

center for **CIO** leadership
A GLOBAL COMMUNITY TO ADVANCE THE PROFESSION

The CIO profession:
driving innovation and
competitive advantage

October 2007

FOUNDING PARTNER



The following survey was conducted by the IBM Center for CIO Leadership in collaboration with MIT Sloan Center for Information Systems Research (CISR) and Harvard Business School.

The IBM Center for CIO Leadership brings together executive leaders and experts from around the world to enhance the use of IT to create business value and advance the CIO profession. The Center achieves these goals by coordinating and conducting research, education and outreach activities that generate practical insights at the intersection of business and technology.

Executive summary

“CIOs are sitting shoulder to shoulder with the rest of the executive team. Our companies need IT to succeed and remain competitive. We cannot point our fingers at organizational position and hierarchy as our barrier... We are in the position to lead.”

—Fortune Global 200 CIO

Can the CIO profession evolve rapidly enough to match the pace of global competition and technological change?

Last year, the prospects were far from encouraging. In 2006, CIOs felt that senior management did not understand the transformative power of technology and did not appreciate the contribution that CIOs could make to the business.

This year's 2007 CIO Leadership Survey, conducted by the IBM Center for CIO Leadership, in collaboration with Harvard Business School and MIT Sloan Center for Information Systems Research (CISR), finds a different environment for most CIOs. Senior management increasingly recognizes technology as central to innovation and competitive advantage. As a result, more and more CIOs are gaining a prominent seat at the table in their executive teams and playing an active role in strategic business decisions.

The evolution to a more strategic CIO role is obviously important for CIOs' job satisfaction and individual performance. Based on analysis by the IBM Center for CIO Leadership, the change is equally important for companies' innovativeness and organizational performance.

Companies with a "strategic CIO" use IT more extensively to innovate new products and services. They also share technology more effectively across the enterprise.

Where will the profession go from here? According to the CIOs surveyed, three items are on their agenda. First, they want to bring performance improvement outside the organization to external partnering and market expansion. Second, they want to counter the shortfall in IT talent by developing high-potential IT staff. And third, they want to extend the collaboration they achieved on their executive team to the lines of business in their companies.

If the progress made by CIOs over the last year is an indicator, the prospects look bright to achieve these goals. That would be good news for CIOs, for the profession, and for business as a whole. In a global economy defined by innovative use of technology, the evolution of business is tied to the evolution of the CIO profession.

The CIO Leadership Survey

The IBM Center for CIO Leadership, in collaboration with Harvard Business School and MIT Sloan Center for Information Systems Research (CISR), conducted a survey with more than 175 CIOs from leading companies around the world. The objective of the survey was to help advance the CIO profession by yielding a greater understanding of the relationships among the CIO role, different aspects of IT performance, and organization performance. These and subsequent findings will be used to, among other things, help shape the research agenda for the new IBM Center for CIO Leadership.

Valued leader: strategic decision maker

“As a member of the executive management team and Board, I don’t believe it is a question of position... it is now about earning equal footing with my executive peers and continuing to make the case for IT to be central to our business strategy.”

—Fortune 500 CIO

2006 Survey:

86% of CIOs identified a need to play a more significant leadership role.

2007 Survey:

80% of CIOs believe they are a valued member of the senior leadership team.

There is no question that IT is now viewed by the C-Suite as a critical driver of business value. For the last decade, CIOs have increasingly earned the right to have a seat at the leadership table by effectively communicating the importance of IT to senior leadership. The 2007 CIO survey reveals that CIOs are up to the job of persuading senior leaders of the value of IT.

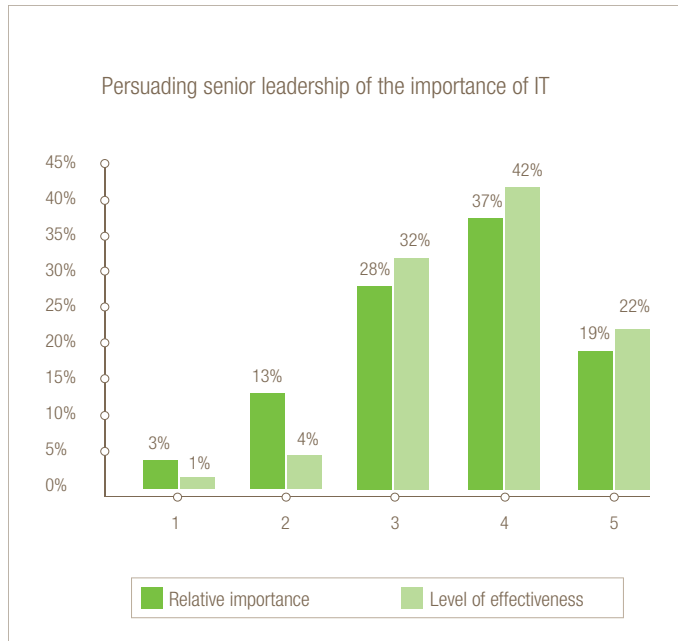


Figure 1

If properly positioned and enabled, CIOs play central roles in identifying and leading innovation and transformation efforts. The survey reveals that most CIOs are trusted and valued members of the senior executive team. Eighty percent of CIOs responded that they are a valued member of the senior leadership team, with 69% indicating significant involvement in strategic decision-making (see Figure 2 and Figure 3).

In the 2006 survey, 86% of respondents felt the need to play a more significant leadership role, either by participating in strategy creation or by shaping the strategic options being considered.

This apparently rapid progress towards expanded CIO strategic influence may be driven partially by the 2007 survey demographics. Almost half the 2007 survey respondents are based in North America (USA or Canada),

and respondents from this regional group rated themselves significantly more involved in strategy making than CIOs from the rest of the world. Nevertheless, high (and low) levels of IT involvement in strategic decision-making are documented in all regions surveyed.

