of institutional policy. Change Management principles, according to Kotter⁵ require certain components to be successful, in particular to this argument of policy inter-relatedness is the need to create:

- a. A sense of urgency to address a given crisis;
- b. An assembly of the right, skilled people to act as a team and enact the necessary change;

⁴ Paul Strebel. "Why Do Employees Resist Change?" *Harvard Business Review* 74, no. 3 (May/June 1996)

⁵ John P Kotter. "Leading Change: Why Transformation Efforts Fail." *Harvard Business Review* 73, no. 2 (March/April 1995).

- c. An ability to achieve the desired end state through the implementation of a single vision;
- d. A communication regimen that engages key players and communicates institutional requirements;
- e. An environment that is free of obstacles and engages leadership to aide in changing systems or structures that undermine the desired vision;
- f. An ongoing change to reinforce the vision; and
- g. Reinforcement of the value of successful approaches to weave change into the organizational culture.

Change cannot be imposed, especially in a complex institutional policy environment. It is not only personnel that resist change; the internal systems of an organization will also resist a change that has not been integrated into the organizational fabric. To mitigate this, Change Management may be employed as an enabler to Capability Integration.

Webb, Richter and Bonsper note the imperative of organizational capability requirements that “systems and platforms consider needed [requirements rather than] replace platforms with the latest models [and facilitate] analysis of future [requirements].”⁶ This supports the contention that change requires the full analysis of requirements in order to integrate capability.

In the case of the analysis of CAF job performance requirements and systems integration activities within the complex policy matrix, the absence of change management principles in the change of Military Employment Structure policy have impeded the functioning and application of training policy. Change took place in

⁶ Natalie J. Webb, Anke Richter, and Donald Bonsper. "Linking Defense Planning and Resource Decisions: A Return to Systems Thinking." *Defense and Security Analysis* 26, no. 4 (December 2010): 389.

isolation of a single policy and failed to integrate the impact of change into to the greater policy matrix of the system of systems.

THE INFLUENCE OF CHANGE

A question of policy change is often impeded by the path of change itself, which is dependent and often designed to remain stagnate and maintain policy continuity. In widespread policy change, the introduction of major change demands that those involved with policy making must engage and work together to effect change, as “when analysing the question of policy change [it is] difficult to change policies because institutions are sticky, and actors protect the existing model.”⁷ Complex change within a policy network is distinguished by inter-connectivity of resource dependencies. Therefore, the organizational networks dealing with complex policy issues are dependent upon one another to assure the efficient use of resources and consideration of second and third order of effects based on the greater system requirements.

In the case of Military Employment Structure policy, the recent policy changes to the manner in which Job Based Specifications are devised, have not abided by the theory of organizational network of complex policies. The immediate impact of this change of policy lessens the resource demands of the organization charged with the development of Job Based Specifications, DPGR. However, in the realm of institutional policy networks, the inter-related nature of this change has passed the challenges of resource availability onto other portions of the organization that do not benefit of the experience and skills

⁷ Lucie Cerna. “The Nature of Policy Change and Implementation: A Review of Different Theoretical Approaches.” Retrieved 15 May 15 from <http://www.oecd.org/edu/cei/The%20Nature%20of%20Policy%20Change%20and%20Implementation.pdf>

needed to maintain the practices which the existing training policy stipulates and yet, the analysis is still a critical requirement.

HOW CHANGES IMPACT THE TRAINING SYSTEM

In consideration of the interconnected nature of organizational policy, changes to the Military Job Based Specification policy have impacted the Canadian Forces Individual Training and Education System (CFITES) and related policy. Quality control mechanisms of CFITES involve “the development, implementation and maintenance of IT&E programmes [for] the entire life cycle of”⁸ a career. In order to implement training programs for basic, non-basic and specialty individual training and education for occupations and CAF leadership requirements, the specification produced by DPGR is the foundational document for analysis and design of instructional programs. Specifications are a principal tool or component in the analysis of instructional requirements and require a clearly defined and a substantiated need that reflects the complete performance requirement. Supporting the tasks that define a job are knowledge, skills and levels of proficiency “that provide insight into the scope and difficulty of the tasks which may in turn influence the training strategies, methodologies and content.”⁹ Components such as the level of proficiency indicate the degree of expertise required on the job from beginner to intermediate to expert and guide the instructional design to meet the intent of employment requirements.

⁸ Canada. Department of National Defence. A-P9-050-000/PT-001, Canadian Forces Individual Training & Education System Manual, Introduction/Description.

⁹ Canada. Department of National Defence. A-P9-050-000/PT-003, Canadian Forces Individual Training & Education System Manual, Analysis of Instructional Requirements.

