**A revolution in military learning?**

 **Cross-functional teams and knowledge transformation by lessons-learned processes**

*The post-Cold War era has witnessed the widespread development of lessons-learned processes within NATO member-states. However, practitioner guidance and military innovation studies are yet to properly investigate the insights of management studies about best-practice in lessons-learned processes. In particular, they have failed to identify the activities which enable militaries to ‘transform’ knowledge, by effectively combining new knowledge with existing organisational knowledge. Drawing upon the academic literature on cross-functional teams and original interview research, this article examines the organisational activities which improve the crucial ‘remedial action’ phase of lessons-learned processes. It breaks new ground by identifying six key dimensions of lessons-learned process cross-functional teams and the organisational activities which enhance their performance. In doing so, the article improves understanding about the team processes and wider organisational activities which shape lessons-learned process effectiveness. It also examines the challenges associated with encouraging well-informed oversight of lessons-learned processes by the civilian and military leadership. The article concludes by identifying a number of important research agendas on lessons-learned processes.*

Keywords:absorptive capacity; cross-functional teams; knowledge transformation; lessons-learned processes; military learning; NATO.

**Introduction: sharpening understanding of the activities which facilitate knowledge transformation by lessons-learned processes**

The post-Cold War era has been characterised by the development, for the first time, of permanent formal learning processes (so-called lessons-learned processes) within military organisations, especially NATO member-state/partner-state militaries. However, their potential to enhance military effectiveness is unclear. Prominent military innovation studies scholars have expressed scepticism about their impact on military performance, arguing that they foster the retrenchment of existing routines (Farrell 2010, p.572; Grissom 2006, p.926). Yet, recent empirical scholarship suggests that they can exert a positive impact on intra- and inter-organisational military learning, especially at the tactical level.[[1]](#endnote-1)

Revolutionary advances in military effectiveness are dependent upon three pillars: the application of new technologies, new conceptual development and, finally, reform to organisational structures (Krepinevich 1994, p.30). The advent of new information technology (IT) software and hardware has enabled improvement in the communication, storage and dissemination of information by militaries (McIntyre *et al*. 2003). But technological advances in lessons-learned processes have not been accompanied by similar advances in their conceptual and organisational dimensions, which remain under-developed (Dyson 2019a). Practitioner guidance and military innovation studies provide few insights into the organisational activities which improve lessons-learned processes (Dyson 2019a, p.115). In particular, research is required to develop understanding about how lessons-learned processes can ‘transform’ knowledge by facilitating the effective combination of new knowledge with existing organisational knowledge and the exploitation of new knowledge in practice (Dyson 2019a, Zahra and George 2002, p.190).

This article tackles two unexplored topics which are essential to understanding the potential of lessons-learned processes to transform knowledge. First, it examines best-practice in the team processes and wider organisational activities supporting lessons-learned process cross-functional teams, which are an essential component of effective formal learning processes. Second, it investigates the inter-relationship between team processes and wider organisational activities in determining successful knowledge transformation by lessons-learned process cross-functional teams (Denison *et al.* 1996, p.1019). In doing so, the article sharpens understanding of the agency that lessons-learned practitioners can exert in ameliorating the impact of structural barriers to learning internal and external to the military, such as strategic culture, bureaucratic politics, organisational culture and reputational concerns. It also takes an important step towards realising the inter-disciplinary potential of military innovation studies (Griffin 2017, p.219). Furthermore, the article makes a major contribution the academic literature on cross-functional teams by providing the first examination of the challenges associated with their implementation in a military context (Geneviève *et al*. 2010, p.1614).

The article is composed of three sections. The first section highlights the potential of lessons-learned processes to enhance military adaptation and innovation and the difficulties that they have faced in promoting knowledge transformation. It then introduces the concept of cross-functional teams, demonstrates its relevance to knowledge transformation within militaries, and highlights the failure of lessons-learned processes to identify and apply cross-functional team best-practice. The article’s second section breaks new conceptual ground by exploring best-practice in the cross-functional teams which are responsible for overseeing the crucial ‘remedial action’ phase of lessons-learned processes. It draws not only upon cross-functional team scholarship, but also upon semi-structured interviews conducted with lessons-learned practitioners.

The section focuses, especially, on the activities which improve the empowerment, group composition, wider organisational context, internal and external relationships, and the psychosocial dimensions of a lessons-learned process cross-functional team (Holland *et al*. 2000). It provides several empirical examples, drawn from British and German experiences of running lessons-learned processes during and after the NATO-led International Security and Assistance Force (ISAF) mission in Afghanistan (2001-14), which highlight the importance of key dimensions of cross-functional team best-practice.

The section finds that lessons-learned process practitioners have a substantial measure of agency to enact activities and processes which improve the empowerment, group composition, internal and external processes, and group psychosocial factors of cross-functional teams. However, it also uncovers an important role for wider organisational activities in determining cross-functional team effectiveness, which are outside the control of lessons-learned practitioners. Hence the section finishes by highlighting the importance of active and well-informed civilian and military leadership oversight to the emergence of cross-functional team best-practice, and reflects upon how this oversight can be encouraged. The conclusions point to key future conceptual, empirical, and theoretical research agendas on the organisational activities which improve the contribution of lessons-learned processes to knowledge transformation in military organisations.

***Research Methods***

Determining whether a practice ‘ranks at or near the top of effective measures’ and thus can be considered a ‘best-practice’, is only possible if it is supported by a solid body of empirical evidence (Osburn *et al.*, 2011, pp.216-17). Hence the article not only reviews the academic literature on cross-functional teams, but also relies on semi-structured interviews conducted between 2016 and 2019 with three groups of civilian and military personnel.[[2]](#endnote-2) First, officers and civil servants with experience of the British and German army/joint lessons-learned environments, which are among the most well-established lessons-learned processes within NATO. Interviewees were drawn, in particular, from the British Army Lessons Exploitation Centre (LXC), German Army Lessons-Learned Branch, and the Department for Lessons-Learned at the *Bundeswehr* Operations Command. Second, the author spoke with British and German civilian and military personnel involved in ministerial-level oversight of lessons-learned processes. Finally, interviewees included civilian and military analysts at the NATO’s Joint Analysis and Lessons-Learned Centre (JALLC), several of whom have worked within NATO member-state service and/or joint environment lessons-learned branches. Interview questions focused upon exploring interview partners’ understanding about the activities which constitute best-practice in lessons-learned processes, including the utility of best-practices drawn from management studies. Interviews within the British and German armed forces also examined the extent to which these activities have been successfully applied by their joint and army lessons-learned processes.

