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OPERATIONAL RESILIENCE IN THE BUSINESS-BATTLE SPACE

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ABSTRACT

The purpose of this paper is to explore the interconnectivity between defense, security, and business, particularly when viewed through the prism of operational resilience. The standard stereotype depicts the military acting as a harbinger of destruction while business represents the motive force of wealth generation. This is too simplistic, however. Militaries fight wars, but they also make an important contribution to addressing the expanding array of non-traditional threats that form part of national security, including wildfires, floods, earthquakes and, of course, pandemics, such as COVID-19. The military's physical resources, attitudinal robustness, and rigorous planning regimes represent three of the more important dimensions of military operational resilience. Mutual commercial-military benefits can be gained via a "two-way" street in the adoption of best-practice resilience solutions. There is a recognition that just as military resource managers can learn from business, so equally can business learn from the military. The U.K. case is offered to illustrate the principles, policies, and practices of military operational resilience.

1. INTRODUCTION

The COVID-19 pandemic was not predicted, least of all by the corporate sector. Yet, pandemics appear with disconcerting regularity. Since the beginning of this millennium, the world has witnessed outbreaks of H5N1 (Avian Flu), SARS (Severe Acute Respiratory Syndrome), H1N1 (Swine Flu), EVD (Ebola Virus Disease), and MERS (Middle East Respiratory Syndrome). All have been contained, but COVID-19 has proved more virulent and tenacious. It has caused incalculable social, financial, and business damage. Most governments, though not all, have reacted swiftly to prevent hospitals becoming overwhelmed. Societal and economic restrictions have been introduced, yet the authorities face a "Hobson's choice" between lockdowns designed to limit the spread of infections but in the process destroying economic health (the United Kingdom), and limited restrictions to support business and jobs but at the cost of medical health (Sweden). Reflecting on the immensity of human suffering and economic loss, the casual observer might be forgiven for wondering why the millions of dollars governments and companies spend on forecasting and horizon-scanning regularly fail to predict the occurrence of such catastrophes. Although the nature, timing, and probability of disruptive events are invariably unknown, history has taught us to expect the unexpected. The problem, however, is that the frequency and diversity of these unknown events are growing, adding to the complexity of forecasting. If precise prediction is impossible, then governmental and corporate policy emphasis should focus on contingency and mitigation planning.

Such planning falls into the realm of operational resilience and is the primary preserve of central and local authorities, commercial enterprises, and the military. Definitions of operational resilience vary between these three actors, but generally refer to the ability of an organization/community to adapt rapidly to disruptive events. Employing a medical analogy, the concept can be described as seeking to enhance an entity's immune system. Successful outcomes will depend on the imperative of a fast response, facilitated by rigorous advanced planning and high levels of responder adaptability.

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The focus is not so much on predictive capability but rather on the dynamics of resilience management. The process will include progressive processes of planning, integrating, executing, and governance to ensure identification and mitigation of the risks. As argued recently by a senior Bank of England official: "[Firms should] …be on a WAR footing [to] withstand, absorb, recover" [Nelson (2019)]. The three principal actors directly affected by civil emergencies will have drafted resilience policies to ensure the sustainability of services and outputs to minimize the impact on citizens and consumers. Government holds the option, when appropriate, of inviting military support to ensure appropriate capacity is available to address the wide variety of contemporary crises. The military is well practiced in responding to multi-threat scenarios and has proved effective by demonstrating high levels of professionalism, flexibility, adaptability, and resourcefulness. The military's support role to business is less explicit, but through a long history of mutual civil-military interaction, benefitting both sides of the relation, it is likely that business can learn and adopt best practice elements of military operational resilience to strengthen its response frameworks.

The purpose of this paper, then, is to explore and evaluate potential lessons for business from military operational resilience. In the U.S., the National Guard provides support for civil emergencies, as illustrated in deployments that include Hurricane Katrina (2005) and the recent Capitol Hill disturbances (2021). Notwithstanding the National Guard's operational resilience credentials, the case study for this paper is the U.K. This is because over the last two decades the Ministry of Defence (MoD) has crafted a detailed legislative model in response to the diverse threats facing British society. Additionally, while the National Guard comprises mostly "one weekend a month, two weeks a year" reservists, the U.K. deploys regular military forces in line with its integrated combat and civil resilience posture, placing a relatively heavier burden on service personnel. Discussion begins by reference to the "business of war", highlighting the comparable features as between combat and competition. Attention then switches to examining the military's expanding portfolio of responsibilities, incorporating not only its traditional combat role but also its increasing interventions in civil crises and emergencies. Invariably, this growth in military responses acts to drain exchequer funding, calling into question the affordability of military resilience. Hence, the next two sections highlight the potential of a two-way street in which the military borrows proven commercial techniques from the business community, alongside business learning from the military, especially in the context of operational resilience, as means of enhancing business performance. A conclusions section closes the paper.

