Project management in defense: The essential capability

An investment in critical skills can help projects perform as planned.

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In other articles in the 2013 edition of *McKinsey on Government*, our colleagues discuss needed changes in defense procurement, budgeting, and other functions. All are important. But in a very real sense, the success of these changes depends on the skills of the people charged with executing them. Building the skills needed to lead programs and projects among defense-ministry workers—from senior leaders to line commanders, managers, and staff—is essential. Bernard Gray, in his *Review of Acquisition*, a study of Ministry of Defence practices in the United Kingdom, recommended many changes to the ministry's ways of working; importantly, he said that it should "significantly increase programme and project management skills . . . at all levels of the organization."[1]

Programs and projects that can benefit from improved management skills are found throughout defense ministries, including project-oriented functions such as procurement, product development, and maintenance, as well as activities that are more obviously projects, such as big capital investments in IT, construction, and other areas. All of these share a well-documented tendency to run over time and over budget and fall short on quality; all can benefit from tighter management.

A training program for program and project managers that relies on adult-learning principles and emphasizes "learning by doing" can raise standards throughout the organization. When this is coupled with training for senior

leaders, defense ministries can achieve an organizational capability for project management that results in as much as 20 percent cost savings on the significant portion (about 50 percent) of ministry spending whose management calls for these kinds of skills: procurement of direct and indirect categories; capital-intensive projects in engineering, infrastructure, and IT; maintenance; and, in some cases, manufacturing.

One defense organization used these programs to train several waves of project managers and leaders who together administered a portfolio of more than 1,000 capital projects ranging in size from $100,000 to $500 million. Managers who successfully completed the training were able to cut costs on most projects by between 20 and 35 percent. Over time, the organization expects savings of about 15 percent of its entire baseline spending.

Raising the bar in project management

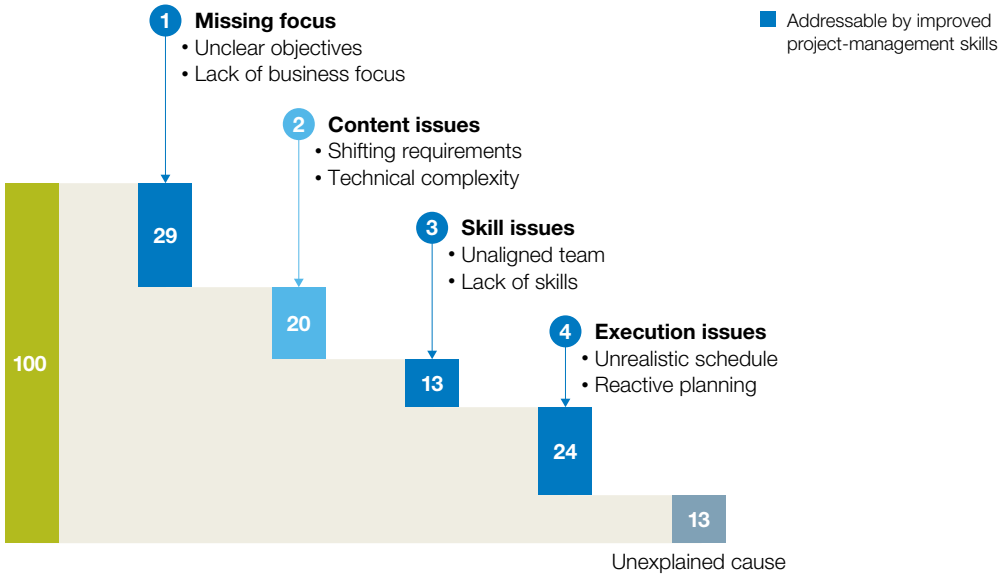
Cost overruns are endemic to big capital projects in both the private sector and government. A recent study examined the root causes of such overruns in large-scale IT projects and found that capability gaps, especially in project management, were to blame (Exhibit 1).