**The under-explored potential of lessons-learned processes**

Learning within military organisations takes three main forms, along a continuum from adaptation to innovation. Farrell (2010, p.569) distinguishes between military adaptation which he defines as “…change in tactics, techniques or existing technologies to improve operational performance” and military innovation, involving “…major change that is institutionalised in new doctrine, a new organisational structure and/or a new technology”. Furthermore, new practices can also take the form of the recombination of old knowledge and practices in new forms (Resende-Santos 2007, p.72). In sum, innovation not only involves far-reaching change, but also its institutionalisation as organisational knowledge. However, while some instances of military change fit an ‘ideal type’ understanding of adaptation and innovation, much change sits along a continuum between these two points, involving various degrees of change and institutionalisation. Hence it is important to recognise the existence of ‘advanced adaptation’, which sits at a mid-point between adaptation and innovation: substantial change (for example to pre-deployment training) that is time-limited and not formally institutionalised in repositories of organisational knowledge.

Militaries have traditionally relied upon two main learning mechanisms for encouraging adaptation, advanced adaptation, and innovation following operational experiences and training exercises: informal and formal. Informal learning involves passing on knowledge through personal social networks: via verbal briefings during the handover of responsibility between contingents, or the involvement of recently-deployed personnel in pre-deployment training (Marsick 2009, p.265). Informal learning permits a rapid transfer of learning to practice, regular updating of professional practice, and can usually be achieved without investing substantial financial resources (Kitzen 2019, p.50, Marsick, 2009, p.265).

However, informal learning is also associated with serious drawbacks. First, it is reliant on the subjective experience of individuals and may reinforce poor practice (Marsick 2009, pp.265-66). Second, informal learning usually has a narrow, context-specific scope, meaning that it is often not communicated to other inter-related areas of military activity (Marsick 2009, pp.265-66). Finally, it depends upon the willingness of individuals to pass on knowledge (Catignani 2014, pp.31-32). Hence informal learning can struggle to make the leap from adaptation to advanced adaptation, or from advanced adaptation to innovation, leading to a potentially-costly ‘adaptation trap’ (Catignani 2014, p.59, Kitzen 2019, p.52).

The second learning mechanism is formal learning processes, which are designed to systematically identify and resolve problems, or to identify and disseminate best-practices emerging from operational experiences. Formal means to acquire knowledge include activities such as questionnaires, battlefield reports written by commanders/their subordinates, post-operational workshops, incident reports, and the deployment of staff officers dedicated to uncovering lessons in the field. It is, however, importance to recognise that like adaptation and innovation, formal learning processes differ in the extent to which knowledge is institutionalised as wider organisational learning (Eraut 2004, pp.250-51). Some formal learning processes are organised across the entire institutional military. Others are smaller-scale and restricted to contingents deployed for a particular campaign and the components of the institutional military which provide them with direct support, such as pre-deployment training.

The potential benefits of formal learning processes are substantial. They offer the opportunity to capture important individual and group adaptation and speed-up the transmission belt from adaptation in the field to advanced adaptation, or innovation. Furthermore, formal learning processes provide an opportunity to more systematically integrate inter-organisational learning from allies. Historical scholarship demonstrates that they have met with some success (Fox 2017, Foley 2014, Visser 2016). But the performance of past formal learning processes was varied and they were often undermined by deficits in their organisational features. Crucially, they faced challenges in placing sufficient pressure on senior commanders to change existing practices and thus found it difficult to achieve traction when embedded within a wider organisational climate that was hostile to learning from below (Hart 2011, p.125, Visser 2016, pp.577-80). Furthermore, formal learning processes have suffered from an adaptation trap throughout history. Until the post-Cold War era they were discontinued with the cessation of individual conflicts, or even campaigns.

***The growth of lessons-learned processes***

Beginning with the 1985 establishment of the US Center for Army Lessons-Learned (CALL), NATO militaries have sought to enhance the pace and quality of tactical and operational-level organisational learning through the development of lessons-learned processes (Chua *et al*. 2006, Foley *et al.* 2011). The post-Cold War era has witnessed the establishment of lessons-learned branches within the service branches and/or joint levels of the majority of European NATO member-states (Interviews 1, 2, 16). As NATO Allied Joint Doctrine for the Conduct of Operations states, the purpose of a lessons-learned process is “…to learn efficiently from experience and to provide validated justifications for amending the existing way of doing things, to improve performance, both during the course of an operation and for subsequent operations”.[[3]](#endnote-3)Lessons-learned processes are characterised by five major differences to earlier formal learning processes. First, they are supported by a dedicated and permanent organisational structure within the institutional military (usually a lessons-learned branch). Second, they exist not only to draw lessons from operations, but also to enhance a military’s capacity learn lessons from other important activities, such as individual/collective training, and joint multinational military exercises, including in peacetime. Third, lessons-learned processes are tasked with generating and disseminating learning across the entire armed forces or, at a minimum, a service branch.

Fourth, lessons-learned processes have benefitted from advances in information technology, which have substantially enhanced militaries’ capability to transmit, store, analyse, and disseminate large volumes of data from operations and exercises (McIntyre *et al.* 2003). Finally, these technological advances have been accompanied by improvement in conceptual understanding of organisational learning, driven by advances in management studies during the 1970s and 1980s. Hence, lessons-learned processes have developed a more thorough approach to knowledge acquisition, management, and dissemination, thereby enhancing the potential to absorb knowledge (‘potential absorptive capacity’ or PACAP) (Dyson 2019b, Zahra and George 2002).

However, the most important dimension of a military’s ability to absorb knowledge is its capacity to effectively ‘transform’ knowledge by integrating the knowledge gained by PACAP with existing organisational knowledge and ensuring that new knowledge is applied in practice (so called ‘realised absorptive capacity’) (Dyson 2019a). The empirical evidence from lessons-learned processes suggests that they have met with success in promoting tactical level change (Dyson 2019 b, Marcus 2015, 2019). But like other formal learning processes throughout history, their record in contributing to knowledge transformation at the higher-tactical and operational levels is patchy. When lessons challenge key tenets of organisational culture[[4]](#endnote-4), bureaucratic interests (such as service-branch autonomy or budget share), or they are perceived by senior leaders as a threat to their personal reputation, lessons-learned processes have struggled achieve knowledge transformation (Dyson, 2019a, 2019b, Hasselbladh and Ydén 2019). As the NATO Joint Doctrine for the Conduct of Operations notes, a successful lessons-learned process requires that the chain of command has a clear understanding of how to prioritise lessons and to staff a lessons-learned process.[[5]](#endnote-5) However, practitioner guidance, notably the NATO Lessons-Learned Handbook, provides little analysis of the organisational activities which improve the effectiveness of lessons-learned processes in knowledge transformation (Dyson 2019a). Furthermore, military innovation studies is yet to properly explore the opportunities for inter-disciplinary cross-fertilisation with management studies about the sources of effective military learning (Griffin 2017, p.219).