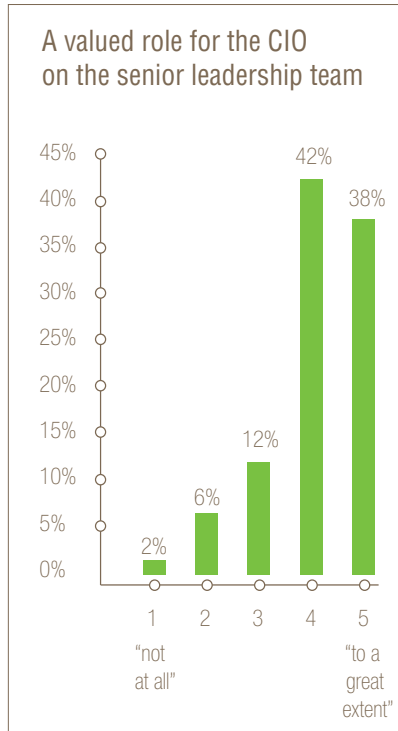


Figure 2

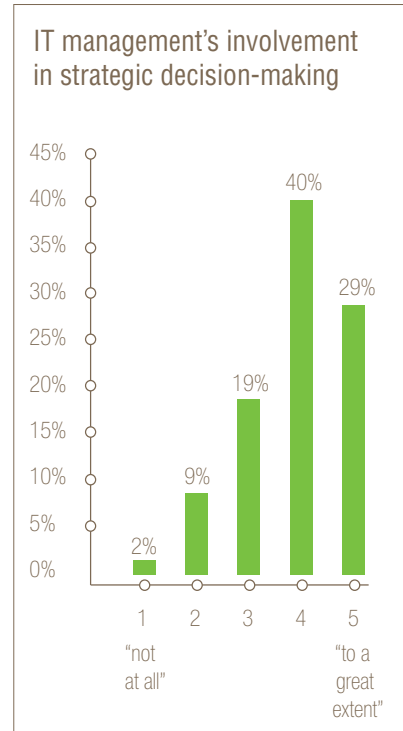


Figure 3

Strategic integration: building influence through capability and results

“How does a CIO have influence over the business? I used to think it was about being asked, or where I reported... influence is more about building relationships—having the right conversations, at the right times with the right people and grounding those conversations in the realities of the business.”

—Fortune 500 CIO

2006 Survey:

CIOs indicated misperception of their role as a barrier to professional advancement

2007 Survey:

“Strategic CIOs” show high levels of trust and commitment from senior management

2007 survey findings show that many CIOs have significant influence over their organizations’ strategic decisions. CIOs who have higher levels of involvement in strategic decision-making demonstrate clearly higher levels of:

- Contributing to strategic planning and growth initiatives,
- Gaining the commitment of senior management,
- Earning the trust of senior management.

Collectively, this pattern of relationships suggests that to be part of the strategic conversation, CIOs must demonstrate effective contributions to growth initiatives, as well as a track-record of trust with senior management.

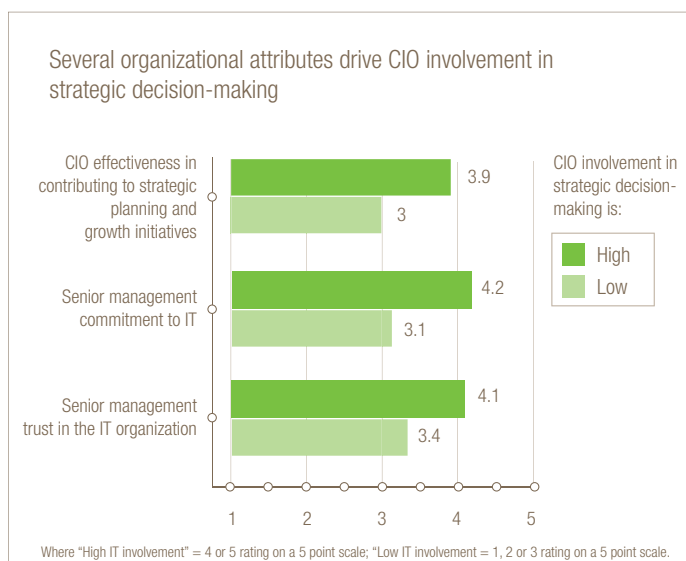


Figure 4

Strategic influence and IT-enabled innovation

Having the CIO and IT leadership involved in strategic decision-making enhances certain key measures of IT-enabled innovation. Specifically, organizations whose CIOs are involved to a high extent in strategic decision-making demonstrate higher levels of:

- IT-enabled business model innovation,
- IT-enabled product/service innovation and
- Shared, centralized infrastructure and services.

