The **mega project mandate**

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The history of IT is rife with stories of huge projects that failed spectacularly. The private sector has many IT disaster stories, often hidden from public view. In the public sector, there's nowhere and no way to hide; its IT mega failures are exposed for all to see.

But government cannot walk away from large IT projects for a fundamental reason: over the past 40 years, it has been proven that they are the only way to make dramatic and rapid improvements in government services and productivity. Not only that, only mega projects can amass the political capital—public enthusiasm, media interest, and legislative attention—necessary to attract the top-level executive sponsorship so critical to the success of any IT project.

In the private sector, numerous companies have mastered the art of building an airtight business case for specific IT projects. If the project's projected return on investment exceeds its development and implementation costs either immediately or within a predictable time frame, the business can make an informed decision on funding it. If it

succeeds, it improves the bottom line. But there's no such bottom-line simplicity in public-sector projects. If change is needed, a sound political case has to be made for its funding, design, development, and deployment. When it comes to IT, such a political case is difficult to make. IT projects do not resonate naturally with the voting public, their leaders, or even specific government stakeholders. A top government official or politician has almost nothing to gain from an everyday IT project, no matter how worthy. But he has everything to lose—votes, reputation, possibly even a job. So to reach the top, IT projects need a political case that is sufficiently big and bold to capture the attention of the public, the press, and the legislature, and thereby the attention of government leaders.

BIG PROJECTS, BIG RISKS, BIG REWARDS

In the private sector, it has become axiomatic that good IT project management requires limiting the requirements-gathering phase so that a project's focus is not lost in a cacophony of stakeholder demands. But in the public sector it often seems that the only way for a project to be funded, the only way to generate that aforementioned political capital, is to include the requests of the greatest number of stakeholders.

Of course, this quickly results in "scope creep." In public-sector IT, the special requests of each individual party are not weighed against one another and prioritized. Instead they are aggregated and stacked up. As a result, the scope and complexity of the project keeps growing, as does the reluctance of politicians to commit to a possible disaster in the making. Statistics back up their hesitation, showing that once this process begins the probability of project failure increases inexorably: large projects have failure rates (projects delayed or stopped) of up to 65 percent.[1]

Despite the grim figures, large IT projects can be and have been managed successfully. In fact, such projects are the rule rather than the exception in the private sector, especially in industries where IT is critical to the business model. Managers are constantly being asked to innovate—whether by launching new products or services or by improving existing business processes. One large European bank, for example, annually executes IT projects that cost 120 million to 170 million euros each. Under this pressure to innovate, the private sector has been forced to develop project management techniques—applicable to public-sector IT endeavors—that can advance large IT initiatives without interfering with day-to-day business.

These best practices did not emerge overnight. The private sector had to learn the hard way. As Figure 1 shows, the success rate of IT projects more than doubled between 1994 and 2005, while the failure rate was halved. The public sector can benefit from those lessons.
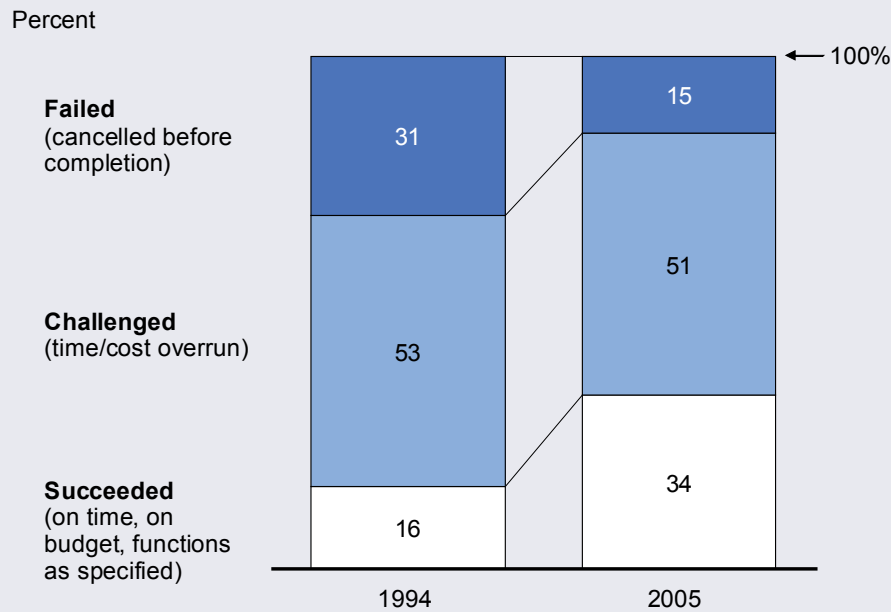
By analyzing the history of both successful and unsuccessful government IT projects, we have concluded that this improvement in IT project success rates comes down to five core factors: strong executive support, experienced project managers, controlling project scope, effective management of external parties, and designing the project in manageable chunks (known as "modularization").