2. THE "BUSINESS" OF WAR

Throughout the centuries, defense and business have experienced a surprisingly interconnected relationship. The two sectors operate at opposite ends of the socio-economic spectrum, but while business generates wealth, the military seemingly produces little in the way of utilitarian benefit, carries a high social opportunity cost, and is focused principally on destruction not construction. Yet, notwithstanding these negatives, the battle and business space is integrated, with defense making important contributions to economic, industrial, and technological development. For example, the military sector creates highly skilled jobs, provides huge numbers of STEM (science, technology, engineering, and mathematics) apprenticeship opportunities, generates tax revenues and also foreign exchange earnings through export opportunities, fosters spin-off innovation, and sustains huge numbers of predominantly commercial enterprises in what are ostensibly military supply chains.

There are other integrative features of military and commercial supply chains. Apart from the need to continuously invest in frontier product and process technologies to keep one step ahead of potential competitors (enemies), there is an obvious read-across from the military's rapid and creative responses to operational uncertainty and the commercial risks and unknowns faced by commercial businesses [Christopher and Holweg (2011)]. In peacetime, both defense and business supply chains pursue cost-efficient operations [Yoho et al. (2013)] involving common dangers, such as dependence on limited suppliers, long lead times, financial challenges, large inventories, asset visibility, collaboration (coordination among nations, executing deployment plans including command, and control), and cyber threats. Even though the contemporary civil supply chain is more reactive and enjoys faster development cycles, the military continues to provide valuable lessons to its commercial counterparts. Asymmetric military operations, peace support missions, and disaster responses require high maneuverability over a broad geographical coverage under mostly uncertain conditions [Ancker and Burke (2003)]. The defense supply chain consequently operates under tremendous pressure to be responsive and sustainable in support of the military's mission. In war, when operational pressures are heightened, the business supply chain's strategic objective of maximizing shareholder wealth differs starkly from that of its

defense counterpart aimed at maximizing military capability in defense of national security. The biggest difference, however, is that while disruption in the business supply chain can prove costly, problems in the military supply chain can be catastrophic, resulting in injuries, destruction, and death [Yoho et al. (2013)].

It is clear, then, that the business of war interacts between the military and the commercial sector, and vice versa. Yet, though the military's principal objective must always be to defend national interests, in recent decades its role has expanded to encompass security objectives beyond solely combat tasks. Planning against the prospect of war is challenging as it requires numerous assumptions and involves scenario planning and judgments on future weapons capabilities of friend and foe alike. Yet, in the present climate of expanded civil threats, the risks and responsibilities of military contingency planning are magnified.

3. RESILIENCE, AND THE FIGHT AGAINST 'UNKNOWN UNKNOWNS'

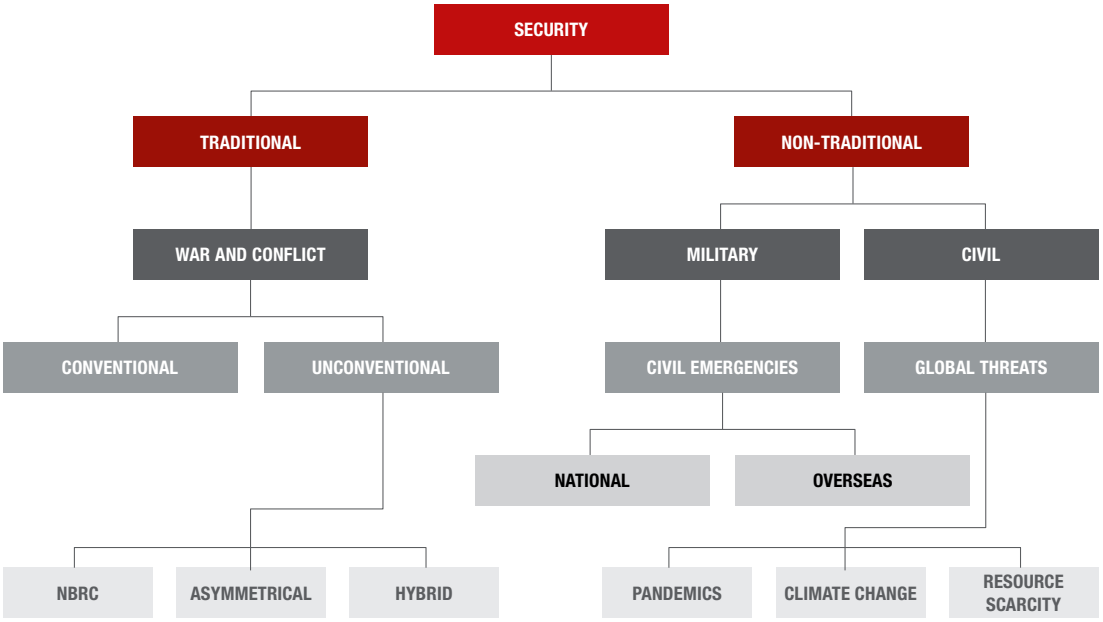
Military resilience in the 21st century is no longer confined to combat. There has been a remarkable expansion in the threats facing global society, massively increasing uncertainty. The challenge of identifying and forecasting these threats was aptly summarized by Donald Rumsfeld during his February 2002 U.S. Government briefing on the lack of evidence linking Iraq with the supply of weapons of mass destruction to terrorist groups, stating: "... as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know" [Graham (2014)].

