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Preserving combat power when defense budgets are falling

Defense ministries can cope with austerity. Here's how.

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Across the Western world, defense budgets are undergoing substantial and far-reaching cuts. In most countries, the approach taken to effect these cuts has been to reduce the capabilities of armed forces: fewer military personnel, fewer weapons systems, and delayed modernization. But another approach, increasing productivity in defense, could achieve the substantial savings needed while also protecting combat power.

This article outlines the extent of recent defense budget cuts across the developed world and the challenge of making these cuts: as budgets have large fixed costs, even relatively small reductions lead to sizable cuts to military capability. The article presents a potential solution through which governments can increase defense productivity to reduce costs without cutting capability, using three primary levers: ensuring that forces are aligned with national military strategy, capturing functional efficiencies in all areas of spend, and reducing noncombat personnel. Collectively, these opportunities could potentially save 10 to 20 percent of total military budgets (excluding pension costs)—without reducing capability.

Austerity and its impact on defense budgets

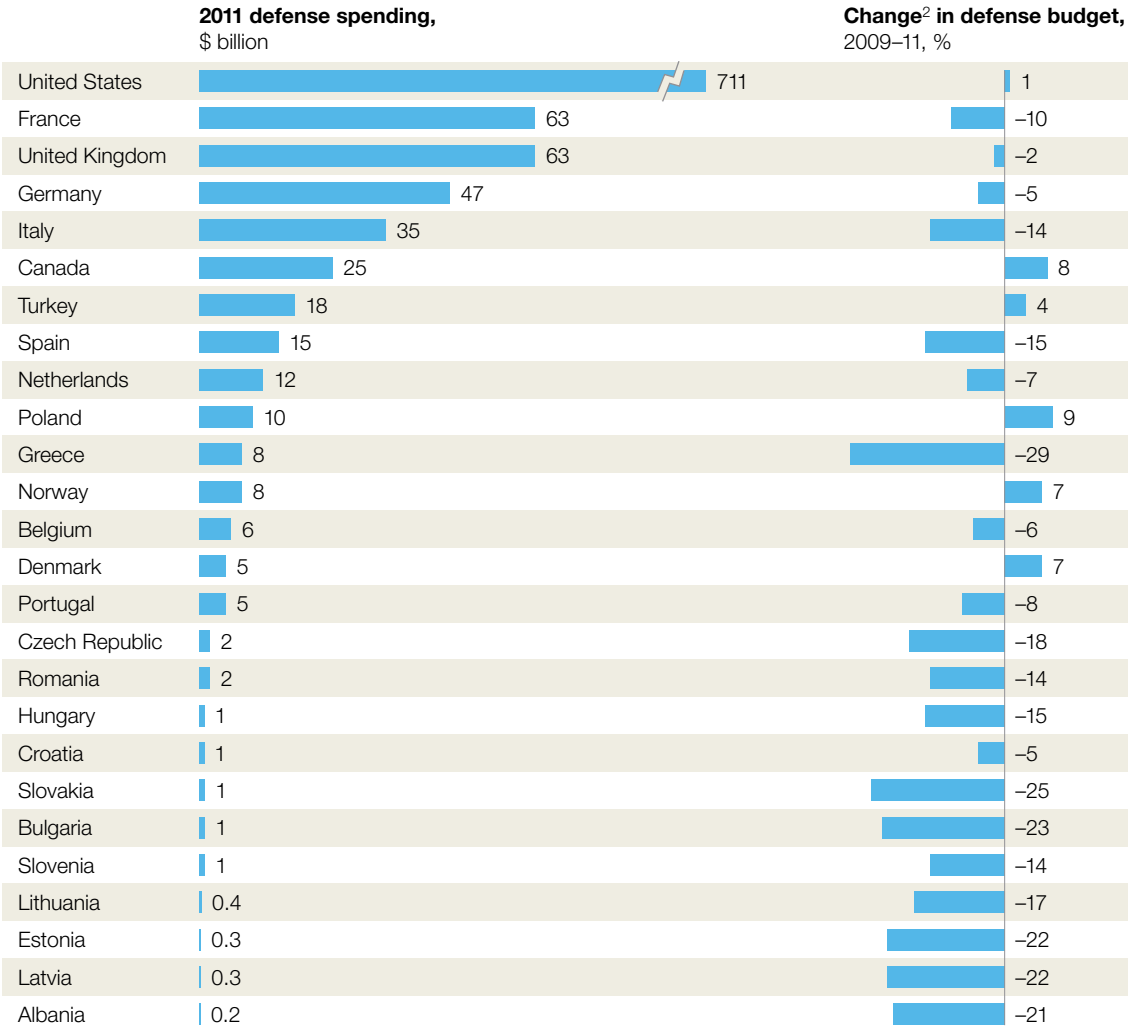
In managing their budgets, even in times of plenty, defense ministries face two parallel