THE NEED FOR EXECUTIVE SUPPORT

To succeed with IT mega projects, responsibility for the project must exist at the highest levels. At financial services companies, the head of IT usually sits on the board as a matter of course, whether he's called the CIO (chief information officer), COO (chief operations officer), or CTO (chief technology officer). At telecommunications providers, too, this IT person is almost always fulfilling a strategic role, and sometimes even functioning at the board level. In the public sector, where the role of IT is no less important, there is no reason why matters should be handled any differently.

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[1] The function points employed as a criterion in the figure are a measure of the scale of the software that is independent of the programming language used. One function point corresponds on average to around 100 lines of code in the popular programming language Cobol. A midsize project in the above statistics works out at roughly 1 million lines of software code. Really large projects feature more than 10 million lines, and are thus on the scale of huge commercial products à la Microsoft Windows.

Development of success rates of IT projects 1994 – 2005

Percent

Failed
(cancelled before
completion)

Challenged
(time/cost overrun)

Succeeded
(on time, on
budget, functions
as specified)

	1994	2005
Failed	31	15
Challenged	53	51
Succeeded	16	34

100%

Source: Standish Group

Harald Lemke, the CIO of the German federal state of Hesse, fulfils just such a strategic role. To find out how Lemke achieved that position, read the interview.

PROJECT MANAGERS: THE REAL HEROES OF PUBLIC-SECTOR CHANGE

Many IT projects, especially in the public sector, succeed only on the second attempt—often after some of the original management team members have been replaced and significant constraints on the project team have been removed. With the right team operating under the right conditions from the get-go, just imagine how much trouble, frustration, and money could be saved. IT people often call this an issue of "peopleware."[2]

But how can managers tell whether they have the right team? There is really only one way to be sure: by focusing on the project manager. Hiring the best possible project manager is the key to the success of any project. But how can managers determine if their project manager is top drawer? If he leaves a huge gap in his previous organization when he comes to yours, you've hired well. Good project managers are never dispensable.

One research study on IT project management found project managers must possess five critical skills:[3]

1. Multilinguist. The best project managers are fluent in the language of the user and the technologist. They bridge the gulf between the two groups, effectively communicating the project's status, needs, and direction at all times.

[2] Cf. the standard work by T. DeMarco/T. Lister, *Peopleware*, 2nd edition, New York: Dorset House, 1999.
[3] The Standish Group, "CHAOS: A Recipe for Success," 1999.

2. Gatekeeper. This term describes the project manager's ability to continually limit the scope of the initiative and maintain its focus. This requires both political skill and committed executive backing. The project manager's overarching strategy here is to reduce complexity and, as a result, cut project time and control costs.

3. Maestro. Like a conductor, he has a gift for encouraging and motivating project participants to cooperate constructively and openly at all times.

4. Mobilizer. A good project manager can motivate his team to produce a top performance, especially when under pressure. He has the political skills and organizational savvy to secure additional resources when needed to meet tight deadlines and respond to unexpected developments.

5. Vigorous communicator. This is the ability to articulate the project's objectives, requirements, and progress clearly so that everyone on every level is on the same page at all times.

