Abstract: The chapter describes and discusses interaction within the Norwegian Armed Forces. Military interaction is understood as the dynamic and sometimes unpredictable action undertaken when two or more services interact. The chapter explores why interaction between military services, such as land, sea and air forces, is difficult – and, in some circumstances, completely absent. How can inadequate interaction between the military branches be explained? As Europe's armed forces become increasingly complex and sophisticated, two perspectives from organisational theory are applied. First, an instrumental perspective is used to comprehend the problem. Particular attention is paid to the tension between hierarchical authority and the division of labour. Thereafter, a cultural perspective is used to comprehend inter-service rivalry. Here, attention is paid to informal rules and regulations, or habitual 'rules of thumb' that have become institutionalised over time. These 'the behavioural patterns' affect the way military services perceive themselves in contrast to others. The main finding is that Norway's Armed Forces suffer from 'limited rationality'. This is because Norway's military units operate within a fragmented command structure that consists of many different sub-organisations; individually, in times of peace in Norway, they pursue their own myopic agendas rather than a comprehensive national objective. In this process, the branches are also forced to compromise with each other to reach their individual objectives. A form of limited rationality therefore arises because the Army, Navy and Air Force act rationally. This is, however, not on the basis of what serves Norwegian security best, but on the basis of what is rational for their specific branch.

Keywords: Samhandling, interaction, subcultures, military, organisational learning, leadership, unforeseen.
Introduction

The purpose of this chapter is to describe and discuss interaction within the Norwegian Armed Forces. More specifically, the chapter explores why interaction between military services, such as land, sea and air forces, is difficult and why it occasionally may be almost absent. Defined in its simplest terms, military interaction is understood as the dynamic and sometimes unpredictable action undertaken when two or more services, as social groups, have an effect upon one another. In a military-sociological context, this applies particularly during negotiations and compromises carried out by Army, Navy and Air Force officers, who operate within the same chain-of-command.

Problems in military interaction are important for several reasons. Firstly, close interaction between the services is critical to all European NATO members, in order to exploit increasingly-scarce defence resources more effectively. Inter-service rivalry may easily erode broader ambitions of sustaining credible national forces and developing military expertise on ‘joint operations’ above the tactical level. Secondly, Norway’s Armed Forces are also important public agencies that annually receive substantial funding from the tax payers’ money. It is therefore important to gain more knowledge on how scarce resources are spent. Are the Armed Forces interacting cohesively and rationally in order to optimise the national security effort? Or are the individual services more influenced by the ‘appropriate behaviour’ which dominates within their own branch (Christensen, 2017:62–64), thereby deviating from political expectations of a broad and complementary national security strategy? Thirdly, military organisations are also the state’s most dramatic and controversial political instruments. How different sub-cultures and sub-groups interact within the Armed Forces should therefore be of interest to increase the civic community’s knowledge and control over military organisations. Scrutinising inter-service rivalry leads to better transparency within a state activity that is often characterised by secrecy and inaccessibility.

Analysed through the lens of organisational theory, this chapter argues that interaction between the Norwegian Army, Air Force and Navy is hampered by increasingly-powerful service branches. Such fragmentation within military organisations is by no means a new phenomenon (Builder,
1989; March & Olsen, 1989; Davis, 2012; Heier, 2017, 85–105). It nevertheless impedes a more effective and rational use of scarce defence resources. Governmental programmes aiming to create synergy between increasingly sophisticated, but also increasingly small and vulnerable national forces, face difficulties. Lack of interaction is often exacerbated by numerous institutionalised rules and procedures; informal norms and values that are deeply entrenched, like a special form of DNA, within the respective air, sea and land forces. Ethoses such as loyalty, obedience, discipline and conformity seem to prevail within certain units, particularly in the Army. Land forces often tend to become socialised by means of training and exercise programmes, which are heavily influenced by close combat with enemy forces in hostile terrain (Weissman & Ahlstrøm, 2017:6, 13; Rones, 2017: 138–143). In contrast, Air Force units more often consist of highly-educated technicians who operate far from enemy lines, and pilots often have the privilege to engage opposing forces from high altitudes and at long distances. This may promote more of a “civilian” ethos, characterised by frank discussions, less hierarchy, less discipline, and more diversity in personalities and styles of leadership (Kvale, 20013; Syversen, 2003; Maaø, 2014). The Norwegian Armed Forces, therefore, are first and foremost institutionalised organisations (Selznick, 1957/1997:20) – and a fragmented political instrument which utilises both formal and informal interaction to reach their goals.