tensions: the need to enhance military capability despite the state's competing needs to meet social and fiscal priorities, and the rapid inflation rate of the already high cost of modern military technology.

Added to these perennial tensions is a new challenge: governments have to reduce spending to balance budgets, reduce debt, and address rising health and welfare costs as populations age during a prolonged period of low growth, if not

Exhibit 1

From 2009 to 2011, NATO countries[1] have slashed budgets.



[1]North Atlantic Treaty Organization; excludes Iceland and Luxembourg due to lack of data.
[2]Constant 2010 dollars.

Source: Stockholm International Peace Research Institute

Previous periods of austerity came in times of peace. This time, we have austerity without peace, with conflicts hot and cold continuing in many parts of the world.

outright recession. Across the Western world, governments are grappling with the challenges of debt overhang, recession, and changing priorities—with recent economic news suggesting that full recovery is still elusive.

Governments facing budget challenges have universally responded to the challenge of austerity by cutting defense budgets, among others. For example, two-thirds of European countries have cut their defense spending since 2008, many by 10 percent or more. Regardless of the outcome of sequestration, committed US defense cuts of $487 billion over the next ten years represent an 8 percent reduction in spending.

Exhibit 1 shows the scale of the cuts that have already been made by the United States and other North Atlantic Treaty Organization (NATO) countries. The US budget is essentially flat, while the rest of NATO is down 6 percent from the peak—and there are more reductions to come. Countries are undertaking a range of actions to address the funding gap:

- *Realigning defense strategy with economic capacity.* The United States has reduced its aspiration from being able to fight two major wars simultaneously to being capable of defeating a major act of aggression in one theater while denying the objectives of—or imposing unacceptable costs on—an opportunistic aggressor in a second theater.

- *Reducing numbers of combat formations.* The United Kingdom has reduced its surface fleet of 23 destroyers and frigates to 19, and plans to reduce its army by one-fifth to 82,000 personnel; Germany plans to reduce its armed forces from 250,000 to 185,000.

- *Canceling new-equipment programs.* Germany has indicated that it will cancel its order of tranche 3B Eurofighter jets; the United States has cut some planned equipment programs, including those for the Medium Extended Air Defense System and the high-mobility multipurpose wheeled vehicle, or Humvee. Other programs, including the Ground Combat Vehicle, will likely be restructured.