The ideal IT project manager in the public sector can do even more than this. The decision-making structures and processes of IT projects in the public sector are often far more complex than those in the private sector. Therefore, a government IT project manager has to deal with many more rounds of project coordination. Thus, we have found he must possess three additional qualities:

6. Authenticity. He must be an enthusiast, a source of positive energy. He is working in government because he is drawn to socially relevant tasks,

and his sense of public duty is very strong. Consequently, he is patient, keeping in mind the end goal of improving the way that government services its citizens, and does not become discouraged by the complexity of governmental processes and structures. Instead, he sees them as challenges to be overcome for the greater good of society.

7. Risk manager. In light of the immense and ubiquitous fear of risk in the public sector, he must be a diplomat, sensitive to the rough terrain of politics while simultaneously bold enough to welcome argument and take on the project's risks. He must manage risks actively so they do not turn into project-sabotaging problems. In the public sector, the project manager's ability to welcome and mitigate risk is critical.

8. Executive clout. The successful government IT mega project manager must have access to the CEO level at all times, understand how political processes work, and be comfortable dealing with project matters in the public forum.

The list of desirable characteristics could go on and on, and it would be naïve to expect that one could find someone who would possess all of them. But without the ability to work comfortably on the executive level, without unquestioned backing from the top executive, all the rest pales in importance.

Project managers like these are in short supply everywhere, not just in government. In the private sector, project management has been for years a key focus of corporate talent development. Forward-looking companies use intensive mentoring

and training and metrics that objectively weigh performance.

Such concepts are slowly being introduced into the public sector, though certainly not yet with the same scope or range as in the private sector. As a result, for the time being government must bring in talented IT project managers from the private sector.

But to recruit private-sector talent, government faces two serious challenges: the compensation shortfall and culture shock. Many countries—especially the US and the UK—have found a way to provide salaries competitive with the private sector by introducing critical pay schemes. These go outside the typical government pay scales to fund high-profile projects at a higher level.

In countries whose government leaders are not used to looking to the private sector to solve talent shortages, such compensation plans are often undermined. Yet even if these leaders reach out to the private sector, it is difficult to acclimate the people they recruit to the public sector world of highly legislated controls, byzantine decision-making, public scrutiny, and lack of clear objectives. The talent's transition from private to public sector is unlikely to be successful without formal mentoring and coaching.

THE PHENOMENON OF "OVER-UNDER-SPECIFICATION"

Many public sector IT projects face the paradox of requirements that are simultaneously **over-and underspecified**. This phenomenon occurs most frequently when a

UK Government: The search is on for the next generation of government IT leaders

In October 2007, the UK government launched a hunt for the next generation of public-sector IT leaders through its new civil service, The Technology in Business Fast Stream.

Following a successful pilot project that led to the recruitment of six people from across the country, the program hopes to appoint up to 20 of Britain's best college graduates this year.

The UK government handles some of the biggest IT challenges in the world. Its leaders decided they needed exceptional IT managers in order to provide technology-based critical public services.

The Technology in Business Fast Stream will provide Britain with its next generation of leaders: women and men capable of bringing about positive, large-scale business change in the public sector. They will be selected for their potential to become future chief information officers or leaders of large-scale, IT-enabled business change.

Placed in the IT-critical central government departments, they will receive ongoing training and development, be assigned a senior mentor to shape their career development, and work with key technology leaders across the public sector.

deadline has been fixed in stone due to political exigencies *before* the functional project activities have been scoped. This was the case with the FBI's virtual case file project which, driven by public outrage over the attacks of 9/11, was given a deadline before the project's requirements were defined.

This problem occurs not just because of political agendas that force a premature consensus on project goals, it also arises when technological strategies have been determined *before* an analysis of which technologies best address those goals. In such cases, technology

decisions are handed down from above, restricting the ability of the IT team to find the most appropriate solution.

This also happened with a project initiated by another agency. The project team was directed to build a system based on mainframe computers when a web-based solution might have been more effective.

IT leaders in the public sector must able to respond to project specifications before beginning to craft their technology solutions. In this way they can avoid becoming locked in to suboptimal technologies before they begin.

MANAGING EXTERNAL PARTIES

Large IT projects rarely can be handled exclusively by employees in a single government organization. For one, it is impossible for in-house staff to keep up with the pace of technology innovation.

Government IT employees have to rely on external experts in implementing mega projects. Under certain conditions, whether due to a lack of in-house skills or manpower, entire projects may be outsourced. In that case, the main task of the internal IT department is to manage the external service providers.