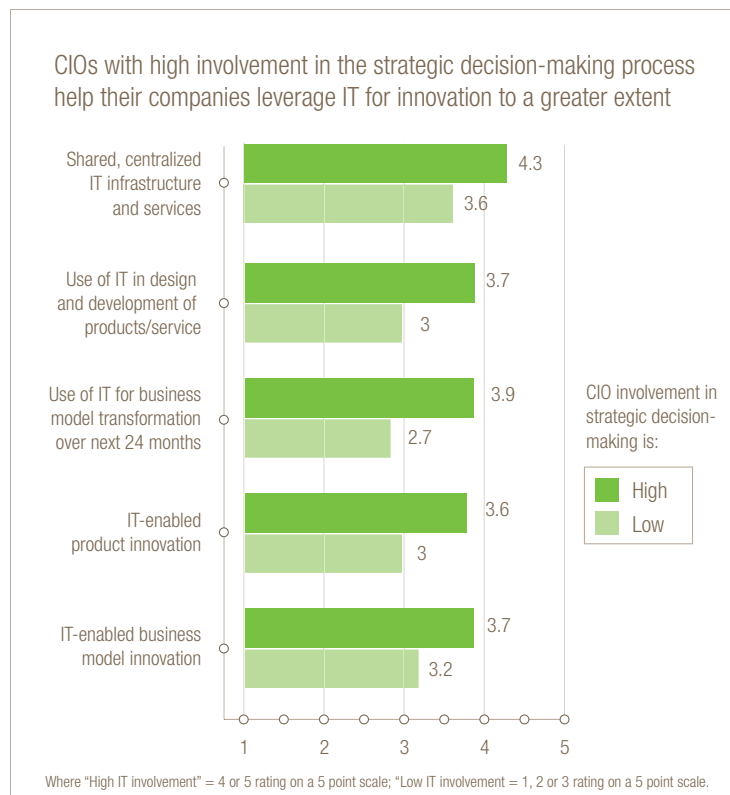


Figure 5

IT-ENABLED INNOVATION ENHANCES FINANCIAL PERFORMANCE

Among the subset of organizations participating in the survey for which financial data were available, significant relationships exist between certain measures of IT-enabled innovation and financial performance.

Shared infrastructure and services

	Higher levels of shared, centralized IT infrastructure and services	Lower levels of shared, centralized IT infrastructure and services
Return on Investment	9.1%	4.7%
Return on Assets	6.0%	2.9%

Use of IT in product and service development

	Higher levels of IT use in design and development of products/services	Lower levels of IT use in design and development of products/services
Net Profit Margin	13.0%	9.4%

Business model innovation is also critical: The IBM CEO Study

The relationship between innovation and financial performance is supported by a recent study of 750 global CEOs conducted by IBM which revealed that deep business model innovation is also critical. Product, service and operational innovations are important, but competitive pressures have pushed business model innovation higher on the CEOs’ innovation agenda. And for good reason, as financial analysis revealed, companies that put more emphasis on business model innovation experienced significantly better operating margin growth (over a five-year period) than their peers.

Strategic influence and the high-performing IT organization

Survey results further indicate that organizations with high levels of IT involvement in strategic decision-making also rate significantly higher on the following measures of IT performance:

- Company views the IT function as an enabler of business performance
- Company has effective IT/business relationships at levels below the CIO
- IT employees have the knowledge and skills to communicate effectively in business terms
- IT initiatives and plans are well-aligned with the overall organizational strategy
- IT and business managers collaborate systematically

Thus, it seems that the CIO's presence "at the table" may catalyze more effective IT-business conversations across multiple levels of the organization.

Strategic influence versus operational impact: building bridges to the business

"The challenge now is building a business case that we are jointly accountable for with the line-of-business leaders.... They want the technology and the ROI, but they don't want to partner in actually achieving the return."

— Fortune 500 CIO

With a seat at the executive table and strong influence over strategic decisions in hand, CIOs are now challenged to leverage their position to propose and lead tangible transformation initiatives at the business level.

The 2007 survey results show that CIOs believe line-of-business interactions are of critical importance, but they are less comfortable with the quality of those interactions.

Fifty-three percent of respondents consider “promoting collaboration between IT and lines of business” to be a highest priority. Yet only 15% believe they are extremely effective in doing so, while nearly a quarter (23%) rate themselves at or below the average.

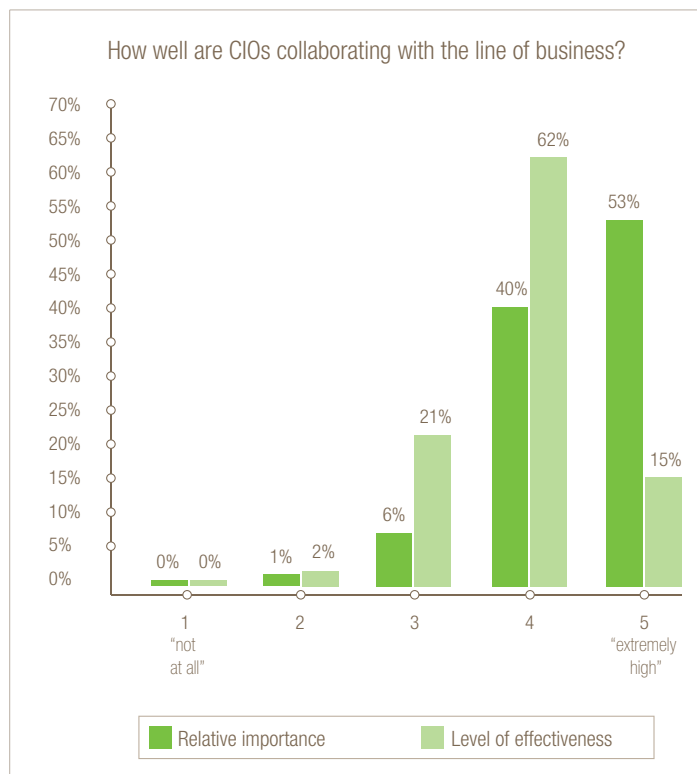


Figure 6

Strategic IT and the creation of competitive advantage

“Successfully transforming a business is not one individual’s, one department’s or one entity’s work. It requires collaboration across the enterprise, and this is where CIOs have the mandate to lead. We have that end-to-end view of the business to power this type of change.”

