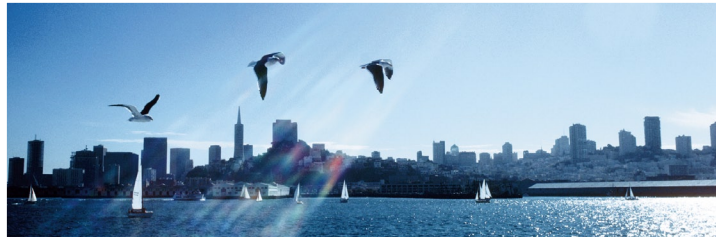


# CIO as the master of change: transforming the IT organization and driving transformation across the enterprise.

*CIO implications of the IBM Global CEO Study*



---

**Contents**

---

<b>2</b>	<b>Welcome to the Enterprise of the Future</b>
<b>3</b>	<b>The IBM Global CEO Study</b>
<b>4</b>	<b>Bigger changes, now coming faster</b>
<b>7</b>	<b>Core trait: hungry for change</b>
<b>10</b>	<b>Core trait: innovative beyond customer imagination</b>
<b>13</b>	<b>Core trait: globally integrated</b>
<b>16</b>	<b>Core trait: disruptive by nature</b>
<b>19</b>	<b>Core trait: genuine, not just generous</b>
<b>22</b>	<b>Thriving in a permanent state of change</b>

## **Welcome to the Enterprise of the Future**

*Catalyst for change.*

*Expert on the “art of the possible”*

*Guru of risk management*

These are some of the many roles CIOs will play in the Enterprise of the Future, a vision outlined in the IBM Global CEO Study. We spoke to 1,130 CEOs across industries and geographies, gaining unique insight into what is on their minds—issues that separate organizational success from failure. The study results foretell an Enterprise of the Future characterized by accelerating, wide-ranging and uncertain change. Rather than resisting this change, the CEOs who participated in the study are embracing it. They are setting a new enterprise agenda centered around change that encompasses innovation, global integration, evolving business models and a new focus on corporate social responsibility.

What does this new CEO agenda mean to CIOs? It challenges them to be leaders and masters of change as part of the broader corporate management team and to ensure that their IT team plays its full role in enabling the move toward the Enterprise of the Future. This will require effective integration of business and technology perspectives and the creation of flexible and scalable technology systems and infrastructures that not only respond dynamically to change, but actually drive change across the enterprise. Business and IT alike must be hungry for change, plus they must be innovative in their product differentiation, integrated across the globe, disruptive in their business models and genuine in their concern for society.

But in the midst of all this talk of change, there’s still one constant: the pressure on CIOs to do more, faster, better—with less. Expectations for CIOs are rising. They’re being counted on to deliver IT innovation that supports accelerating change and enables the enterprise to seize the opportunities CEOs see ahead. However, with an estimated 70 percent of the typical IT budget going to run existing IT applications and infrastructures, only 30 percent is available for new initiatives. As a result, many CIOs will be challenged as never before to match the increasing pace of change and fulfill the new CEO agenda.

The good news is that the vision, strategies, technologies, methodologies and services necessary to drive this transformation of enterprises and IT organizations are readily at hand. The purpose of this paper is to highlight the key insights from the IBM Global CEO Study and relate them to the new CIO challenge: driving transformation as “change leaders” and implementing transformation as “change agents,” both enterprisewide as key allies of the CEO and within their own IT organizations.

**The IBM Global CEO Study**

IBM conducted interviews with 1,130 CEOs, general managers, and senior public sector and business leaders around the world. More than 95 percent of these interviews were face-to-face; the rest were conducted by telephone.

Findings include numerical data, along with best practices and qualitative data such as comments from participants. IBM also compared the revenue and profit track records of responding companies that have publicly available financial information against industry averages to identify companies that are financial outperformers and underperformers.