Although this chapter focuses on interaction in a narrow military sense, the broader phenomenon of organisational interaction may also be relevant to other types of organisations. Referring to the Bow-Tie Model in Chapter 1 (Torgersen, 2018), fragmentation severely inhibits any organisation’s effective prevention, management or stabilisation of unforeseen incidents. Examples are numerous and may, in a Norwegian context, include the rivalry between the Police Force and the Armed Forces during exercises (Røksund et al., 2016:9), or the absence of adequate civil-military security arrangements following the terrorist attack in Oslo in 2011 (Riksrevisjonen, 2017:14).

This chapter takes the formal organisation of the Armed Forces as a starting point. Being one of the most modern forces in NATO, the military chain-of-command can – in a theoretical and stereotypical form – be defined as a rational, unified and efficient combat organisation. Challenges
to rationality will be discussed below. The combat organisation, however, may be described as a neatly-balanced network of multiple components, in what is often characterised as a ‘system of systems’ (Heier, 2017:14–16). Different units from the Army, Air Force and Navy, enhanced by numerous leadership, support and combat support systems, must interact as a cohesive team to create mutually-reinforcing effects. On short notice, the various units – from all over the country – are expected to rapidly assemble and interact as small ‘cogs’ in a ‘well-oiled machine’. The ‘machine’ is thereafter expected to perform rapidly and effectively, at home and abroad – along the Russian border and in the Barents Sea, in the deserts of Syria and Iraq, as well as above Libyan air space or in the Indian Ocean.

Towards a problem statement

The ‘cogs’, however, do not necessarily fit neatly together. Originating from different branches, units and levels in the chain-of-command, smooth interaction is hampered by different identities. Shaped by informal norms, values and expectations, the myriad of Army, Navy and Air Force ways of understanding themselves are rooted in numerous fields of expertise, often in contrast to other services.

Working on a daily basis inside small and vulnerable ‘centres of excellence’, they are also geographically dispersed throughout a Norwegian territory that stretches over a distance equivalent to Oslo to Rome. More often than not, these ‘cogs’ have never met before they are suddenly forced to interact, sometimes under extreme physical and psychological conditions.

Which mechanisms can help us to comprehend how Norwegian ‘cogs’ interact within the military machinery? As the various ‘cogs’ are put to the test, how can the organisational conditions be described? Are Norwegian troops part of a disciplined and smoothly-operating combat organisation, efficiently performing missions in accordance with political intentions? Or are Norway’s Armed Forces part of a fragmented instrument; an organisation where informal habits, customs and procedures prevail, as unexpected incidents occur? Can Army, Air Force and Navy units, at the tactical level, make rational and comprehensive decisions for the
common good? Can they make choices unaffected by myopic interests from individual ‘cogs’? Or is the Norwegian machine characterised by unsynchronised interaction, because land, sea and air forces are also tradition-bearers, and therefore influenced by their own goals and interests?

Answers to these questions depend upon the perspectives used; these will be described below. A good starting point may be the broader paradox of centralisation versus decentralisation. On the one hand, considerable effort has been put into controlling and managing scarce military resources more effectively. Centralising the Military High Command, by integrating it into the Ministry of Defence in 2003, is one such example (Bogen & Håkenstad, 2015:126–128). In order to become a more cohesive civil-military entity, the purpose was to ‘…take the military commanders by the ears…’, fostering better interaction (Bjerga, 2014:473). On the other hand, a military decentralisation also occurred which made rational interaction more difficult. Six years after the first example, the Army, Navy and Air Force service staff branches were separated from the civil-military entity in Oslo, and re-located to respective ‘centres of excellence’. The Army was sent to Bardufoss in northern Norway, the Navy was sent to Bergen in western Norway, while the Air Force was sent to Rygge in south-eastern Norway. In so doing, around 60% of Norwegian personnel were allowed to pursue a life-long career within their own service branch. As a result, joint interaction and operational synergy between services may be more challenging to realise.