To better understand the skills needed to close these gaps, McKinsey has studied the behaviors of hundreds of top-performing project managers (a term we will use to mean managers of both discrete projects and of programs) in the private

Exhibit 1

Capability gaps cause most project failures.[1]

Causes of cost overruns in IT projects with budgets greater than $15 million, %[2]



[1]With cost overrun, in 2010 dollars.
[2]Figures do not sum to 100%, because of rounding.

Source: McKinsey-Oxford study on reference-class forecasting for IT projects

sector, in government, and in defense in particular. In defense ministries, we looked at top performers in procurement, capital-intensive projects such as construction and product development, and maintenance. From that research, we identified four types of capabilities—embracing ten specific skill sets—that are crucial to best-in-class project management.

Management capabilities:

- an ability to optimize and balance costs, time, and quality, primarily by using clearly defined processes and tested project-management tools and methodologies
- a value-optimization mind-set and understanding of value-assurance processes needed to ensure successful project outcomes
- team-management skills including coaching, meeting facilitation, and conflict management

Financial astuteness:

- financial-management capabilities, such as budget planning and other funding processes
- risk-management sophistication—the ability to identify key risks, prioritize them, build plans to minimize and manage them, and develop contingency plans for high-impact, higher-probability risks
- a project-life-cycle view that takes into account the total cost of ownership, from the up-front costs of acquisition through maintenance and ongoing costs (including decommissioning), to inform trade-offs and decision making in design, planning, and contracting

Commercial orientation:

- skills to manage the performance of contractors and ensure that the ministry receives what it needs from them, starting with the inclusion of the right terms in the contract and extending over its lifetime through daily monitoring and management of contractors
- understanding of contract terms with respect to work scope, quality, service level, price, and timing

Organizational capabilities:

- ability to leverage other government agencies effectively (for instance, to obtain contracting or legal services)
- client-management capabilities (for example, minimizing the impact of change orders)

To make a lasting improvement in project-manager performance, companies should take a structured approach that addresses in

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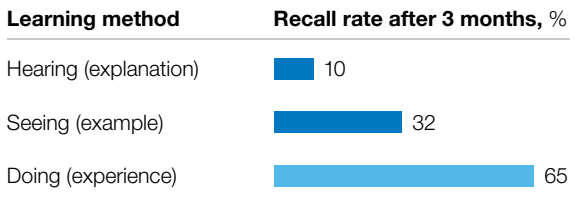
Exhibit 2

Adult-learning principles increase retention and bolster impact.

Recall rate of simple learning content[1]



[1]Numbers determined in concrete example by teaching small, simple chunks of information to 3 groups.

Source: John Whitmore, *Coaching for Performance*, third edition, Boston: Nicholas Brealey Publishing, 2002; McKinsey interviews

parallel the project managers themselves, to give them needed tools for their work and to coach colleagues, and senior leaders, to help them manage project leaders effectively.

A program for project managers

The hallmark feature of capability building for project managers is that it takes place almost entirely on the job—people are learning in real time as they steer their projects. The effect is to create impact from day one; with their new knowledge and, importantly, the confidence gained from success, project managers are empowered to carry over their new thinking and behaviors to future projects.

This concept, "learning by doing," is one of a few tenets common to many successful adult-learning approaches. Another is the use of proven interactive learning formats—a necessity when 90 percent of lecture-based learning is lost in three months (Exhibit 2). Successful adult learning also stems from repetition and coaching, as well as a link to real work: immediate, on-the-job application of newly learned capabilities makes them stick.

A successful capability-building program should be based on these principles, placing project managers at the center of the program and building their skill sets through fieldwork, classroom training, and peer coaching, while surrounding them with the tools, standards, processes, and systems needed to support growth.

A successful program must also adhere to three other guidelines. First, it must be focused on the right set of capabilities—those that are linked to value generation and impact (and, as mentioned, no capabilities are more closely linked to value generation than project management). Second, the program must be tailored to the specific situation and requirements of the organization. Finally, the program must be scalable and include elements through which the organization can develop itself ("train the trainer" is one such element). By the time the program is over, the organization must have the infrastructure to sustain and expand its new knowledge base. At many defense ministries, this institutional capability is paramount; project managers might leave after two years on

the job, taking with them everything they have learned. An institutional capability can help the manager's replacement learn the ropes quickly and is vital to a culture of continual self-improvement.

