BCG

THE BOSTON CONSULTING GROUP

Fall 2010

Managing IT for Business Value

The New Gold Standard

IT Advantage

- *Eric Baudson of Crédit Agricole CIB on Driving Continuous IT Transformation*
- *Cloud Computing in Large Enterprises: Questions for the C-Suite*
- *Raising the Bar: Improving IT Efficiency in Government*
- *How Insurers Can Streamline and Optimize Their IT Architectures*
- *(Technology-Enabled) Innovation: A Weapon in the Battle for Competitive Advantage*

The Boston Consulting Group (BCG) is a global management consulting firm and the world's leading advisor on business strategy. We partner with clients in all sectors and regions to identify their highest-value opportunities, address their most critical challenges, and transform their businesses. Our customized approach combines deep insight into the dynamics of companies and markets with close collaboration at all levels of the client organization. This ensures that our clients achieve sustainable competitive advantage, build more capable organizations, and secure lasting results. Founded in 1963, BCG is a private company with 69 offices in 40 countries. For more information, please visit www.bcg.com.

Preface

The global economy has shaken off the worst effects of the downturn—but the recovery is uneven, and the near- to intermediate-term prospects for individual companies vary greatly. A key factor that will separate winners from losers is IT. Can IT support the company's growth strategy? Can it enable—and even drive—innovation? Can it be a true partner to, and change agent for, the business?

Our Fall 2010 issue of *IT Advantage* centers on such questions. It kicks off with an interview with Eric Baudson, head of global IT and operations at Crédit Agricole Corporate and Investment Bank, who discusses his ongoing efforts to optimize IT's value to the company as well as the IT-specific challenges of managing in the downturn. He also offers thoughts on change management and how the CIO's role is likely to evolve.

Next is an article on something we're very excited about—the launch of the Innovation Value Institute's IT Capability Maturity Framework. (BCG is one of the institute's founding members.) The IT-CMF is a state-of-the-art framework designed to help companies optimize their IT capabilities and maximize IT's delivery of business value. We think its arrival marks the beginning of a new era in IT management.

Following that is a discussion of what is being heralded by many as a game-changer for IT practices—cloud computing. We believe that the "cloud" could indeed transform IT management over the longer term, shifting how corporations consume computing resources, collaborate with outsiders, and create new businesses. But most companies are nowhere near that point.

We continue with two applications of IT transformation. The first details how the Australian government fundamentally overhauled its IT and trimmed costs materially without negatively affecting the delivery of government services. The second piece discusses how insurers can optimize their IT architectures to create competitive advantage. The issue concludes with an article on how companies can become more innovative, with a particular focus on how to leverage IT in that effort. Given the sizable role that innovation stands to play in most companies' competitive fortunes over the next several years, this is topical reading.

We hope you find this issue's contents relevant and stimulating. Please send any feedback to ITAdvantage@bcg.com. We value your input.

Wolfgang Thiel
Senior Partner and Managing Director
Global Leader, Information Technology Practice

Contents

Driving Continuous IT Transformation

Eric Baudson, Head of Global IT and Operations at Crédit Agricole Corporate and Investment Bank, Talks to The Boston Consulting Group

Eric Baudson is the head of global IT and operations at Crédit Agricole Corporate and Investment Bank (CIB), formerly Calyon. In a recent conversation with The Boston Consulting Group's Antoine Gourévitch, he spoke about his ongoing efforts to optimize IT's value to the company, the challenges of managing through the economic crisis, and his vision of how the CIO's role will evolve over time.

Eric, can you describe your start at Crédit Agricole CIB?

Sure. I arrived at the company in August 2005, a time when the bank was seeking to significantly build its capital-markets business. I was to be responsible for that business's entire back-office operations. At the time, the company had two IT organizations, one serving capital markets and the other serving corporate banking. Naturally, I interacted a lot with the former. This was an organization in a state of disarray. It had long been organized along internal-client lines but had recently, and over a matter of only months, been reorganized by shared functions. There was no steering taking place at all within the organization: no master plan, no management of the project portfolio, no budget, and no financial monitoring. So this was my starting point.

The capital markets business, as an IT client, must have been somewhat unhappy with the level of IT support.

Yes, it was. The business lines within capital markets have a very strong sense of ownership of their support functions, and the reorganization concerned them greatly. Not only had they lost control over daily activities because there was no longer any dedicated team or governance, but they didn't see any leadership or direction. In response, the company asked me in May 2006 to take control of both the capital markets back-office operations and IT.

How did you feel about managing both together?

I could see the potential synergies. But when they asked me to take the reins, I knew nothing about IT. I had always managed projects and was quite experienced as a project sponsor, but taking charge of IT was, for me, as if the engine of my car had been dismantled on the sidewalk next to the car. I know what a car is and how to drive, but I have no idea how to assemble an engine.

What were your top priorities once you took the job?

I had three. First, immediately reestablish the client-supplier relationships—and with dedicated gover-

Eric Baudson

Eric Baudson began his banking career in 1991 at the international audit department of Banque Indosuez, of which he was appointed supervisor in 1995. In 1997, he joined the regional management division (DRF) of Crédit Agricole Indosuez, working at first as a corporate relations officer at the Rhône-Alpes branch and then as deputy head of DRF in 1999. In 2000, Baudson moved to Société Générale's corporate and investment banking division as worldwide manager of the equity derivatives middle office before becoming worldwide manager of equity derivatives operations in 2003.

Baudson joined Calyon in 2005 as the head of capital markets operations before also assuming responsibility for the capital markets IT division in 2006. He was appointed Calyon's head of global IT and operations in 2008.

Baudson holds a degree in agricultural engineering and a specialized master's degree in financial techniques from ESSEC.

nance. I considered this indispensable. Second, and equally important, set up a steering mechanism that would allow us to know what's happening and where we're going. Third, create a master plan that would provide visibility.

How difficult were these priorities to implement?

We realigned the IT organization by internal client within a few days. Both the teams and the clients had asked for it, so there was no debate. We quickly returned to the organizational scheme that had existed six months earlier.

Creating a steering mechanism was painful, because this was something that was absolutely not in the organization's culture. Basic questions about budgets, expenses, and the number of employees were alien to them. To deal with this, I put in place the same system I had implemented for the back offices for staff steering. We also designed and put in place a budget dashboard with a monthly project-by-project forecast. The dashboard helped almost immediately: in July 2006 it allowed us to alert the general management about a 15 percent cost overrun due to lack of cost control. By September, the steering program was up and running—and we still use it today.

In parallel, we initiated a master plan approach to management, which took seven or eight months to complete. This reassured people about our control of our expenses and our direction.

How did you simultaneously support the capital markets business's growth imperative?

Our mandate was to give each business line what it needed to develop in full autonomy. Worrying about cost-effectiveness, synergies, cross-function service centers, and so on was out of the question. Each lead manager should have all that he or she was asking for. The top priority was not to optimize the system; we wanted to satisfy the need as quickly as possible. This translated into a high rate of growth in our workforce—about 15 to 20 percent per year. We also developed a sourcing strategy focused mainly on onshore outsourcing, because we were searching for competencies rather than trying to optimize costs.

> "When you break an established model, you touch the core of the way people work."

We eventually selected three firms: a company that had historically been a partner of Crédit Agricole and was one of the market's major players; a small firm strongly focused on capital markets in general and on derivatives in particular; and, in order to challenge the first two, a small Indian firm that had the same business profile as the second player. The basic principles of that strategy were the following: first, we wanted to work with people for whom we were big enough and important enough to ensure that we were well served, and second, we wanted win-win agreements, so we committed to certain volumes in exchange for fixed prices and a high flexibility in response to market needs.

This is how we managed growth, and four years later we can say that it all went well. The true KPI is that the system held together through the subprime crisis. There has been no clash and no backlash, and all of the projects eventually delivered. So it was a winning strategy.

Did you make specific changes in IT management during that period?

Yes. The most significant was a change in how we managed sourcing. Over time, our IT managers had developed suboptimal practices for handling our relationships with external providers. Sourcing decisions were based more on cronyism than economics, and as a result, we were paying far too much for services. We had also established long-standing relationships with many of these providers and there was now a high degree of dependence. So we tackled that issue head-on. This met with a fair amount of resistance, because when you break an established model, you touch the core of the way people work. When you ask a manager who has been working in a certain way for more than ten years to take work that he had typically distributed to multiple smaller providers and instead to aggregate that work in order to be able to outsource it, and then to outsource it offshore, and to relearn how to manage internal staff, you change the rules of the game completely. So this was challenging.

We also upgraded our quality-management practices. Budget and staff monitoring is quantitative, which helps to ensure that we are not drifting, but it is not by itself sufficient to make sure that the money is well

spent. So we progressively put in place programs to monitor the quality of project methodology, planning, respect for deadlines, and delivery.

All told, by March 2008, two years after the start of this adventure, we had restructured capital markets IT. We had also restaffed it, because this was not just about outsourcing but also about recruiting managers from the outside. And this had a peripheral benefit, because we had recruited managers from outside the capital markets business in order to get fresh ideas, and it was a success. We had learned to work with partners and to get visibility—and the machine worked well. So we were in a good position.

This proved to be good timing, because you were handed another organizational challenge shortly thereafter, correct?

Yes. Around that same time, I was asked to drive the merger of the capital markets and corporate banking IT departments. The mandate was to get it done as quickly as possible and organize the consolidated department along internal client lines. Up to that point, the corporate banking IT department had been organized by function, while analysts were centralized and developers were organized by application family. There was also a small offshore center in Singapore that wasn't really well connected to the whole. Any internal client who requested an IT project faced at least three people: the analyst manager, the dedicated developer manager, and someone in Singapore. So a reorganization was in order.

We took several key steps with regard to corporate banking's IT. One, which we're still implementing, was to shift project leadership to the business lines, because we think a strong managerial mandate is necessary to drive change. IT can collaborate and provide technical answers, but the business line should lead. Two, we instituted quantitative and qualitative steering, which we completed in about a month. Three, we established rigorous, high-level governance.

> "IT can collaborate and provide technical answers, but the business should lead."

Ultimately, we completed the merger and hit our objectives within a few months. By the end of June 2008, Crédit Agricole CIB had a unified IT management, monthly reporting on projects and costs, and total transparency.

What were your next steps?

As it turned out, our attention had to be shifted to dealing with the financial crisis. There was a period of denial at the company in late 2007 as the first signs of the crisis emerged, and we started 2008 as if nothing were happening. But by April, the company was experiencing losses and we knew that the crisis was real, acute, and deep. The company's focus turned to reducing costs as quickly as possible to improve the year-end P&L. On the IT side, we decided between April and June to stop some projects that were under way or being launched, and we reduced the development budget by about 20 percent, cutting roughly 400 providers.

Having our steering capability was key as we considered what steps to take. Knowing where we were going, project by project, gave us the ability to quickly identify which projects to stop and to understand the immediate economic impact. The same held for staffing.

Were those steps sufficient or did you need to do more?

By the end of June 2008, we had dealt with the emergency. We realized, though, that the recession would continue, so the next step was to make some hard decisions in anticipation of a greatly reduced 2009 budget. In early September 2008, we cut 50 percent of the project portfolio in order to match the halved 2009 budget, taking out several hundred FTEs. At the end of December 2008, we forced teams to cut staff a little more, so we actually started 2009 with about 150 fewer people than we needed.

These were tough moves to make. But the advantage was that our IT teams entered 2009 with the crisis behind them. We had staff, a budget, and a project portfolio that matched the budget. So I would consider our year in 2009 quite normal. We were not in crisis management any more.

With the return to normality in 2009, where did you turn your focus?

In early 2009, we were still focused to a large degree on reducing costs,

lowering the breakeven point, and so forth. A key thrust here was to increase our utilization of offshoring, with an ultimate goal of having 40 percent of our outsourced work allocated to offshore providers. (We are at 25 percent currently.) We are also taking a number of steps to optimize the delivery system, including the creation of service centers for some capital-markets activities, taking care not to compromise the client-supplier relationship.

Simultaneously, in early 2009 we were a company that had to redesign its business model and review its strategy and positioning. So a second objective for IT was to start to rethink all of our longer-term objectives and targets, in parallel with the implementation of our cost-cutting measures and the launch of a lean approach to all support functions. By mid-2009, we started to have more time to consider the next steps, because we were no longer focused on growth or the crisis—and we approached the task with a considerable degree of purpose because we had a much better understanding of the stakes.

We are aggressively pursuing three objectives currently. One is the development of an optimal sourcing strategy that leverages all that we have learned from our experiences with onshore outsourcing, offshoring with providers from India, and our captive center in Singapore. We already have a successful system today, one that saves us about €25 million per year in development costs. But we are positioned to improve further. Our 40 percent offshoring target would have been unimaginable before. We have also launched plans to rationalize our infrastructure and delivery. This has already yielded concrete savings as we have decreased the size of our server pool. Finally, we have worked to identify and prioritize other areas that we need to focus on. Ultimately, we expect the combination of these three thrusts to generate a savings of €60 million over three years.

> "Changing conditions are a given, and IT needs to adapt in real time."

Beyond those three, we have two emerging topics that we plan to tackle, although it will take time. The first is to find a way to industrialize our processes so that we achieve the maximum cost savings and efficiencies but do not lose flexibility and agility, which are critical to a corporate and investment bank. We have a long way to go on this. The other project is to anchor Crédit Agricole CIB's IT in Crédit Agricole Group's IT and realize all synergies and smart-collaboration possibilities in a win-win mode while reducing IT costs for the whole group. So we have a lot on our plate.