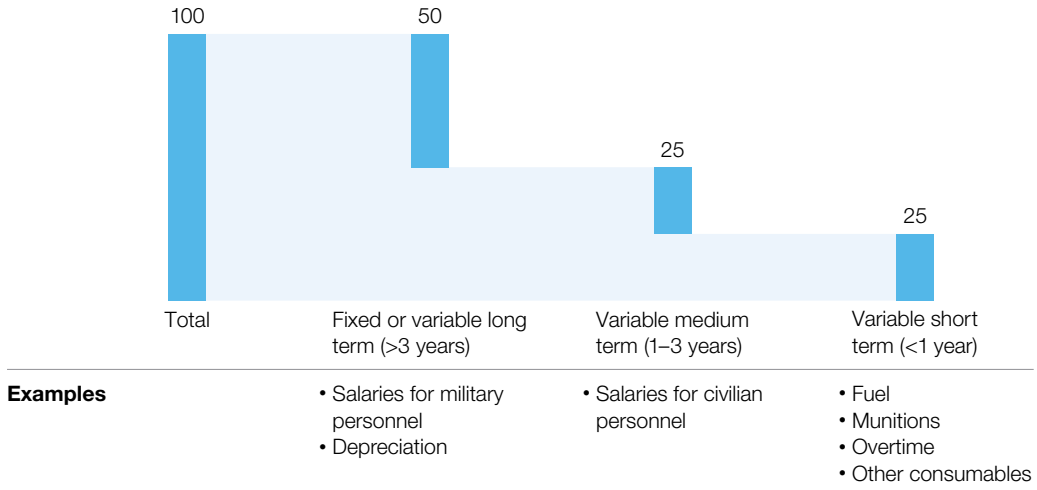
- *Retrenching from forward outposts.* The United States has indicated that it will dramatically reduce troops in Europe, including a 25 percent reduction in Army personnel; the United Kingdom will recall its armored division from Germany.

To be sure, this is not the first time that budgets have been slashed: US defense spending, for

Exhibit 2

Only a small portion of defense spending is variable in the short term.

Typical components of defense budget, %



Source: McKinsey global defense benchmarks

example, has been fairly cyclical, with roughly 20 years between peak and trough (see "Managing a downturn: How the US defense industry can learn from its past," on mckinsey.com). But one new feature is worth noting. Previous periods of austerity came in times of peace—the end of the Korean War, the end of the Vietnam War, the end of the Cold War. This time, we have austerity without peace; the withdrawals from Iraq and Afghanistan are not accompanied by peace, conflicts hot and cold continue in many parts of the world (for example, in the Korean peninsula), and new conflagrations flare up routinely (as in Mali and Syria). For militaries around the world, this is not austerity of choice, or the austerity that comes with recuperation after outsize commitments are ended; in fact, there is a massive need to invest to reinstate equipment worn out from Iraq and Afghanistan. Instead it is austerity driven by national financial imperatives.

When budgets are cut, there is a proportionately greater reduction in investment, resulting from the underlying structure of defense budgeting and the flexibility available to achieve reductions. McKinsey's analysis of defense spending across more than 30 countries shows that defense budgets commonly have a large fixed component (Exhibit 2), with only one quarter of the budget flexible in the short term—typically the costs of training and spare parts. When governments need to save money, they naturally and instinctively look first at these short-term variable costs, and then at reductions in force structure and cancellations of equipment programs. Both seem straightforward and guaranteed to save money.

However, cuts in training and maintenance tend to be ineffective; there isn't enough spending to deliver the savings, and the cuts result in a force that is less effective than it was before. Over the long term, such cuts "hollow out" a force, leaving it incapable of delivering combat power when needed.

And cutting force structures is inefficient. Although cutting a unit typically saves the cost of personnel, their training, and their equipment maintenance, there is substantial investment in infrastructure and equipment that is simply lost. While it is possible to sell unwanted military equipment, the returns are often small. It is also typically the case that the headquarters and support functions shrink more slowly than the frontline units—partly due to organizational inertia (the people deciding on cuts are rarely those at the front line) and partly due to the loss of genuine economies of scale.

Similarly, canceling or reducing the scope of equipment projects once they are under way does not save as much as governments hope. The cost of a combat aircraft, such as an F-22, includes the one-time development costs spread across all of the aircraft to be purchased. For the United States, the total R&D costs of the F-22 came to about $32 billion. If the program is canceled

Exhibit 3

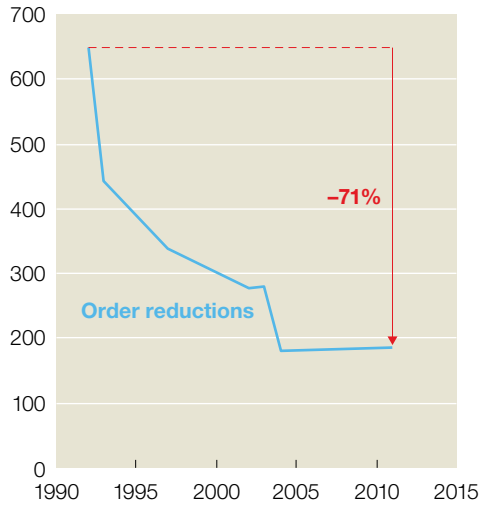
Cuts in volume lead to higher costs, which lead to canceled orders—the infamous 'death spiral.'