What follows is an outline of what we believe such a program should look like. It is built around three components: fieldwork with fellow decision makers at critical junctures during the project's path; a small amount of classroom training and forums to introduce and reinforce new skills, encourage the exchange of ideas among colleagues, and facilitate the required cycles of action and reflection; and mentorship to support day-to-day activities on the job.

Fieldwork

Too often, project managers in defense make decisions that appear to save money but turn out to include big unanticipated costs down the road. At times they make calls that bind the project in more costly long-term constraints. A couple of factors often drive these suboptimal decisions. Sometimes managers are rushed; lacking a proper process, the critical decision point seems to arrive on the calendar unannounced and must be resolved quickly, so the cheapest alternative seems self-evidently the best. And sometimes managers don't know how to effectively bring all perspectives into the discussion or do not have the processes or organizational supporting mechanisms needed to do so.

The fieldwork element of our suggested program is designed to carve out breathing room for the project manager; this allows the manager to calmly assess all the variables in play, consider all relevant stakeholder views, and make a decision in view of the various trade-offs, especially cost. At critical junctures, project managers, functional leaders, and other key leaders come together for half-day or all-day workshops designed to promote brainstorming and decision making for that particular phase of the project's life cycle.

In these workshops, managers apply the ideas they have learned in the classroom (discussed below) to a real project. The effect is immediate and as real as it gets—the decision reached in the workshop might be set in motion that same afternoon. The same approach works well for other, more program-based environments. In purchasing, for example, a workshop for category managers can help them bring in all the relevant considerations, including users' needs and optimal contract design.

Consider this example of decision making in the concept-design phase of a big capital project. The project manager has surveyed the building site and can see two possible layouts for the project. It's time to hold a workshop with the project's engineering team, legal team, and other stakeholders to decide how to situate the installation within the site. The project manager works with his team (and his coach, an idea we discuss below) to prepare. At the meeting, he explains his perspective on the layout options. Because the legal team is in the room, they are immediately able to tell the project team that one of the options is not possible, due to regulations. The group then brainstorms and comes up with a new, third option. The engineers test it against the boundary conditions for the project, with the project manager weighing in on the project's strategic objectives. By the end of the workshop, a basic design concept has been agreed upon and syndicated with all key stakeholders and next steps laid out for each person in the room. The project manager, who has experienced firsthand the orchestration of the workshop and

the application of the basic management principles learned in the classroom, can now lead others in the application of these concepts in similar situations.

This workshop scenario is one of several that might take place during the course of the project. Others might include sessions on countering contract claims and workshops on contracting strategy. The underlying principles for all workshops are the same: facilitate the exchange of ideas and efficient decision making by gathering key stakeholders, and allow project managers to apply new tools and capabilities in their day-to-day lives.

Classroom training

Although it may sound traditional, the version of classroom training we suggest is fundamentally different from ordinary training. Instead of listening to lectures that don't connect directly to their day-to-day activities—which can leave learners frustrated and unable to effectively apply what they've learned—we advocate a dynamic classroom experience that includes role playing, simulations in small groups, and discussions of real-life problems the participants may have faced.

Project managers are a hard-working group, and they are often cynical about losing a day to training in the middle of a project. Most will show up, but they will be skeptical that time away from the project could possibly improve their efficiency on that project. They likely will trudge into the classroom, prepared to be lectured to for hours.

Instead, they find themselves split into small groups working on simulations of the task they will be performing in the coming week. They learn that others have had the same difficulties with certain aspects of the process before—something they didn't know, since they so rarely have a chance to sit and talk to other project managers—and they begin to compare experiences. After completing an exercise in which the facilitator guides them through new problem-solving techniques and mentions the kinds of analyses that their mentors can perform with them on this particular topic, they leave the classroom feeling optimistic about the coming week.