***The importance of cross-functional teams to lessons-learned processes***

Management studies offers an important opportunity to consider the agency that lessons-learned branches have in ameliorating the impact of these structural barriers to learning. The management studies sub-field of absorptive capacity explores how an organisation can most effectively “identify, assimilate and exploit knowledge from the external environment” (Cohen and Levinthal 1989, pp.569-70). It provides valuable insights into the wider activities which promote a culture of experimentation and creativity within military organisations, and which are a crucial enabler of knowledge transformation (Dyson 2019a, de Long and Fahey 2000, p.125). However, this scholarship provides limited guidance about the detail of best-practice in the organisational structures and management of a lessons-learned process.

Military lessons-learned processes are characterised by four key stages (see Figure One). First, the ‘observation’ stage, where good practices, or potential lessons-identified are captured by deployed personnel, or during training exercises. Second, the ‘analysis’ stage, involving the analysis of observations emerging from knowledge acquisition activities. Decisions are taken about the seriousness of a problem, whether a possible ‘lesson-identified’ has emerged, if further information should be requested, and about which action bodies (i.e. service/joint functional areas) might be endorsed with resolving the problem. The third stage of a lessons-learned process is ‘remedial action’, where a lesson-identified is formally confirmed, action bodies are endorsed, progress is monitored, and results of remedial actions are verified. The remedial action stage of lessons-learned includes a focus on knowledge transformation by ensuring that knowledge has been fully exploited within the immediate functional area(s) which are designated action bodies. Once a lessons-learned (i.e. an improved capability) has been verified, the final ‘dissemination/exploitation’ stage of the lessons-learned process begins. It focuses on achieving knowledge transformation across the armed forces by ensuring that the implications of a lessons-learned or good practice is fully addressed by all relevant areas of military activity, as well as engagement with stakeholders outside the military, such as Other Government Departments (OGDs) and Non-Governmental Organisations (NGOs).

**FIGURE ONE HERE**

The organisational structure and management of a lessons-learned process is essential to the effective functioning of these stages, especially ‘analysis’, ‘remedial action’ and ‘dissemination/exploitation’. For example, if the analysis phase is not undertaken by personnel with sufficient experience of different operational scenarios and functional areas within the institutional military, they will be less capable of tasks central to absorptive capacity. These tasks include recognizing the seriousness of problems, identifying emerging patterns, and assessing the implications of potential lessons-identified in one functional area for other areas. However, the remedial action phase of lessons-learned is most important for knowledge transformation. It must be capable of making emerging lessons with potentially-significant ramifications for the wider operational or institutional military “severe [i.e. important], immediate [i.e. temporally pressing], and personal [i.e. put professional reputation at stake for failing to act upon emerging lessons]” (Dyson 2019a, p.120). Without this capability, structural barriers to learning are more likely to reduce the willingness of leaders within key functional areas to support the completion of remedial actions, or to facilitate the dissemination/exploitation stage of a lessons-learned process.

There is much that military organisations can learn about the effective management of the remedial action phase from the academic literature on cross-functionality. Cross-functionality refers to when members of different functional areas within an organisation engage in “joint behaviour toward some goal of common interest” (Gemser and Leenders 2011, p.27). A key theme that has emerged within this literature is the role of cross-functional interfaces, which enable speedy innovation through lateral knowledge exchange between different organisational units. They include liaison personnel, task forces and, in particular, cross-functional teams (CFT) (Jansen *et al.* 2005, pp.1000-01).

The concept of CFT emerged from innovative corporate practices during the 1980s and 1990s. The need to innovate in new product development (NPD) at ever-greater pace due to shorter product life cycles, led businesses to focus upon improving the effectiveness of their team-based processes. CFTs involve representatives from different functional areas of an organisation drawn together at a mid-level of the organisational hierarchy. Their role is to improve lateral coordination and integration in order to innovate in product design, reduce product development time, or achieve organisational transformation, including organisational learning (Daspit *et al.* 2013, p.35, Denison *et al.* 1996, p.1005, Henke *et al.* 1993, p.218). CFTs differ to regular teams in two main ways (Denison *et al*. 1996, pp.1005-06, Holland *et al.* 2000, p.233). First, their representatives have a strong social identity and/or responsibilities to a unit outside the team. Second, CFTs face especially-demanding performance expectations.

CFTs are associated with several benefits. They deliver the capacity to cut across vertical lines of authority and decentralise decision-making, thus improving the speed and quality of decision-making quality due to the avoidance of information overload at top-levels of the organisational hierarchy (Henke *et al.* 1993, p.217). CFTs have also been linked to greater creativity and enhanced organisational learning (Holland *et al.* 2000, p.232).

The academic literature on CFTs has developed largely through case studies of the experiences of private sector NPD. However, the internal dynamics and external context of the corporate environment exhibit some important parallels to military organisations. First of all, businesses must, as Holland et al (2000, p.232) note, “innovate or die”. Business organisations often face a highly-competitive external environment, where the failure to quickly bring innovative new products to the marketplace threatens their survival. Militaries face similar pressures, though the consequences of failing to emulate best-practice, or to innovate in a timely manner, can be more serious (McIntyre *et al.* 2003, p.36). They include the loss of military and civilian lives, and the failure to deliver security for the state, or a military alliance.

Second, the dynamics of NPD are similar to those of military lessons-learned processes. Both processes necessitate a continuous process of intra-organisational learning that involves actively gathering, analysing, transforming and disseminating knowledge about past experiences (Jabar *et al.* 2011). Lessons-learned processes include substantial inter-organisational learning from military alliance partners, while NPD also involves inter-organisational learning, especially from ‘strategic alliances’.[[6]](#endnote-6) The outcomes of these inter- and intra-organisational learning processes, be they NPD sub-projects or lessons-learned process remedial actions, regularly necessitate cross-functional collaboration for successful resolution.