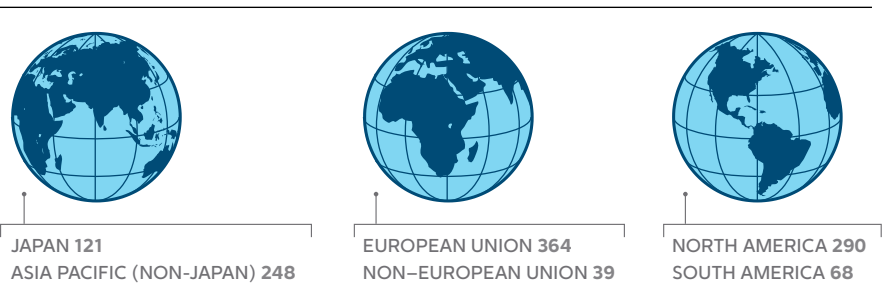


Figure 1: More than 1,000 CEOs worldwide participated in the IBM Global CEO Study.

---

**Highlights**

---

***No longer can organizations take years to plan and implement changes; instead, they must reinvent themselves on the fly.***

The underlying theme of the study results is change – but this is change at a different pace, on a different scale and of a different type than ever before. There is a distinct shift from previous IBM CEO studies, in which CEOs were more narrowly focused on marketplace factors.

Not only are CEOs aggressively pursuing business models that yield products and services that excite customers, disrupt the industry status quo and improve social welfare, they are also pursuing accelerated change that will affect most aspects of their organizations. Companies are abandoning models that take years to plan and implement. And executives of the organization – including the CIO – must be prepared to help bring about innovation and change throughout the enterprise.

**Bigger changes, now coming faster**

Our discussions with CEOs and analysis of financial results revealed five key traits of the Enterprise of the Future:

- *Hungry for change – embracing the fast, broad, uncertain changes that lie ahead*
- *Innovative beyond customer imagination – leveraging growing customer demands as an opportunity for differentiation*
- *Globally integrated – becoming outperformers by embracing global integration*
- *Disruptive by nature – innovating business models to stay ahead of the competition*
- *Genuine, not just generous – growing the business by being more socially responsible*

---

**Highlights**

---

***Just as auto manufacturers had to update their assembly lines to support today's globally integrated markets, CIOs will have to update their IT environments to support the Enterprise of the Future.***

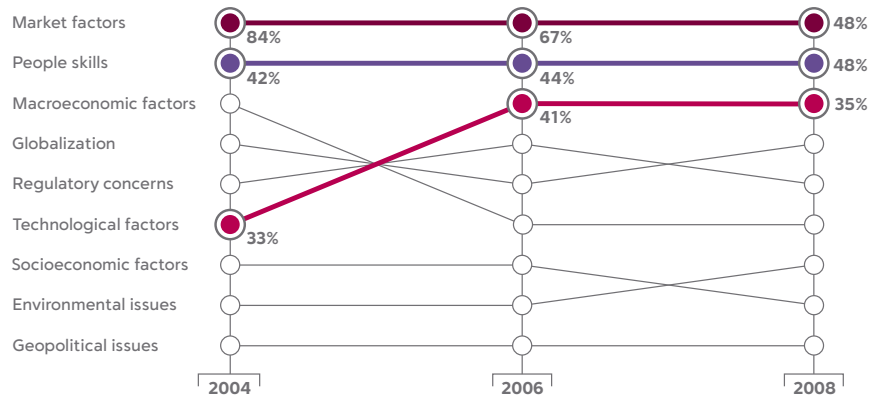
Among the many roles CIOs will play as catalysts for change in this CEO agenda, two stand out.

As providers of IT services to the enterprise, CIOs must transform their IT applications, services and infrastructures into nimble, automated environments that can support the Enterprise of the Future – and do it as quickly as possible. The fact is that, in many situations, the Enterprise of the Future will be difficult to support with existing IT environments, which typically include silos of data, applications and hardware that can slow change. CIOs must break down inhibitors to change while managing the associated risks. Just as the automobile assembly line had to evolve to support the globally integrated automobile companies of the 21st century, IT must continue to evolve as it becomes increasingly critical to the Enterprise of the Future. CIOs will need to enhance service management in order to provide the consistent, reliable and innovative service delivery that will be so essential to the Enterprise of the Future.

Second as leaders of IT, CIOs have the opportunity to transform their IT organizations into models for the rest of the enterprise and to become full partners to the business in the delivery of the Enterprise of the Future. IT is typically a major function within the enterprise – with significant and visible expense and capital budgets – so it faces many of the same challenges as the enterprise as a whole. IT is also the provider of the technology-based solutions and services that enable the CEO vision. In fact, CEOs see technology as one of the top three external factors affecting their organizations. Information will be the key

to managing the change and innovation that define the Enterprise of the Future. That means IT organizations must evolve beyond managing data to creating business intelligence, which in turn enables new capabilities. As an expert on the “art of the possible,” the CIO can be a key ally of the CEO in moving toward a shared vision of the Enterprise of the Future.