On the basis of your experience, what motivates people to change?

In this business, people will change when they realize that doing so can help them deal with constraints. Once people have experienced firsthand that a particular change has concrete value for them, the battle is won. For example, our offshoring initiative, once people saw the sizable benefits that could be achieved, is emblematic of this. On the other hand, people will also change when they are put under very strong pressure and realize that they have no choice.

I really believe that there are two steps in achieving fundamental change: improvement and transformation. Improvement happens when you put people under constraints. They don't necessarily buy into the idea and are merely doing what they are told, but at least you have changed, reorganized, and optimized things. Transformation happens when people are convinced and there is no more debate about it. Achieving this is very difficult. I therefore think it's necessary to go through step one first. Believing that people will proactively support the transformation from day one is, in most cases, an illusion.

Do you think that IT organizations should remain in transformation mode permanently?

Yes, I do. Ongoing transformation is necessitated by at least two things. The first is the normal evolution of the environment. Changing conditions are a given, and IT needs to adapt in real time—otherwise the gap between IT's capabilities and the demands on IT could be fatal. The second is changes in budgets. Each year, the meters are reset on a certain number of topics and projects, so team sizing varies, as do the functioning modes. So yes, IT should expect to transform itself on an ongoing basis—but that change has to be structured. It shouldn't be anarchy or viewed as change for the sake of change. Rather, it should be managed like a project, one that has a

periodic rollover whose periodicity is rather short.

How do you see the role of the CIO of the future?

First and foremost, the CIO will have responsibility for the consistency of the company's information systems and their adequacy vis-à-vis the company's needs. This means that he or she will need to control the decisions regarding applications, architecture, and the technical response to those needs, which does not always happen today.

Second, the CIO will need to be a highly effective orchestrator and possess a range of technical and managerial competencies. He or she will need to be able to optimally manage internal and external talent, understand and know how to leverage relevant technologies and solutions, manage sourcing, and so forth—and will be expected to square everything and manage it efficiently.

Third, the CIO may be increasingly involved in company management. IT's growing role in helping the company execute its global strategy, combined with IT's proportionately higher costs as it becomes more complex, will likely give the CIO a greater voice in business decisions. The unique perspective and expertise as a technician and an orchestrator will make the CIO a valuable business partner in the discussion.

So is the pure technology-management component of IT leadership decreasing in importance?

To a degree, yes, but it varies greatly by company. The demands on a CIO of a high-tech company with 50 people are very different from those on the CIO of a bank that has 30,000 employees and a staff of 6,000 in the IT department. A certain understanding of the technology will always be required in order to understand what people are doing, but technology is ultimately becoming a commodity. Many companies will buy their own tools and engage a provider and thereby gain access to technologies and technical features that they themselves do not manage.

One thing is certain: the CIO needs a diversified tool kit. Purely technical knowledge, whatever the company, is not sufficient any more. Other capacities and qualities are required today to manage the whole scope of the job.

Antoine Gourévitch is a partner and managing director in the Paris office of The Boston Consulting Group. You may contact him by e-mail at gourevitch.antoine@bcg.com.

Managing IT for Business Value

The New Gold Standard

by Andrew Agerbak and Stefan Deutscher

After 60,000 hours of R&D and more than $10 million in investment, the Innovation Value Institute's IT Capability Maturity Framework (IT-CMF), a state-of-the-art assessment framework designed to help IT organizations maximize their contribution to business value, is fully developed and operational. Version 1.0 launched on June 2, 2010.

What does the launch mean for CIOs and other IT leaders? It means that for the first time, they have an integrated, standardized framework for evaluating IT both strategically and from a business-value-added perspective. It means that they have a common developmental yardstick designed and tested by some of the world's leading organizations. It means that they have an effective and credible communication platform to use in discussions with business stakeholders, including CEOs and CFOs, for describing how the IT organization is performing and what it aims to achieve.

In short, it means that IT organizations and their leaders have the means to substantially upgrade IT's capabilities across the board and substantively improve its delivery of business value. The benefits to companies stand to be sizable.

The IT-CMF: Genesis, Design, and Evolution

The IT-CMF, for those who have not yet explored it, is the brainchild of the Innovation Value Institute (IVI). The IVI is a global consortium of leading industry, government, not-for-profit, and academic organizations whose aspiration is to establish a gold standard for managing IT for business value. Established in 2006 as a joint venture by Intel, The Boston Consulting Group, and the National University of Ireland, Maynooth, the IVI currently has more than 50 members, including AXA, Chevron, Ernst & Young, Google, Microsoft, and SAP. Recent additions to the IVI's roster include Cisco and the U.S. Department of Homeland Security.

The IT-CMF incorporates elements of and builds on existing IT frameworks, such as CMMI (Capability Maturity Model Integration), COBIT (Control Objectives for Information and related Technology), and ITIL (Information Technology Infrastructure Library). But it differentiates itself in that it takes a holistic approach, covers *all* IT activities in a single framework, and uses an internally consistent methodology. (See the sidebar "How the IT-CMF Differs from Other IT Frameworks.")

It also distinguishes itself through its emphasis on delivering real, quantifiable results and *improving business value.* And those results can be considerable, based on the experiences of IVI members who have already utilized the framework for self-diagnosis and improvement. A pharmaceutical company, for example, realized an 8 percent savings in its total operating budget for technology innovation—and a 20 percent savings in its total budget for experiment execution—as a result of improved IT efficiency. The IT services and support arm of a leading insurer achieved a 96 percent reduction in setup time for new servers, with much of the improve-

> "I have great confidence in the Innovation Value Institute and its ability to significantly impact the future of IT—and, in so doing, to help enterprises and governments worldwide maximize the value of their IT investments."
>
> *—Justin Rattner, vice president, chief technology officer, and director, Intel Labs, Intel Corporation*

ment driven by insights gained from the IT-CMF assessment.

The framework segments the activities of a company's IT function into four strategies or macroprocesses—managing IT like a business, managing the IT budget, managing the IT capability, and managing IT for business value. Each macroprocess is defined in significant detail and incorporates multiple processes. In all, the framework examines 32 such processes. (See Exhibit 1.)

Each process is further broken down into a number of capability building blocks. For each block, the IT-CMF defines five maturity (or developmental) levels, from "initial" to "optimizing." (See Exhibit 2.) Assessing the maturity level of the various building blocks helps the IT organization understand its current position, make comparisons with benchmarks and peer companies, and define a target level that will maximize the generated business value for the company.

Over the course of the framework's development, the IVI populated a database of best practices and metrics and tested and refined the framework's methodologies via pilot assessments. Indeed, prior to the June launch, the IVI had conducted more than 100 such assessments, virtually all with leading companies from a range of industries—so the framework had been thoroughly road-tested before going public. It will continue to evolve over time. Further developments currently being planned include "lenses" that show how the IT-CMF applies to topics such as cloud computing and ecofriendly information and communications technologies.

> "Cisco is very interested in using the IT-CMF to carry out an in-depth assessment of our IT operating model and capabilities. Of particular value is the ability to benchmark, identify gaps, and use the assessment to prioritize future IT investment to enhance Cisco's growth, innovation, and customer experience."
>
> *—Robbert Kuppens, CIO, European Markets, Cisco Systems*

The Framework in Action

How does the IT-CMF work in practice? It offers both an introductory, high-level overview assessment and a detailed exploration of individual processes. The former, which is based on a comprehensive questionnaire and a comparison of results with industry averages, crystallizes for senior management (of both IT and the business) the IT organization's effectiveness. (See Exhibit 3.) The overview assessment also identifies performance gaps and can help managers understand which key processes might benefit from a more in-depth examination.

How the IT-CMF Differs from Other IT Frameworks

The IT-CMF differs from other IT frameworks in several fundamental respects. First, it is *comprehensive.* While other frameworks focus on one dimension of IT management—for example, ITIL (Information Technology Infrastructure Library) concentrates on infrastructure and operations, while CMMI (Capability Maturity Model Integration) focuses on application development—the IT-CMF examines the full spectrum of dimensions.

The IT-CMF is also *holistic* and *value-focused.* Other frameworks tend to focus solely on IT process maturity, which by itself does not create business value. The IT-CMF, however, focuses on the *business value delivered* by IT and how a combination of process, skills, culture, and tools can maximize that value.

The IT-CMF is also *action oriented.* An IT-CMF assessment not only confirms the IT organization's current maturity for a given capability or set of capabilities, it also defines both short- (that is, 12-month) and medium-term (that is, two- to three-year) target maturities and the results the IT organization could expect to achieve by hitting those targets. Further, it identifies the specific steps necessary to achieve those targets, as well as appropriate metrics to use to track progress—and can provide case study examples of companies that have taken similar measures.

Finally, the IT-CMF is *not disruptive.* Assessments for some frameworks require armies of consultants with clipboards and can be highly disruptive to day-to-day operations. IT-CMF assessments, in contrast, can gather the necessary information and achieve a credible degree of rigor without being obtrusive.

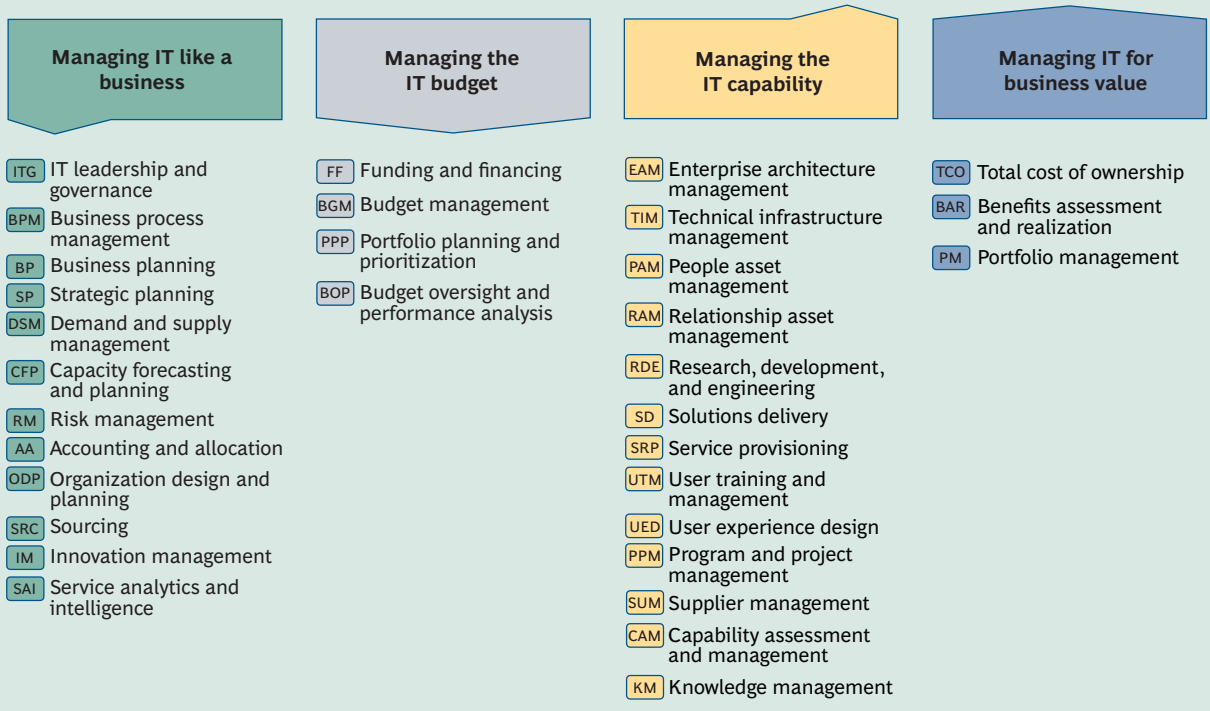
The detailed assessments (which typically take from four to six weeks to conduct) give IT organizations rich insight into the current maturity levels of the targeted areas. The assessments also give IT a road map for making improvements and translating them into greater business value. (See Exhibit 4, which shows a current assessment and improvement road map for an IT organization's architecture-planning capability.)