Rumsfeld's statement was focused on the threat of potential aggression, but its application has wider relevance. In the West, in earlier times, national security equated with military defense. In other words, the military's sole purpose was the defense of the realm. However, the contemporary understanding of national security has evolved, and is now interpreted to have broader application, with defense just one of a potpourri of different security considerations. The notion of a broadened security framework is not novel, and dates back to Japan's mid-19th century cultural conceptualization of "comprehensive security". Factors such as macroeconomic growth, technological advancement, political stability, and diplomatic power were viewed as equal components of military strength within an expanded definition of national security. Japan has recently refined this framework to highlight additional non-traditional threats to national security, including earthquakes (Kobe, 1995), terrorism (Tokyo underground Sarin chemical attack, 1995), pandemics (SARS, 2003), and tsunamis (Tohoku, 2011). Other states have emulated Japan's comprehensive national security model, including Singapore and Malaysia (both using the concept of total defense).

Belatedly, Western states have similarly begun to redefine national security as going beyond simply military security and embracing socio-economic stability. Britain's Defence Doctrine, for instance, emphasizes that political stability, economic buoyancy, and environmental health coalesce into a holistic national security framework. The Doctrine considers the military capacity to support civil authorities in responding to non-combat threats. Indeed, the experience of the last two decades demonstrates that the military's interventionist role has ratcheted up, pari passu, with the increased number and diversity of civil emergencies. Figure 1 illustrates this military operational "creep" in response to the security environment's rising complexity. Military operational responsibility is now categorized into two forms of security, one traditional and the other non-traditional. Traditional security centers on the military's principal historic duty of protecting territorial integrity. Today, this incorporates not only conventional but also unconventional conflict; the latter comprising three types of threat: firstly, nuclear, biological, radiological and chemical warfare (NBRC); secondly, asymmetrical conflict, principally terrorism by non-state actors, such as al-Qaeda, operating across Africa and Asia, the Taliban (Afghanistan), Isis (Middle East), Boko Haram (Nigeria and West Africa), and al-Shabaab (East Africa and Mozambique); and thirdly, hybrid or "grey zone" war, covering disinformation, cyber attacks, and covert operations.

Non-traditional security, by contrast, refers to threats devoid of military origins, but where the military can make a significant contribution to mitigating the threat's impact. Here, the military has two roles. Firstly, at the national level, it can be deployed at the behest of government to strengthen civil resilience against flooding, wildfires, animal infection (such as "mad cow" disease), and of course, endemics/pandemics. Secondly, at the international level, the military can respond to three broad threats: natural disasters, such as humanitarian relief operations dealing with the destructive forces of hurricanes and volcanic eruptions; human-induced disasters, including, for instance, conflict-stabilization, peacekeeping, and post-conflict reconstruction operations; and, illegal activities, such as drug-running, piracy, and illegal fishing. Finally, there are certain global non-traditional threats that do not include the military, not yet at least. These reflect a growing securitization

Figure 1: The military's role in support of security



Source: authors

process that has become increasingly institutionalized, with governments adopting international agreements to collectively address emerging human security threats embracing the negative impacts of climate change, pollution, and finite energy and food resources.

Figure 1 highlights the challenges facing the government and the military, explicitly, and the business community, implicitly, given that all stakeholders will be affected by the socio-economic dislocation of disasters. The policy response has been the emergence of what is termed "operational resilience", highlighting the importance of engaging in contingency planning to address, as far as possible, the range of known-knowns, unknown-knowns, and unknown-unknowns. Definitions of operational resilience between stakeholders display only nuanced differences. Business operational resilience, for instance, is usually defined as the ability of an organization's systems and processes to adapt rapidly to changing environments and to continue to operate in the event of disruptive events [Husband (2019)]. More specifically, in the context of cyber attacks on financial services, business resilience has been defined as the need to address systemic risks, including increasingly complex digital ecosystems where disruptive viruses operate. The necessary corporate responses reflect a journey of continuous improvement, taking in the spectrum of management disciplines that cover governance, strategy, information security, change management, and disaster recovery [Kilfeather et al. (2019)].

In similar fashion, the U.K. Government interprets operational resilience as the ability of the community, services, and areas of infrastructure to detect, prevent, and, if necessary, to withstand, handle, and recover from disruptive challenges [MoD (2017)]. The civil protection policy framework for preparation and response to emergencies derives from the 2004 Civil Contingencies Act. It has three strategic objectives: firstly, protect human life, and, as far as possible, property and the environment, and alleviate suffering; secondly, support the continuity of everyday activity and restore disrupted services at the earliest opportunity; and, thirdly, uphold the rule of law and the democratic process [Cabinet Office (2013)]. The provisions of the 2004 Act were strengthened by the 2015 National Security Strategy (NSS) and the Strategic Defence and Security Review (SDSR). Here, the notion of community resilience was highlighted, considered to be achievable through improving the crisis management architecture.