—Fortune 500 CIO

Information technology has the potential to transform organizational activity in a wide range of domains, but organizations can differ markedly in whether they recognize and leverage this potential. Responses to the CIO survey in 2006 revealed that 84% of respondents believed that technology was significantly or profoundly transforming their industries, but that their companies were only fairly effective at taking advantage of this transformative potential. The 2007 survey responses confirm that the transformative power of information technology has indeed penetrated many domains of business activity (see Figure 7).

In considering the application of IT for competitive advantage in each of seven areas of business activity, nearly all respondents believe that technology is being applied to some extent. Only 1% to 3% of respondents believe that IT is not being applied at all for competitive advantage in these areas. Moreover, for each area, 45% or more believe that their industry leaders are applying IT for competitive advantage.

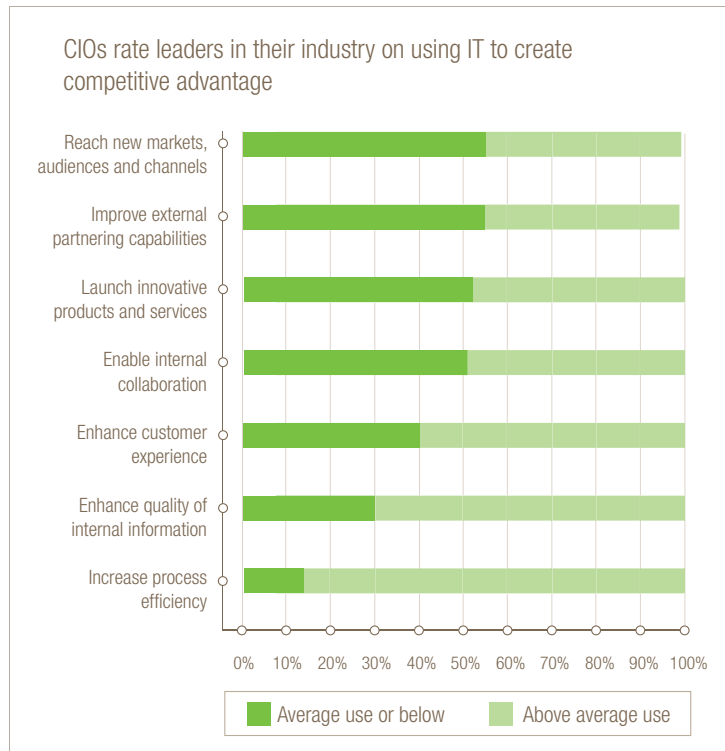


Figure 7

Not unexpectedly, IT is used most extensively in “improving process efficiency.” Eighty-six percent of respondents believe their industry leaders are using IT to a large or great extent for competitive advantage in this area, and over a third (38%) see technology being applied to a great extent.

The second most extensive area of application of IT for competitive advantage is in “improving the quality of internal management information,” where 70% of respondents believe industry leaders are applying IT to a large or great extent.

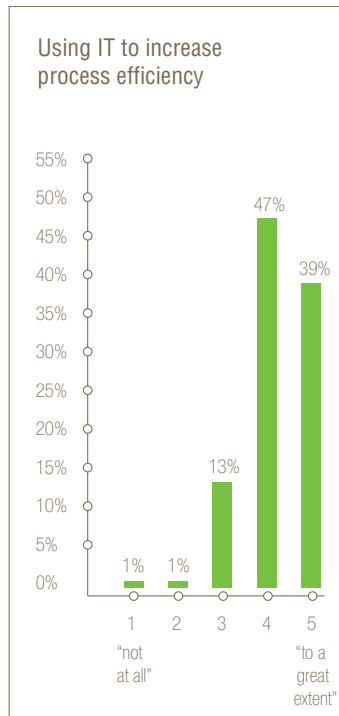


Figure 8

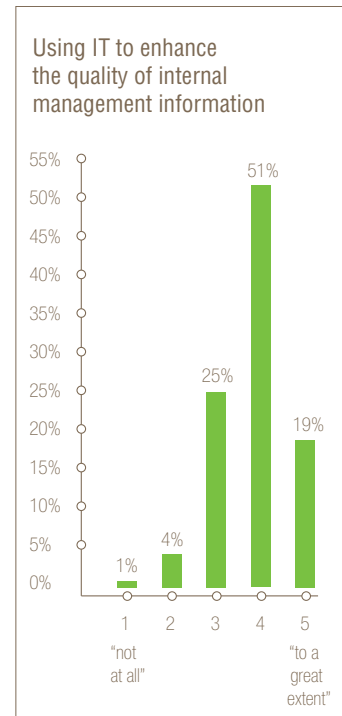


Figure 9

An additional area where IT is being leveraged for competitive advantage is in “enhancing the customer experience,” where 60% of those surveyed believe IT is being used to a large or great extent and only 1% believe it is not being used at all.

CRITICAL GAPS: EXTERNAL PARTNERING AND EXPANSION EFFORTS

There are four areas where IT has been least applied for competitive advantage. The most sizeable gaps are in the areas of external partnering and expansion efforts. Only 10% of respondents believe they are applying IT to a great extent to improve external partnering capabilities, while 18% admit using IT only a little or not at all in this area. In efforts to reach new markets, audiences and channels, a fifth of respondents use IT only a little or not at all.