Intel's own use of an IT-CMF deep dive to assess and optimize its enterprise architecture management (EAM) is illustrative. The assessment revealed that the company's overall EAM maturity was at level 2, or "basic." The assessment also identified specific strengths and areas for improvement. Strengths included strong governance bodies, an effective organization structure, and initiatives in place for aligning strategic and architecture plans and strengthening and standardizing methods and practices. Steps for improvement included the following:

- Architecture plans could be followed more consistently
- The EAM skills base could be broader
- The value delivered by EAM could be better measured, understood, and communicated
- Communication in general between the EAM organization and the broader IT function—as well as with the business side—could be improved, yielding significant benefits

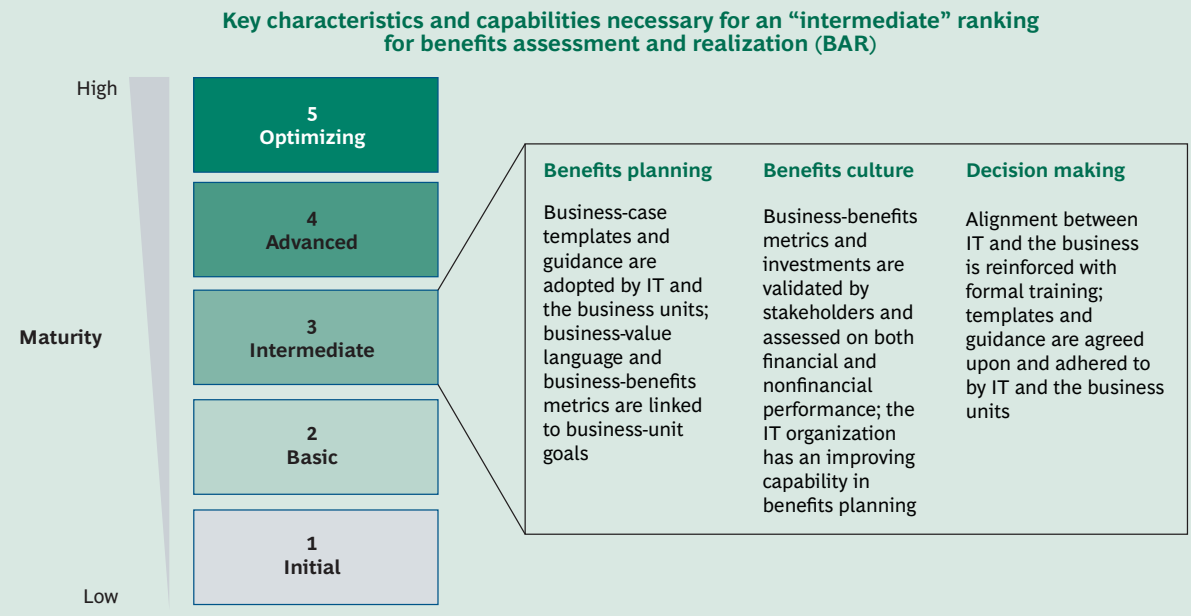
On the basis of these insights, Intel's IT leadership was able to identify and prioritize action steps to bring the company's EAM capabilities up to its targeted levels. These steps included instituting and tracking relevant performance metrics and sharing the results; assigning owners to specific processes to ensure accountability and continuous improvement; and establishing a common template for the development and sharing of an architecture vision and road maps. Implementation of these initiatives yielded rapid results—EAM effectiveness improved 19 percent within one year, according to

Exhibit 1. The IT-CMF Covers 32 IT Processes in a Comprehensive Framework



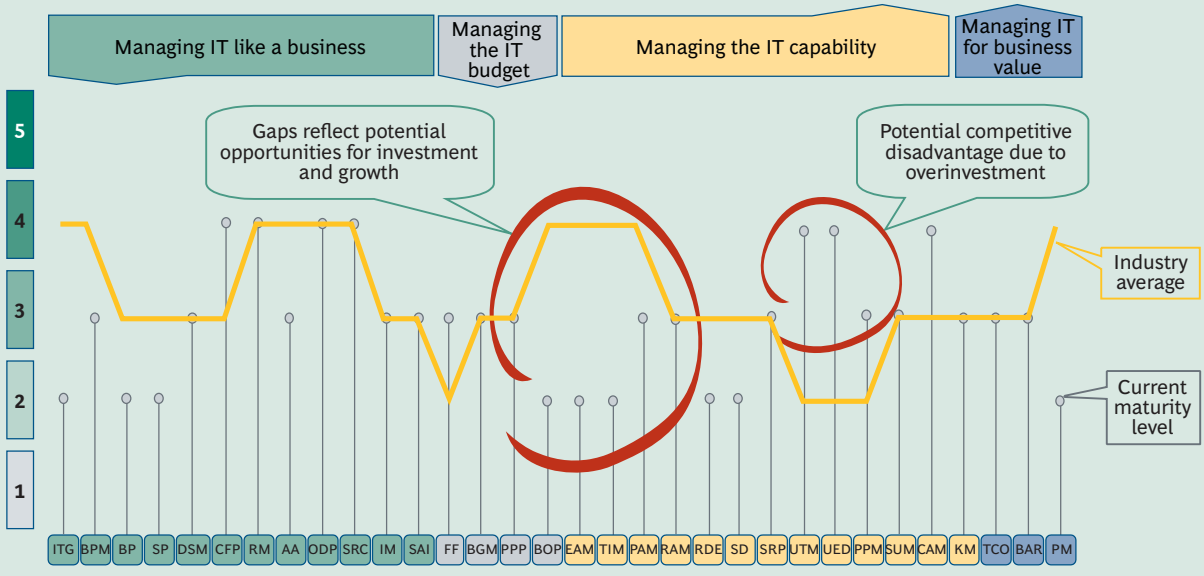
Sources: The Innovation Value Institute and BCG.

Exhibit 2. The Five Maturity Levels Are Refined for Each Process



Sources: The Innovation Value Institute and BCG.

Exhibit 3. A High-Level IT-CMF Assessment Provides a Useful Overview of IT's Relative Strengths and Weaknesses



The IT-CMF can be applied across the whole IT function or in selected areas

Sources: The Innovation Value Institute and BCG.
Note: Hypothetical example.

Gregg Wyant, chief technology officer and general manager of strategy, architecture, and innovation within Intel's information technology group—and it ultimately closed the gap between where EAM was, capabilities-wise, and where leadership believed it needed to be to deliver the targeted value to the company.

This assessment of the EAM function was to be an integral part of a comprehensive transformation of Intel's IT capabilities utilizing the IT-CMF, according to Wyant. "Using the IT-CMF helped guide us to a 25 percent improvement in IT effectiveness," he said, adding that it simultaneously enabled a 10 percent reduction in spending.[1]

Chevron's IT organization used an IT-CMF detailed assessment to understand and improve its ability to support a key component of the company's business model—innovation. The innovation management (IM) assessment (which rated Chevron's IT organization's overall IM capability at a level 2, or basic) looks at 14 capability building blocks, ranging from vision and strategy to metrics and measurement. The analysis identified a number of clear strengths, including a supportive culture, a well-established innovation strategy for IT that was aligned with the strategy of the business, and tools and processes that reinforce and foster creative thinking and ideation. The assessment also found several potential areas for improvement, including a need for increased seed funding, especially for new technologies; opportunities to further encourage risk-taking; and a need to better leverage collaboration.

Chevron's IT leaders acted on the findings and recommendations—for example, by creating best-practice examples and communicating more actively to employees regarding its vision and activities—with very positive results. More broadly, IT leadership found the assessment highly valuable for facilitating internal discussions and gaining alignment on direction, prioritization, and action steps. In fact, leadership was so impressed by the overall results of the IM assessment that it proceeded to conduct assessments in two other areas—enterprise architecture management and sourcing—that it considers of vital importance.

1. Gregg Wyant, speaking at the Innovation Value Institute's Winter Session 2010 conference. (Source: Innovation Value Institute.)

Exhibit 4. A Defined Road Map Can Lead to Greater Delivered Business Value

An example of a road map for a company's architecture-planning capability

	Current state	12-month target	Two- to three-year target
Maturity level	2 to 3	3	4
Characteristics	Target architecture and road maps are defined for most segments and functions Some business buy-in Standard formats are not always used across domains, even within the same segment or function	A consistent, business-driven target architecture and road maps (for **some** business and **all** technical domains) are in place For all embedded IT teams, the following is true of all domains: ◇ They are defined and agreed upon ◇ They have agreed-upon owners ◇ They have documented as-is and target architectures ◇ They have an agreed-upon implementation road map that has been incorporated into the planning process	A consistent, business-driven target architecture and road maps (for **all** business and **all** technical domains) are in place There is an efficient and thorough annual refresh process IT is more proactive in bringing opportunities to the business A large proportion of the road map is being delivered by leveraging existing assets

Sources: The Innovation Value Institute and BCG.

The Model and the IVI Continue to Gain Traction

The list of companies that have had an IT-CMF assessment continues to grow, as does the number of businesses that are leveraging the IT-CMF aggressively, either as a standalone framework or in conjunction with other frameworks. Merck is using it to develop a long-term plan to develop its innovation capability. Chevron has adopted it as a unifying framework across all of its global IT operations, from those supporting exploration to those supporting distribution and sales. Chevron's IT organization has also incorporated the framework into its performance-management system and uses it to inform its large-change efforts. And a number of leading oil and gas companies are using six processes of the IT-CMF in an integrated qualitative and quantitative benchmarking study covering their entire enterprise IT. The IVI expects the momentum to continue to grow and broaden and believes that, by 2015, more than two-thirds of all *Fortune* 500 companies will be using the IT-CMF as the core framework for managing their IT capability.

The IVI is also expanding its footprint via the launch of formal educational programs and materials. It recently announced the establishment of an international master's degree along with professional diploma courses tailored for CIOs and senior IT executives. The curriculum's focus is on how to align IT with business strategy, improve business performance, and ensure the CIO's position at the boardroom table. The programs will be available online and through selected academic institutions in the United States and Europe.

For More Information

To learn more about the IVI, including how to become a member, participate in its research program, use its assessment tools, or take advantage of its new educational offerings, go to the IVI's website at http://ivi.nuim.ie.

We believe that the full launch of the IVI's IT-CMF signals a new era in IT management and IT's ability to drive business value. If you have not yet explored the framework or had an assessment, consider doing do. It can be a particularly worthwhile exercise if you have a general sense of where problems lie but need confirmation. It can also be highly useful for a new CIO seeking to understand the strengths, weaknesses, and drivers of the IT organization's performance.

Andrew Agerbak is a principal in the London office of The Boston Consulting Group. You may contact him by e-mail at agerbak.andrew@bcg.com.

Stefan Deutscher is a principal in the firm's Berlin office. You may contact him by e-mail at deutscher.stefan@bcg.com.

Cloud Computing in Large Enterprises

Questions for the C-Suite

by Karalee Close, David Dean, Sesh Iyer, and Tamim Saleh

Business executives and chief information officers (CIOs) alike are curious about cloud computing. Many senior executives were caught off-guard in the 1990s by the rapid development of the Web, and they do not want to miss the next big shift. Others have used cloud-based services such as Mozy, Dropbox, and Flickr at home and wonder when their corporate systems will be so easy to use, accessible, and ubiquitous. At the same time, however, they are understandably skeptical about vendors' claims that cloud computing is the next new thing.

Where do clouds belong in the computing landscape of large organizations? To answer that question, we talked to more than 30 technology leaders in global companies and government agencies, discussed strategy with leading vendors, analyzed our client case experience, and examined the leading edge of the market.

Cloud computing has a definite role at large organizations. Today, both companies and governments are realizing sizable gains in cost and efficiency from the cloud. Some are even starting to build potentially disruptive new business models enabled by cloud computing.

Although it is right to be skeptical about any hyped-up new technological development, it is risky to dismiss the cloud as a passing fancy. The benefits of cloud computing today are real. The potential of cloud computing tomorrow is tantalizing. The time to explore both is now.

CIOs see opportunities to save 10 to 50 percent in costs and to go to market faster.

This paper is the second in a series on cloud computing.[1] In the next paper in the series, we plan to quantify the potential value of the cloud to large enterprises.

How Can the Cloud Create Value?

Cloud computing has many widely debated meanings. It is generally described as a model for enabling convenient, on-demand access to a shared pool of computing resources. We view cloud computing as an approach to delivering value to organizations through information technology. (For common definitions of the different types of clouds, see the sidebar "Different Clouds for Different Folks.")

The cloud provides opportunities for value creation at three levels in large enterprises: the utility level, the process transformation level, and the business model innovation level. (See the exhibit "Cloud Computing Offers Three Levels of Value.") Initially, most large organizations focus on the utility level, but increasingly they are exploring the other levels as well.

Utility Level. CIOs see tangible opportunities to save 10 to 50 percent in costs and to go to market more quickly with new applications and upgrades. Most organizations are currently focused on infrastructure and are moving standard applications, such as e-mail and other productivity tools, to the cloud.

Process Transformation Level. The primary benefits of this level

1. See "Capturing the Value of Cloud Computing: How Enterprises Can Chart Their Course to the Next Level," BCG White Paper, November 2009.

Cloud Computing Offers Three Levels of Value

	Description	Select opportunity areas
 **Utility**	Lowers costs and increases agility through elastic computing resources and pay-per-use models	◇ Utilization of equipment and facilities ◇ Self-serviceability ◇ Scale ◇ Agility
 **Process transformation**	Improves integration and collaboration in business processes by leveraging common assets	◇ Process standardization and composition ◇ Streamlined handoffs and integration ◇ New insights from data intensity and data sharing ◇ Enhanced virtual teaming around specific processes
 **Business model innovation**	Creates new business models and ecosystems through linking, sharing, and combining capabilities among enterprises	◇ New services through integration across customers, partners, and suppliers ◇ New insights through data analytics by integrating and aggregating data across channels and enterprises ◇ New asset-light business models that can be rapidly scaled to meet market needs

Source: BCG analysis.

are higher efficiency, closer collaboration, and superior integration and coordination across processes. Avon Products, for example, is starting to rely on the cloud—available on both computers and smartphones—to coordinate communications with its 150,000 sales leaders, who oversee nearly 6 million sales representatives. GlaxoSmithKline, The Coca-Cola Company, Valeo, and the City of Los Angeles have used cloud-based messaging, collaboration, and workflow to lower costs by 10 to 30 percent. Some organizations are moving customer-facing processes to the cloud, taking advantage of existing services such as Web-based calendars, Facebook, and social-networking tools. Early pilots suggest that time to market can be cut by 30 to 50 percent.