Yet, not all crises and emergencies are "slow-burn" disasters that allow time for considered institutional responses. For those that are not foreseeable, the government's aim has been to identify and mitigate the risk as far in advance as

possible through five-year NSS-SDSR reviews. Classified assessment of risks the U.K. is likely to face five years into the future are undertaken, enabling high-level categorization and prioritization of imminent risks, as well as the design of appropriate responses, bounded by resource availability, to eliminate, reduce, or mitigate the effects of a risk or reduce the probability of its occurrence [MoD (2017)]. As part of the Ministry of Defence's contribution to the security mandate, the military, via MACA (military aid to the civil authorities), stands ready to support as an essential element of community resilience. The U.K. military has a strong record of offering generalist and niche capabilities at times of real and potential crisis, including repatriation of stranded U.K. citizens caused by the Icelandic ash cloud (2010), enhanced security at the London Olympics (2012), mitigation of the effects of serious national flooding (2015-16), and generalist and specialist medical support during the present COVID-19 pandemic (2020-21).

There are different definitions of military resilience dependent on the context in which it is applied. At the individual level, there is medical resilience defined as the capacity to overcome the negative effects of setbacks and associated stress on military performance and combat effectiveness [Kilfeather et al. (2019)]. At the national level, the MoD uses the U.K. government's interpretation of resilience, cited earlier in this section. Finally, at the NATO Alliance level, resilience reflects the need to resist and recover from a major shock, such as a natural disaster, failure of critical infrastructure, or a hybrid or armed attack, combining both civil preparedness and military capability [NATO (2020)]. NATO firmly anchors the principle of operational resilience to Article 3 of the Alliance's founding treaty. The Article traditionally focuses on the Alliance's collective capacity to resist armed attack but is now interpreted more broadly to include member countries' responsibility to be sufficiently robust and adaptable in supporting the entire spectrum of crises envisaged by the Alliance. NATO confirms the thematic that today's security environment is unpredictable, with threats arising from state and non-state actors, including terrorism and other asymmetrical threats, including cyber attacks and hybrid warfare, blurring the lines between conventional and non-conventional forms of conflict. NATO's threat assessment also embraces climate change and natural disasters, such as floods, fires, earthquakes, and biohazards, and again the COVID-19 pandemic.

Although the various definitions of operational resilience are similar, policy implementation between the principal actors may diverge. Business operates in a competitive, and thus often isolated and insular, environment, with organizations jealously guarding policies that might provide competitive advantage. By comparison, central and local governmental authorities act cooperatively with the armed forces to construct and reinforce resilience. In some immature undemocratic states, military juntas govern, but under normal Western parliamentary conditions, the military is subordinate to government. Here, the norm is for government to recognize the importance and correlation of resilience alongside military security, adopting an integrated approach when addressing civil contingencies. In the U.K., the principal military raison d'être remains that of responding to armed threats, but its wider role of responding to civil crises and emergencies has become legally enshrined. For example, in January 2021, the Johnson government formally requested operational deployment of over 5,000 of Her Majesty's regular and reservist military personnel in support of the COVID-19 response, representing the country's biggest peacetime home operation [Whipple (2021)]. Army, naval, and air-force personnel were assigned to three principal fields of operation: testing, including working with schools and establishing testing sites for British and Continental hauliers crossing the English Channel; vaccine, involving not only delivery but also the use of military medics to administer the vaccine; and logistics, with over 200 military planners poised to assist with organizational and logistical problems as the vaccine program expands [Whipple (2021)].

The professionalism the armed forces display in the performance of their duties against a wide diversity of threats is explained by the inherent nature of the military, including discipline, rigorous training, a "can-do" mentality, and the dynamics of feeding back accumulated operational experience to continuously refine and improve resilience strategies. Yet, in effectively fulfilling operational responsibilities, a common hurdle all militaries face is the adequacy of resourcing. The U.K. Ministry of Defence, for example, is planning to spend £183.6bn in the next decade, but is already £2.9bn over budget, and if all the identifiable risks materialize, then the budgetary shortfall in the 2019 to 2029 equipment plan would balloon to £13bn [Sabbagh (2020)]. Under such an eventuality, costs will necessarily have to be tailored to secure budgetary balance, and inevitably civil-military capabilities will be negatively affected. However, a responsible and prudent budgetary process is not simply about cutting costs, it also concerns managing scarce defense resources more efficiently. In pursuit of this goal, the U.K. military has acknowledged the need to borrow best practice commercial techniques from the business community.

4. CORPORATE FINANCIAL RESILIENCE: LESSONS FOR THE MILITARY

The military's conventional cash accounting approach has been to receive the annual parliamentary-voted defense budget and then to spend it. Since the beginning of the millennium, however, unrelenting funding pressures have heralded the need for a smarter financial model. Funding sources were, and continue to be, stretched due to increasingly complex, R&D-intensive, and hence, expensive weapons systems. Acquisition cost escalation is compounded by the reluctance of public opinion to commit to the associated high opportunity cost of increased defense spending given what is arguably a benign strategic environment. As a result, most advanced military states have extensively reformed their defense finance systems to closely control, monitor, and plan expenditure. Commercial financial and management methodologies have been applied to defense, though invariably adapted to suit the unique environment in which the military operates. The U.K. Ministry of Defence has launched several financial reforms, including devolved budgeting and what has come to be called the "business case". The latter is a management tool that the Ministry of Defence uses to support decision-making on competing military investment opportunities [MoD (2014)]. This is deemed essential because the Ministry of Defence spends huge amounts of its defense budget (£37 billion in 2019-20) on investment opportunities (£12.7 billion), and rigorous financial appraisal, employing discounted cash flow techniques, is required to ensure that it makes best use of its limited resources [MoD (2020)]. Two other commercial financial methodologies have been transplanted into an alien public sector and are examined in greater detail. The first, "resource accounting and budgeting", has proved to be a valuable performance instrument for the Ministry of Defence, while the second, the "defense" balanced scorecard, was found to be ill-suited to the unique demands of the military context.