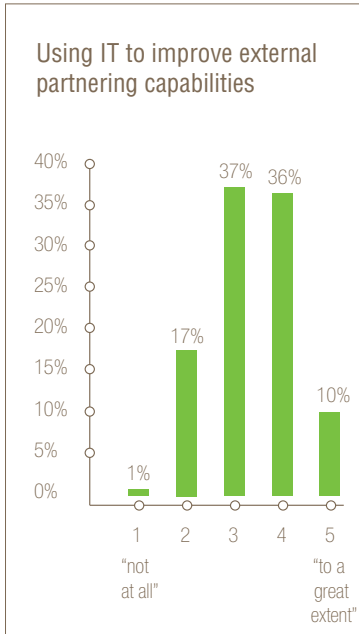


Figure 10

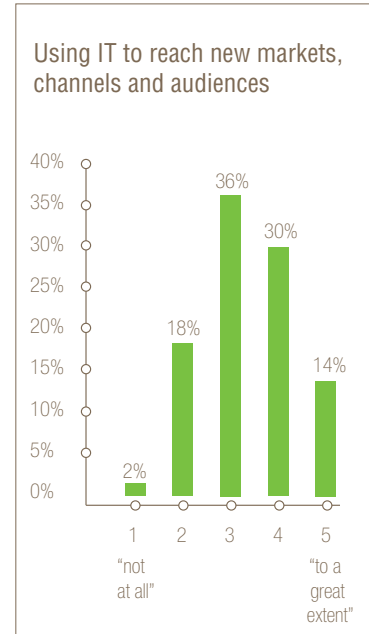


Figure 11

External collaboration is an important priority for the world's chief executives. IBM's Global CEO study of 2006 highlighted the indispensable role of external collaboration in building an organization's innovative capacity, noting that both business partners and customers were among the top three sources for innovative ideas, far ahead of internal research and development. Thus, these patterns of IT use suggest there is room to enhance innovative capacity by leveraging IT more extensively in external relationships.

The remaining two gaps further illustrate areas for improvement in an organization's capacity to innovate. CIOs indicated that IT is used to a lesser extent on innovation-centric activities (to launch innovative products and services and to enable internal collaboration) than on activities where IT is well-established as an enabler of competitive advantage (increase process efficiency and enhance the customer experience).

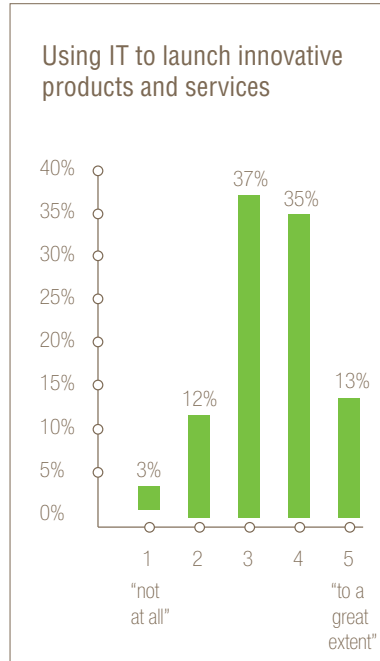


Figure 12

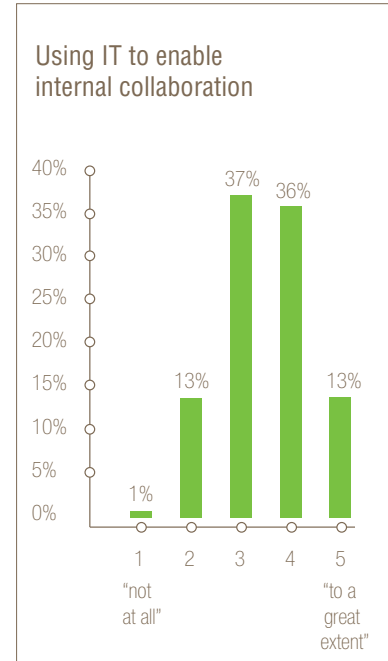


Figure 13

The CIO agenda: business collaboration and staff development

CIOs rated “promoting collaboration between IT and lines of business” as their most important activity. Ninety-three percent of respondents rate this activity an above average priority, with 53% rating it as one of their highest priorities. CIO attention to collaboration echoes the findings of IBM’s 2006 CIO survey in which 92% of respondents felt that it was either important or critically important for CIOs to have greater influence and impact as business leaders.

Two other activities emerge as prominent on the CIO's agenda:

- “Identifying and developing high potential IT staff” is considered above average importance by 78% of respondents, while nearly a third of respondents (31%) consider this one of their highest priorities. It is worth noting that IT staff development is significantly more of a concern to US-based CIOs than those in other countries. This concern probably reflects the documented shortfall of skilled IT workers in the US and anticipates the high numbers of experienced “baby-boomers” expected to retire from the workforce over the next few years.
- “Contributing to strategic planning and growth initiatives” is rated above average importance by 76% of respondents and a highest priority for 28% of respondents.