As McIntyre *et al* (2003, p.38) note, military knowledge requirements differ to those of businesses in context, content, and pace. First, the need for robust lessons-learned processes which can function within particularly-dangerous operational contexts. Second, the especially high risk associated with the failure to learn creates a heightened need for precision, accuracy, and reliability in knowledge content. Third, a lessons-learned process needs to match the fast pace of military operations. These specific knowledge requirements require consideration when reflecting upon CFT best-practice in the context of lessons-learned. However, they are not so profound as to negate the important commonalities shared by the corporate and military worlds and military lessons-learned processes can learn much from the CFT literature.

Military organisations have begun to recognise the importance of cross-functionality in the design of lessons-learned processes (Interviews 1, 4, 11, 12). For example, during ISAF three CFTs were established within the British Army to oversee different components of the remedial action phase of lessons-learned. They bring together representatives from functional areas, other service-branches and the joint environment. Known as the ‘Swamp’, ‘Military Judgement Panel’, and ‘Land Environment Lessons Working Group (LELWG)’[[7]](#endnote-7), they focus on decision-making about whether a lesson-identified has emerged and on undertaking endorsement, tasking, implementation, monitoring, and dissemination/exploitation (Dyson 2019b, 129-31). But the academic literature examining cross-functionality in a military context suggests that cross-functionality has been applied in an *ad hoc* manner in the UK and other national militaries (Dyson 2019b, pp.81-3). Lack of engagement with the fundamentals of CFT best-practice is also evident in NATO’s Lessons-Learned Handbook, which does not consider the challenges of cross-functionality. However, as the following section highlights, the academic literature on CFTs provides a number of important insights about how lessons-learned processes can improve their remedial action phase and their capacity to facilitate knowledge transformation.

**Best-practice in the organisation and management of lessons-learned process cross-functional teams**

The capacity of organisations to harness the benefits of CFT can easily be undermined by the functional diversity that constitutes a CFT’s strength. If a CFT is not organised and managed effectively, functional diversity can create barriers of organisational culture and bureaucratic politics. Officers’ fears of the impact of lessons-identified on their personal reputation within their functional area can also flourish, leading to role conflict, or to role ambiguity, for CFT members (Webber 2002, pp.202-04).

Holland et al (2000) undertake a systematic review of scholarship on the organisational activities which help to ameliorate these problems. They draw upon three key strands of literature on team effectiveness: the impact of internal group processes (Tuckman and Jensen 1977), the role of the wider organisational context (Cohen and Baily 1997), and finally inter-functional integration (Holland et al 2000, pp.233-38). The scholarship of Holland et al (2000) remains a cornerstone of the academic literature on CFT effectiveness. It sheds light on a number of measures which can enhance the capacity of lessons-learned process CFTs to make lessons ‘severe, immediate, and personal’. The following section combines the analysis of Holland et al (2000) with the findings of more recent CFT scholarship, and semi-structured interviews with lessons-learned process practitioners, to identify six interrelated areas where attention to organisational activities can enhance the contribution of lessons-learned processes to knowledge transformation.

First of all, it is important that a CFT is empowered to impact upon organisational goals and that CFT members have the autonomy to take decisions on behalf of their functional areas and carry out remedial action tasks (Henke *et al.* 1993, pp.225-26, Holland *et al.* 2000, pp.238-39, McDonough 2000, pp.223-24, Parker 2003, p.82, Interviews 9, 10). Studies have consistently demonstrated that empowerment reduces decision-making times, enhances problem-solving and boosts cooperation among CFT members (McDonough 2000, p.224). In particular, it is crucial that the CFT chairperson does not micro-manage CFT work, or dominate team decision-making, which should operate on the basis of consensus for important, or controversial, issues (Henke *et al.* 1993, p.226, Holland *et al.* 2000, pp.238-39, McDonough 2000, p.225, Interviews 5, 6, 9). Furthermore, managers of functional areas should not interfere with, or block, CFT decisions (Parker 2003, p.77).

The second area, which is closely related to empowerment, is CFT group composition. A CFT chairperson should be afunctional, (i.e. the head of a dedicated service or joint environment lessons-learned branch) and display considerate and participatory leadership (Holland *et al*. 2000, p.240, Yammarino *et al*. 2010, pp.27-27, Interviews 3, 4, 6, 9, 11, 12). Participatory leadership involves subordinates in decision-making processes, while a considerate leadership style pays attention to the requirements and ideas of subordinates (Strese *et al.* 2016, p.45). Although considerate leadership is a distinct leadership style, it is also closely related to participatory leadership, as considerate leadership encourages open exchange, mutual respect and trust in cross-functional cooperation (Strese *et al*. 2016, p.45). The participation of CFT team members in decision-making is essential to maximise CFT success, due to its positive impact on the quality of communication, collaboration and conflict resolution (Sarin and O’Connor 2009, Strese *et al*. 2016, p.51). Participatory leadership styles also have a positive effect upon team-member empowerment and their loyalty to the CFT (McDonough 2000, p.225-27).

Furthermore, the roles and responsibilities of CFT members should be clear. It is especially important that each remedial action has a specified leader of sufficient seniority, committed to its resolution, with primary loyalty to CFT goals, rather than his/her functional context (Denison *et al.* 1996, p.1009, Interviews 4, 5, 8, 9). The academic literature also points to the importance of length of tenure. CFT performance, especially their creativity and problem-solving capability, has been demonstrated to rise until the average tenure of team members reaches five years. It then begins to decrease as relationships between team members and between the team and its external context become too close (Holland *et al*. 2000, p.241). In most armed forces, military personnel usually remain in staff officer positions for three years, which allow insufficient time to fully exploit their potential to contribute to a lessons-learned process CFT (Interviews 1, 7, Lis 2012, p.26). Hence consideration should be given to lengthening the postings of staff officers involved in CFTs.

The third area identified by the CFT literature as a critical component of CFT performance is organisational activities, which has several dimensions. First, the influential role played by an organisation’s senior management in communicating a clear vision about the CFT’s role in the organisation (Holland *et al*. 2000, p.241, McDonough 2000, p.226). In the case of a lessons-learned process, it is vital that organisational learning is identified as a priority by the civilian and military hierarchy. Hence a clear organisational learning strategy should be developed that is well-communicated throughout the military and integrated into officer education and training (Interviews 7, 9, 14, 15).