**48%** SAY MARKET FACTORS  
**48%** SAY PEOPLE SKILLS  
**35%** SAY TECHNOLOGICAL FACTORS



- “The market is so dynamic. Visibility is very low.”  
— Electronics CEO
- “We’re making acquisitions for the people, not the assets.”  
— Financial markets CEO
- “Technology is driving huge changes in our industry landscape.”  
— Government health agency leader

Figure 2: CEOs rated market factors, people skills and technological factors as the top three drivers of change in their organizations.

---

Highlights

---

**Today, the need for change is far outpacing most companies' ability to manage it.**

### Core trait: hungry for change

*Although CEOs foresee significant change ahead, they're not confident about their ability to manage it. The question is: How can CIOs manage the turbulence of increasing change?*

While 83 percent of CEOs say that substantial change is needed within their enterprises, only 61 percent report that they've accomplished change successfully in the past. This gap between the anticipated need for change and the ability to manage it has nearly tripled since IBM's 2006 CEO study. The "change gap" represents a sizable opportunity for CIOs because they can facilitate change by removing barriers internally across business units and externally among business partners. Such barriers often include highly distributed, fragmented and labor-intensive IT environments that have data, applications and hardware resources operating in silos.

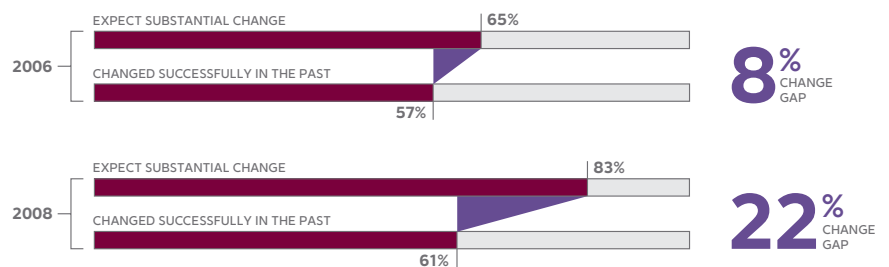


Figure 3: The gap between the expectation of change and an organization's history of managing it is growing.

---

**Highlights**

---

***Many approaches and technologies are available to facilitate the move to a centrally governed enterprise data center model.***

By rethinking IT service delivery, CIOs can move to a new, centrally governed enterprise data center model that is efficient, service oriented, locally responsive and flexible. Some of the approaches and technologies that CIOs can embrace include:

- *Well-managed enterprise architectures driven by best practices like the IT Infrastructure Library® (ITIL®) approach and industry standards like Control Objectives for Information and related Technology (COBIT), which provide a common set of governing principles and business-driven service management that can produce the information necessary to enable line-of-business and operations executives, managers and staff to gauge how the business is delivering on defined revenue, growth and operational objectives*
- *Service-oriented architectures (SOAs) that speed application development by deconstructing applications into service building blocks, which developers can quickly reconfigure in various ways to create new capabilities*
- *Virtualization and consolidation that decouple applications and data from the underlying physical resources, making IT organizations more flexible, less costly and better able to adjust to changing business needs*
- *Multisourcing and shared services frameworks that unite functions common to multiple business units under a single delivery organization to improve efficiency and quality of service while lowering costs.*

Working with the business, CIOs can develop consistent, integrated business and technology enterprise architectures with a structured alignment between business and technology insights that enable the Enterprise of the Future and drive business success.



---

**Highlights**

---

***Risk management and governance best practices can help minimize the downsides of change.***

In addition, CIOs must learn to manage the risks associated with change, moving beyond traditional risk mitigation techniques to end-to-end testing that includes the business process being supported. CIOs can also embrace risk management mechanisms such as process modeling and new process prototyping and application testing designed to help the organization’s functional leaders understand the impact of changes before they are implemented. At the same time, CIOs can enhance governance with advanced service management approaches and monitoring tools for greater visibility to ensure better-functioning IT operations – and a greater understanding of IT’s impact on the rest of the organization.