For example, the three service branches possess an estimated 200 different information and communication systems, which can hardly communicate with each other. It is, therefore, difficult to achieve genuine interaction between services that are becoming increasingly more autonomous and service-oriented, as opposed to joint-operation oriented (Pedersen, 2015; Bentzerød, 2015). Despite reforms aiming to reinvigorate the formal chain-of-command, ‘inadequate interoperability between tactical commanders, and …between combat systems under the tactical commanders’, make common objectives hard to reach (Pedersen, 2015).

Building on this paradox, this chapter’s fundamental question is: *How can inadequate interaction between the military branches be explained?* As European forces become increasingly technologically-advanced and
sophisticated ‘systems of systems’, two perspectives from organisational theory may be applied. Firstly, using an instrumental perspective, interaction within formal military organisations can be explained, giving particular attention to the tension between hierarchical authority and the division of labour. Secondly, a cultural perspective may be adopted to address the same question. The instrumental perspective is complemented by the effects of informal rules and regulations; habitual ‘rules of thumb’ that have become institutionalised over time, which affect the way military services perceive themselves in contrast to others.

**The instrumental perspective**

How military organisations interact can be interpreted through the lens of instrumentalism. The definition of ‘organisation’ is understood as a formalised collective of personnel, who work systematically towards a common goal on a daily basis (Scott & Davis, 2007:36–40). In theory, the assumptions put forward by Richard Scott and Gerald F. Davis could be used to describe Norway’s Armed Forces, stereotypically, as a ‘rational actor’ (ibid.:35). In theory, interaction between branches occurs according to defined roles, responsibilities, and areas of authority. Established formalities, procedures and rules are key characteristics of an instrument-like organisation. This contrasts with the more informal, incremental ‘institution’ described by Philip Selznick, which will be explored from the cultural perspective below (Selznick, 1957/1997:18–29).

Using the instrumental perspective, formally-written directives depend less upon the individual officer’s leadership, or the general’s subjective preferences and personal charisma. On the contrary, directives rest to a greater extent on rational considerations and existing routines. These are rigorously operationalised, transcending the military service’s narrow interests. From the Defence Staff in Oslo to the tactical Branch Heads in Bardufoss, Bergen, and Rygge, strategic directives and national concerns are submitted down the chain-of-command. In return, daily, weekly and monthly reports are issued upwards, to build a common ‘situation awareness’ and hence, a better foundation for new strategic guidance. This is a theoretical description of interaction. How can it be explained in real life?
The logic of official interaction

In Norway, military interaction takes place through intersecting channels of management, vertically and horizontally. A *vertical* interaction occurs across military-strategic, operational and tactical levels of command. Here, political intentions are gradually operationalised into more succinct and specific military terms. Firstly, intentions are operationalised into directives at the military-strategic level, within the Defence Staff. Secondly, this occurs again at the intermediate operational level, within Joint Operative Headquarters. Finally, this is carried out at a tactical executive level, with specific missions designed for the various air, sea and land forces (Forsvaret, 2014). From this somewhat simplified context, interaction can be explained as a rigid activity of exercising command and control authority. ‘Unity of command’ is communicated by means of formal roles, clearly-defined responsibilities and delegated authority. Orders, standard operational procedures and established drills are executed by loyal and obedient staff officers, providing effective interaction across levels of command.

However, parallel to vertical interaction, a significant degree of *horizontal* interaction also occurs. Individually, the Army, Navy and Air Force delegate authority further down their own chains-of-command, to develop branch-specific operative concepts, doctrines and educational systems. Individually, the branches enhance their specific roles and responsibilities within the broader framework of national defence. Long-term investments are decided, particularly within dedicated weapon, support and logistical systems that give their doctrines more operative ‘punch’. Specialised educational programmes and career plans are also developed, to underpin investments and doctrines with expertise, for example, through dedicated officer-candidate schools, military academies and staff courses abroad. In a broader and increasingly complex ‘system of systems’, therefore, much of the horizontal interaction is delegated to branch-specific vocational education programmes.