Organisational commitment to learning also has important positive implications for CFT member morale by enhancing their sense of loyalty to the CFT, empowerment and ownership of CFT goals (McDonough 2000, p.227). Furthermore, an organisational commitment to learning influences the level of strategic alignment between functional area senior managers about the priority allocated to remedial actions (Holland *et al.* 2000, pp.241-42). When strong lateral communication exists between senior functional managers, it tends to have positive implications for the resolution of remedial actions spanning functional boundaries by improving information flow and resource coordination (Anthony *et al.* 2014, p.153).

The importance of an organisational learning strategy is highlighted by contrasting experiences of the British and German Armies following ISAF. In 2014 the UK Ministry of Defence (MOD) launched its Defence Organisational Learning Strategy (DOLS) with the aim of developing the behaviours, processes and tools across Defence to facilitate a more systematic acquisition, analysis and use of knowledge (Parliament 2014). Its development was given impetus by the MOD-level Chilcot Implementation Team, which ensured that the DOLS was taken seriously by the joint environment and single Services (Interview 15).

The DOLS has been accompanied by single-Service Organisational Learning Plans. The Army Organisational Learning Plan is supported by an order issued by the Deputy Chief of the General Staff, which clearly articulates the Army Lessons Process and formally allocates responsibilities within the Army for its delivery. It has instigated tangible improvements to the internal and external processes of the CFTs in the British Army Lessons Exploitation Centre (LXC). These improvements have included the development of more effective mechanisms to elevate issues to the top levels of the Army and to facilitate ongoing dialogue between the CFTs and functional areas about the activities and processes of learning (Interview 19).

In contrast, during and following ISAF, the *Bundeswehr* did not develop an overarching organisational learning strategy (Interview 7). While the Ministry’s *Strategie und Einsatz* directorate oversees the output of learning processes, oversight of the activities and processes of learning within the joint environment and services branches is almost non-existent (Interviews 7, 21). Hence, serious deficits which emerged in the *Bundeswehr’s* learning processes during ISAF – especially its CFTs – have not been addressed. Many *Bundeswehr* officers involved in joint and army lessons-learned processes recognise these failings and have good ideas about how to resolve them. However, they are disempowered by the failure of the Ministerial level to signal the importance of identifying and implementing best-practice in lessons-learned processes (Interviews 6, 21, 22).

The second key organisational activity is the role of senior functional area managers in championing the remedial actions of their CFT representatives and ensuring they are allocated sufficient resources and time (Bunduci 2009, p.542, Lis 2012, p.24, McDonough 2000, p.226, Interviews 4, 6, 7). In addition, functional managers should be pro-active in ensuring that opposition from mid-levels of their organisational hierarchy is overcome. The military and civilian hierarchy therefore play a key role in fostering a productive relationship between CFTs and functional areas by emphasizing the importance of lessons-learned processes and rewarding the success of functional areas in delivering support (Bunduci 2009, p.542, Holland *et al.* 2000, p.242, McDonough 2000, p.226).

The support of senior functional areas managers also contributes to CFT team-member ‘identity integration’ (their perception of compatibility between the goals of different functional areas), with positive knock-on effects for innovation and problem solving on the CFT (Cheng *et al.* 2008). The dominance of regimental, service-level, or sub-community of practice identities among military personnel limits CFT member identification with their functional area in service-level lessons-learned processes (Interview 18). However, the negative impact of CFT member identity is more pronounced on joint environment lessons-learned CFTs (Interview 8).

It is widely-accepted by military personnel in most countries that jointness[[8]](#endnote-8) is a vital attribute for contemporary military organisations. Nevertheless, service-branch identity, especially service-specific conceptions of the character of modern warfare and role of the military professional, can exert a powerful impact on the willingness and ability of CFT members to view the goals of their service as compatible with the overall goals of a joint lessons-learned process (Interview 8, Moro *et al*. 2017, p.212, Mukherjee 2016, p.7). It is, therefore, important that the benefits of joint activity are consistently examined in officer education. In addition, officers should be rewarded for seeking out joint experiences (Shaw and Krieger 2015).

Furthermore, the chairperson of a lessons-learned branch CFT should be vested with a significant measure of structural power within the organisational hierarchy, in order to enhance her/his capability to secure resources for especially-costly remedial actions (Holland *et al.* 2000, pp.242-43, Interviews 5, 9, 10, 12). She/he should also be capable of protecting the CFT from outside interference, either from the civilian and military hierarchy, or from functional areas, and therefore needs to play a ‘bridge role’ between the CFT and senior management (McDonough 2000, p.225).

In addition, joint accountability for the performance of lessons-learned process CFTs should be established in order to act as a counter-weight to the empowerment of a CFT and its members. The academic literature on CFTs demonstrates that ‘perceived position inter-dependence’ (when team members view cooperation as indispensable), improves levels of trust and productivity (Holland *et al.* 2000, p.243-44). Hence, reward and recognition should be team-based (Henke *et al.* 1994, p.223, Holland *et al.* 2000, p.244). Officers who are members of lessons-learned CFTs should be evaluated not only in terms of their performance in their functional area, but also in terms of their contribution to the work of the CFT and collaboration with other functional areas in resolving remedial actions (Sarin and Mahajan, 2001).

The final organisational factor affecting CFT effectiveness is the co-location of a CFT and functional areas (Holland *et al.* 2000, p.244). CFT communication and performance is enhanced when team members regularly meet and interact in an informal setting (Bunduci 2009, p.541, Jansen *et al.* 2005, p.1009, Interviews 16, 17). However, informal interaction does not increase through co-location alone. Attention should be paid to workplace design, especially creating open, multi-space working environments which encourage regular informal meetings (Coradi *et al*. 2015, Holland *et al.* 2000, p.244). Furthermore, it is important that functional representatives on a lessons-learned CFT are well-networked within their functional organisation. Hence they should attend the meetings of key functional area meetings, especially those involving middle-management.

During ISAF the British Army’s LXC benefited from its location within the Force Development and Training Command (FDT). Established in 2009 FDT brought together personnel responsible for Army doctrine, training, force development, concepts, equipment and capability development under a single command and encouraged a close working relationship between these personnel and the LXC (Alderson 2010, p.10; Foley et al. 2011, p.262; Ucko and Egnell 2013, p.123). The physical location of FDT at Waterloo Lines, a military barracks with an officers’ mess and social events, also provided opportunities for informal social interaction. When FDT was abolished in 2014 due to political pressure to reduce the number of three-star generals, its loss was keenly felt (Interview 23). Hence by 2018 training, doctrine, and lessons were brought back together under the single command of a two-star General at Waterloo Lines (Interview 24).