Similar to the CEO view of the Enterprise of the Future, the IT organization must be hungry for change. CIOs need to constantly look for new and better ways of developing and deploying IT-enabled business services. Interestingly, study participants identified as outperformers anticipate further change and are more confident that they can handle it than others.

**Are you ready?**

- *Is your organization prepared to meet the significant changes that your enterprise will encounter in the next three years?*
- *Is your organization flexible and agile enough to support this unprecedented rate of change?*
- *How are you balancing the role of “catalyst for change” while managing your day-to-day responsibilities and mitigating risk?*
- *What can you do to enable your staff to embrace change?*

“We have seen more change in the last ten years than in the previous 90.”

— *Ad J. Scheepbouwer, CEO, KPN Telecom*

“Our enterprise is truly becoming more integrated across all of the business areas. A key outcome of this is that I am increasingly in the role of driving change for the business, leading change for the organization, and managing complex projects and programs that span external customers, too.”

— *CIO, Fortune Global 500 company*

Highlights

**Core trait: innovative beyond customer imagination**

*Investing heavily, CEOs are looking forward to serving the increasingly sophisticated and demanding customers around the world. How can CIOs provide greater customer insight? What will it take to extend collaboration with customers?*

Growing global prosperity is creating new, diverse marketplaces with informed and demanding customers. Two-thirds of CEOs in the study see this as a positive trend, and outperformers are increasing their customer-related investments.

**As the outperformers in the study have learned, collaboration can go a long way toward meeting customer needs.**

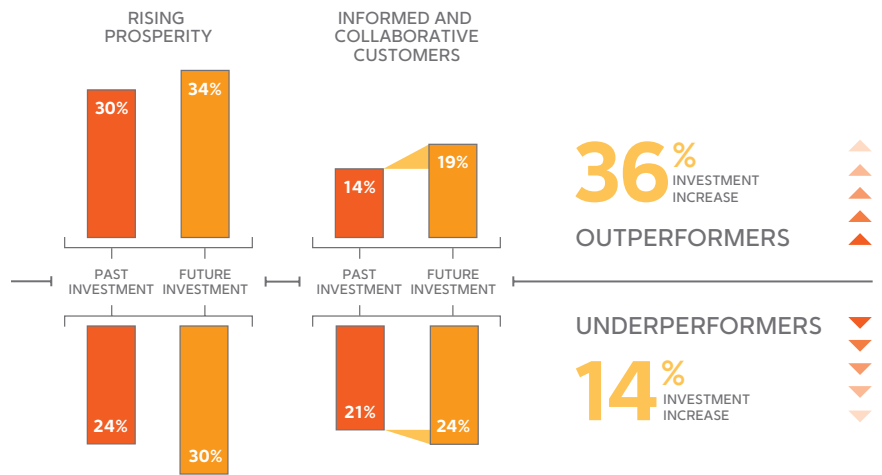


Figure 4: Taking advantage of rising prosperity worldwide, outperformers are increasing their customer-related investments.

---

**Highlights**

---

***Before organizations can meet new customer demands, they first have to understand them.***

CEOs are hoping to differentiate their organizations by meeting these customers' demands; however, first they need the insight to understand them. By investing in approaches that consolidate internal and external silos of customer data into integrated information, CIOs can enable business intelligence techniques to provide timely, trusted, protected customer information and then turn that information into customer insight.

In addition, CIOs can provide new ways to connect with customers, by enabling two-way collaboration that provides direct feedback on customer requirements and guides decisions to meet and exceed customer needs. Some of the technologies that organizations should consider include:

- *Collaboration and social networking capabilities, permitting individuals and business units to work better across enterprise boundaries and with customers*
- *Web 2.0 applications, enabling easier access and transaction paths for customers 24x7*
- *Context-specific, self-help portals, allowing customers to get information and answers to common problems and questions quickly.*

CIOs also need to expand collaboration by unifying data, voice and video communications with collaboration software across and beyond the enterprise. This requires attention to communications security, such as enhanced identity management and protection of customer information.

As mentioned earlier, CIOs can use SOA to speed application development, enabling their organizations to respond more quickly to customer needs. They can also apply SOA concepts to the management of the IT environment by establishing a catalog of common IT services that can improve efficiency through automation of repetitive tasks. CIOs must begin to recognize the importance of having their own set of integrated applications (formerly called IT tools) to manage one of the most critical business functions of these new enterprises—the IT organization.