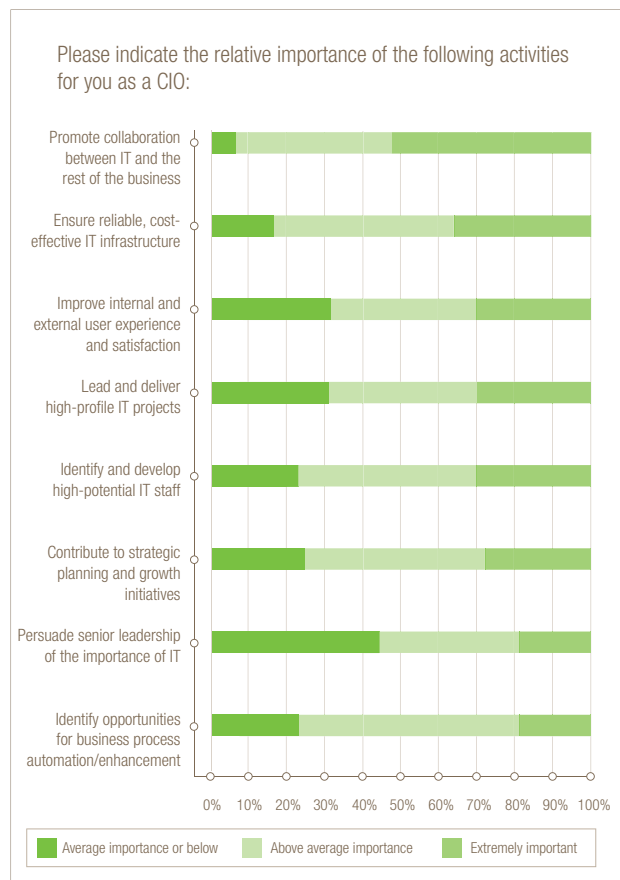


Figure 14

Effectiveness gaps in key CIO activities

The perceived importance of a CIO activity is highly correlated with CIOs' perceived levels of effectiveness at that activity. However, some exceptions stand out. Few CIOs, for instance, feel really competent in the activity that they deem the most important. Fifty-three percent of respondents rate “promoting collaboration between IT and lines of business” as being of highest importance, but only 15% believe they are “extremely effective” at this activity.

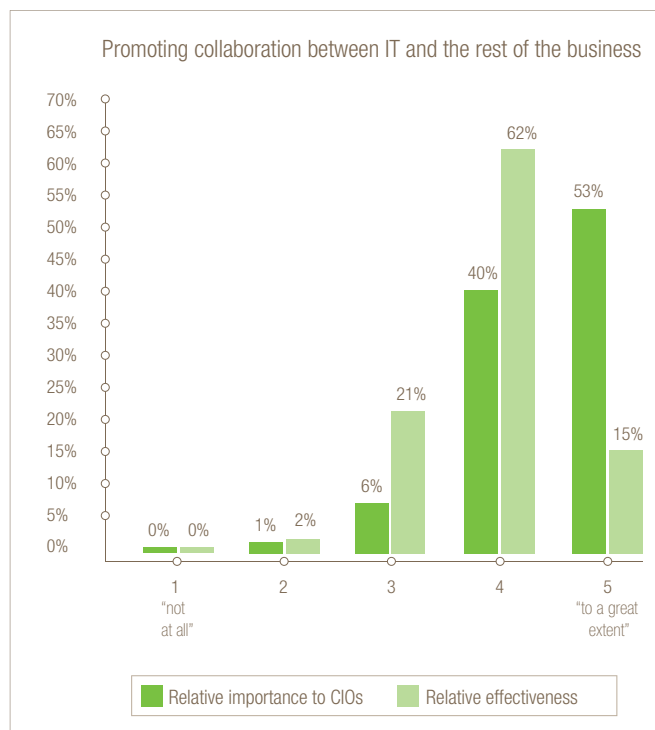


Figure 15

CIO impressions of their strengths in talent development in the IT function present a similar story. In spite of the fact that “identifying and developing high potential IT staff” is considered above average in importance by 78% of respondents, and nearly a third of respondents (31%) consider this one of their highest priorities, only 8% feel they exhibit the highest level of effectiveness in doing so.

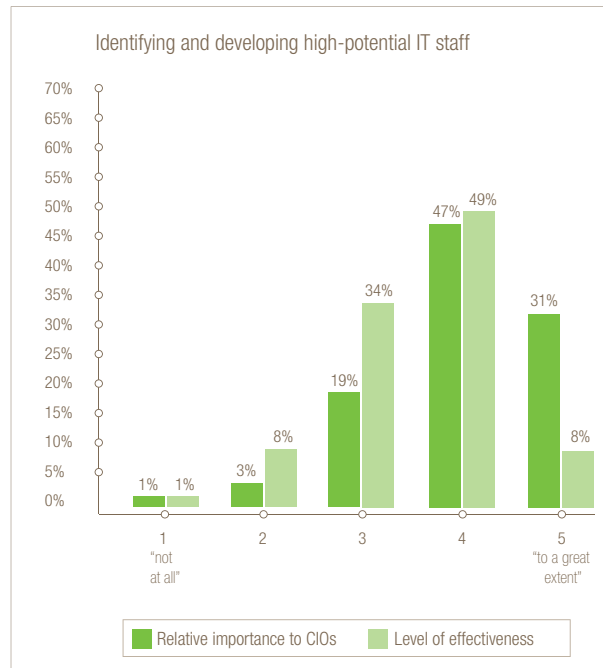


Figure 16

It is also worthy of note that even though three-quarters of respondents believe “identifying opportunities for business process automation and enhancement” is a high or highest priority, more than half of respondents rate their effectiveness in this activity as average or below. This suggests there is still room for improvement in applying IT to enhance key business processes. Meanwhile, CIOs are doing a good job of keeping the lights on, with 74% of respondents believing they effectively ensure a reliable, cost-effective IT infrastructure.

The strategic CIO skillset: putting it all together

These new findings reveal that those IT leaders who have attained a particular level of strategic influence also share important capabilities, performing more effectively in certain activities than those who have not yet attained a

seat at the table. These differences in performance are statistically significant, suggesting that successful performance of these activities is essential for attaining, and succeeding in, a more strategic CIO role.