In contrast, key German Army organisations are widely-dispersed. During much of ISAF the joint environment LL process was located at the Operations Command in Potsdam (Brandenburg), the Army LL Branch was located at the Army Command in Strausberg (Brandenburg), the Training Branch was based in Leipzig (Saxony), and the Army Concepts and Capabilities Development Centre in Cologne (North Rhine-Westphalia). This geographical dispersal makes it difficult for lessons-learned personnel to interact formally and informally with decision-makers in key functional areas (Interview 25).

The fourth key area affecting CFT performance is CFT internal processes, which have two main dimensions. First, a team should be guided by overarching ‘superordinate’ goals: goals which are urgent and pressing for all functional areas involved in the team, and require frequent collaborative effort (Holland *et al.* 2000, p.244-45, Sethi 2000). This dimension reinforces the importance of a clear organisational learning strategy, supported by the civilian and military hierarchy (McDonough 2000, p.226). Superordinate identity among CFT members is also enhanced by CFT member empowerment and team-based rewards (Sethi 2000).

Second, the CFT chairperson plays a crucial role in improving internal processes by maintaining focus on superordinate goals, motivating team members, and managing conflict in a constructive manner (Daspit *et al.* 2013, pp.49-50, Sarin and O’Connor 2009, p.198, Interviews 9, 10, Lis 2012, p.24). Moderate task conflict that permits critical engagement with existing orthodoxies is a key dimension of successful CFTs, but its benefits are attenuated when conflict becomes personalised (Ghobadi and D’Ambra 2012, p.297, Holland *et al*. 2000, p.246). Hence CFTs can only profit form their diversity when the chairperson is capable of promoting collaborative communication that seeks to find mutually-beneficial solutions to problems (Lovelace *et al*. 2001, p.790). Training in team-building/maintenance skills and in process-support skills may, therefore, be appropriate for CFT chairpersons (Daspit *et al.* 2013, p.50, Henke *et al.* 1993, p.224).

The fifth main area impacting CFT performance is external processes, especially ‘boundary management’: the management of CFT interactions with other functional organisations and with the civilian and military hierarchy (Holland *et al.* 2000, pp.246-47, Interview 10). The academic literature demonstrates that successful CFTs are those which develop a clear strategy to acquire information and lobby for resources. This role is often neglected by CFTs, which have a tendency to view boundary management as a distraction from core activity (Holland *et al.* 2000, pp.246-47).

Hence training may be necessary to change such perceptions and enhance transferrable skills relevant to boundary management, especially the relational and interpersonal skills of CFT members. Such training should focus on enhancing CFT member ability to act as ‘boundary spanners’, capable of engaging constructively with different functional areas, with the civilian and military hierarchy, and partners in the Comprehensive Approach (Williams, 2002). The role of a boundary spanner necessitates the capability to understand and accept the perspectives and values of others, to work diplomatically in negotiation and brokering activities, and to undertake policy entrepreneurship by connecting problems with opportunities (Williams 2002, p.121). The quality of an organisation’s task-related training programme is also an important indicator to personnel involved in boundary spanning about the level of ‘perceived organisational support[[9]](#endnote-9)’ for their role and has a substantial impact upon CFT member loyalty and motivation (Johlke *et al.* 2001, p.117).

Furthermore, it is important that a clear division of responsibility is established between service and joint environment lessons-learned CFTs and that these CFTs remain in close communication. Responsibility for remedial actions should be appropriately aligned with the expertise and the financial/human resources necessary to address them (Dyson 2019b, pp.42-43). In particular, it is essential that lessons-learned processes do not conflate the higher-tactical and operational levels of military activity with the joint level, which can otherwise lead to blurred lines of accountability and the failure to deal with important observations.

The negative impact of the conflation of the joint and higher-tactical and operational levels of military activity and poor communication between service and joint lessons processes are well-illustrated by the experiences of the British Army during ISAF. The expansion of the joint environment during the early 2000s led to the ‘mortgaging of the Army brain’ to the joint environment, as Army personnel responsible for higher-tactical and operational-level doctrine development were pulled into joint organisations, notably the Development, Concepts and Doctrine Centre (Alderson 2010, p.10). This problem was exacerbated by deficiencies in the design of the joint environment lessons-learned processes. Crucially, during ISAF the joint environment lessons-learned process at the Permanent Joint Headquarters did not have a CFT and there was no formalised remedial action process (Interview 8).

Consequently, when issues arose within the Army lessons-learned process with implications for the higher-tactical level, such as the need to revise counterinsurgency doctrine and rebalance training to include a greater focus on population-focused counterinsurgency, they were not addressed at sufficient speed (Interviews 19, 26). The need to realign responsibility for higher-tactical and operational lessons with the Army lessons process was recognised in 2009 through the establishment of the Afghanistan Counterinsurgency Centre (ACC) at the LXC (Interview 16). The ACC helped to improve the Army’s capacity to develop higher-tactical counterinsurgency doctrine and deliver population-focused counterinsurgency training, but it came too late in the campaign to deliver substantial improvements to British military effectiveness in ISAF (Ucko and Egnell 2013, pp.124-26).

Finally, group psychosocial factors play a role in CFT success. First of all, it is important that a CFT is characterised by mutual respect and trust. CFT cohesion – unity in the pursuit of team objectives and a sense of belonging and loyalty to the team – plays an especially important role in fostering trust (Daspit *et al.* 2013, p.37, Holland *et al.* 2000, pp.247-48). The main antecedents of CFT cohesion lie in organisational activities and internal CFT processes: a clearly defined and organisationally-supported super-ordinate goal, team-based reward and frequent formal and informal interaction between CFT team members (Daspit *et al.* 2013, p.38, Holland *et al.* 2000, p.247, Webber, 2002).

Cohesion is also a consequence of the agency of the CFT chairperson and her/his capacity to encourage participatory leadership and constructive confrontation. Attaining the right level of group cohesion places a high burden on the CFT chairperson to stimulate moderate task conflict and ensure that critical thought and dissent is not smothered by a desire for consensus and harmony (so-called ‘groupthink’) (Henke *et al.* 1993, p.225, Holland *et al.* 2000, pp.247-48). The participation of specialists beyond service-branch/joint functional areas is also important in ensuring that orthodoxies are challenged when necessary. The input of partners from the Comprehensive Approach (NGOs and OGDs), representatives from other services, academics (both internal and external to the military), and allied liaison officers acts as a further counter-weight to groupthink (Cohen and Levinthal 1989, Interviews 12, 13, 19) Moreover, it facilitates the cross-fertilisation of knowledge and fosters greater mutual understanding and trust with external organisations (Foley 2014, p.297, McDonough 2000, p.224).