As noted in DAOD 5031-2, the specification is identified as the starting point for determining a need for Individual Training and Education. This need comprises all learning activities and includes all “individual skills, knowledge and attitudes required by CAF members to meet employment requirements and participate capably in collective training required for force generation and success in operations.”¹⁰ Given that the full job decomposition is no longer done within DPGR, the analysis must be conducted by the training institution that is still charged with the delivery of trained personnel. The absence of skills, knowledge and proficiency levels to direct the level of detail for performance requirements means that the training institution must make the decision during instructional design on the essence of the product delivery. Influences such as instructional resources, funding restrictions, quantity control pressures and training day limitations may undermine the establishment of job requirements. The role of a training establishment is to train soldiers, sailors, air men and women based on job requirements not to define what those requirements might be for operational employment requirements. This transference of responsibility may seem innocuous but one must consider that skills, knowledge and proficiency contribute to an occupation’s liability and probity concerns while acting on behalf of the government of Canada and within legal boundaries. What once was approved by the leadership of the occupation that had the strategic responsibility for capability delivery is now to be determined by the commandant of a training establishment who is responsible for quantity and quality production. This transference of responsibility to the training establishment runs a far greater risk of becoming a subjective decision influenced by competing day to day factors such as

¹⁰ DAOD 5031-2, Individual Training and Education Strategic Framework Retrieved 11 Mar 2015 Retrieved 11 Mar 2015 from <http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5031-2.page>

resource demands, time and funding restrictions and, the typical greatest pressure facing training establishments, production demands. Also, from the training establishment perspective, this additional analysis burdens the already limited resources and detracts from instructional focus.

CHANGES IN THE SYSTEM OF SYSTEMS

The inter-related nature of policy in the system of systems has impacted the training systems' ability to maintain of CAF organizational capabilities by transferring the analysis requirements to identify skills, knowledge and proficiency. Despite the complexity and far reaching nature of specification development, the problem does not qualify as a wicked problem as the problem is agreed upon and only the solution(s) is/are in dispute. When discussing the way in which the nature of problems manifests, Rittel and Webber suggest "that individuals [tend to] closely satisfy their individual preferences"¹¹; in essence, satisfy their own limitations without consideration of external dependencies. From an institutional perspective, policy interconnectivity depends on individual policy manager's understanding of this relationship of interdependency. The greatest obstacle to policy change is the attitude of individual vis-à-vis policy control. This lack of understanding of the nature of policy interconnectivity manifests in changes made in isolation, undermining the effectiveness and health of the institution.

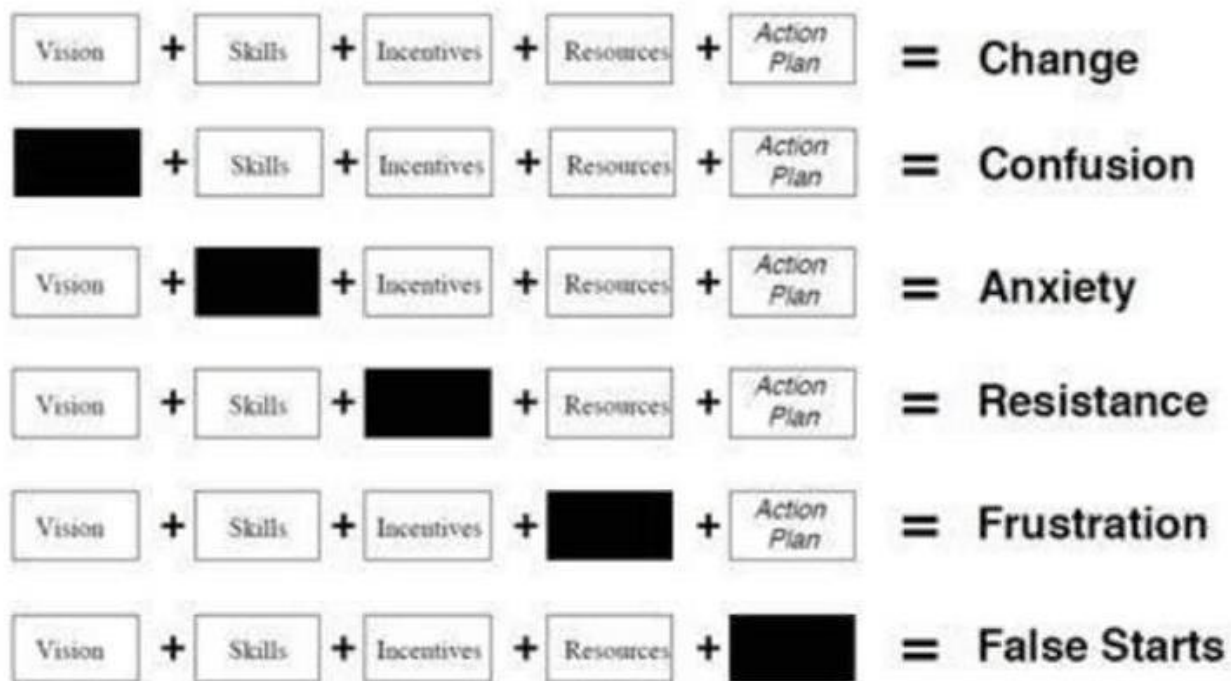
Changes within the system of systems challenges leadership with multiple organizational influences and requirements, whether necessary or perceived, and make the decision making process difficult within a complex paradigm. Factoring into