CIOs who have gained a more strategic role are stronger at:

- Promoting collaboration between IT and businesses
- Persuading senior management of the importance of IT
- Contributing to strategic planning and growth initiatives
- Identifying opportunities for business process automation and enhancement
- Improving internal and external user experience and satisfaction

CORE CIO ACTIVITIES AND UNDERLYING SKILLS

Strategic CIOs stand out because of their competency in the “softer skills”: their ability to persuade, motivate, and engage others in order to more fully leverage the power of IT. Specifically, findings reveal that a collection of different skills in interacting and collaborating with a variety of different constituents are most significantly associated with those CIO activities central to strategic and innovative success (see Figure 17):

- **Political savvy:** Can effectively understand others at work and can use such knowledge to influence others to act in ways that enhance one’s personal and/or organizational objectives.
- **Influence, leadership and power:** Can inspire and promote a vision; can persuade and motivate others; is skilled at influencing superiors; and can delegate effectively.
- **Relationship management:** Can build and maintain working relationships with co-workers and external parties; can negotiate work problems without alienating people; and can understand others and get their cooperation in non-authority relationships.
- **Resourcefulness:** Can think strategically and make good decisions under pressure; can set up complex work systems and engage in flexible problem-solving behavior; and can work effectively with senior management to deal with the complexities of the management job.

- **Strategic planning:** Can develop long-term objectives and strategies; and can translate vision into realistic business strategies.
- **Doing what it takes:** Perseveres and focuses in the face of obstacles; and can take charge and stand alone, yet be open to learning from others when necessary.
- **Leading employees:** Can delegate to employees effectively, broaden employee opportunities, act with fairness toward direct reports, and hire talented people.

These findings about the importance of interpersonal and collaborative skills clearly have implications for CIO career development trajectories and training opportunities.

ROOM FOR IMPROVEMENT: CIO SKILL GAPS

Most survey respondents indicate reasonable skill in each of these areas. However, the one skill where they clearly exhibit a deficiency is in managing and developing their own careers. Although a number of respondents feel they are satisfactory at “developing, maintaining and using professional relationships, including mentoring, coaching and feedback to manage my own career,” only 7% of respondents feel they are exceptionally skilled in this area while nearly a quarter (24%) believe they need some development. Those CIOs who have already acquired a larger strategic role also indicate significantly more strength in the arena of career management.

Underlying skills	Important CIO activities					
	Promoting collaboration between IT and the business units	Persuading leadership of the importance of IT	Delivering high-profile projects	Contributing to strategic planning and growth initiatives	Identifying opportunities for process enhancement	Developing IT staff
Political savvy	X	X		X		
Influence, leadership and power	X	X		X		
Relationship management	X					
Resourcefulness	X	X	X	X	X	
Strategic planning	X	X		X		
Doing what it takes	X					
Leading employees						X

Figure 17

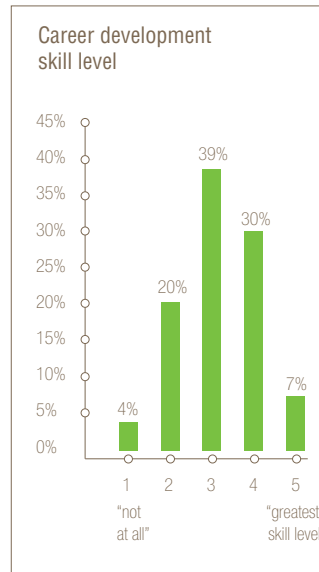


Figure 18

Other areas for potential focus, which support the increasing importance of “softer skills,” include the development of change management skills and political savvy. CIOs see a need to further develop effective strategies for organizational change initiatives and overcome resistance to change. They also see a need to improve their “political savvy,” which is described as the ability to effectively understand others at work and to use that knowledge to influence others to act in a way that enhances either the CIOs’ personal or organizational objectives.

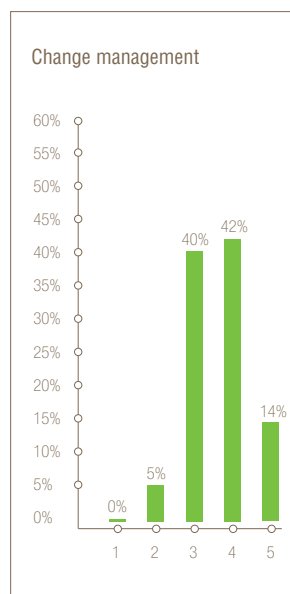


Figure 19

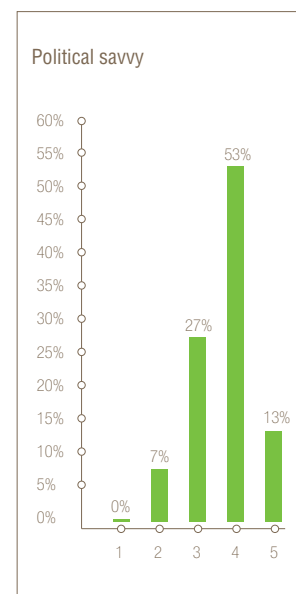


Figure 20

The persistent problem of measuring value

A final important finding relates to performance measurement. As was revealed by the 2006 CIO survey, measurement of IT's contribution to the business continues to challenge IT leaders. Although most respondents agree that IT investments are the result of collaboration between the IT function and lines of businesses, measuring the value of these investments is less clear. Only a third (35%) believes, to a large or great extent, that "IT performance is clearly measured using well-defined and well-understood metrics."

In particular, measuring creative contributions is problematic for many. Only 3% of respondents indicate that their organizations measure outcomes from creative processes to a great extent, while 8% confess to not doing so at all. This could have significant implications. All innovation—in terms of products and services, processes, or business models—originates from creative efforts. But without documentation regarding the outcomes of creative processes, the organization's ability to replicate, nurture and support the conversion of ideas into commercially viable innovations over time will be limited—and will be particularly vulnerable in cost-conscious periods.

CIOs can certainly work towards enhancing skills and improving effectiveness in activities shown to be associated with innovation success. However, this on its own, in the absence of clear measurement, may be unsustainable. Clearly there is more to be done in the realm of effective performance measurement.