Managing IT vendors creates additional complexities. It first requires a clearly articulated and broadly communicated strategy that determines which competencies will be maintained in-house and how to transfer knowledge from external parties. The in-house IT department must control this knowledge transfer

at all times to mitigate the risk of turnover at the external provider or, worse, the provider going out of business.

IT managers must also manage external vendors using clear specifications throughout a major IT project. While the work may be outsourced, responsibility for it always remains in-house. The in-house IT team must use the project specifications to track progress and set precise deadlines for such items as fixing software bugs. All work done by the external provider must be based on such clearly defined criteria.

MEGA PROJECTS IN MANAGEABLE CHUNKS

Mega projects entail mega risks. But breaking them down into manageable chunks reduces those risks dramatically.

But how can managers divide and conquer their mega IT projects?

- First, they must be broken down into **logical and manageable sections.** There are two key criteria for this: time and organization. Dividing large projects into blocks or "releases" that are introduced gradually enables managers to devise realistic and achievable deadlines for each release. It also helps them to address failures in individual releases expeditiously and thus mitigate risk for the whole project.
- In practice, the project manager further divides the releases into **subprojects**, each with its own subproject manager and team. For example, a team that deals with, say, virtualizing an organization's databases will be

independent of the team that handles the development of the individual applications that will ensure the data is secure. This division into sub-projects means that responsibilities can be defined clearly and coordination simplified.

▪ All partial and intermediate results must be managed systematically to keep all parties up to date. This process is known as **configuration management.** It involves all end products, whether they are text documents, requirements profiles, plans, or even the actual software code. By way of analogy, think of the hundreds of authors who must work in parallel to create all the entries in a dictionary. Every author must be informed at all times about relevant contributions made by the others so that they can create cross-references, for example, and avoid contradictions. If there are numerous developers working on a piece of software, their individual parts not only have to be passively consistent intrinsically, they also have to work actively and in sync with all the others.

▪ Mega projects, with their multiple releases and complex, overlapping production lifecycles, demand a more extensive and **clearly defined quality assurance** process to review every release and issue a certificate of acceptance. The roles, processes, and end results of quality assurance have to be defined. For the definition of requirements, a simple review can be carried out according to a checklist that defines the criteria. The software code must undergo rigorous testing and piloting to guarantee that everything will run smoothly when it is rolled out. Since this is complicated, labor-intensive, and time-consuming, tools are frequently deployed to automate the testing.

PROJECT ORGANIZATION: BRINGING ALL THE PLAYERS TOGETHER

Once they have hired the right project manager, engaged competent external providers, implemented processes to govern them, and modularized the project, government leaders need to make sure that everything works together. Three prerequisites for successfully managing and integrating the mega project's many moving parts demand particular attention:

IT *must* be a top management concern. The steering committee with oversight of critical IT projects must always be staffed with decision-makers. As previously explained, by its very nature as a function that touches and interacts with every part of an organization, IT is always a matter for top management.

Involvement of users. To achieve success, the project organization must bridge the divide between technologists and users. Along with engaging a multilingual project manager, the best way to do this is to have user representatives working directly on the project. If that's not feasible, the project team must interact with user groups on a regular basis in a predictable and widely acknowledged manner.

Partner-like collaboration between client and contractor. In many IT projects, there are two parallel project organizations: the client's and the contractor's. However, the ideal project organization seamlessly integrates both project teams, each, of course, with its own

clearly defined and agreed-upon roles and responsibilities. When establishing the project organization, the project manager and project sponsor must **create strong sub-teams with clear responsibilities.** The interfaces between the sub-teams must be clearly defined and their cooperation orchestrated.

The project managers in the most successful mega projects are usually assisted by a **project management office.** This office looks after the project plan and assumes active controlling responsibility. This office should also take the lead on critical tasks such as risk management and quality assurance. A good project management office is hands-on—not a rubber stamp for project reports and management plans.

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Many books have been written about mega project management. However, the best way to succeed in the public sector is to make thoughtful and aggressive investments in people. With the key elements for success in place, government leaders can make quantum leaps in the quality of services they were elected and appointed to provide.

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