4.1 Resource accounting and budgeting

When it comes to reporting financial transactions in defense, there are two methods: one is traditional cash-based and the other is accruals-based accounting. Cash accounting is simple, but came at a cost, i.e., there is no recognition of assets and liabilities. For instance, committed future expenditures, such as lease payments and nuclear decommissioning costs, were not recorded as liabilities. The cash regime records them as expenditures only when payments are actually made at some point in the future. Due to this, and other weaknesses, the interests of (future) taxpayers were not accurately represented via the traditional public sector cash accounting system. This downside of cash accounting was recognized by the U.K. Government in the 1990s, when dramatic declines in the quality and quantity of public sector assets became apparent [HM Treasury (2001)]. It was felt that better cost accounting information was needed to reverse this trend, and, accordingly, the government adopted the accruals accounting system across the public sector, formerly the preserve of the business community [Heald (2005)]. The public version of accruals was called "resource accounting and budgeting" (RAB). The Ministry of Defence adopted RAB in two stages. The first, spanned three years, from 1998 to 2001, with the Ministry of Defence producing both cash-based and RAB-based financial accounts. The second, from 2002 onwards, was reflected by the Ministry of Defence abandoning cash-based accounting altogether and using only RAB-based accounts [Heald (2005)]. The three-year transition period allowed the Ministry of Defence to train staff in accruals accounting, seeking to overcome any teething problems that the new system created. The adoption of RAB in the Ministry of Defence was more than just a technical switch from cash to accruals, it also required a change in cultural mindset, from a narrow cash lens to an all-inclusive view of financial transactions.

Under RAB, the full consequences of economic activities are accountable, enabling more accurate financial reporting. The underlying principle of RAB is that the Ministry of Defence records defense expenditures not when payments are made but when benefits from expenditures are received. This offers superiority over the cash regime in that liabilities are recognized and hence the interests of (future) taxpayers are more accurately presented. RAB also offered not just transparency but finer granularity of defense outlay. For instance, on publication of the first stand-alone RAB Report (2001-02), the Ministry of Defence discovered that its use of external consultants cost more at £559mn than the £465mn bill for the Royal Marines [MoD (2002)]. Moreover, RAB rightly makes a distinction between current and capital defense expenditures (assets); something which the cash regime failed to do. For example, the Ministry of Defence's assets, including warships, submarines, main battle tanks, and fighter aircraft, suddenly became subject to depreciation charges to reflect the cost of benefits received from the assets over their lives. This meant that for the first time, the Ministry of Defence had become incentivized to make optimal use of its assets, and to dispose of idle assets since holding would incur depreciation charges. In 2019, these charges accounted for about 15 percent of the Ministry of Defence's annual expenditures [MoD (2020)].

As in business, depreciation charges on Ministry of Defence assets may promote inappropriate behavior through seeking short-term gains against longer-term losses. Thus, when the defense budget is tight, it may be tempting to dispose of defense assets (to save depreciation charges) only to be bought later, when strategic circumstances change, at much higher costs than before. Additionally, depreciation charges are based on financial values of assets, which are easier to determine in a business context than when faced with a military threat. The value of business assets can be determined by market price. However, due to the unique nature of specialized military hardware, an active primary and secondary market is constrained. Hence, defense depreciation charges for such assets are based on estimates and may be flawed. Moreover, research and development (R&D) costs, representing a significant component of defense budgets, can either be classed as current or capital expenditure. The consequences of this classification on the defense budget and the Ministry of Defence's annual accounts are profound. In the absence of defined rules on how Ministry of Defence financial transactions are reported, consistency over time and comparability of RAB-based financial information become challenging. Commercial organizations face the same challenge, but mature accounting standards have overcome the problem by forcing businesses to report financial transactions.