Like the larger enterprises of which they are part, CIOs must innovate beyond the imaginations of their customers—the business users of IT. Just as the enterprise must determine its differentiating competencies, the IT organization must identify its differentiators and consider alternative sourcing models to augment existing resources by providing new skills and lowering costs.

**Are you ready?**

- *How will you change the interaction with your internal constituencies and external customers today to meet their information needs tomorrow?*
- *Is your organization in a strong position to lead the bold moves that your CEO has planned?*
- *Does your team understand the needs of the marketplace and the business well enough to bring forward innovative technology approaches and gain competitive advantage?*

“We must redefine the value proposition to the customer. Information and advisory content are becoming even more valuable than traditional drivers.”

— *H. Edward Hanway, chairman  
and CEO, CIGNA Corporation*

Source: IBM Global CEO Study

“We are driving innovation in our company from a few different perspectives. We work closely with customers, business partners and suppliers to find new and interesting ways to shift our thinking about how we do business.”

— *CIO, Fortune Global 200 company<sup>†</sup>*

Source: Center for CIO Leadership

Highlights

**Outperformers are going global across the board, and technology is making it happen.**

**Core trait: globally integrated**

*Faced with so many approaches to global integration, how do CIOs know which to champion? How can CIOs support business designs that take advantage of capabilities located in other parts of the world?*

CEOs are looking to capitalize on global integration in order to tap into new marketplaces and sources of expertise. The CEO study indicates that outperformers tend to choose globally optimized business designs, partner more frequently, and pursue mergers and acquisitions more often than other study participants. Eighty-five percent of CEOs see partnering as a way to capitalize on global integration opportunities – with more than half planning to do so extensively.

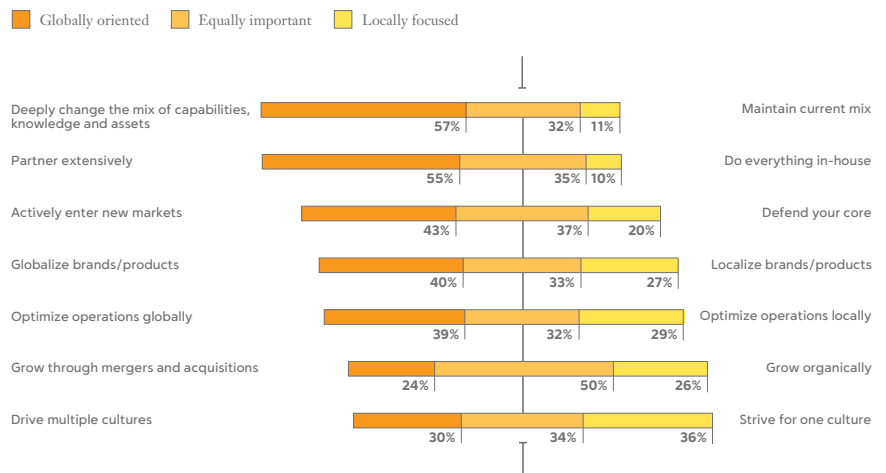


Figure 5: Moving toward more global optimization, CEOs are making major changes to their business designs.

---

**Highlights**

---

***Since technology is a key enabler of global integration, CIOs must break down the operational, technological and cultural barriers that can impede it.***

This finding is significant to CIOs because technology is a key enabler of global integration. CIOs can help break down operational, technological and even cultural barriers to greater global integration by enabling:

- *Integrated supply chains that can lower costs and speed the movement and tracking of goods and services using technologies such as radio frequency identification (RFID) and unified communications and collaboration*
- *Integrated financial organizations that can help CFOs arrive at the single financial truth necessary to make good decisions using a single chart of accounts, common applications and terminology, and one system for tracking and managing financial data*
- *An integrated approach to an enterprise architecture and global management strategy*
- *A globally integrated workforce supported by unified communications and collaboration capabilities, social networking tools, and mobility and wireless solutions that enable communications anywhere, anytime and on any device*
- *Strategic exploitation of global enterprise resource planning and other applications to help drive global integration, enabling work to be done where the most appropriate capabilities are—for example, through global centers of excellence.*

Global integration is also supported by a move toward shared services with common standards. CIOs can spearhead standardization by providing a set of shared applications, services and infrastructures to all business units. Alternatively, CIOs can drive a federated model in which business units develop and own their applications yet run them on a shared infrastructure that the IT organization provides as a service.