Business Model Innovation Level. At this emergent level, the cloud can power new business strategies and sources of competitive advantage built around ecosystems and supported by massive computing power and scale.

What Does the Cloud Mean Today?

Most large organizations are just starting to exploit these opportunities and to lay the foundation of their cloud-computing strategies. At many companies, we find senior executives pushing their IT staffs to be more aggressive and experimental. In our interviews, CIOs said that they recognized many benefits of cloud computing but were adopting a test-and-probe approach built around four principles:

- *Creating a More Industrialized IT Shop.* The cloud enables companies to introduce *standardization, automation, self-service,* and *massive scale* in order to lower costs and provide more flexible service.
- *Extending Traditional IT Outsourcing.* The cloud provides greater flexibility and shorter contracts than traditional hosting arrangements. It also provides a benchmark to compare price and service levels.
- *Sourcing New Capability and Innovation.* Especially in its sweet spots of communication and collaboration, the cloud enables rapid delivery of new services.
- *Redefining the Role of IT.* Moving commodity activities to the cloud can potentially free resources for higher-value uses, such as providing support to core business activities.

Different Clouds for Different Folks

There are at least four types of clouds:[1]

- *Public clouds* are available to the general public but are owned by an organization selling cloud services.
- *Private clouds* are operated solely for a particular organization but may be managed by either the organization itself or a third party.
- *Community clouds* are shared by several organizations and support a specific community. Examples include a supplier and key customers, sister agencies within a government, or trusted partners such as procurement organizations within an industry.
- *Hybrid clouds* are composed of two or more clouds, which can be private, community, or public. They are bound together by standardized or proprietary technology that enables data and application sharing.

1. These definitions are abbreviated versions of those used by the National Institute of Standards and Technology.

How Quickly Should You Move to the Cloud?

For large organizations, the public cloud is still a work in progress, with relatively limited adoption. It may be good enough for small enterprises and consumers with no great need for lockdown security and reliability, but it is not yet ready for prime time for critical activities at large enterprises. In the meantime, large organizations are focusing their cloud efforts primarily on private and community clouds.

Private Clouds. Most large enterprises are already working on some form of private cloud and expect to move 25 to 50 percent of their computing workload within three to five years. Private clouds enable CIOs to gain *some* of the benefits of the cloud while maintaining better control over their data and applications. Royal Philips Electronics and Royal Mail Group (the U.K. postal service), among others, are using private clouds.

Community Clouds. Community clouds bridge private and public clouds. A community cloud can generate greater scale advantages than a private cloud because resources are shared within a defined community—and it can provide greater control over data and performance than a public cloud can. Google's government cloud (Google Apps for Government) is an example.

Public Clouds. Although some CIOs expect the cloud to handle as much as 80 percent of their IT needs, others—particularly those in highly regulated industries such as banking and insurance—are reluctant to move anything meaningful to the public cloud.

What stands in the way of wider adoption of the public cloud by large enterprises? In our interviews, CIOs cited several cautionary flags:

- *Technical limits* restrict the ability of enterprises to move legacy applications and complex applications to the cloud. Our analysis suggests that at least 20 percent of a typical company's workload is unlikely to move to the cloud for technical reasons.
- *Laws and regulations* restrict the movement of data in many jurisdictions and require that the data of individual corporations be segregated. The legal framework for contracting is also still evolving.
- *Standards* to encourage data sharing across clouds are not yet in place. Until they emerge, CIOs will be concerned about interoperability and vendor lock-in.
- *Commercial terms* are still evolving. Pricing is not yet as flexible and unrestrained as vendors' pay-as-you-go marketing suggests. Performance and service levels are improving but are frequently inadequate for everyday, must-have, always-on applications.
- *Security* and *data protection* remain key topics, less for technical reasons than because the services do not yet have long-term track records.

The majority of CIOs expect most of these issues to be resolved in the next three to five years, perhaps longer for government applica-

tions—although government entities are nonetheless beginning to embrace the cloud. (For some examples of the latest trends in the public sector, see the sidebar "A New Model for Government.")

How Could the Cloud Play a Broader Role in Business Strategy?

While CIOs are working through the logistical limitations of today's cloud, business executives are correctly wondering whether the cloud will upend their business strategies, as the Web did in the 1990s. It makes sense to be both skeptical and prepared. The cloud will potentially disrupt and reshape entire industries in at least three ways.

Ecosystem Development. The cloud can knit together multiparty ecosystems. Apple and Google have been able to upend the media industry using cloud and cloud-like technologies. Google, in particular, is building cloud-based business models around standardization, scale, and ubiquity.

Data Analytics. The cloud can enable companies to process far more customer data than is feasible in traditional computing environments. Terapeak, for example, is crunching data sets from eBay and PayPal to offer insights into pricing, products, categories, and sellers. Online merchants are then able to adapt their marketing and sales strategies—nearly in real time. In the energy industry, smart-home initiatives are starting to use the cloud to run the data analytics that enable better decisions about energy use, home security, and entertainment.

> The cloud should be viewed as both an IT tool and a business opportunity.

"Light" Business Models. The cloud can facilitate asset-light business models. Small and midsize enterprises, which have fewer legacies to protect and risks to manage, are early adopters. In India, for example, dozens of community banks are relying on Tata Consultancy Services' "bank in a box" cloud offering to automate deposit and loan processing. Attention should be paid to these developments. Craigslist was able to vaporize a large segment of newspapers' profits by offering free classified advertisements. The cloud could allow the next Craigslist to disrupt any of several industries in ways that are not necessarily apparent today.

What Actions Should Business and IT Leaders Be Taking?

The cloud should be viewed as both an IT tool and a business opportunity. The tactical goals of lower costs and greater agility should not overshadow the potential strategic shifts that may emerge. The following three steps will help to bring the cloud into both short- and long-term focus.

Understand how the cloud can reshape your industry. Business and IT executives should develop a common view on the cloud. As an exercise, they should look carefully at their industry's value chain to uncover opportunities built around lower costs, agility, collaboration, advanced analytics, and mobility. They should also look more broadly

A New Model for Government

Governments, too, are moving to the cloud. Defense, visas and immigration, and tax and finance are the early areas of exploration. The U.S. Office of Management and Budget, for example, is asking agencies to justify *not* using cloud computing in new projects, while the U.K. government announced that it expects to save £3.2 billion through the cloud.

The cloud can encourage collaboration across agencies and create scale efficiencies for smaller operations. The U.S. National Aeronautics and Space Administration, for example, intends to make its cloud platform available to other agencies. Taiwan has announced plans to have 70 percent of its 18,000 medical clinics place their electronic records on the cloud within three years.

The cloud is also a focus of national competitiveness, with a role in promoting businesses, creating jobs, and developing secure digital services. The South Korean government is investing $500 million to nurture its cloud-computing industry, and the French government has set aside €2.5 billion.

to identify activities that would benefit from the cloud's strengths in the areas of scale, managing massive amounts of information, and facilitating standardized processes.

Create a road map to capture value as the market matures. Enterprises should have a plan to build internal capabilities and to transition to the cloud as the market evolves. A road map should include an "experiment and learn" approach with several checkpoints to evaluate new approaches by vendors and to understand issues such as security, the development of standards, and integration across clouds. As systems are replaced and new capabilities added, emerging opportunities in the cloud should be part of the discussion.

Reshape the IT organization. Executives should use the heightened interest in the cloud to accelerate internal adoption. The prospect of lower costs should motivate business leaders to adopt standardization, consolidation, and good-enough technologies in nonstrategic areas. As companies become more comfortable with the cloud, they can expand the boundaries of outsourcing to activities that have highly variable demand, involve multiple parties, or are outside the skill set of traditional vendors. During this transformation, the IT department can start to offer technology on a pay-as-you-go model. Without stifling creativity, companies need to pay attention to the governance of cloud initiatives.

Caution is always important. Outsourcing can work when it is initiated thoughtfully and with a clear view of costs, service levels, and demand. Companies should buy only what they want, not necessarily what vendors are selling.

Our analysis of the market suggests that clouds are here to stay, having proved their worth in many ways and settings. There has been—and will continue to be—uncertainty around timing, penetration, and deployment. But we are certain that clouds are in the forecast for the foreseeable future. It is smarter to pay attention to them—and develop strategies around them—than to pretend that they will blow over.

Karalee Close is a principal in the London office of The Boston Consulting Group. You may contact her by e-mail at close.karalee@bcg.com.

David Dean is a senior partner and managing director in the firm's Munich office. You may contact him by e-mail at dean.david@bcg.com.

Sesh Iyer is a principal in BCG's Washington office. You may contact him by e-mail at iyer.sesh@bcg.com.

Tamim Saleh is a partner and managing director in the firm's London office. You may contact him by e-mail at saleh.tamim@bcg.com.

Raising the Bar

Improving IT Efficiency in Government

by Axel Hofmann and Joost de Kock

Corporate IT operations are under regular, if not constant, scrutiny as companies look to maximize the return on every dollar invested. IT is expected to be on a continuous path of self-improvement, actively seeking—and finding—ways of doing more for less.

IT operations in the public sector are held to similarly high standards and are expected to run at maximum efficiency—yet hitting that target entails bridging a unique set of challenges. Government IT spans many diverse agencies (including such functions as defense, treasury, and foreign affairs), each with its own specific requirements. Consequently, the IT environments and capabilities of government agencies tend to vary significantly, with differences in technologies and standards, IT process maturity, effectiveness of governance mechanisms, transparency of IT costs and drivers, and management focus on IT efficiency. Additionally, the available benchmarking data are frequently not very useful, given the diversity of the agencies' IT environments, making it difficult to gauge what constitutes appropriate spending levels and good performance both within individual agencies and across government as a whole.

Further, although government as a whole typically has potent levers—such as the potential to increase standardization and leverage scale—for optimizing IT efficiency and effectiveness, these levers are seldom fully utilized. This is due both to the often decentralized nature of IT decision-making within government and to the expanse of government IT operations, especially at the national level, which can make the challenges of coordination, standardization, and optimization seem daunting. As a result, government IT often has significant room to improve its efficiency.

Compounding matters, the demands on government IT continue to rise. Citizens' expectations regarding service delivery are climbing quickly—and IT is a key enabler of service delivery. Citizens not only want more, better, and more user-friendly information, but they want it to be convenient, seamless across agencies, and delivered via a broad range of technologies. They also expect the information to be secure and their privacy safeguarded. And as if this weren't challenging enough, governments and their IT functions will have to develop these capabilities while negotiating ongoing budgetary constraints as well as other hurdles, including pressure to minimize IT's environmental footprint.

Where to begin? A bold efficiency initiative undertaken by the Australian government offers valuable lessons. The government commissioned a thorough review of its operations to identify ways to strengthen its management of IT across agencies and improve IT efficiency and service delivery. It embraced the review's findings and recommendations and moved aggressively on implementation, with impressive results. Indeed, within a short time frame—less than two years—the government fundamentally overhauled its IT management and operations for savings of more than AU$1 billion (roughly U.S.$900 million) without negatively affecting service delivery to citizens or businesses. How this was accomplished is worth examining—by both the public and private sectors.

Government IT Overhaul, Australia-Style

The Australian government's first step was to commission an independent expert review of the efficiency and effectiveness of its information and communications technology (ICT). The review was to be comprehensive and to examine a range of issues, including the following:

- Whether the government was realizing the maximum returns on its ICT investments and had the necessary institutional capabilities in place to do so
- What the key levers were for improving returns
- How the government benefited from ICT and how those benefits were measured
- Whether there were opportunities to consolidate existing and planned systems and business processes
- Whether the government had the right people and skills in place to support its ICT ambitions
- Whether there were opportunities for optimizing the government's use of outside vendors

The government appointed renowned efficiency expert Sir Peter Gershon, who had performed a comprehensive review of the U.K. public sector in 2003, to lead the effort. (See the sidebar "Sir Peter Gershon on Improving Public-Sector Efficiencies.") Sir Peter was supported by a small team of five to seven full- and part-time personnel drawn from the Australian Government Information Management Office (AGIMO)—whose mandate is to manage and optimize the government's application of ICT to the delivery of government information and services—as well as from other government agencies. Over a period of roughly

Sir Peter Gershon on Improving Public-Sector Efficiencies

Driving efficiency improvements in government brings a distinct set of challenges. Below are excerpts from an interview that BCG recently conducted with Sir Peter Gershon, a corporate leader and renowned efficiency expert, on some of the hurdles and opportunities that are unique to the public sector.[1]

Stepping back and thinking across all your experience, where do you think the greatest opportunities lie for governments to improve their efficiency?

It's quite difficult to generalize, but if you push me on it, I would say that procurement is a very rich seam for finding gains. Governments don't naturally have within their DNA the desire to pursue efficiency when times are good. The pressure comes only when times are beginning to be constrained. What the private sector calls overhead tends to increase in the public sector when times are good, and there are always opportunities to take out overhead. There are also opportunities to find process efficiencies and for governments to think very carefully about which activities they must undertake themselves and which can be done by third parties that offer better value for the money.

What, in your view, are some of the main differences in approaching efficiency programs between the public and private sectors?

On the basis of my sample of three reviews in the last ten years, the fundamental difference I've seen is the lack of good management data, about the past and the future. In a well-run private-sector organization, there's generally a lot of meaningful data—both historical data and data about projected areas of spending. That enables you to come to grips much more easily with the efficiency agenda in a quantified, focused way. Trying to get meaningful management data in the public-sector environment has been a challenge in each of the three reviews that I have done, and it just makes the thing much more difficult.