4.2 The defense balanced scorecard

One way of improving business performance is by measuring and monitoring a wide range of organizational goals, beyond those solely financial. Yet, the greater the number of business goals, the greater the danger of information overload, and hence managerial complexity. A way round this problem is the adoption of the "balanced scorecard" framework developed by Kaplan and Norton almost three decades ago [Kaplan and Norton (1992)]. This strategic management tool enables top management to obtain a quick and comprehensive view of business performance in meeting a range of performance targets. As the name suggests, the balance scorecard forces management to take a balanced focus on four important and complementary metrics to ensure that the business remains on track to success. The scorecard is a living document, reviewed regularly, to provide confidence that management efforts are in sync with the dynamic and constantly evolving commercial environment. The military environment is equally uncertain and laced with arguably even greater risk. Indeed, in the 1990s the U.K. Ministry of Defence was reportedly monitoring over 100 strategic objectives, but with performance reports neither timely nor robust for accurate decision-making [NAO (2001)]. As a consequence, the Ministry of Defence introduced a tailored version of the balanced scorecard to improve defense performance management. The "defense balanced scorecard" (DBSC) was born, such that Kaplan and Norton's four performance parameters (financial, internal process, customer, and organizational capacity) were mapped across to the Ministry of Defence's top four strategic objectives: 1) purpose, overcoming current challenges and being ready for tomorrow's tasks; 2) enabling processes, transforming the Ministry of Defence into a high-performing organization; 3) future capabilities, building for future success; and 4) resources, ensuring that defense resources are optimally used.

The DBSC enabled the Ministry of Defence to monitor past, current, and future performance against 16 metrics gauging progress towards achieving the strategic objectives [NAO (2001)]. Performance against each of the objectives was analyzed on a quarterly basis to inform and enable the Ministry of Defence to make adjustments to strategic direction, military priorities, and consequent resource reallocation. In the early years, the Ministry of Defence hailed the DBSC a success story [MoD (2004)]. Despite this positive endorsement, the scorecard exhibited weaknesses. For example, the Ministry of Defence's outputs (such as war operations) were the result of joint efforts with other departments. In such circumstances, deciding on the proportion of outcomes derived as a direct result of Ministry of Defence efforts proved problematical [Tomlyn (2005)]. Moreover, it was discovered that tactical consequences from tactical actions failed to feature in the DBSC, since the latter only measured performance and impact at the strategic level [Tomlyn (2005)]. Tellingly, while the DBSC served its purpose in peace time, it did not provide an easy performance management "fit" in war, as evidenced during the U.K. military's intense Iraqi and Afghanistan operational engagements by regular and counter-insurgency forces [Taylor (2012)]. The Ministry of Defence's principal focus was on the success, or lack of it, in these campaigns, and the search for appropriate performance metrics proved distractingly elusive, especially when accommodating assessments of combat deaths and casualties.[1] The revealed weaknesses in measuring military operational performance sealed the defense scorecard's fate, and after almost a decade of use, it was abandoned in 2010.

[1] E-mail correspondence with Professor Trevor Taylor, February 4, 2021.

Table 1: Components of fighting power

COMPONENT TYPE	PURPOSE	ATTRIBUTES
Physical component	The means to fight	Manpower, equipment, training and collective performance, sustainability, and resources.
Conceptual component	How to fight	An understanding of how to operate, including the flexibility to adapt.
Moral component	How to get subordinates to fight	Morale, leadership, and ethical foundation.

Source: British Army Doctrine Land Operations (2017)

Note: High morale enables the land force to fight and overcome the privations of conflict. Moral cohesion contributes to this success, providing a sense of shared identity and purpose that binds individuals into teams, and teams into effective fighting forces. Moral cohesion is sustained by shared values and standards that guide the actions of every soldier.

5. MILITARY OPERATIONAL RESILIENCE: LESSONS FOR BUSINESS

Military preparedness aims to deter and defeat hostile threats to the country's territorial integrity and national interests. Combat, however, often occurs in what is described as the "fog of war", where lines of communication are nonexistent and command and control, reconnaissance, surveillance, and intelligence are severely impaired. This means that the battlefield environment is volatile, uncertain, complex, and ambiguous (VUCA) [Nindl et al. (2018)]. It is not only the military "teeth-end" that is impacted, but also the important support infrastructure. Military operational resilience must, therefore, embrace IT systems, logistics, supply chain, and people skills, reflecting the softer elements of what the military refer to as "left of bang" requirements [Roepke et al. (2019)]. The Armed Forces are trained to respond to hostile and unpredictable events, and hence offer lessons for the strengthening of business resilience in the face unpredictable multi-threat scenarios, often under similar VUCA-type conditions. In this regard, several lessons stand out, including the absolute commitment to defeat the enemy through military fighting power, the role of delegated authority to foster flexibility, adaptability, and creativity, and the continuous pursuit of rigorous and dynamic planning in response to the one constant, change.

5.1 Fighting power

The resilience of the British Army is held to be the foundation of its capabilities. It exists primarily to fight and win battles, driven by the realization that there are no prizes for coming second. Thus, the Army holds a preoccupation with training to win, though, in the event of failure, to also brutally analyze what went wrong. This "resilience" is articulated in terms of structure and agency and is embodied in the Army's Doctrine Land Operations (2017). The Doctrine determines output to be "fighting power", which is comparable to a business' end-product, in the sense of representing the culmination of design and raw material conversion through manufacturing processes. A similar comparison can also be drawn with the lexicon of business, which borrows extensively from the military. Indeed, some authors have gone so far as to argue that the influx of military terms into everyday business usage, such as "campaigns", "conflicts", "targeting", "price wars", and "hostile takeovers", is not so much about exploiting the power of metaphors or similes in the competitive battle being waged, but rather as a symbolic expression of the psychological emasculation executives feel from not having served in the military [Mellor (2018)].