Over the past 20 years, F-22 unit costs have risen dramatically…

F-22 unit cost, $ million, constant 2010

…leading to order reductions that further drive up costs

Number of planned F-22s, aircraft



Source: Teal Group Corporation; *Defense Industry Daily*; selected acquisition reports, US Government Accountability Office; press search

prior to full production that money is lost entirely. If the number of aircraft is reduced, development costs are spread across fewer aircraft, thereby increasing the cost per plane. This is the infamous "death spiral" that afflicts military-equipment acquisition. Exhibit 3 shows how the rising costs of F-22 aircraft since the early 1990s led to reductions in orders, which in turn further drove up unit costs.

Simply cutting frontline units is, paradoxically, a costly way of cutting costs. But there is a better way. McKinsey's work on defense budgeting and understanding the cost of military capabilities, on achieving efficiencies in support activities, and on military restructuring shows that there is a broader range of choices. Our benchmarking[1] reveals huge differences in efficiency and effectiveness across armed forces, and this in turn suggests that there are many options available to political and military leaders beyond cutting force structure.

Defense ministries and armed forces have found that savings of 10 percent of the total budget (excluding pensions) are achievable, and in some cases the opportunity can exceed 20 percent. Furthermore, the benefit is double: because they focus on eliminating waste and complexity, these types of savings, rather than reducing combat power, actually improve readiness, flexibility, and military capability. This is a message that all stakeholders want to hear: more effective, more responsive, less expensive military capabilities are possible, if defense ministries work through a series of approaches to realize savings before they cut essentials like training, maintenance, and especially combat power.

The rest of this article will examine three sources of potential savings, looking at examples from several countries: strategic realignment (which in the most extreme cases can save 50 percent of operating costs for affected equipment), functional efficiency (which can save from 10 to 30 percent of relevant spending), and noncombat-personnel reduction (which is typically 15 to 20 percent).

Realign strategies

In addition to resetting strategy, shrinking forces, and canceling programs, governments have been redefining what they want from their military forces by lowering the demands on the remaining forces. But too often forces have not adjusted to these changed requirements quickly enough. Simply put, having forces that are more capable or more ready than policy guidance demands is wasteful and comes at the cost of force structure, investment, or readiness.

Clarifying the true requirement of the military. As noted, as countries redefine what their armed forces are expected to be ready for, they are reexamining their strategic posture. This reexamination typically happens following major geopolitical changes, such as after the end of the Cold War and again after 9/11—for example, in the United Kingdom, with the Strategic Defence Review (SDR) in 1998 and SDR: A New Chapter in 2002. Most recently, the United Kingdom conducted the Strategic Defence and Security Review in 2010. Other countries, such as the United States, examine their requirements on a regular cycle (as in the Quadrennial Defense Review) but also look more broadly when circumstances require it, such as in the US defense department's defense strategy review in 2012.[2] Likewise, France is revisiting its white paper on national defense and security, which was last reviewed by the government of President

Nicolas Sarkozy after his election in 2007, and Germany has recently completed a comprehensive review of its defense strategy.

However, change in broad government policy often takes far too long before it is translated into detailed expectations for individual units. For instance, the layout of military bases in some European countries is still designed for redundancy in case of attack by the erstwhile Soviet Union. One example of adapting to changed requirements came about when the United Kingdom moved to prepare for "most likely" rather than "worst case" scenarios. This reduced its need for dispersed airbases, allowing it to scale back its aircraft support infrastructure. "Depth repairs" are now conducted at a single location—Royal Air Force (RAF) Marham for Tornado aircraft and RAF Cottesmore for Harrier aircraft—and now only "forward repairs" are made at operational squadrons.[3] As a result, along with a number of other changes, the cost of operating Tornado aircraft was halved. But many countries have not made the adjustment across all areas to adapt to new requirements and policies.