**Are you ready?**

- *CIOs, with their unique end-to-end view of the business, are positioned to lead global integration and growth. How are you thinking about this leadership opportunity?*
- *What do you need to do to ensure that your organization becomes an enabler of global integration?*
- *Do you have the common IT standards and environment in place to make the best use of available capabilities, knowledge and assets no matter where they reside around the world?*

“Seventy-five percent of CEOs are actively entering new markets.”

Source: IBM Global CEO Study

“IT is driving the enablement of new business models, and that is changing the world. Globalization is only possible because of the rapid dissemination of information and communication allowed by technology.”

— CIO, Fortune Global 500 company

Source: Center for CIO Leadership

Highlights

**Most CEOs are looking to improve the efficiency and effectiveness of their existing business models.**

**Core trait: disruptive by nature**

*Most CEOs are embarking on extensive business model innovation. Outperformers are pursuing even more disruptive business model innovations than their underperforming peers. But are CIOs in a position to support deep and broad business model changes?*

In our 2006 CEO study, we found that business model innovation was important and linked to financial outperformance. Now CEOs are telling us that business model innovation is exploding, with over two-thirds of CEOs having a strong focus on business model innovation and almost all of the others having a moderate focus. It is essential that CIOs work with the business to enable such innovation.

New and emerging technologies are creating new business opportunities to be disruptive – or to be disrupted. CIOs can play a key role in helping the business to understand these opportunities and threats.

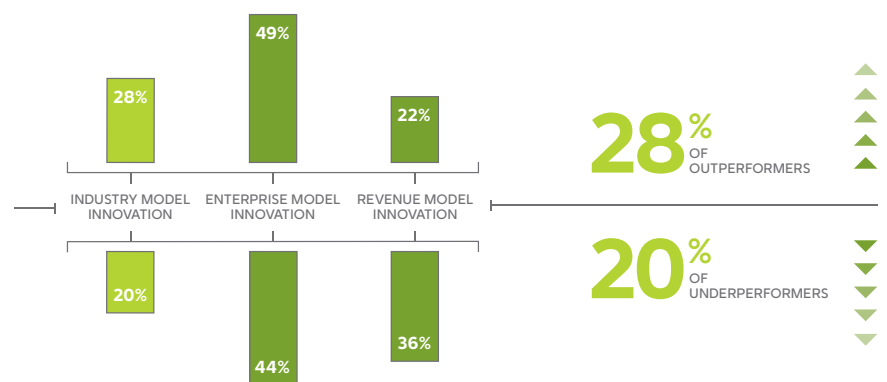


Figure 6: Outperformers are more likely to pursue industry model innovation, which is the most difficult.



---

**Highlights**

---

***Although industry model change is the most difficult, outperformers are embracing it more than underperformers.***

CEOs discussed three types of business model innovation:

- *Enterprise model—improving the efficiency and effectiveness of existing business models and rethinking what is done in-house and what is achieved through collaboration*
- *Revenue model—generating revenue through new value propositions and pricing models*
- *Industry model—redefining an existing industry or moving into a new one*

Most CEOs are driving change through enterprise model innovation. Industry model changes are difficult and therefore the least pursued. However, the study finds that outperformers embrace industry model innovation more than underperformers.

To support CEOs in making business model changes, CIOs need to remove obstacles by enabling flexible systems that can quickly handle disruptive change. Following an acquisition or merger, for example, IT needs to provide the CFO with the consolidated financial information necessary to manage the combined enterprise. New business process modeling, which can highlight the full impact of changes before going live, and prototyping technologies can help organizations document, visualize and report on business process models for continuous process improvement. CIOs can also facilitate business model changes through multisourcing and shared services, which involve collaboration, partnerships and outsourcing that can inject new thinking and expertise into an organization. By enabling an enterprisewide information architecture that is closely aligned with business objectives, CIOs can help organizations optimize corresponding business processes while providing enhanced control and insight. Of course, CIOs can also embrace changes to the business models they employ within IT to deliver greater value to the business.