The military's fighting power constitutes both real (physical) and ethereal (conceptual and moral) components. The subtle blending together of each of these components provides a helpful intellectual mosaic for analyzing the character and success of both military and commercial organizations. Fighting power can be decomposed into its respective aims and attributes, as shown in Table 1. While each of the three components is crucial to the generation of fighting power, the primary component or secret ingredient that gives the Army, and arguably commercial entities, the edge, representing the foundation of its resilience, is the "force multiplier" moral component. As Napoleon Bonaparte once famously stated: "In war, three-quarters turns on personal character and relations; the balance of manpower and materials counts only for the remaining quarter" and further specified as: "in war the moral-is-to-the-physical as three-is-to-one" [Bonaparte (1808)]. Consequently, it is the moral component of a military force that most occupies its leaders, followed by the conceptual and the physical. In the British Army, as in all other armies, including that of the U.S., it is the physical component that devours

most of the defense budget, but paradoxically is the least-best resourced. Accordingly, British soldiers take comfort and inspiration in equal measure from Napoleon's wisdom. The conceptual and moral components of fighting power constitute the building blocks of military operational resilience but would be ineffective in the absence of inspirational leadership and rigorous planning. Combined, these factors might also provide the managerial apparatus for invigorating the culture of a business driven by the search for competitive success.

The military views fighting power, distributed leadership, and planning as vital for tactical and strategic success, and in this sense, the military is ahead of business in the development of resilience to address unforeseen events. As in the military, so it should be in business. The moral responsibility of everyone is not to just work hard, but to secure the overarching mission through unity in commitment and purpose.

5.2 Distributed leadership

The overarching leadership philosophy employed by the British Army is called "mission command", supporting both the moral and conceptual components. It was designed and deployed in the 1980s to enable rapid decision making in order to seize the initiative in the fluid and complex battles anticipated from a Soviet invasion of Western Europe. Mission command was based on the German command philosophy of Auftragstaktik (mission tactics), a mainstay of tactics since Germany's ignoble defeat by Napoleon in the 19th Century. Indeed, the philosophy was exemplified in the Blitzkrieg operations conducted with astonishing speed and military force during the opening phase of WWII operations in Poland, Norway, Belgium, Holland, and France. The British Army's use and adaption of Auftragstaktik led to a refocus from the plan for battle and centralized control, institutionalized by General Montgomery, to, instead, an emphasis on achieving the mission or aim. Importantly, the initial plan would be extemporized to suit changing events at all levels of command with coherence achieved through an absolute responsibility on achieving the intent of the senior commander.

The guiding principles of mission command are threefold. Firstly, the absolute responsibility to achieve the superior commander's intent through unity of effort. The "absolute responsibility to achieve the superior commander's intent" underscores the ingrained sense of selfless commitment to the mission that characterizes the British Army's approach. It is sometimes called the "can do attitude", though possibly more appropriately described as the "will to do attitude". This can/will do attitude is underscored and reinforced by the moral component of fighting power: morale, leadership, and ethical foundation. Secondly, is the need for freedom of action within specified and implied constraints. While frontline commanders are given clear objectives, they are also allowed a generous amount of freedom in order to achieve them. In fact, the ideal command structure is not a rigid hierarchy but a sphere where the core sets the culture and the parts of the

Table 2: The Estimate

STAGES	TASK	PROCESS
1	Mission analysis	What must be achieved, and what are the constraints of action? The central question of "mission analysis" is "has the situation changed" and this is asked and re-asked throughout the Estimate, and during the execution of the plan. If, at any time, the answer is yes, then all previous planning may be nugatory. Inculcating this questioning mindset into military personnel is a critical element of British army resilience and capability.
2	Evaluation of factors	This process refers to the systematic and repetitive assessment of strategic variables impacting on the "situation", covering the spectrum from the nature of the enemy, environmental considerations (including ground and weather), support from friendly forces (including logistical), tactical surprise, security and time boundaries, to softer considerations, such as softer diplomatic and politico-economic influences as well as informational flow and media constraints, including the omnipresent public relations CNN factor.
3	Consideration of courses of action (COA)	The essentiality of constituting a diverse planning group to identify and explore the range of operationally viable courses of actions and analyzing their advantages and disadvantages in relation to the mission. Importantly, the most promising courses of actions are "war gamed" or "red teamed" to determine the resources required and risks involved.
4	Commander's decision	This is the logical result of the Estimate, whereby the commander decides, or develops, one of the courses of actions in comparison with the opposing force's likely course of action. The decision constitutes the basic directive that guides the planning of future actions. The questioning incorporated into the mission analysis as to whether the situation has changed, continues to be asked.

Source: Land Operations (2017, Annex 8B)

organization at the edge are free to react to events outside them: centralized command and decentralized execution [The Economist (2020)]. The principles of mission command are a tried and tested British Army variant of what the leadership literature describes as "distributed leadership". While the mission aim is all consuming, commanders are expected to demonstrate flexibility and adaptability in decision-making. An evolutionary process exhorted by Charles Darwin and Leon Megginson, who famously showed that the species best able to adapt and adjust to a changing environment is the species that will prevail, not the strongest nor most intellectual [Nindl et al. (2018)]. Thirdly, is the crucial importance attached to trust, mutual understanding, and timely and effective decision-making.