Neither the British Army, nor the German Army included NGOs or OGDs in their lessons-learned processes during ISAF. This lack of input from outside partners weakened the ability of both Armies to integrate lessons emerging from the field about their role in delivering non-kinetic activities and in facilitating NGOs and OGDs to undertake such activities (Interviews 3, 4, 6, 7, 19, 22). The British Army did attempt to provide the FCO with the opportunity to input observations directly into their knowledge management system, the Defence Lessons Identified Management System. But this initiative was not successful due to information security concerns (Interview 4). The British Army has, however, recognised the importance of learning from deeper historical experiences. During ISAF the LXC was able to call upon a Major who could dedicate some of his time to historical research. From 2017 it received funding for a full-time historian at the level of Lieutenant-Colonel who has contributed valuable historical input to debates within the Military Judgement Panel (Interview 19).

Openness to new ideas, and the willingness to change and express doubts among CFT members, is the final key dimension of group psychosocial factors and reinforces the necessity for attention to the wider organisational processes and activities which foster knowledge transformation (Holland *et al*. 2000, p.247, Lovelace *et al.* 2001, p.790). It is especially important that officer education encourages critical thought (Dyson 2019a, p.116). Moreover, the military should encourages lifelong learning and provide the time, resources and incentives in promotion processes for officers to undertake doctoral study, or placements within other public or private sector organisations (Braw 2017, Ucko and Egnell 2013, p.127, Interview 17). Furthermore, military-wide publications should provide fora for officers to engage critically with dominant tactical and operational level orthodoxies. It is also important that promotion processes reward personnel for their work on CFTs and encourage a measure of risk-taking by officers (Bunduci 2009, p.542, Henke *et al.* 1994, p.223, Interviews 17, 19).

***Encouraging active and well-informed civilian and military oversight of learning processes***

A number of best-practices, especially within the dimensions of empowerment, group composition, internal and external processes, and group psychosocial factors, are within the gift of lessons-learned CFTs to deliver (Denison *et al.* 1996, p.1019). However, the majority of organisational activities – especially the active support of the civilian and military hierarchy for organisational learning, which influences all six dimensions of a CFT – are beyond the control of a lessons-learned branch. The success of lessons-learned CFTs is, therefore, not only dependent upon team processes, but also upon ministerial-level activities which are highly-sensitive to macro-political forces. When intra- and inter-organisational learning clash with the core tenets of strategic culture[[10]](#endnote-10), or with other domestic political imperatives, it is unlikely that the civilian and military leadership of a defence ministry will develop and actively promote an organisational learning strategy. Under such circumstances the failure of senior leadership to support organisational learning has an important negative impact upon the support of functional area managers for their CFT representatives, for CFT member loyalty, team empowerment, team cohesion, and mutual trust (Interview 6).

The threat of defeat in conflict can overcome macro-political opposition to improved inter- and intra-organisational learning within armed forces (Harkness and Hunzeker 2015, pp.8-9). But variables internal to the military, such as organisational culture and bureaucratic politics, can continue to block the emergence of good practice in the activities which support effective lessons-learned processes (Dyson 2020, p.46). In this situation, active and effective oversight of learning processes by the civilian leadership of the armed forces is imperative. However, poor understanding among civil servants about the responsibility they bear to promote effective learning architecture can form a major obstacle to the exercise of this oversight (Dyson 2020, pp.46-48). Furthermore, the capacity of the civilian and military leadership to develop a sufficiently-informed understanding of lessons-learned best-practice is undermined by the lack of academic and practitioner engagement with the topic.

When the threat of defeat is pressing and the processes and activities of military learning are found wanting, military organisations often hire external knowledge management consultants to advise about the design of learning processes, especially at the joint level (Interviews 4, 7, 15). Engagement with external experts is an important means to generate new ideas. But if it is not accompanied by the embedding of understanding about lessons-learned best-practice among officers and civil servants in their professional education – and if organisational learning strategies are not seen to be initiated and led by respected senior officers – then the organisational structures which are established are likely to fail, due to the perception that they are externally-imposed. Hence it is vital that professional military education not only encourages the development of a well-informed understanding of organisational learning, but also the wider critical thinking skills which are an important foundation for experimentation and creativity (Zacharakis and Van der Werff 2012). In particular, senior officer education should include opportunities for dialogue between officers, academics, and civil servants about organisational learning best-practice (Mukherjee 2018, p.492, Interview 20).

Responsibility for improving lessons-learned processes also lies with the political leadership of defence ministries, both within the core executive and parliaments. A ‘civil-military gap’[[11]](#endnote-11) has emerged within many NATO member-states, as the number of politicians with experience of military service has dwindled following the widespread abolition of military service during the post-war and post-Cold War eras (Hines *et al.* 2014, p.692). This gap has a negative impact upon politicians’ understanding about their responsibility to provide oversight of defence planning and about how this oversight might be exerted (Interview 12, 14).

It is, therefore, important that the core executive, parliamentary defence committees, and civil servants develop effective monitoring mechanisms to assess whether joint and service-branch learning processes are fit for purpose (Feaver 2003, p.286). They should also establish means to sanction military personnel in the event that learning processes become seriously corrupted by bureaucratic politics, organisational culture, or officers’ perceptions of personal reputational damage (Feaver 2003, p.297). Over time, the engagement of political leaders within parliamentary defence committees and civil servants with these themes, combined with improvements in officer and civil servant professional education, will foster a stronger level of knowledge among the civilian leadership about the fundamentals of best-practice in learning and, in so doing, help to narrow the civil-military gap. These activities are crucial in kick-starting the implementation of the key features of best-practice in lessons-learned processes and encouraging them to take root.

**Conclusions: research agendas to further explore the potential of lessons-learned processes**

This article has made an important contribution to the field of military learning by sharpening understanding of best-practice in internal CFT processes and the wider organisational activities which support the work of CFTs. The article finds that the detail of the design and management of internal CFT processes is of substantial importance in making intra- and inter-organisational learning ‘severe, immediate, and personal’ for the institutional military. Lessons-learned practitioners have a substantial degree of agency to establish CFT activities and processes – in CFT empowerment, group composition, internal and external processes and group psychosocial factors – which can mitigate the corrupting impact on learning exerted by variables internal to the military, such as bureaucratic politics, organisational culture, and personal perceptions of reputation damage (Davidson 2011, p.192; Marcus 2015). However, the success of these activities is also influenced by wider organisational activities, which are sensitive to macro-political variables external to the military, such as strategic culture.