Adapting forces to the changing demands of government policy requires first ensuring that the strategic direction is clear, and then converting the strategic direction into specific and detailed requirements for personnel training, equipment, logistics support, maintenance, stock holdings, and infrastructure at the level of individual units. Based on this, a plan can be developed for adapting each capability and for the force as a whole, thereby releasing no-longer-needed resources.

Moving to different readiness profiles. Budgeting for defense is a real challenge for both ministries of defense and treasuries, as it is hard to connect budget levels to military outputs—to a large extent because it is hard to quantify military outputs. Individual capabilities (for example, antisubmarine warfare) are often considered to be all or nothing: either you maintain the capability or you abandon it completely. However this is not truly the case: militaries can adopt any of several readiness profiles, from very high readiness (for example, deployable in minutes or hours) to complete mothballing, with years required to return to full readiness.

By creating defined readiness levels and understanding in detail the implications of moving from one level to another for each force element, it is possible to create a much more open debate and a much more flexible defense budget. In the most extreme case, countries such as Switzerland and Israel that depend heavily on reserves for the bulk of their combat power are able to make personnel flexible while reducing the life-cycle cost of equipment by keeping it in humidity-controlled storage (thus avoiding rust and slowing down the frequency with which it needs to be maintained). The United Kingdom has adopted a variant of this approach called whole-fleet management, in which training and operational fleets are separated, with the operational fleet maintained as a reserve fleet.

Unlocking cross-service efficiencies. Procurement, logistics, IT, and administrative support share many commonalities, across the services. To benefit from these commonalities many militaries have moved to create single cross-service organizations. Prominent examples include the Defense Logistics Agency in the United States, Defence Equipment and Support in

the United Kingdom, the Defence Acquisition and Logistics Organization in Denmark, and the Defence Materiel Organisation in Australia. The benefits of these cross-service groups stem not only from economies of scale but also from economies of skill—more capable and specialized functions are often both more efficient and more effective. Some countries have not taken such steps yet—sometimes from fear of change or inertia, sometimes because high levels of threat and military activity make it hard to take the risk of such major change, and sometimes because the funding and authority structure creates powerful incentives for keeping fully integrated individual services.

The scale of the opportunity is enormous. The UK Defence Logistics Organisation set a goal to reduce costs by 20 percent while maintaining output, a target reached as promised within five years. However, in this case as in others, simply creating a combined organization did not deliver all of the savings. It required concerted effort to rationalize processes, develop skills, and drive out duplication.

Improve functional efficiency

Armed forces have many support functions similar to those in commercial companies, and many of the tools of operational excellence developed in the private sector are both applicable and proven in the military arena. Three of these are discussed below.

Improving non-equipment procurement. An earlier article, in *McKinsey on Government*'s first special issue on defense,[4] added up the "big savings from little things" and explained how defense ministries can save up to 20 percent in non-equipment procurement—a category that typically accounts for 25 to 40 percent of the whole budget. Thus, better procurement of these items can provide up to 3 to 4 percent savings on the total budget.

Keeping the forces supplied with food, water, and fuel, paying rent and utilities costs, and carrying out maintenance and similar activities consumes the majority of the procurement spending of most armed forces. Those forces that have made a substantial effort to manage this spending while maintaining quality have achieved savings of between 12 and 20 percent. Even more important, these savings can be achieved without substantial personnel changes or disruption and often within, or with relatively small changes to, the existing organizational structures.

One best practice in defense ministries and armed forces is to move away from a narrow view of procurement focused on commercial contract negotiation and toward a "category management" approach that encompasses all aspects of the management of a group of similar purchased goods. In Israel, the Israeli Defense Forces and the Israeli Ministry of Defense have recently begun to work in integrated procurement teams, with each team taking full accountability for a category.