The lesson for business is clear: while it is essential to understand the leader's intent, creativity should be encouraged and viewed as a learning process, knowing that failure will not be rewarded, but nor will it be penalized. Trust is vital, where, in any caring organization, diversity is encouraged, with the message that people matter communicated unequivocally through clear and unambiguous signaling. Sun Tzu, the revered Chinese military strategist, endorsed this approach when he wrote over 2,000 years ago "regard your soldiers as your children, and they will follow you into the deepest valleys" [Caballero (2020)].

5.3 Targeted planning

The final dimension of the "business-battle space" model is planning. The British Army's planning tool designed to exploit military capability and strengthen resilience is called the "Estimate", being used as the "formal" estimate when time is sufficient, or as the "combat" estimate when time is pressing. The Estimate's philosophical approach derives directly from Helmuth von Moltke (Chief of the Prussian General Staff, 1871-1888). He is regarded as the father of the previously mentioned Auftragstaktik – a command system based on the premise, famously articulated by Moltke in 1880, that "no plan of operations extends with any certainty beyond the first contact with the main hostile force" [Moltke (1880)]. Flexibility and adaptability are sine qua non for success, and in this respect the military are ahead of business in how it delegates and factors in contingencies for unforeseen events [The Economist (2021)]. A similar sentiment was echoed in 1950 by U.S. President Dwight D. Eisenhower, who, drawing upon his experiences as a soldier, opined: "Plans are nothing; planning is everything" [Galambos (1984)]. Thus, the Estimate, whether formal or combat/tactical, enables actions to begin, based on an "estimate of the situation" at the time, and leads to a course of action (plan). The Estimate broadly consists of four stages, as outlined in Table 2.

The Estimate represents both a guidance methodology and an intellectual exercise, especially at the middle (operational) or higher (strategic) levels, but also applicable at the lower (tactical) level. It engages with what is referred to as a "center of gravity analysis", defined as the bundle of characteristics, capabilities, or localities from which a nation, an alliance, a military force, or other grouping derives its freedom of action, physical strength, or will to fight. The military planner seeks to protect its own center of gravity whilst trying to unbalance or destroy that of the opposition. The significance of this military contest is symbolized by an interchange between U.S. Colonel Harry Summers and a senior North Vietnamese officer, General Vo Nguyen Giap: the former stating: "You know, you never defeated us on the battlefield," and the latter responding, "While that is true, it is also irrelevant" [Summers (1981)]. The Americans did not protect their own center of gravity (will of the people), which ultimately led to Washington withdrawing from Vietnam. For the Americans, the progress of the war might be characterized as a series of Pyrrhic victories,[2] but for the Vietnamese, it was more about astutely identifying that the war's center of gravity was the will of the two populations to withstand human loss.

While the importance of planning is recognized by both the military and business, companies have recently become over-enamored with the concept of predictive analytics, trying to make precise forecasts about the direction of markets. Instead, they should engage in wargaming, because the greater the focus on hypotheticals, the less space there is for "unknown unknowns". Senior managers need to relinquish authority and allow juniors to make decisions. Companies should encourage those at the sharp end of the business to be flexible, adaptive, and responsive. In a crisis, companies that have invested in building up leaders at the lowest ranks of the organization are more likely to survive and (ultimately) prosper. In business, as in conflict, it is not the generals who carry the burden of war; it is the troops [The Economist (2020)].

[2] Coined to reflect the victories of Pyrrhus, king of Epirus, which were gained only at the expense of suffering heavy losses in defeating the Romans at Asculum in Apulia in 279 BC.

6. CONCLUSION

The military's interpretation of operational resilience focuses on two elements within national security. The first is concerned with "traditional" security, aimed at protecting the country's sovereignty and territorial integrity. The second centers on "non-traditional" security, where the armed forces contribute expertise and resources in support of the civilian authorities to address wider economic, health, and natural threats. The military deals in uncertainty, engaging in wargaming of differing strategic scenarios, while businesses are pre-occupied with constructing risk and probability models in the elusive search for precise forecasts of future uncertain events. The military is ahead of business in how it trains, devolves, and plans for unforeseen events, nurturing the ethereal components of self-respect, confidence, and a "can-do" culture. The military operates a rigid hierarchical authority system, but while the "mission aim" flows down to front-line commanders, they are nevertheless empowered to use their initiative, and be creative in securing tactical objectives. Military operational resilience is built around flexibility and adaptability, representing the very same Darwinian determinants highlighted as critical for species' survivability when encountering dynamic and uncertain environments. The military seek to engender inclusivity, whereby all service personnel, irrespective of rank, race, gender, and religion, are granted equal opportunity to fight and face the ultimate sacrifice for their regiment and country. There are lessons here for business, not least the need to encroach further into the business-battle space and emulate the key attributes of military operational resilience.



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