The combination of horizontal and vertical activities is instrumental in comprehending how interaction and synergy emerge between different services. This is, however, not without complications. Which mechanisms may create inter-service rivalry and hence undermine military interaction?
Cross-pressure and limited rationality

Based upon horizontal and vertical interaction, military organisations are likely to be characterised by a diverse set of goals and interests. Comprehending the Armed Forces as a unified, cohesive and rational actor is, as such, a myth (Nordheim-Martinsen, 2015). On the contrary, even disciplined and strictly hierarchical organisations are subject to significant cross-pressure. This is because each branch is empowered to act rationally between overarching goals and interests. But the same goals and interests are not necessarily compatible throughout the chain-of-command. What is regarded as rational for Army headquarters situated in the far north is not necessarily rational to Air Force staff officers situated at Rygge, outside the densely populated Oslo-region. An example may be the Air Force’s recommendation to tie up large amounts of future defence spending to new investments in F-35 combat aircraft. On the one hand, this may improve the deterrent capability of the Armed Forces, thereby enhancing Norwegian security. On the other hand, it may also lead to a gradual disintegration of the Army and Navy, because fewer resources are left to sustain and develop critical ‘centres of excellences’ within these two branches (Bogen & Håkenstad, 2015, pp. 272–5; Johannesen, 2016; Norheim, 2016, pp. 11–12). Another example is the re-location of scarce helicopter resources from northern Norway to southern Norway. To better protect the most densely-populated regions of the country from a potential terrorist threat, this could be seen as a rational move, as seen through the lens of the Air Force and their cooperation with Special Forces and the Police Force. From an Army perspective, however, this may lead to a critical shortage of tactical helicopter support in their primary area of responsibility, along the border with Russia (FMR, 2015; Bergstad, 2015).

At the crossroads between horizontal and vertical interaction, it may therefore be claimed that the armed forces, like most other organisations, are exposed to different forms of limited rationality. This corresponds with international research conducted by Richard Cyert and James G. March (1963), James G. March and Johan P. Olsen (1983), and James D. Thompson (2008), among others. The problem of interaction in ostensibly rational organisations is often due to the fact that organisational diversity
is spread (by the different military branches) over a wide geographical area. Isolated within their own regions or at the main bases at Bardufoss, Bergen or Rygge, individual services can more successfully negotiate and intensify their own specialist preferences. In this light, the Defence Staff at the military-strategic level in Oslo can be interpreted as an arena for negotiation and compromise between the services, which again inhibits full rationality (Thompson, 2008:134–139).

The scaling down of Defence Staff in Oslo and the subsequent re-location of service headquarters to the north, west and south-east of Norway in 2009, serve as examples. On the one hand, the Defence Staff in Oslo lost critical manpower and the expertise needed to coordinate horizontal activity between numerous units throughout the country (Thornes, 2014:76–77). On the other hand, the same re-location also strengthened the branch specific ‘centres of excellence’ connected to each individual service, which formerly suffered from scarce resources.

The cultural perspective

Interaction can also be comprehended from a cultural perspective. This is quite a different perspective compared to the instrumental interpretation presented above. Even though ‘limited rationality’ still prevails, it takes a more extreme form. The cultural concept is understood as ‘…a possession – a fairly stable set of taken-for-granted assumptions, shared beliefs, meanings, and values that form a kind of backdrop for action.’ (Smircich, 1985:58) The main emphasis is not placed on the organisation’s formal division of labour, established routines or top-down leadership. Instead, it rests more on an institutional understanding of the concept, as presented by Philip Selznick: the informal management, which develops from below in an upward direction over time, because there also exists ‘…an internal social sphere which must be safeguarded.’ (Selznick, 1957/1997:20).

Adjacent to the formal horizontal and vertical processes described in the instrumental perspective, informal norms and values tend to become more influential. Within increasingly-specialised services, the ‘centres of excellence’ in the land, sea and air force units start to ‘live a life of their own’ in Bardufoss, Bergen and Rygge. This interpretation may not only
promote a rational division of labour, as explained in the instrumental perspective. As James D. Thompson has suggested, a rational and logical division of labour may also stimulate the development of subcultures. This is particularly so when power and authority are delegated to subordinate units, which have little contact with one another on a day-to-day basis (Thompson, 2008:140–143). As a consequence, inter-service rivalry is more likely to occur, because stronger and more long-term incentives for interaction are dwindling.