The second critical factor in the public sector is that the reviews have to be commissioned by somebody who has a very strong political base in the government—someone either at the cabinet level or a strong minister just below the cabinet level. Without that sort of backing and support, the review won't have the ability to really engage with all the stakeholders you need to deal with.

Is that why you think so many attempts to improve government efficiency fail—or produce disappointing results?

Doing the review is the easy bit: the implementation is always the difficult part. Two things are critical to implementation: first, a program management–type approach; and second, recognition by the political leaders and officials that this is a marathon—you can't just announce it for it to happen. It needs sustained commitment—from politicians and top-level officials—over an extended period, backed by a program management–type function to drive things forward on a day-to-day basis. If that isn't in place, these things get no traction and nothing happens.

1. For the full interview, please go to http://publications.bcg.com/dna_of_government_efficiency.

five months, the team consulted with various agencies and the ICT industry to develop its findings.

Diagnosis and Recommendations

The assessment yielded seven key findings:[1]

- There was inadequate governance of cross-government issues related to ICT
- Agency governance mechanisms were weak with regard to ICT efficiency
- Agencies' business-as-usual ICT funding was not subject to sufficient challenge and scrutiny
- There was a disconnect between the government's ambitions for ICT and the current ICT skills base
- There was no comprehensive, cross-government strategic plan for managing data centers, possibly translating into as much as AU$1 billion in unnecessary spending over a 15-year period
- The government's ICT procurement practices were neither efficient nor effective
- There was a disconnect between the government's stated sustainability agenda and its management of ICT's energy usage and carbon footprint

The review also identified a significant causal factor: the various government agencies had very high levels of autonomy. This limited the government's ability to leverage broad, government-wide strategies that could potentially yield sizable synergies. (A more centralized approach to the management of IT, Sir Peter noted, was common in both the U.S. and U.K. governments as well as in large private-sector organizations.)

Sir Peter's recommendations to address the identified challenges were endorsed by the Australian government. "This is a turning point," said Lindsay Tanner, minister for finance and deregulation, upon the government's decision to move ahead, "rebalancing highly decentralized IT management and focusing on efficiency, effectiveness, and coordination of government expenditure."[2] The recommendations included the creation of oversight bodies to manage cross-government strategies, the development of a government-wide career structure and workforce plan, and the launch of cross-government data-center-management and sustainability strategies.

Perhaps the most ambitious recommendation, however, was to reduce business-as-usual spending by an average of 15 percent. In the remainder of this paper, we focus on the pursuit of this target, because it was the first recommendation to be implemented. It was also effected under a particularly aggressive timeline and has already yielded concrete results.

A particular challenge was the diversity of IT environments across the 53 agencies.

Implementation and Challenges

Achieving the targeted business-as-usual savings was a massive undertaking. Making it particularly challenging was the diversity of ICT environments across the 53 affected agencies—and the mandate that the cuts were not to impair service delivery to citizens and businesses. "Any and all cost-cutting moves had to be very deliberate, because lowering the quality or number of services wasn't an option," said Ann Steward, chief information officer of the Australian government and deputy secretary of AGIMO, which was tasked with leading the implementation.[3] (See the sidebar "What It's Like to Be a Government CIO.")

The work consisted of two parallel initiatives: identifying savings opportunities and establishing ICT efficiency benchmarks. The first of these entailed the following:

- Development of a tailored process and methodology for working with the agencies throughout the project
- Establishment of a central support team to manage the process and provide targeted support and expert advice to the agencies throughout the process
- A granular examination, in partnership with the 53 agencies, of the roughly AU$3.2 billion (U.S.$2.9 billion) in annual ICT spending that the agencies consumed

1. For the full report, see http://www.finance.gov.au/publications/ICT-Review/index.html.

2. "IT Budgets Slashed," *The Age,* November 25, 2008.

3. This quote and others from Ann Steward throughout the article were taken from an interview that BCG conducted with her in May 2010.

- Development of detailed ICT baselines for costs and assets for the 53 largest government agencies[4]

This effort netted a broad set of more than 300 cost-saving initiatives, including such actions as overhead reduction, vendor contract renegotiation, software license rationalization, storage optimization, and rationalization of desktop and laptop computers and printers. The initiatives were vetted through a strategic lens and an overarching focus on maintaining or improving service quality.

Simultaneously, AGIMO and the team developed a comprehensive ICT efficiency-benchmarking approach to enable meaningful comparisons of ICT performance across agencies. The objective here was to support the agencies in their identification of additional savings opportunities and to help inform their ICT strategies going forward. The benchmarking would also provide the government with transparency into ICT efficiency across agencies, allowing it to monitor government-wide ICT efficiencies and effectiveness over time and inform its strategies and investment decisions.

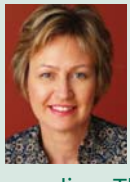
The benchmarking exercise entailed careful design (for example, the data collection templates had built-in data validation and error tracking), clear definitions, and extensive cross-validation. It also yielded useful insights immediately, such as the fact that there were significant differences in unit costs across agencies for all major ICT service categories, in agencies' ability to leverage scale effects, and in agencies' relative costs vis-à-vis asset and capacity utilization.

The implementation was not without its challenges. Not surprisingly, these included early resistance from some agencies, although this issue was ultimately resolved effectively. "Any cut to an agency's budget is painful, whether viewed from an intellectual or an emotional perspective," said Steward, "and there was some pushing back. What helped us counter that was our fact-based approach, which was derived from the benchmarking. Having a single, authoritative source of truth helped us make things understandable, credible, and transparent to the agencies. We could show them that what we were doing wasn't just *our idea*—it had been validated by a third party."

It was also critical, she said, that AGIMO demonstrate a highly professional approach and listen to feedback from the agencies. "Although we had an objective to accomplish, we worked to ensure that we took into account agency issues and concerns and that we weren't imposing anything overly burdensome on them. We also took particular care to ensure that agencies understood that we were approaching this on a customized, agency-by-agency basis and not utilizing a single model for all. This approach and the agencies' understanding of it were par-

4. Excluding the Department of Defence, which was subject to a different ICT efficiency program.

What It's Like to Be a Government CIO



The question arises, what is it like to be a government CIO? Ann Steward, chief information officer of the Australian government and deputy secretary of the Australian Government Information Management Office, considers the role "great—and very demanding. The agenda is huge, and we're careful about the resourcing demands in terms of the programs, initiatives, and activities we're delivering on, as is typical in the public sector. In our case, we have to execute from a very small base as part of a government and agency enterprise that is more than ten times our size. So there are challenges common to all private- and public-sector entities, such as in delivering projects and in establishing and maintaining credibility. There are other challenges as well, including attracting and retaining suitable skill sets and levels.

"The job also requires a distinct set of personal and negotiation skills," she says. "It requires persistent and consistent stakeholder interaction and management. It also requires a willingness to be the least-liked person at times when you really do need to drive certain policies, outcomes, and positions.

"So the job definitely has its challenges. But it's also very rewarding, and I've been very fortunate in the experiences I've had and the people I've worked with and what we've managed to accomplish together."

ticularly important to the integrity and success of the overall process."

Steward noted that there was also concern from industry players, at least initially. "Most of them reacted with alarm when they found that their revenues stood to be cut significantly as a result of our efficiency and effectiveness measures. But this was our new direction, per the government."

Results

The effort has generated impressive results. Within a 12-month period, the Australian government identified and locked in cost savings in excess of AU$1 billion, to be achieved over four years with no impairment of service delivery to citizens and businesses. Consistent with Sir Peter's recommendations, 50 percent of the savings have gone into a central fund for reinvestment aimed at further improvements to the effectiveness and efficiency of ICT business-as-usual activities.[5] AGIMO has also established its first comprehensive benchmarks for government ICT performance in Australia and created a process to update those annually, allowing the government to maintain transparency and continue to drive improvement.

The Australian government identified savings in excess of AU$1 billion.

The importance of the benchmarking, said Steward, cannot be overstated. "I think one of the biggest advantages from all that has been achieved with regard to the examination of our ICT is that there is now a definitive source of truth about the majority of what happens in government in ICT, a source that can be relied upon, is up to date, and can inform the government's decisions on investments," she said.

Other governments, including government entities in Australia, Canada, Denmark, New Zealand, and the United Kingdom, have taken notice, and AGIMO has shared its findings and best practices with them. "We've had worldwide interest, and the Canadian government, for one, has launched a similar initiative," said Steward. "It's a great opportunity for us to help establish perhaps a first-ever global standard for IT in government. We're very excited to see how this evolves."

Beyond reaching the business-as-usual savings targets and establishing a benchmarking program, AGIMO has delivered on a range of other objectives as well:

- The establishment of the Secretaries' ICT Governance Board to drive the government's ICT reform agenda[6]
- The design of a cross-government ICT procurement approach
- The establishment of a cross-government data-center strategy
- The creation of a common ICT chart of accounts
- The design of principles of engagement for partnering with industry
- The launch of an ICT workforce and careers framework

More broadly, the efforts have led to a cultural transformation—indeed, a holistic transformation—of ICT within and across government agencies, centered on transparency and ongoing improvement. Says Tanner, the finance minister, this is "the most significant change in the use and management of ICT" in the public sector to date.[7]

The work has also had implications for the ICT marketplace. "We have worked very closely with industry providers to optimize our relationships," said Steward. "We have established a register and profile of strategic ICT suppliers, and we actively manage it. This helps us understand how our suppliers are supporting us in terms of products and services and the quality of that support. It also helps us better manage any issues that might arise."

All in all, Steward said, she's very satisfied with the results to date. "I think we've surprised some people with what we've been able to accomplish. We've managed to deliver real change, on time and on budget, in as transparent a way as possible, all while maintaining high standards of

5. In May 2010, the government announced that 44 new IT projects would be funded; see http://www.financeminister.gov.au/media/2010/mr_262010.html.

6. The board comprises secretaries and chief executives representing central bodies, portfolio departments, and delivery agencies, as well as selected senior business executives from companies outside the ICT sector.

7. "ICT Cut Applies in Full: Tanner," *The Australian,* November 25, 2008.

professionalism. Out of 45 planned projects, we've completed 34, with 7 more due for completion by December 2010 and 1 by December 2011. These projects are on schedule. And, critically, we've accomplished our goals without impairing the delivery of services in any way, which was our overarching objective."

Key Drivers of Success

Engineering large-scale change within any organization is challenging; the difficulty is amplified severalfold in a government environment. What are the factors that have allowed AGIMO to succeed to the degree that it has? We have identified five key actions. These are transferable, we believe, to most government change efforts. But they also map closely to the must-haves for driving change in the private sector, as follows:

A fact-based approach allows the focus to remain on data rather than emotions.

Establish a clear, top-down mandate for the program that is understood by all stakeholders. The cabinet decision that endorsed the Australian government's proposed IT-transformation initiatives and targets was key to aligning the efforts of the 53 affected agencies. While not every transformation effort requires a cabinet decision, a clear and visible top-down mandate is critical and must be reinforced throughout the duration of the project.

Establish a clearly defined, transparent, and consistent methodology. The entire process—including deliverables, timelines, responsibilities, standards, and metrics—must be clearly defined and articulated to the participating agencies up front. Developing a consistent methodology is a particular challenge, given the diversity of agencies and their requirements and environments. Seeking and incorporating stakeholder feedback during the effort can help and can further increase the methodology's effectiveness.

Use a fact-based approach. Establish an agreed-upon baseline; employ recognized benchmarks and external comparisons to gain insights; document initiatives and any proposed changes to plan, including projected impact; and utilize frameworks to document risks and impacts on service delivery. Maintaining a strictly fact-based approach allows the focus to remain on the underlying data rather than on the emotions associated with particular initiatives.

Form an appropriately experienced and well-resourced support team. Draw on both internal and external experts; ensure that you have enough seniority on the team to build and maintain credibility for the project; and recruit high achievers. The quality, breadth of experience, and seniority of the team are perhaps the most important success factors, as they determine the team's ability to combine internal and external perspectives and to react to unforeseen situations and overcome challenges as they arise.

Actively manage stakeholders. Ensure senior stakeholder (for example, agency CEO and CFO) involvement in and signoff on the process. Create a sense of urgency within the agencies that need to support the change effort. Ensure consistent and regular communication with the affected agencies, and actively seek and be responsive to their input. Facilitate cooperation and knowledge sharing across agencies to recognize and leverage existing best practices.

The Australian government's work confirms that significant improvements in IT efficiency can be achieved in the public sector, provided sufficient rigor is brought to the effort. On that note, it is worth highlighting that the government's ICT transformation is ongoing. AGIMO has an ambitious agenda planned over the next 12 to 18 months. This agenda includes plans to leverage Web 2.0 technologies to improve the delivery of services to citizens; drive business and economic growth; spur greater standardization of technology across government; continue to make progress with efficiency and effectiveness initiatives in desktops, telecommunications, and data centers; and identify and seize opportunities for shared-service agreements within agencies and across government where that makes sense. "We have a lot we want to accomplish, and I'm confident we can get there," says Steward.

Axel Hofmann is a partner and managing director in the Sydney and Canberra offices of The Boston Consulting Group. You may contact him by e-mail at hofmann.axel@bcg.com.

Joost de Kock is a partner and managing director in the firm's Sydney and Canberra offices. You may contact him by e-mail at dekock.joost@bcg.com.