---

Highlights

---

***Organizations are using jamming tools and methods to facilitate collaborative business model innovation.***

Social networking can also facilitate business model innovation. An example is the Automotive Supplier Jam held by Original Equipment Suppliers Associates (OESA) to discuss the North American automobile industry’s general strategy, future and opportunities for innovation. While engaging tens of thousands of participants in real time to generate deeper insights, the organization used real-time text analysis and data mining tools to highlight emerging trends and distill results. Postevent research analyzed discussion threads to identify specific, actionable ideas and strategies that participating companies can apply to their businesses.

Business model and process changes can also create a need for new communications, mentoring and training techniques. Enhanced communication and collaboration capabilities can help businesses cope with the explosion in the number of mobile employees and the use of global talent.

**Are you ready?**

- *How might technology disrupt your industry? What role will IT have in that disruption? Can you drive it?*
- *More businesses are under pressure to differentiate. Do you find that you’re pushing opportunities to your business leaders? Or are you spending more time implementing their strategies?*
- *Many businesses today are venturing into new industries. Are you positioned to create and accelerate new marketplace opportunities for your enterprise?*

“Sixty-nine percent of CEOs are planning to do serious business model innovation over the next three years.”

Source: IBM Global CEO Study

“Today’s top CIOs are at the forward edge of understanding, leading and harnessing the disruptive changes taking place in their markets and organizations. They are listening, participating and leading their organizations through what will certainly be an unprecedented level of change during the next few years.”

— Harvey Koeppel, executive director, Center for CIO Leadership

Source: Center for CIO Leadership

---

Highlights

---

*Instead of viewing corporate social responsibility as a negative, many CEOs see it as an opportunity for differentiation.*

### Core trait: genuine, not just generous

*An emerging generation of socially minded customers, workers, partners, activists and investors is watching virtually every move companies make. What can the CIO do to support corporate social responsibility?*

A new generation of socially minded customers, workers, shareholders and partners is placing greater emphasis on corporate social responsibility (CSR). The CEO study shows that nearly 70 percent of CEOs see this as a positive trend and are committing more investment into addressing these issues.

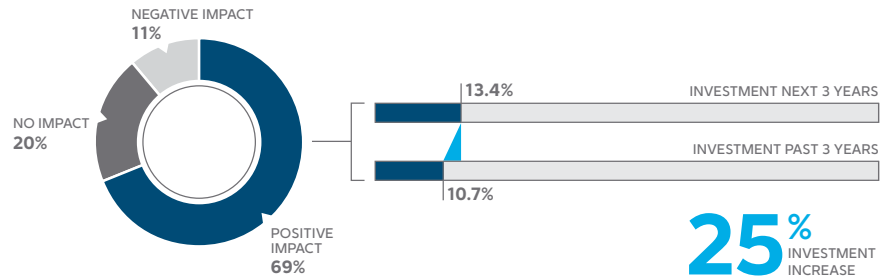


Figure 7: CEOs are generally positive about rising corporate social responsibility expectations and are increasing their investment in this area rapidly.

---

**Highlights**

---

CEOs view increasing corporate social responsibility (CSR) expectations as an opportunity to differentiate and grow their businesses by serving new market segments with responsible products and services. Meeting this challenge involves greater transparency about every aspect of the organization, from its energy usage and carbon footprint to the characteristics of its supply chain and business partners. CIOs have a vital role to play in enabling this transparency through the clarity they bring to information requirements and the flexibility of the IT systems they provide. As with other traits of the Enterprise of the Future, the CIO needs to address the CSR issue within IT while enabling the broader response of the organization.

Technology itself is a significant consumer of energy and therefore has an important environmental impact. Data centers, particularly aging ones, are large consumers of energy. According to Gartner, “The average power consumption per server quadrupled from 2001 to 2006, while the average number of servers doubled and is expected to grow another 50% by 2010. This rapid growth has resulted in data centers typically consuming up to 100 times more energy per square foot than a typical office building.”<sup>1</sup> Moreover, the exponential growth in numbers of transactions, numbers of devices and volumes of work passing through data centers will continue to drive a growing demand for energy. According to a report released by the U.S. Environmental Protection Agency (EPA), the purchase price of a new IU server has been exceeded by the capital cost of the power and cooling infrastructure needed to support that server.<sup>2</sup>

***The exponential growth in transactions, devices and data is driving a growing demand for energy.***

CIOs can contribute to improved energy efficiency in a number of ways. Virtualization and consolidation can help reduce the total data center footprint and associated energy use while improving the efficiency of the energy that is used. Improvements can be tracked with quantitative measurements that link productivity to, for example, British thermal units (BTUs) or kilowatt-hours (kWhs) consumed. With energy costs rising worldwide, any reduction in overall energy usage can drive significant savings for the enterprise as well as help to address the broader societal challenge.