Conclusion

“I am challenged with innovation and transformation. I believe that IT is positioned to lead this work, but practically it is difficult to understand how to begin, whom to involve and then how to measure success.”

—Fortune 500 CIO

In a competitive environment where IT infrastructure and process automation are CIO “table stakes,” it is incumbent upon IT executives to have an impact on their organizations’ capacity to innovate and grow. The path to impact, however, remains relatively unmarked. The present research suggests that soft skills, combined with executive buy-in, is the recipe for success. For organizations lucky enough to have CIOs who combine the two, benefits in innovation—and financial performance—are substantial. But where to begin? Perhaps on those activities that have been shown to enhance senior executive trust: making tangible contributions to the strategic decision-making process. In addition, a better understanding of the skills and capabilities to get there—those that revolve around enhancing cooperation and building buy-in—can help CIOs reach strategic status.

Purpose and methodology

The purpose of the 2007 CIO survey was to help advance the CIO profession by yielding greater understanding of the relationships among the CIO role, different aspects of IT performance, and organization performance. These and subsequent findings will be used to help shape the research agenda for the new IBM Center for CIO Leadership.

Report findings are based on responses to an online survey by more than 175 CIOs and other senior IT leaders from around the world. The survey was designed to test hypotheses and correlations between CIO skills, CIO activities, IT function performance and organizational performance, as shown in Figure 21. The survey was developed in collaboration with MIT Sloan CISR and a number of academic and industry advisors, and hosted online by Harvard Business School during July and August 2007.

The survey population included a cross-section of CIOs and other senior IT leaders, who represented organizations spanning 18 industries, 6 continents and 27 countries. Eighty-seven percent of respondents held company-wide CIO responsibility; others were responsible for particular business units, geographic regions or other organizational sub-units. The sample comprised IT leaders of both large and small companies (Figures 22 and 23). Approximately half of the sample comprised publicly listed companies. It also included organizations from the government and education sectors.

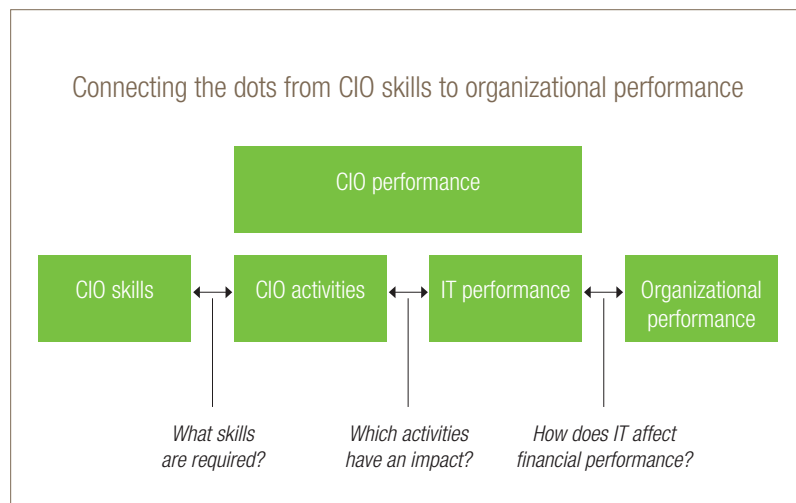


Figure 21

Finally, the activities and performances of the CIO and the IT function were correlated with the financial performance of organizations for which publicly reported financial information was available, based on a set of financial measures.

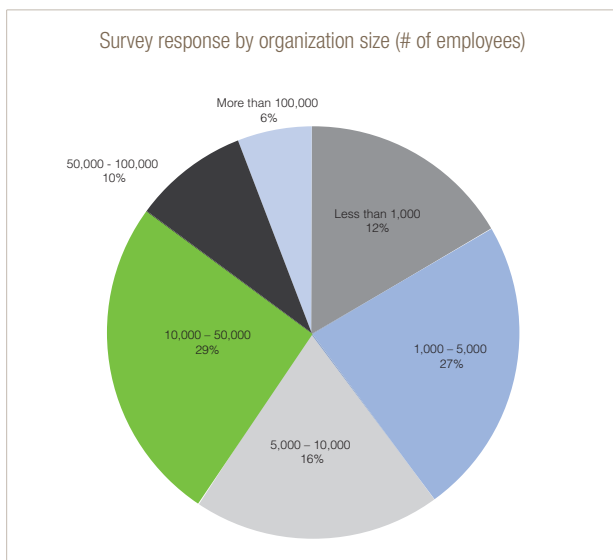


Figure 22

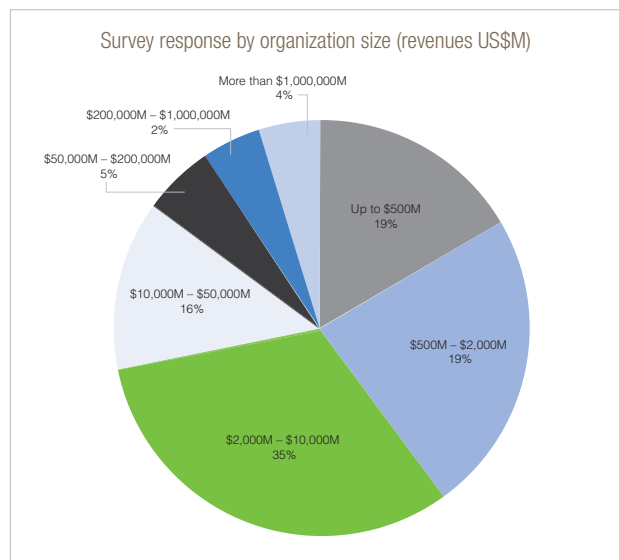


Figure 23

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Armonk, NY 10504
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