The work of category managers is driven from initial requirements and addresses five aspects of managing the category: detailed specifications—often the best way to achieve savings is by reducing "gold plating"; quantity—for example, many ministries buy too many high-end personal weapons compared with the numbers of troops eligible to receive them, as basic weapons will suffice for many troops; order size—many ministries err by buying multiple small batches rather than the true required number for a year or multiple years; negotiations with suppliers on price and contract terms; and the management of stocks, storage, and distribution after purchase. In many cases, category management also involves make-versus-buy decisions.

In Israel, the defense ministry's procurement initiative has targeted annual savings of 2 percent of the defense budget. Its cross-functional category-management teams are structured to ensure that best practices are embedded, and the teams are held accountable to the chain of command, so that improvement is sustained over time. Implementation is under way and has already delivered substantial savings.

Streamlining end-to-end logistics. The support of equipment and personnel, through supply chains and maintenance capabilities, is an area of substantial cost that presents a significant opportunity for efficiency improvements. Logistics often have a complex mixture of third-party arrangements for support, along with military and civilian staff. The field is also complicated by the increasing technological complexity of much military equipment, and the concomitant rise in costs to maintain it.

Many militaries have made substantial changes to their forces and how they operate, while the logistics to support those forces has remained largely unchanged. Others have highly inefficient maintenance processes and suboptimal stock management, warehousing, and distribution. Yet others have made commercial arrangements for maintenance that deliver neither the quality and timeliness of output required nor the expected cost savings.

Actions that can be taken to streamline logistics include the wholesale reconfiguration of facilities and processes, which typically reduces the number of echelons and facilities and increases industrial involvement. Some forces have seen substantial improvements in productivity—up to 30 percent in a few months—from adopting comprehensive end-to-end process redesign, looking "from foxhole to factory" to eliminate waste and optimize the flow of repair processes. This typically shortens cycle times, increases quality, and substantially reduces manpower. This approach therefore delivers more and better military output at a lower cost.

One success story, documented by the UK National Audit Office, is the transformation of the UK Ministry of Defence's Tornado and Harrier fleets. In the case of Tornado, the Ministry of Defence was able, over the course of five years, to reduce

the cost per flying hour by half, while maintaining the same level of operational and training activity. While not all militaries can enjoy this kind of improvement, the opportunities are substantial.

However, militaries are at a disadvantage in sustaining these types of savings when compared with commercial organizations. Militaries typically have high levels of staff turnover connected with job rotations—staff officers often have two-year postings, which is long enough to learn the job and start a change process but not long enough to build capabilities, embed change, and ensure it is sustained. Also, there are typically poor or no incentives to create efficiency; incentives often focus on short-term performance and immediate availability rather than turnaround time and cost reduction. Too often, military-improvement projects deliver prize-winning results in the short term, only to degrade to similar or worse performance within a few years. The results that are sustained are the ones that come from improvements embedded into the operations, training, and leadership culture before success is declared.

Improving life-cycle support models. There is increasing interest in contracted support for military equipment. In both commercial and military settings, it is common to buy aircraft engines with a "power by the hour"–type arrangement, in which a fixed annual payment is made based on the number of flying hours rather than paying for maintenance and spare parts when required. This can include the provision of replacement engines when an engine is sent for repair. The most comprehensive form of contracted support is sometimes called availability contracting, in which the contractor commits to deliver a specific output, say, a certain number of flight hours per year. In its most sophisticated form, contractors deliver available equipment as the output. The United Kingdom presents two recent examples: the Air Tanker Ltd. consortium commits to provide a number of flying hours to the government customer, and KBR—the US

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engineering, construction, and private-military-contracting company, which owns and operates a fleet of heavy-equipment transporters (HETs)—provides the British Army with delivered vehicles, both at home and for overseas operations. HET drivers are reservists; KBR trains them for military roles such that when deployed they become uniformed personnel.