Peer coaching

In our approach, a coach shadows the project manager day-to-day and provides constant support in analyses, problem solving, and situation

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management. The coach, a kind of mentor, can be an external expert or a fellow project manager who has already undergone the program and has had some complementary training to build coaching skills. Ultimately, the defense ministry should seek to develop a culture of mentorship in which peers support one another, share the wisdom gained from their varied experiences, and hold one another to a standard of continuous improvement.

The many benefits of strong coaching relationships were demonstrated recently at one defense ministry. The manager in charge of a project to install fire-detection and extinguishing equipment received a supplier's pricing proposal for a particular item, and the price looked reasonable based on his past experience. He was ready to sign the contract when his mentor asked how he knew he was getting the best possible price. The project manager did not have a great answer. The mentor, who had some experience with pricing, guided him through a clean-sheet analysis to understand exactly how much he should be paying. The next time the project manager received a pricing proposal, he reviewed it carefully and asked his mentor to sit with him and repeat the exercise. After doing this several times, the project manager gained confidence; the clean-sheet approach became routine, and he learned to efficiently and effectively control his materials costs.

The clean-sheet analysis is one of many in which an experienced mentor can support the project manager. Additional examples include cost baselining, supplier-market analysis, supplier-performance tracking, and analysis of contractor bids. Most important, a mentor models the new problem-solving mind-set, which favors root-cause analysis over quick fixes and consideration of opportunities over standard solutions, while also putting a premium on leadership.

A program for leaders

In many defense ministries, top leaders are soldiers. They have risen through the ranks on the basis of a substantial body of excellent work that demonstrates mastery of core military skills. Once they are in these leadership roles, however, management problems that are not responsive to military skill may arise. For these leaders, a one-week training program, combined with coaching and consultation with expert trainers, can provide the management skills needed to oversee an extensive slate of projects and help the project leaders who receive the training discussed earlier extract more value from each initiative. (At other ministries of defense, top leaders may include both soldiers and civilians, who sometimes have the skills described here. These teams, however, often face a problem of alignment, which the training program can help correct.)

A leadership-training program ideally serves about 25 senior officers, typically brigadier level or higher, and civil-service leaders at an equivalent level. The program need not be conducted all at once; the sessions can be spread over two or three weeks. The primary goal is to inculcate an economic mind-set among a group of officers with little resource-management experience. The goal is not to teach them the technical skills required to deliver specific initiatives—that is the goal of the training for project managers—but rather to teach senior leaders how to ask the right questions of their project managers.

The training should be done in a "field and forum" style, with hands-on sessions to reinforce the classroom lessons. The curriculum for the classroom sessions (the forum) of such a program should cover five areas:

- basic principles of structured thinking and economic thinking
- end-to-end project planning, the use of key performance indicators, and performance management
- an introduction to typical savings levers, for example, purchasing principles, human-resources basics and principles for "right sizing" teams, principles of lean manufacturing and maintenance, and principles of life-cycle management and the potential trade-offs related to acquisition costs and maintenance costs
- an interactive, whole-day "rolling" exercise that allows participants to apply many of the concepts they have learned by playing out a case study as a team
- how to role model the desired mind-sets and behaviors and help others to adopt them

Participants then take this experience and apply it in the field, with the opportunity to come back to the classroom, think through their field experiences, and build on those.

In our experience with these programs, participants have been uniformly positive; on average, they award the program 4.8 out of 5 points for overall satisfaction. One participant said, "I saved $1 million since our last session, just by asking the questions you taught me to ask." Another told us, "I managed my budgeting process entirely differently this year." A brigadier general said that he had seen the impact of this training when visiting units that had implemented efficiency programs and management techniques shortly after unit leaders had graduated from this program. This is a tough audience to please, but a well-designed training program can reach them and start them on a new path for learning the managerial skills needed to manage multibillion-dollar departments.

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In today's military, project management is more than ever an essential skill. A modest investment in training project managers and program leaders can provide outsize returns.

[1] *Review of Acquisition for the Secretary of State for Defence: An Independent Report by Bernard Gray*, 2009.

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