Blazing a Trail Through the IT Basement

How Insurers Can Streamline and Optimize Their IT Architectures

by Stephan Heydorn, Rolf Mäurers, and Jürgen Strohm

IT architectures in the insurance industry often resemble a house that has been occupied for generations. An annex here, a new roof truss there—and a barely navigable basement crammed with things accumulated over decades.

Meanwhile, the demands on insurers' IT departments continue to grow, so this clutter comes at a cost. IT is increasingly expected to do far more than "simply" execute its standard mandate. It is called on to enable (and often drive) new products, services, distribution channels, and innovation generally; master and implement new technologies; support the company's strategic moves, including M&A; and help the company meet ever-rising customer expectations. And it is expected to do so under intensifying cost pressure and the business's demands for greater flexibility and increasing levels of automation. Aged IT architectures, which may also be struggling to cope with previous postmerger integrations, are often stretched thin trying to keep up, and CIOs are faced with the sizable challenge of either adapting their systems or replacing them completely—without compromising ongoing operations.

This article lays out an approach for tackling the challenge. It starts with a discussion of how to define a blueprint for an optimized IT architecture, one that fully supports the business's ambitions and does so in a highly efficient and cost-effective manner. It then discusses how to identify priorities and properly sequence implementation steps—and how to ensure that the IT organization has the right skills at hand to achieve and maintain the target blueprint. Insurance companies that follow this prescribed path can more tightly align IT investments with business priorities, better leverage (IT-enabled) innovation, and increase staff satisfaction in both the business and the IT organization.[1] They can also potentially save millions of dollars by avoiding redundant or misdirected investments.

Developing a Target Blueprint

The first and most critical step in optimizing an insurer's IT architecture is determining what the new architecture should look like. (See Exhibit 1.) Which applications are needed in the respective business units and value chains? Which platforms and technologies should be used to support those applications? Although in principle the answers to these questions are company specific, there are commonalities across the insurance industry.

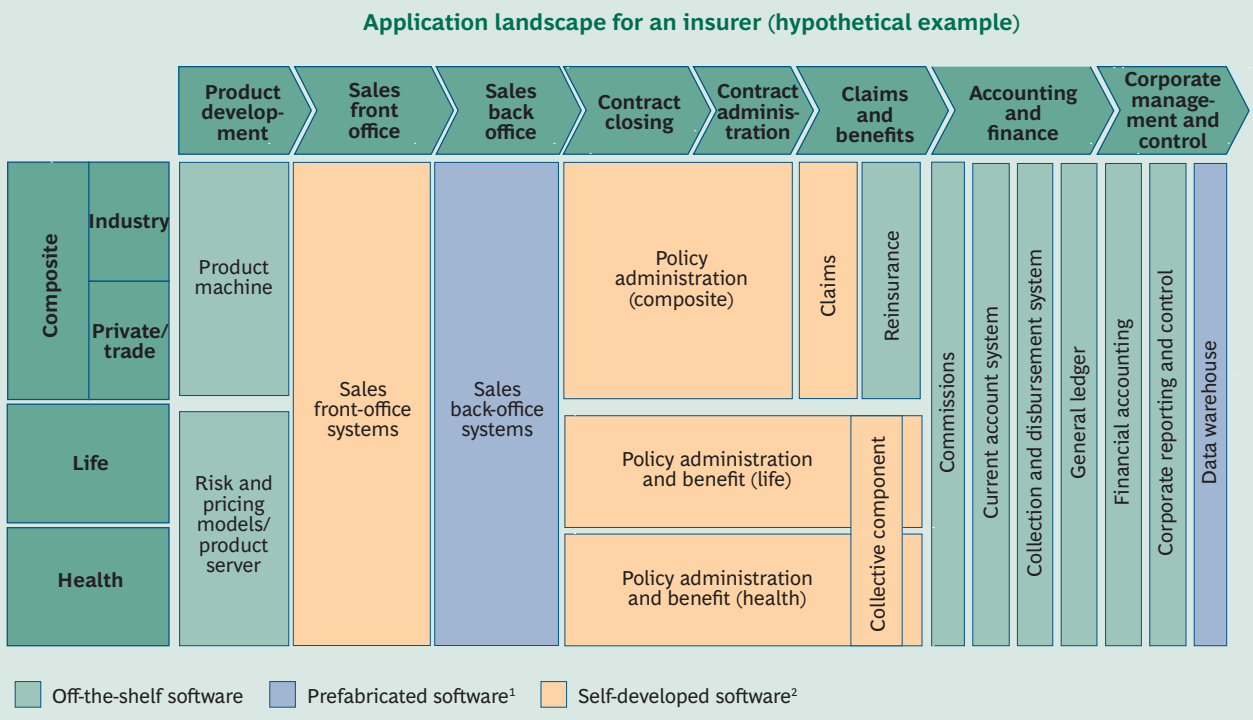
Optimizing the IT Architecture for Core Insurance Processes. Sales, policy management, and claims are critical functions that demand optimal support—ideally with as few systems as possible. Front- and back-office systems for sales should provide, at a minimum, common user interfaces across all business segments. Product models and tariff calculation should be available through standardized product machines,[2] which are used by policy management and claims systems as well. Multisegment accessibility and functionality is the key objective here.

A comparable strategy should also be pursued in optimizing the IT architecture that supports policy management. The front ends of the applications should be designed to be technologically and ergonomically standardized across

1. See also "(Technology-Enabled) Innovation: A Weapon to Win the Battle for Competitive Advantage" in this issue of *IT Advantage.*

2. A product machine is an application that structures and stores critical information about insurance products across multiple business segments. The information can be accessed by various systems and used to help configure new products.

Exhibit 1. The Target IT Architecture Maps Applications to Business Lines and Value Chains



Source: BCG analysis.
[1]Self-developed software based partially on purchased software.
[2]Software developed specifically for the insurer (often developed in-house with some external support).

all business segments. In many cases, however, a heterogeneous, nonstandardized landscape will be inevitable. The migration of life-insurance-related systems, for example, can be extremely costly due to the systems' high degree of complexity. In contrast, the merging of separate composite systems today is economically realizable, in many cases, and standardization can be achieved more easily.

Currently, there are few off-the-shelf software packages that fully cover sales, policy management, and claims simultaneously. However, there are many specialized products available, although the complexity of customizing these to the degree necessary can be high—and the cost is often equivalent to that of developing a solution in-house. (A rule of thumb: customization costs are typically five times as much as licensing fees, and integration fees are typically ten times as much.) Caution is therefore necessary when evaluating systems, even those offered by large providers. Systems often fundamentally change between the time that they are piloted and the subsequent full rollout.

Being among the first adopters of a newly designed system can have its advantages, especially when the costs (which can total from $20 million to $100 million in the case of extremely complex policy-management systems) are distributed equally between the insurer (and potentially other insurers) and the systems provider—and when the insurer has sufficient influence on the software's functional design and development road map. Still, the path is usually rocky, and the first large release update can quickly become as expensive as a full-scale migration project. It is wise to evaluate the strength of your negotiating position vis-à-vis that of the provider in order to have effective control options, especially after closing the contract.

Optimizing the Architecture for Downstream Processes. Downstream business processes in insurance—such

as collections and disbursements, commissions, general ledger, reinsurance, and monitoring and steering processes—should generally be set up across segments. The shortage of competitive-differentiation options for insurers with regard to these processes, as well as the large degree of flexibility necessary to accommodate changing regulatory requirements, makes the use of standard software a good choice here. The primary benefit of using standard software, it should be noted, is generally not a lower cost relative to in-house development but rather a reduction of complexity in architecture, development processes, maintenance, and even business processes. Less complexity can free business and IT to focus on more value-added, differentiating processes.

Less complexity in IT architecture permits a focus on more value-added processes.

Cross-functional systems, such as partner systems,[3] workflow systems, and document management systems, should also be consolidated—with a special focus on cross-segment usability and interfaces. Many companies do not sufficiently attend to interface problems, which is a mistake because interfaces can cause increased adaptation costs and often prevent the flexible design of processes. For fully automated processes, in particular, functional interfaces are especially critical. Hence, it is wise to adopt a measured, incremental optimization of interface concepts that is centered on service-oriented architecture (SOA) principles and platforms. Deployment of SOA, however, can easily take on a life of its own, and the question of what constitutes effective and economical usage is often not considered until too late in the process, so judgment is required. In addition, and in order to limit risk, the consolidation of workflow systems should be performed through pilot programs and expanded to other divisions only after the pilots have demonstrated success.

Optimizing the Architecture to Support Innovation. Innovation, particularly technology-driven innovation (such as the integration of intelligent end-user devices into insurance processes or the leveraging of new communications platforms for the exchange of information with customers and the sales organization) will be a key means for insurers to achieve growth in competition-saturated markets—and the IT architecture must be able to support the company's innovation plans.[4] The CIO should work with the business to ensure that the business can seize new technology-based opportunities that could lead to competitive advantage. To support this effort, he or she should set up a structured process with the business to identify potential innovations early and to vet their business potential as well as their prospective IT-efficiency benefit. Doing so ensures that innovative technologies or new functionalities to support business innovations are integrated smoothly and efficiently into the existing IT landscape. This, in turn, ensures that the IT architecture and master plan remain highly stable and averts disruptive last-minute changes down the road in response to competitors' moves.

Road-Testing the Blueprint's Viability. Insurers typically use one of two strategies for testing and implementing their blueprints. In the first approach, an insurer uses smaller, delineated areas of requirements, such as glass-claims processing, to test new platforms and technologies without extended preanalysis. The advantage of this approach is that the insurer quickly acquires concrete functional and technical experience, which can significantly facilitate the subsequent targeted rollout. The risk (albeit limited) is that the platform being tested fails to deliver what was promised.

The second approach can be faster but is riskier in general. The insurer chooses and commits to a single new platform that it believes will be optimal. It develops specifications and a detailed road map for the introduction of the entire platform—and typically launches the implementation by choosing urgent and often critical business processes as a first step. The risk of this approach is that problems with the platform's suitability may reveal themselves late in the game, well after the company's large up-front investment and the point of no return.

We recommend that insurers pursue a hybrid approach: first develop a comprehensive target vision that is aligned with the company's business strategy, and then define focus areas (for pilot implementations, for example) on this basis. In the course of working on these focus areas, insurers should hold off on making far-reaching technological decisions or picking platforms unless they have

3. A partner system contains all relevant information on clients, sales personnel, and external experts.

4. The Innovation Value Institute's IT Capability Maturity Framework offers a useful tool for gauging the IT organization's ability to support innovation; see "Managing IT for Business Value: The New Gold Standard" in this issue of *IT Advantage.*

sufficient practical experience. This significantly reduces the risk of bad investments.

Using a "Heat Map" to Identify Priorities and Properly Sequence Changes

After developing a target vision, the sequence of implementation steps should be determined on the basis of business and technical priorities (such as the need to replace outdated hardware) and incorporated into a master plan. A helpful instrument for identifying priorities is an architecture "heat map." (See Exhibit 2.) The heat map makes problem spots immediately visible, thereby allowing the company to take critical remedial actions at an early stage of the master plan.

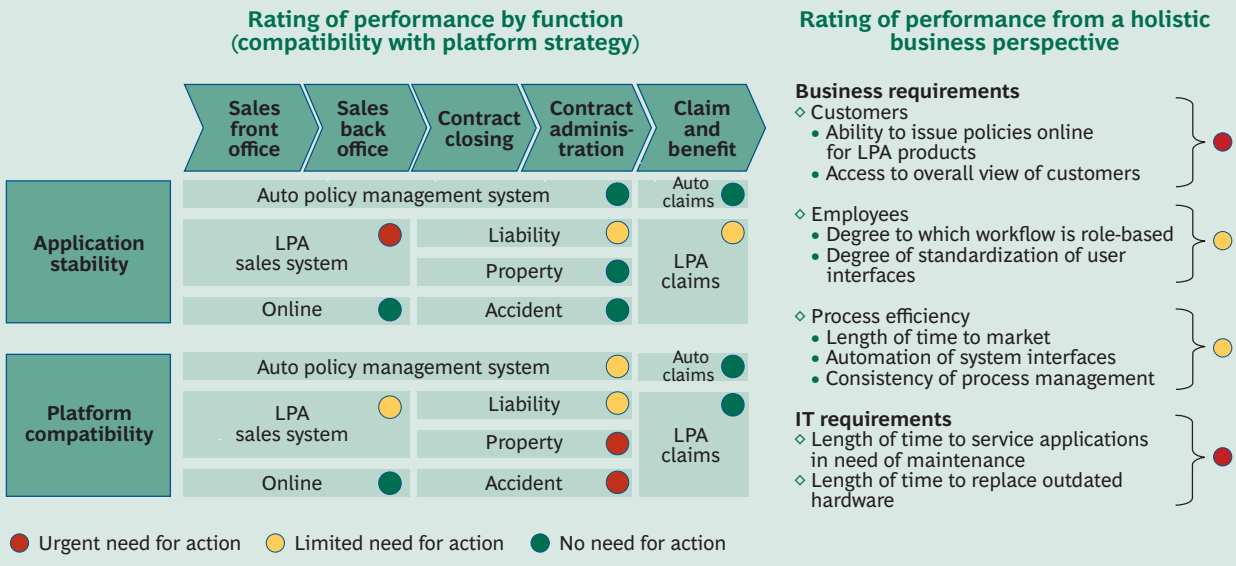
Creating a heat map requires transparency across the current application landscape. This includes business requirements and existing IT coverage, deployed technologies and platforms, interfaces, data inventories, and application-specific costs.