At their best, these arrangements provide ministries of defense (MODs) with access to best-practice industrial capabilities, dependable equipment, and good value for money. But these good results are not common. Inevitably, over the 25-to-40-year life of military platforms, the requirements will change. Through a poor understanding of these requirements and an insufficient understanding of the underlying costs, an MOD can lock itself into rigid contracts in which suppliers' incentives are misaligned with the MOD's. For example, in the United States, a 2008 Government Accountability Office review of performance-based logistics (PBL)—another term for these types of contracted support arrangements—found that while in almost all cases performance was at or above the contracted level, the evidence for cost savings was unclear, and in some cases the PBL had cost more. The Department of Defense confirmed this in two studies in 2011 and 2012 and is taking steps to collect more comprehensive data on costs.

Some MODs have seen substantial improvements in the life-cycle costs of modern platforms through detailed and sophisticated cost modeling against a reliable baseline, an energetic challenge of assumptions, redesign of support requirements and arrangements, and careful alignment of incentives with suppliers. This needs to be sustained with adequate ongoing contract management and an ongoing focus on rigorous analysis and regular renegotiation.

Reduce administrative, support, and headquarters personnel

As militaries change their structures and reduce the number of combat units over time, as all Western countries have done since the end of the Cold War, administrative functions tend not to be pared down at the same speed. Indeed, McKinsey's benchmarking analysis[5] demonstrates substantial variance in the ratio of combat personnel to noncombat personnel (often called the tooth-to-tail ratio), with clear room for improvement in most countries. But this ratio must be interpreted with care. It is appropriate to compare only those countries with similar strategic postures; expeditionary forces will need levels of support that are different from static defensive forces.

Some of the changes that enable reduction in administrative, support, and HQ personnel are well-known: outsourcing of support functions, introduction of modern IT systems to automate financial- and personnel-management activities, and combining similar functions into centralized and more efficient shared services. Many armed forces have been successful in introducing these. However, in some cases, the promised benefits are not realized.

HQ and administrative activities often include a fair amount of low-value work. Over time, elaborate and sometimes unnecessary procedures tend to accumulate, culminating in unread reports and duplicated staff work. When HQ costs are cut, often the number of staff is reduced but the amount of work to be done remains the same. When this is the case, the pressure to increase staff numbers will be hard to resist over time. Through a disciplined process of activity-value analysis, which identifies and eliminates unnecessary activity, substantial time can be freed up for redeployment or cost reduction.

One example of this is in Denmark, where the military was reorganized from 2005 to 2009 to move from a static, defensive posture to one that could support expeditionary missions abroad. While Denmark's ministry of defense had already started down the road of unlocking cross-service efficiencies (a topic discussed above), it extended this journey dramatically, creating further tri-service organizations for both general support functions (HR, accounting, IT, communications) and military support functions (logistics and maintenance). The transformation reduced support costs by a third, shifting the balance between spending on operational activities and spending on support functions from 40–60 before the transformation to 60–40 after it.

Even where manpower numbers have been reduced, the cost of providing personnel and veterans with the health care and pensions they have earned through their national service has become a major element of defense budgets. When he was US secretary of defense, Robert Gates said that "health-care costs are eating the defense department alive." He was referring to the tripling of those costs since 2001 to a total of roughly $50 billion in 2011—more than the defense budget of France. If governments don't get these costs under control while continuing to fulfill their obligations to active personnel and veterans, it is likely that the scale of budgetary reductions required will be hard to achieve in some countries.

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The pressure on national budgets is severe, and it is unlikely to lessen over the next decade. Armed forces will likely continue to be required to reduce budgets even while demands on their combat readiness remain high. But there are ways to reduce spending while maintaining or even increasing combat readiness—ways that are in keeping with the traditional military values of ingenuity and pragmatism.

[1] Scott Gebicke and Samuel Magid, "Lessons from around the world: Benchmarking performance in defense," mckinsey.com, March 2010.
[2] *Sustaining US Global Leadership: Priorities for 21st Century Defense*, US Department of Defense, January 2012.
[3] *Transforming Logistics Support for Fast Jets*, UK National Audit Office, July 17, 2007.
[4] Hans Arnum et al., "Big savings from little things: Non-equipment procurement," mckinsey.com, March 2010.
[5] Gebicke and Magid, "Lessons from around the world."

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