Rather than cultivating ideas for increased inter-service ‘jointness’, branch-specific guidelines and moral ‘compasses’ emerge within land, sea and air-based units. This is operationalised into land, sea and air defence doctrines, career plans and educational directives. Informal attitudes, like ‘this is how it’s done here’, become more influential, also within the formal chain-of-command. Key questions, like ‘How should strategic directives be executed?’, or “What kind of military expertise should be prioritised?’, become more greatly influenced by symbols, artefacts, rituals, parades and social events (Heier, 2014:227–230; Heier, 2017:95–96). These mechanisms are systematically developed and organised by the military services themselves. Over time, it shapes the way officers think, act and behave, both in relation to themselves and, not least, in relation to officers from other services. The culture developed within the services thereby becomes a kind of ‘professional baggage’ that shapes officers’ identities. As the same officers operate within the vertical and horizontal chains-of-command, as described in the instrumental perspective, they carry this ‘baggage’ with them more or less unconsciously, as procedures and practises are performed in conjunction with officers from other services.

An important presupposition is that Norway’s military branches normally exist at a safe distance from each other – geographically, mentally and in terms of expertise. The political and social control exercised by the Defence Staff in Oslo is therefore weakened. At the same time, the branches’ image of their own basis for existence is strengthened. In the contrast between ‘Us’ and ‘Them’, investments in branch-specific materials, such as command and control systems, is given a real ‘meaning’. Therefore, what is seen as ‘appropriate behaviour’ in one’s own military branch will contradict overriding directives that favour ‘unity of purpose’,
interoperability and ultimately, a cohesive method of addressing common challenges. These so-called ‘birth marks’ are often created far back in time. They often lead to a ‘path addiction’, whereby the struggle for your own interests follows a route that has been marked by colleagues and superiors before you. They have ‘a normative and institutional basis, which can differ entirely, depending on which development path [the military branch in question] has had, and what are established as predominantly informal values and norms.’ (Christensen et al., 2009:54).

‘The logic of appropriateness’ (March, 1994), or ‘what is appropriate behaviour in a military unit’, is an equally important factor affecting interaction further down in the organisation. This may, for example, be related to questions about which communications systems should be installed on the Navy’s frigates to interact more effectively with ground or air force units. Or which missiles the fighter jets should acquire to support the Army or Navy. Or which career path army officers should pursue in order to create leaders with a broader and more holistic perspective on ‘jointness’ and national defence. Army Headquarters strives towards “…a transparent ownership of Army personnel”, even at operational level, where joint efforts between the services are made (Hæren, 2016). This may be a double-edged sword. On the one hand, it gives the Army important ambassadors to influence crucial decision-making processes, as scarce resources are the various branches. On the other hand, it may also contribute to friction and rivalry with a joint service, which is strained by incompatible goals and priorities (Johansen, 2015; Builder, 1989:67–92).

The introduction of joint information and communication systems between services serves as an example. Instead of providing the Commander of the Cyber Defence Unit with sufficient authority to implement a unified system, the Army, Navy and Air Force Headquarters are authorised to place orders for equipment serving their particular needs, each individually, through the Armed Forces Material Administration (Pedersen, 2015).

**Cross-pressure and limited rationality**

The individual, service-oriented acquisition of communication systems that other services cannot use, cannot be explained as a breach of loyalty
in the chain-of-command between the tactical services and the strategic Defence Staff in Oslo. Instead, it arises because the Chief of Defence has delegated responsibility to officers that are socialised into patterns that frame thoughts and actions (March & Olsen, 1989:27, 54–5). If the Army, Navy or Air Force do not recognise the strategic directives from the Defence Staff in Oslo, efforts to enhance holistic investments across the Armed Forces will fall short. The extent to which the services identify with the decisions made, and whether they comply with the Armed Forces’ overall goals and interests, must also be taken into consideration. Therefore, subcultures specific to the military branches are capable of creating tension, which again makes interaction difficult. How can this be explained in more specific terms?

During the 2000s, the individual services’ expertise and ‘centres of excellence’ have been subject to an ‘economically-driven re-organisation of defence’ (Måseidvåg, 2011). Consequently, protecting one’s own tactical forces from closures and redundancies has become increasingly prevalent. This strengthens the explanatory power of the cultural perspective, in part because increasingly more service-oriented expertise in the Army, Navy and Air Force risk acting on the basis of ‘self-preservation’ and local esprit de corps rather than on the basis of overarching, strategic military considerations.

As pointed out in the Dekanstudien (Deans Study), conducted by the Norwegian Defence University Colleges in 2016, ‘…branch-specialised institutions of learning have developed…in isolation from each other’. It has been argued that this has impeded the emergence of ‘common perspectives, common solutions [and] professional synergies’ (Bjerga et al., 2016:2). Preserving branch-specific interests was also evident within the Air Force Academy prior to the re-organisation of the six university colleges in the Armed Forces in 2016. External consultants were hired by the Air Force to clarify branch-specific requirements. They found that ‘Here, it is important to create a strategy in order to safeguard particular characteristics.’ (NIFU, 2016:21).