While the article has taken some important steps towards the identification of best-practices in CFTs, further research will be necessary to provide a stronger evidence base that these practises ‘rank at or near the top of effective measures’ (Osburn 2011, p.217). Several research agendas will be central to establishing a more thorough understanding of lessons-learned best-practice and of the scope for practitioner agency to enhance knowledge transformation within military organisation (Griffin 2017, p.219). First of all, empirical case studies of the management of learning processes by politicians and civil-servants in defence ministries and by parliamentary defence committees are necessary. Such research should examine whether it is possible to identify fundamental features of best-practice in civilian oversight of the design and performance of service and joint lessons processes, which are applicable across different national contexts. Second, research is required to examine the development of NATO member-state officer and civil servant education. In particular, how it can strengthen the development of knowledge and skills which enhance organisational learning and civil-military understanding (Zacharakis and Van der Werff, 2012). Establishing better understanding about best-practice in these areas is an important foundation for the emergence of the wider organisational activities which support CFTs.

Furthermore, the validity of the best-practices identified in this article should be tested through wider and more thorough case studies of lessons-learned processes. In-depth empirical research is necessary to examine cross-functionality in service and joint level lessons-learned processes in different national contexts and across small and large military organisations. This research should investigate whether and if so, to what extent, CFT best-practice varies depending upon different learning contexts, including training exercises, peacekeeping/stabilisation operations, counterinsurgency operations, and high-intensity state-on-state conflict. It should also examine the relative importance of the factors identified in this article in ameliorating the structural barriers to learning internal to the military, such as bureaucratic politics, organisational culture and officers’ perception of potential personal reputational damage (Chen *et al*. 2009, pp. 152–158, Davidson 2011, p. 192).

Moreover, research is necessary to help identify whether NATO member-states/partner-state lessons-learned processes have developed innovative CFT and wider lessons-learned practices, which could be disseminated among militaries and public and private sector organisations. In addition, as O’Toole and Talbot (2011, pp.61-2) note, militaries require both effective formal and informal learning mechanisms. Hence future empirical scholarship should investigate about how informal and formal learning processes can be developed in a mutually-supportive manner.

Finally, attention should be paid to widening the range of methodological approaches used in the study of lessons-learned processes. Research on lessons-learned processes has relied on semi-structured interviews to gather data (Dyson, 2019b; Marcus, 2015, 2019). They provide an excellent means to gain insights about the structure and activities of lessons-learned processes, as well as their impact on different areas of functional activity (Castro 2016). Interviews are particularly useful for gauging national lessons-learned processes against an ‘ideal type’ (Shields and Tajalli 2006, p.318). But where possible, they should be complemented by other research methods to enhance data triangulation.[[12]](#endnote-12) Focus groups in a military context can be problematic due to the hierarchical nature of militaries, which creates an especially-pronounced tendency towards ‘groupthink’ (Boateng 2012). However, open-ended surveys provide a valuable opportunity for military personnel to provide views in an anonymous manner which they may be reticent to express in face-to-face interviews (Heinecken 2016, p.43).

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**Figure 1: The NATO Lessons-Learned Process[[13]](#endnote-13)**



1. On the Israel Defence Force: Marcus (2015), on the US army: Chua et al (2006), on the British army: Catignani (2014), Egnell (2011), Foley et al (2011), on the British and German armies Dyson (2019b). On learning processes and public sector performance, see Piening (2013). [↑](#endnote-ref-1)
2. The project was subject to review by the British Army and MOD, which examined the potential for harm to participants and to the reputation and security of the armed forces. All British military personnel were provided with a list of interview questions in advance of the interview, an overview of the project's objectives and information about the purposes to which the data would be put. Any potential risks associated with participation were also discussed with British Army interview partners, who signed an interview consent form. The project was also subject to an internal review by the German Ministry of Defence, which examined the potential for harm to participants and to the reputation and security of the *Bundeswehr*. Interview partners at the *Bundeswehr* and JALLC were provided were provided with information about the objectives of the research project before the interview, the research questions, and purposes to which the data would be put. Any potential risks associated with participation were also discussed with interviewees before the interview. [↑](#endnote-ref-2)
3. NATO Standard Allied Joint Doctrine for the Conduct of Operations, Edition C, Version 1, 2019, Section E, point E.2, p.149. [↑](#endnote-ref-3)
4. Kier (1995, pp.69-70) defines organisational culture as: “…basic assumptions and values that shape shared understandings, and the forms or practices whereby these meanings are expressed, affirmed or communicated to the members of an organization”. On the impact of organisational culture on the creation, dissemination and use of knowledge within organisations, see: de Long and Fahey (2000) and Horowitz (2010, p.10). [↑](#endnote-ref-4)
5. NATO Standard Allied Joint Doctrine for the Conduct of Operations, Edition C, Version 1, 2019, Section E, point E.2, p.149. [↑](#endnote-ref-5)
6. Corporate strategic alliances involve the “…exchange, sharing, or co-development or products, services, procedures, and processes” (Serrat 2017, p.640). [↑](#endnote-ref-6)
7. The LELWG was replaced in 2018 by the Operational Lessons Integration Group (OLIG), which in 2020 was replaced by the Operations and Training Lessons Integration Group (OTLIG). An Army Lessons Steering Group (ALSG) chaired by Brigadier Army Staff has also been established. Its role is to direct the resolution of lessons and elevate unresolvable lessons to the 3\* Army Organisational Learning Committee, which can further elevate issues to the Executive Committee of the Army Board (ECAB). [↑](#endnote-ref-7)
8. Jointness refers to the effective integration of service branches. [↑](#endnote-ref-8)
9. ‘Perceived organisational support’ refers to the extent to which employees believe that an organisation values their contributions and wellbeing. [↑](#endnote-ref-9)
10. The concept of strategic culture refers to the impact on defence and security policy-making of norms embedded within key political and social institutions, both within and outside the defence and security policy sub-system (Bloomfield 2012). [↑](#endnote-ref-10)
11. The civilian-military gap refers to social distance between the military and the public, and between the military and government (Hines *et al.* 2015, p.692). [↑](#endnote-ref-11)
12. On the challenges of applying a diversity of research methods within military organisations, see Carreiras et al (2016, p.198) [↑](#endnote-ref-12)
13. NATO Lessons-Learned Handbook, 3rd Edition, JALLC, Lisbon, 2016, p.11. [↑](#endnote-ref-13)