¹¹ Horst W.J., Rittel and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (June 1973): 169.

leadership's ability to manage complex change and reform a system requires a vast array of experience, skills, and understanding of the situation. Knoster "introduced a Managing Complex Change Model that has several components [and] suggested that when the components of vision, consensus, skills, incentives, resources and action plan are collectively inherent in the system, then change will likely take place."¹² However, the absence of any one of these components inhibits the long term establishment of the desired change. Knoster's model presents possible solutions through the identification of detractors and linking to the potential improvements. As depicted in the table, the nature of the missing components manifests different challenges to be addressed.

¹² T. Knoster. "Leading and Managing Complex Change." Retrieved 15 May 15 from <http://www.d11.org/LRS/PersonalizedLearning/Documents/KnosterMANAGINGCOMPLEXCHANGE.pdf>

Managing Complex Change



Source: CFTDC // CDIFC Det Saint-Jean¹³

Resolution of a problem set depends upon the level of resistance and what interventions will lead to the desired change. It depends on the leader's ability to communicate organizational needs and link to requirements such that personnel are able to implement and arrive at the desired end state. "Complexity is inherent in modern defence management and that something akin to 'friction' is a near-inevitability in the preparation of military capability"¹⁴ but does not negate the need for a coordinated effort in modernizing institutional policy. Thus, institutional policy making and changes need to consider "the various influencing factors, their possible consequences for system

¹³ *Ibid.*

¹⁴ Trevor Taylor. "The Limited Capacity of Management to Rescue UK Defence Policy: A Review and a Word of Caution." *International Affairs* 88, no. 2 (2012): 241.

performance, and societal conditions for implementation” in order to change the system outcomes¹⁵ in such a way that organizational health and efficiency are maintained.

The role of institutional policy, in the system of systems and inherent of an organization, is to govern and map out how different areas of the organization interact to achieve organizational objectives. Failure will result when there is poor policy design or, as with this case study, when policies are modified independent of and without consideration of the role it serves in the greater institution. In resolution to policy design problems, Bristow, in her paper *System of Systems Engineering for Policy Design*, suggests that the application of a system of systems approach can enable an analyst to “identify the policy issue with a problem definition which may have different facets depending on the perspectives of participants who are involved in the issue.”¹⁶ Beyond the identification of issues, Bristow places importance on the respect and inclusion of key participants and entities that are components and contributors to the systemic policy. Thus, communication and inclusion are the key enablers to rectify policy change isolation. In this particular case, any changes that were communicated were informative rather than collaborative. The policy change was a “fait du complet” and the other components of the system were expected to adapt.

CONCLUSION

This paper has demonstrated the critical importance of the interconnectivity of policy in an organizational system of systems. Further, it has proven that changes to a

¹⁵ Datu Buyung Agusdinata and Daniel DeLaurentis. “Specification of system-of-systems for policymaking in the energy sector.” Retrieved 15 May 15 from http://journals.sfu.ca/int_assess/index.php/iaj/article/viewFile/256/248.

¹⁶ Michele Mei-Ting Bristow. “System of Systems Engineering for Policy Design.” Retrieved 19 May 15 from https://uwspace.uwaterloo.ca/bitstream/handle/10012/7985/Bristow_Michele.pdf?sequence=1