The combination of scarce resources and strong, branch-oriented cultures seems to put military leaders under cross-pressure, caught between promoting critical expertise on behalf of the branch, and promoting a
broader national defence culture of ‘unity of effort’ throughout the chain-of-command. On the one hand, Commanders of the Army, Navy and the Air Force experience expectations within their own services. Such expectations are created by personnel whose primary point of reference is firmly anchored in their own military branch. This cultural ‘baggage’ is often also tied to ‘paths’ marched by former colleagues in the generations before them. On the other hand, pressure for unity and loyalty is also created in an outward direction, from the political establishment and the society in which the Armed Forces exist to serve. Politicians and the Chief of Defence expect loyalty from Commanders of the Army, Navy and the Air Force, even if it leads to the total disintegration of a Commander’s own force. According to former Chief of Defence (2005–2009), Sverre Diesen, this tension turns the Commander’s position into one of the most demanding jobs in the Armed Forces. They are expected to promote branch-specific interests when interacting with the Defence Minister and the Chief of Defence, and at the same time, are expected to assume an advisory role on holistic and comprehensive solutions, as the Defence Chief’s closest colleagues (Diesen, 2011:241).

Conclusion

The purpose of this chapter has been to describe and discuss interaction within the Norwegian Armed Forces. By trying to gain more knowledge on why inter-service interaction is difficult, the chapter aims to answer the following question: How can inadequate interaction between the military branches be explained? In these concluding remarks, plausible answers of both a general and specific nature are presented. Thereafter, two implications for the future are derived.

Generally, a common denominator valid for both perspectives seems to be that Norway’s Armed Forces suffer from ‘limited rationality’. This logic resembles the Bow-Tie Model in Chapter 1 (Torgersen, 2018), which claims that interaction between the three phases, Prevention, Loss of Control and Stabilisation, are sources of concern. In this context, this is partly due to the fact that a military ‘system of systems’ consists of many different ‘cogs’, or organisations, which individually pursue their own goals. In
this process, they are also forced to compromise with other branches to reach their own objectives. A form of limited rationality therefore arises because the Army, the Navy and the Air Force act rationally, not on the basis of what serves Norwegian security best, but on the basis of what is rational for their specific branch.

Generally, it also seems as if ‘limited rationality’ arises because interservice compromises and solutions are influenced by informal norms thriving inside the Army, Navy and Air Force. These are subtle cultures which remain entrenched within the services and may indicate that interaction is characterised by both organisational and institutional traits.

The more specific answer to the question is therefore as follows: Inadequate interaction within the Norwegian Armed Forces can be explained as a sort of cross-pressure. On the one hand, generating from formal authority exercised through the official chain-of-command and on the other, by informal authority exercised through the service branches’ definition of ‘appropriate behaviour’. The ineffective use of scarce defence resources within Norwegian forces is therefore consistent with Peter Selznick’s perspective, claiming that most organisations are institutional organisations (Selznick, 1957/1997).

What bearing does this have on the future? Formulated as a hypothesis for further research, it may be claimed that Norway’s Armed Forces will continue to be a fragmented and heterogeneous organisation. More public spending will not necessarily lead to improved defence. As the Armed Forces gradually become more specialised, the informal authority deriving from the individual service’s ‘appropriate behaviour’ will increase. Thus, the continued deployment of small tactical capabilities to international operations, so-called ‘niche capabilities’, is likely to accelerate this trend; branch specific engagements abroad will, despite a joint operational framework, promote more autonomy within the Army, Navy and Air Force.

However, fragmentation and inter-service rivalry may not necessarily mean that defence resources are wasted. Lack of interaction may also increase defence output, even though it may be more difficult to measure in quantitative terms. A positive side of fragmentation may be that cohesion within the individual branches is strengthened. This aspect
is crucial, as Norwegian forces occasionally enter some of the world’s most challenging combat theatres, such as those in Syria, Iraq, Afghanistan and Mali. As fragmentation and inter-service rivalry also foster a stronger *esprit de corps* and identity within individual ‘centres of excellence’, scarce resources may also help to create a highly-valued output.

**References**