The heat map's essential value lies in the unbiased and transparent view of the status quo that it provides both IT and the business. This insight can foster consensus on a path forward and ensure commitment to decisions, which can be critical. At some companies, 20 to 30 percent of available development capacity is lost through inefficiencies due to frequent reprioritization of actions and the resulting massive specification changes or even project stoppages.

A supplementary representation of IT (architecture) performance from the perspective of the business is provided by the cockpit depicted in Exhibit 3, which shows an IT situation analysis for a large European life insurer. The cockpit includes typical IT cost metrics, such as the IT cost ratio and unit costs, and a number of critical business indicators, such as back-office productivity and time to market for new products. This consolidated view makes the value created by IT tangible to the business side.

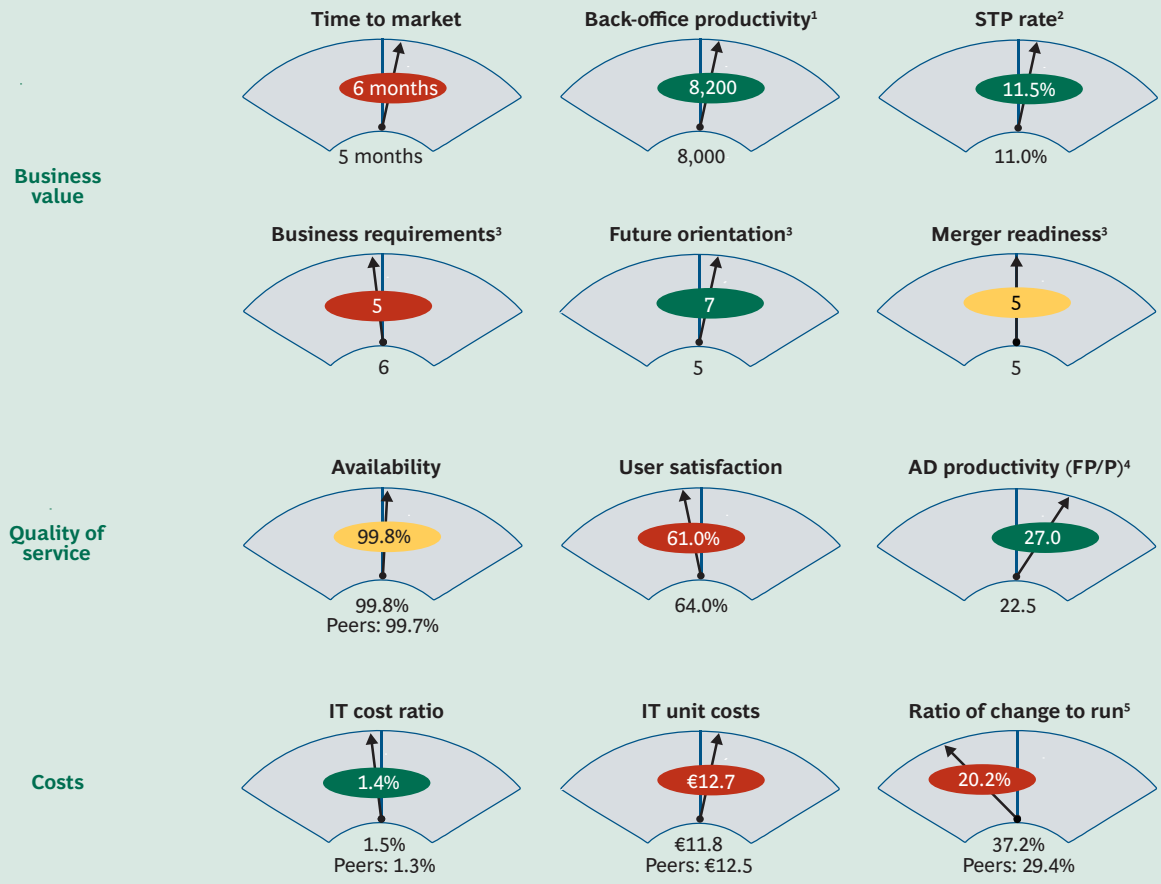
In our work with clients, we often hear complaints such as "IT just doesn't deliver" from the business side of companies, and "We're doing fantastic work in IT, but the business division doesn't see it" from IT. Utilizing the cockpit, especially in conjunction with the heat map, can objectify the discussion and help build consensus between the two sides on IT's current performance and targets. "Friction losses" and inefficiencies at the inter-

Exhibit 2. A "Heat Map" Assesses Critical Action Areas by Function and Business Perspective



Source: BCG analysis.
Note: LPA = liability, property, and accident.

Exhibit 3. Using a "Cockpit" Can Create a Common Perspective on IT's Performance



Source: BCG analysis.
Note: Benchmarks (underneath the dashboards) are company-set targets unless noted; actuals are in the dashboards.
[1]Insured risks per back-office full-time employee.
[2]STP = straight-through processing.
[3]Based on subjective scoring.
[4]Application-development productivity (function point per person-month of developer capacity).
[5]Ratio of "change the business" spending to "run the business" spending.

face between the business and IT can thereby be significantly reduced.

Ensuring the Necessary IT Skills

Changing the company's IT architecture will likely demand a change in IT skills and capabilities, which optimally will require a proactive, strategic approach on the part of the IT organization, involving a comprehensive needs analysis and a discussion of the potential for individual employees to possibly take on different roles. It also requires an analysis of the external skills market—and support from the company's human-resource function.[5]

The first, most basic, step is a thorough needs analysis. Which IT skills and roles will the company require over the next three, five, or ten years? Exhibit 4 shows an ex-

5. For a fuller discussion of the topic, see "Strategic IT Workforce Management: Building Tomorrow's Key Capabilities Today," *IT Advantage,* BCG report, Spring 2010.

Exhibit 4. Gap Analysis Highlights Likely Changes in Skill Requirements

Hypothetical example

Role	2011	2013	2015	2017	2019
Architect	–90	–10	50	–10	30
Business analyst	–90	–20	40	80	90
Host developer	50	80	100	120	130
Java developer	–460	–260	–140	–70	–50
Project manager	–130	–40	0	20	30
Quality manager	–120	–80	–50	–40	–30

Address overcapacity
Build up internal skills
Use external sources

Sources: Platinion; BCG analysis.

cerpt of the results from such an analysis. The CIO's objective was to model personnel requirements for 30 IT roles over the next few years. The chart shows, among other things, a surplus of host developers on staff relative to the need. By contrast, the number of Java developers, project managers, and quality managers is inadequate.

To address these issues, the company took a number of actions, including requalifying employees for new roles, targeted training, shifting personnel among departments on the basis of needs, and external hiring. This forward-looking approach translated into tangible advantages for the company: terminations (and associated severance packages) were minimized, the company retained as much acquired experience as possible, any negative effects on employee morale were relative modest, and the task of providing staff for growing departments was simplified considerably (relative to filling slots solely through external hires). Ultimately, the company ensured that it would be able to execute and maintain the new target vision—and to do so in as cost-efficient a manner as possible.

An optimized IT architecture—one free of unnecessary clutter and fully furnished to support the company's ambitions and needs—can be a powerful competitive weapon for insurers. The critical path for achieving it consists of defining and testing a target blueprint, identifying priorities and properly sequencing implementation steps, and managing the IT skills base to ensure that the blueprint can be achieved and will be long lasting. The considerations described above provide guidelines for making these steps happen.

Stephan Heydorn is a senior partner and managing director in the Düsseldorf office of The Boston Consulting Group. You may contact him by e-mail at heydorn.stephan@bcg.com.

Rolf Mäurers is a managing director of Platinion, a wholly owned BCG subsidiary. You may contact him by e-mail at maeurers.rolf@platinion.de.

Jürgen Strohm is a principal in BCG's Munich office. You may contact him by e-mail at strohm.juergen@bcg.com.

(Technology-Enabled) Innovation

A Weapon to Win the Battle for Competitive Advantage

by Stephen David and Ralf Dreischmeier

On July 19, 1588, a beacon atop a hill on the coast of England sent out a signal, setting off a sequence of events that was to change the course of Western history. One of the greatest armadas ever assembled had just been sighted in the English Channel. The fleet stretched for more than seven miles and had 130 ships and more than 30,000 men. The Spanish were coming!

By comparison, the English defenders had at their disposal fewer than 60 ships—along with less than one-fifth of the manpower and only one-tenth of the cannons.

The Spanish had a simple plan: destroy the English at sea and then proceed to London and obliterate the English monarchy. But over the course of the next two weeks, the English picked the Spanish Armada to pieces in a series of decisive skirmishes. In the end, the Spanish lost half of their ships and more than two-thirds of their men. The English, on the other hand, didn't lose a single ship.

In the years leading up to this battle, a primary area of focus for the English—and one that ultimately proved the linchpin to victory—was *technology-enabled innovation.* The English ships were much smaller and had more than twice the agility of their lumbering opponents. They also sat much lower in the water, making them far more difficult targets. Their cast-iron cannons were able to fire more than ten rounds at a time, compared with the Spanish bronze cannons, which had to cool for three minutes after each shot. The English also had vastly better communications and intelligence on local tides, currents, and winds, which enabled them to always have the best attack position.

This battle changed history: it marked the end of Spanish dominance in Europe and the New World, and the corresponding rise of the British Empire.

Today's Challenge

Many businesses today face a different but no less daunting challenge—surviving against mushrooming competition. This competition is coming from both conventional quarters and, increasingly, unconventional ones, including rapidly developing economies. One of the few surefire ways to come out on top against these competitors is by excelling at innovation. In fact, it may be the *only* viable way for many companies to differentiate themselves, especially in the current environment, because most organizations that have survived the Great Recession have already squeezed most of the inefficiencies and excess costs out of their businesses. In short, it's going to be increasingly tough to compete on the basis of cost-cutting. Companies need to innovate to win.

Innovation can play a particularly key role in attracting and retaining customers. Many companies have essentially taken the customer for granted for years, resulting in subpar customer experiences and some of the lowest trust ratings for companies and brands on record. Innovation that translates into new and better products, services, and ways of doing business can do much to reverse that trend.

The problem is that most companies, including your competitors, know that innovation is essential—and they are investing accordingly. BCG recently conducted a global survey of nearly 1,600 senior executives and found that, after hunkering down in 2009, companies have

put innovation back on the front burner in 2010.[1] Innovation is at the top of their priority lists—72 percent of survey respondents said that their company considers it a top-three strategic priority—and they are increasing their innovation spending, albeit carefully. And fully 84 percent of respondents said that their company considers innovation to be an important or extremely important lever for reaping the benefits of an economic recovery.

Many of these companies, however, will likely fall short in terms of results. Indeed, our survey indicated that roughly half of executives are dissatisfied with the return on their innovation efforts. Where will they go wrong? Some won't know what to focus on. They'll devote all of their attention to the pursuit of new products and services and ignore the systems and processes underlying those products and services. They'll also ignore business-model innovation. Many companies will also neglect the organizational and cultural changes necessary to support innovation. Finally, and critically, many companies will underutilize what can and should be a powerful enabler of innovation—information technology. Indeed, for many companies, IT is the closest thing to a secret weapon that they are likely to find. It can play a determining role in who succeeds and who fails.

This paper is about how to become more innovative as a company, and how technology—specifically, information technology—can help you get there. It should be emphasized that these are not, however, small challenges. Companies will need to move on multiple fronts simultaneously, and the demands on leadership will be significant. But the payoff for success can be substantial. And the cost of *not* acting—or acting and failing—stands to be equally large.

IT is the closest thing to a secret weapon that many companies are likely to find.

Disruptive Innovation

Disruptive innovation—the kind that changes the rules of the game and delivers decisive competitive advantage—seems to be on everyone's lips in the corporate world. The fact is, however, that most companies haven't mastered how to get it done. Why is this? First, they probably haven't defined innovation in the context of their particular company. Disruptive innovations aren't often going to be simply a new size or color of something you already have. They are going to be whole new business models or combinations of ideas never conceived before.

Second, companies often confuse creativity with innovation. The first is an activity, and the second is an outcome. Few companies succeed in being innovative by sequestering tee-shirted, sandal-wearing employees in multicolored rooms to brainstorm new ideas. Innovation goes beyond ideas to execution and sales. Commercialization is one of the most critical components of innovation.

Disruptive innovation is also about focus. (See the sidebar "Driving Innovation: Lessons from Procter & Gamble.") A scattershot, random approach, which is essentially what many companies take, is destined to fail. A company's innovation resources are finite—and they need to be targeted at the right things in order for innovation to be able to deliver.

Last, few companies stop to think about what has to be in place before the ideas start rolling in. Obviously, a new vision and a burning platform, or reason to change, have to be articulated by the company's leaders. But other fundamental questions concerning people, processes, and metrics need to be asked and addressed as well. Among them are the following:

- Do we have too many people who can say no and too few who can say yes?
- Are our business processes, such as new-product cycle times, too slow and inconsistent to create competitive advantage?
- Is our organization highly insulated, and does its reward system foster too much individual ownership?
- Do we hold people accountable for results?
- Do we measure our progress in areas such as the number of initiatives in the pipeline, how long they have been there, and whether they are meeting their initially promised goals?