governing policy of one portion of the system generate significant negative aspects for other parts of the system that rely on the products produced for a given purpose. The system-of-systems perspective regarding the network of organizational policy is a complex component that requires a collaborative, interactive approach. In the case of changes to the policy analysis of Job Based specifications and the performance requirements contained therein, the interconnectivity of this policy documentation with other related and follow-on products was not duly considered. The policy change made to the analysis of performance requirements addressed the resource limitations of the Office of Primary Interest. When compared against Kotter's change management principles, the job based specification analysis policy change had only an internal sense of urgency, ignored the assembly of the right people, created a singular vision in its own interest rather than a single vision for institutional policy, communicated the changes post enactment and lacked engagement and overall reinforcement. The absence of change management principles in the change of Military Employment Structure policy has impacted the existing training policy as it failed to integrate the desired change into the greater policy matrix of the system of systems. The influence of change has proven that complex change within a policy network is reliant on interconnectivity of organizational policy networks in order to assure the efficient use of resources and the ability to meet organizational goals. Failure to consider and be accountable for the impact of policy change has on other institutional policy, creates havoc and diminishes efficiency, accuracy, clarity and effectiveness. Resource challenges have merely been reassigned to the training system which lacks personnel, expertise and the mandate to determine organizational performance requirements. Furthermore, this policy change means that the

CFITES must adapt to fully deconstruct job performance requirements. This has in turn placed the burden and responsibility on the training institution, which was formerly responsive to performance requirements not responsible for the essence of the product delivery. This transference of responsibility translates into greater risk of subjective decision making. Finally, the greatest obstacle to policy change is the perception of individual policy control and the focus on satisfying singular issues without consideration of external dependencies. The lack of understanding of policy interconnectivity undermines the effectiveness and health of the institution. Institutional policy will fail when policies are modified independent of and without consideration of the role within the greater institution. The application of a collaborative and communicative approach in a system of systems is key to rectifying policy change isolation. Change is always challenging when dealing with complex issues, but can be affected by engaging key players in the system of systems policy network to work together and mitigate issues and establish positive solutions that promote organizational effectiveness.

BIBLIOGRAPHY

- Agusdinata, Datu Buyung and DeLaurentis, Daniel. "Specification of system-of-systems for policymaking in the energy sector." Retrieved 15 May 15 from http://journals.sfu.ca/int_assess/index.php/iaj/article/viewFile/256/248.
- Bristow, Michele Mei-Ting. "System of Systems Engineering for Policy Design." Retrieved 19 May 15 from https://uwspace.uwaterloo.ca/bitstream/handle/10012/7985/Bristow_Michele.pdf?sequence=1
- Canada. Department of National Defence. A-P9-050-000/PT-001, Canadian Forces Individual Training & Education System Manual, Introduction/Description.
- Canada. Department of National Defence. A-P9-050-000/PT-003, Canadian Forces Individual Training & Education System Manual, Analysis of Instructional Requirements.
- Canada. Department of National Defence. A-PD-055-001/AG-001, Canadian Forces Military Employment Structure, Volume 1, General (CURRENT)
- Canada. Department of National Defence. A-PD-055-001/AG-001, Canadian Forces Military Employment Structure, Volume 1, General (DRAFT)
- Cerna, Lucie. "The Nature of Policy Change and Implementation: A Review of Different Theoretical Approaches." Retrieved 15 May 15 from <http://www.oecd.org/edu/ceri/The%20Nature%20of%20Policy%20Change%20and%20Implementation.pdf>
- DAOD 5070-0, Military Employment Structure Retrieved 11 Mar 2015 from <http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5070-0.page>
- DAOD 5070-1, Military Employment Structure Framework Retrieved 11 Mar 2015 from <http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5070-1.page>
- DAOD 5031-2, Individual Training and Education Strategic Framework Retrieved 11 Mar 2015 Retrieved 11 Mar 2015 from <http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5031-2.page>
- Kotter, John P. "Leading Change: Why Transformation Efforts Fail." *Harvard Business Review* 73, no. 2 (March/April 1995): 59-67.

- Knoster, T. "Leading and Managing Complex Change." Retrieved 15 May 15 from <http://www.d11.org/LRS/PersonalizedLearning/Documents/KnosterMANAGINGCOMPLEXCHANGE.pdf>
- Morrison, Val. "Wicked Problems and Public Policy." *National Collaborating Centre for Healthy Public Policy* (June 2013): 4 p.
- Rittel, Horst W.J., and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (June 1973): 155-169.
- Strebel, Paul. "Why Do Employees Resist Change?" *Harvard Business Review* 74, no. 3 (May/June 1996): 86-92.
- Taylor, Trevor. "The Limited Capacity of Management to Rescue UK Defence Policy: A Review and a Word of Caution." *International Affairs* 88, no. 2 (2012): 223-242.
- Webb, Natalie J., Anke Richter, and Donald Bonsper. "Linking Defense Planning and Resource Decisions: A Return to Systems Thinking." *Defense and Security Analysis* 26, no. 4 (December 2010): 387-400.