1. See *Innovation 2010: A Return to Prominence—and the Emergence of a New World Order,* BCG report, April 2010.

Driving Innovation
Lessons from Procter & Gamble

BCG senior advisor Stephen David (coauthor of this paper) reflects on his experiences at the consumer giant.

At P&G, where I worked for more than 30 years and served as both a general manager and CIO, we knew very early on that we needed to become much more innovative. The problem was that through the late 1990s until about 2000, we never saw an innovation we didn't like. We threw a lot of ideas at the wall and hoped something would stick. Not much did, though, and we didn't make many of our financial goals. It wasn't until we defined what innovation was to us and made clear choices on where we needed to focus—for example, on beauty care and Western Europe—that we truly made progress. And we did make progress. In fact, we emerged a different company.

There were three other key ingredients in this transformation. One was a fundamental change in how we viewed innovation: we decided that it was going to be the catalyst for change. This was probably the single biggest factor that turned us around.

The second key ingredient was strong leadership, which helped drive the vision throughout the company. Most companies strongly resist change. Employees fight it because it is uncomfortable or represents too much risk. When I once asked a young P&G brand manager why he wasn't testing more alternative media for his brand, he replied, "No one at P&G ever got fired for running more TV copy." This sort of thinking won't change on its own. Most organizations don't overcome their resistance to change until they are confronted with a new vision and strong leadership from above to do something different, or with an overwhelming burning platform—something that literally has the potential to destroy the organization's status quo. We witnessed that firsthand at P&G.

The third essential ingredient was IT. Our IT organization made a substantial contribution toward improving P&G's agility, communications, and intelligence. It was the glue that held the company together as we engineered this overhaul—and the tool that allowed us to leverage our collective abilities. It really was the critical enabler.

- Is our decision-support system accurate, timely, inclusive, and wholly mechanized?

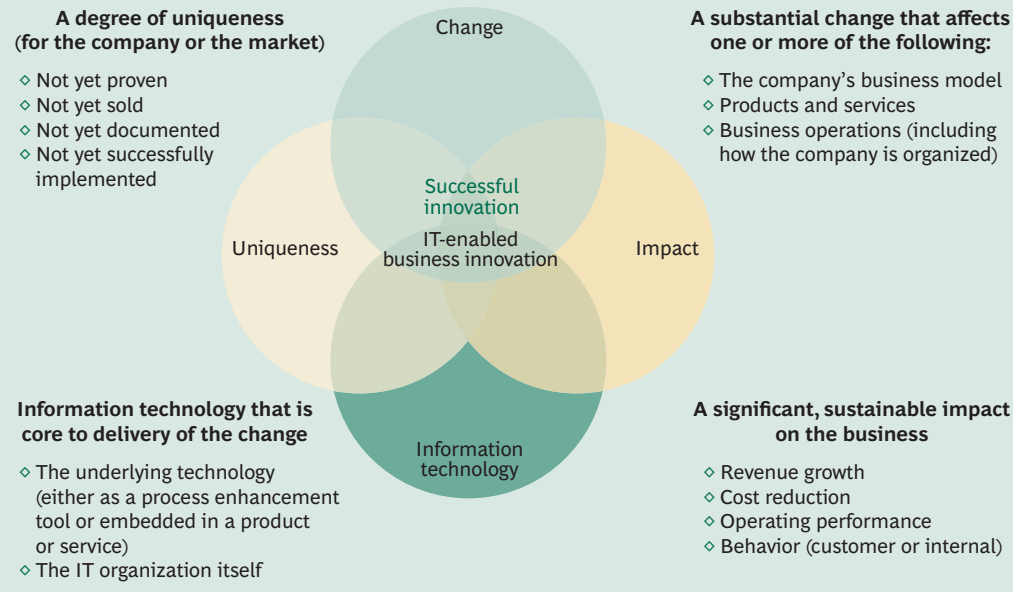
The exhibit "Elements of Disruptive Innovation" on the next page summarizes the characteristics of disruptive innovation. Its first key point: disruptive innovation is about unique new business models, products, services, or business processes that materially change or make obsolete the status quo and produce sustainable long-term results. Its second key point: in this day and age, most disruptive innovation will have as a vital element information, content, or a delivery method that requires information technology. An example of this is the new and emerging mobile marketplace, where revenues and margins of the core business are eroding and new business models are required to fill the revenue and profitability gap. Companies are employing new, more integrated customer propositions and new technology-enabled business models to address the issue.

The Role of Information Technology

IT organizations have a unique function and vantage point in most companies, one that confers an increasingly critical role in the race to build innovation capabilities. This is based on the fact that much of the value that companies have created in the past has come from optimizing their vertical silos (for example, improving R&D or marketing and sales). While this will continue to be important, it is getting harder to differentiate one company's activities from another's in these areas. In the future, companies will increasingly need to look to improve their competitiveness along *horizontal* lines—that is, on pain points in their supply-chain, forecasting, and market-research processes. No function is better suited to see across these internal and external boundaries than IT. This is also where agility, transparent and accurate information, and new tools come in. All are in IT's domain.

As an example of the potential value that IT can add, consider the customer experience often provided by multichannel consumer-retail companies (for example, financial services and telecommunications firms). Nothing irritates customers more than dealing with inconsistent information from different sources within the same company. But how many times do you find that a major retailer's online information and offerings are different from those of its brick-and-mortar stores or branches, or even its call centers?

Elements of Disruptive Innovation



Source: BCG analysis.

Customers often feel as if they are dealing with three different companies. And what do they do in such circumstances? After they get over being annoyed, they either go to another store or start to game the system, playing one group against another to get the best deal—none of which is good for the company. IT is uniquely positioned to help retailers bridge these gaps and standardize information across channels, creating a seamless, loyalty-building experience for the customer.

The IT organization can play a similar, larger role in enabling and helping to drive a company's broader innovation campaign. The fundamental question, then, is whether the IT organization is up to the task. Has it moved beyond just doing its back-office transactional duties? Does it have a CIO who has run a line business in the past and can articulate and lead the development of the new skills that will be needed to deliver the innovation vision?

A leading mobile operator demonstrates the scope of the role IT can play in driving business innovation. The telecom industry is going through a massive shift, and incumbents have to transform themselves accordingly to find new sources of future revenue growth. This particular company believes that innovation should play a key part in that effort, and it has implemented a new operating model for IT to facilitate that change—one that looks very different from the old model.

The company has defined innovation as one of its core technology capabilities. It has established an innovation team and appointed a head of innovation, who reports directly to the chief technology officer (CTO), who himself sits on the company's executive board. The team's members have a mix of technology and business backgrounds and were either drawn from the company's "rising stars" or carefully chosen from the external market. The team has the flexibility to work very differently from the rest of the organization, but innovation remains a process, one that needs management, monitoring, and measurement.

Although the innovation team is situated in the technology function, it works closely with the business units and the business development team. Expectations for the innovation team are high but realistic. The team has committed to a return of ten times the total innovation budget within two to three years. However, individual investments are not measured in terms of their specific

return on investment; in fact, failing (but failing fast) is an expected outcome for a lot of the initiatives. With strong support from the CEO and the CTO, this team is expected to play a primary role in the company's success going forward.

Making It Happen

So how do you become a more innovative company—and maximally leverage IT to help you get there? Putting the CIO in the driver's seat can be a good start, given his or her unique perspective on the organization and IT's enabling capabilities. But there are a host of other things you need to do as well, from installing the right metrics and incentives to optimizing the number of layers and spans of control. Below, we touch on some of the more important ones and offer some self-diagnostic questions that can start you down the path.

Speed and Agility

- Do we have speed-to-market data for our competitors, especially those that are best in class?
- What do people further down in our organization say about the efficiency of our day-to-day decision-making and business processes?

Culture

- Do we encourage curiosity?
- Do we value an external focus on customers and consumers?
- Do we foster a networking and partnership mentality, with both internal and external partners?

Reward Systems

- Do we have a reward system for both teams and individuals that is based on total shareholder return or ROI-type criteria?
- Do we reward results rather than simply activities or longevity?

Organization

- How many layers do we have—and need?
- What are the relevant spans of control?
- Do we have clear objectives and organizational alignment?

Commercialization Mentality

- Do we think and act on all types of innovation—for example, business process innovation as well as product innovation?
- Do we routinely simplify, standardize, and mechanize processes?

IT Structures

- Is IT organized to support innovation—that is, is it integrated into the business units?
- Do our base information systems provide accurate and consistent essential business data in a timely fashion?

Innovation Centers

- Do we have innovation centers? If so, who runs them and owns them? How should they be linked?
- What is the scope of the innovation centers? For example, do they focus on activities such as design, content, and placement that can significantly boost the odds that shoppers will purchase our product?

Is the effort to become more innovative worth it? Empirical evidence clearly suggests that it is. BCG's own research confirms that innovative companies deliver superior returns for shareholders.[2] Innovative companies tend to outperform on other measures of overall business success as well—witness, for example, the results over time of the Apples, Googles, and Procter & Gambles of the world.

The bottom line: innovation pays. And information technology can play a pivotal role in helping your company get there.

Stephen David is a senior advisor to The Boston Consulting Group in its Atlanta office. You may contact him by e-mail at david.stephen@bcg.com.

Ralf Dreischmeier is a senior partner and managing director in the firm's London office. You may contact him by e-mail at dreischmeier.ralf@bcg.com.

2. In *Innovation 2010: A Return to Prominence—and the Emergence of a New World Order* (cited earlier), we looked at the total shareholder returns of the most innovative companies (as identified by our survey respondents) versus those of their industry peers for the three- and ten-year periods ending December 31, 2009; the results were compelling. Globally, on an annualized basis, innovators outperformed their peers by a whopping 12.4 percentage points over three years and by a more modest but still significant 2 percentage points over ten years.

Note to the Reader

Acknowledgments

The authors thank their many colleagues at The Boston Consulting Group who contributed to this publication, including Stuart Scantlebury and Marie-Thérèse Zambon, and especially Astrid Blumstengel.

We also thank Gary Callahan, Angela DiBattista, Gerry Hill, Simon Targett, and Janice Willett for their help in the writing, editing, design, and production of this publication.

For Further Contact

Wolfgang Thiel
Senior Partner and Managing Director
Global Leader, Information Technology Practice
BCG Cologne
+49 221 55 00 50
thiel.wolfgang@bcg.com

Andrew Agerbak
Principal
BCG London
+44 207 753 5353
agerbak.andrew@bcg.com

Karalee Close
Principal
BCG London
+44 207 753 5353
close.karalee@bcg.com

Stephen David
Senior Advisor
BCG Atlanta
+1 (404) 877-5200
david.stephen@bcg.com

David Dean
Senior Partner and Managing Director
BCG Munich
+49 89 231 740
dean.david@bcg.com

Joost de Kock
Partner and Managing Director
BCG Sydney and Canberra
+61 2 9323 5600
dekock.joost@bcg.com

Stefan Deutscher
Principal
BCG Berlin
+49 30 28 87 10
deutscher.stefan@bcg.com

Ralf Dreischmeier
Senior Partner and Managing Director
BCG London
+44 207 753 5353
dreischmeier.ralf@bcg.com

Antoine Gourévitch
Partner and Managing Director
BCG Paris
+33 1 40 17 10 10
gourevitch.antoine@bcg.com

Stephan Heydorn
Senior Partner and Managing Director
Düsseldorf
+49 2 11 30 11 30
heydorn.stephan@bcg.com

Axel Hofmann
Partner and Managing Director
BCG Sydney and Canberra
+61 2 9323 5600
hofmann.axel@bcg.com

Sesh Iyer
Principal
BCG Washington
+1 301 664 7400
iyer.sesh@bcg.com

Rolf Mäurers
Managing Director
Platinion
maeurers.rolf@platinion.de

Tamim Saleh
Partner and Managing Director
BCG London
+44 207 753 5353
saleh.tamim@bcg.com

Jürgen Strohm
Principal
BCG Munich
+49 89 231 740
strohm.juergen@bcg.com

For information or permission to reprint, please contact BCG at:
E-mail: bcg-info@bcg.com
Fax: +1 617 850 3901, attention BCG/Permissions
Mail: BCG/Permissions
The Boston Consulting Group, Inc.
One Beacon Street
Boston, MA 02108
USA

For a complete list of BCG publications and information about how to obtain copies, please visit our website at www.bcg.com/publications.

To receive future publications in electronic form about this topic or others, please visit our subscription website at www.bcg.com/subscribe.

9/10

BCG

THE BOSTON CONSULTING GROUP

Abu Dhabi
Amsterdam
Athens
Atlanta
Auckland
Bangkok
Barcelona
Beijing
Berlin
Boston
Brussels
Budapest
Buenos Aires
Canberra
Casablanca
Chicago
Cologne
Copenhagen
Dallas
Detroit
Dubai
Düsseldorf
Frankfurt
Hamburg
Helsinki
Hong Kong
Houston
Istanbul
Jakarta
Kiev
Kuala Lumpur
Lisbon
London
Los Angeles
Madrid
Melbourne
Mexico City
Miami
Milan
Minneapolis
Monterrey
Moscow
Mumbai
Munich
Nagoya
New Delhi
New Jersey
New York
Oslo
Paris
Philadelphia
Prague
Rome
San Francisco
Santiago
São Paulo
Seoul
Shanghai
Singapore
Stockholm
Stuttgart
Sydney
Taipei
Tokyo
Toronto
Vienna
Warsaw
Washington
Zurich

bcg.com