In addition, automation can help resource-constrained IT organizations do more work with the same number of people and adjust more easily to expansion and contraction of demand. IT can also support a remote workforce, thereby helping to minimize the energy that employees use commuting to and from work. Conscientious disposal of used hardware can further reduce an organization's environmental impact. Looking at the big picture, IT's support for global integration promotes investment in emerging economies and helps enhance social welfare.

**Are you ready?**

- *How are you enabling growth while managing costs and minimizing your environmental impact?*
- *Getting in front of the “green initiative” is an opportunity for today’s businesses. Can your team drive solutions to the environmental issues facing your enterprise?*
- *Can you help your enterprise understand and manage its carbon footprint?*
- *Are you aggressively addressing the rising energy requirements of your data centers?*

“Our corporate sustainability agenda is a clear differentiator for us.”

— Tom Johnstone, CEO, SKF

Source: IBM Global CEO Study

“Corporate responsibility goes beyond marketing campaigns. It needs to be infused in the culture, and in our IT organization we’ve taken this on very strongly. IT organizations have the ability to really drive corporate social responsibility from the inside out, from influencing the way people use and interact with technology to really cutting costs and energy waste out of our systems.”

— CIO, Fortune Global 500 company

Source: Center for CIO Leadership

---

**Highlights**

---

***As leaders of the business of IT, CIOs can transform their IT organizations into models of the Enterprise of the Future.***

**Thriving in a permanent state of change**

As the IBM Global CEO Study, *The Enterprise of the Future*, shows, CEOs see a future marked by accelerating and wide-reaching change. CIOs are being counted on to support the Enterprise of the Future by enabling their IT infrastructures to respond to change dynamically as well as by driving change across the enterprise.

Although a recent study shows that 51 percent of CIOs already see themselves as transformation leaders, CIOs are being challenged as never before with increased expectations for delivering solutions that support the CEO's accelerated change agenda.<sup>3</sup> They must lead the way by moving toward the traits of the Enterprise of the Future within their own IT organization and by enabling the broader enterprise to also move in this direction. CIOs and their IT organizations, like their CEOs, must instill five core traits:

- *Hungry for change—transforming IT applications, services and infrastructures to make them flexible, extensible and secure*
- *Innovative beyond customer imagination—enabling collaboration across and beyond the enterprise and turning data into insight*
- *Globally integrated—moving toward a shared services model and enabling integrated business operations and supply chains*
- *Disruptive by nature—preparing to support the evolving business models of the enterprise, including acquisitions, mergers and divestitures*
- *Genuine, not just generous—working to reduce the IT footprint and associated energy use, and to support the broader social responsibilities of the enterprise*

Adopting these five core traits can help CIOs effectively carry out their vital role as change agents across the enterprise. The road ahead is challenging, but the vision, technologies, methodologies and services are available to support CIOs as they prepare to thrive in the Enterprise of the Future.

**For more information**

For further details about the IBM Global CEO Study, please visit:

[ibm.com/enterpriseofthefuture](https://ibm.com/enterpriseofthefuture)

For additional business insights from IBM, please visit the IBM Institute for Business Value:

[ibm.com/iibv](https://ibm.com/iibv)



© Copyright IBM Corporation 2008

IBM Corporation  
New Orchard Road  
Armonk, NY 10504  
U.S.A.

Produced in the United States of America  
06-08  
All Rights Reserved

IBM, the IBM logo and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at [ibm.com/legal/copytrade.shtml](http://ibm.com/legal/copytrade.shtml)

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

Other company, product and service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

- 
- 1 Gartner, *The Data Center Power and Cooling Challenge*, David Cappuccio and Lynne Craver, November 2007.
  - 2 U.S. Environmental Protection Agency, *Report to Congress on Server and Data Center Energy Efficiency Public Law 109-431*, August 2, 2007, [http://www.energystar.gov/index.cfm?c=prod\\_development.server\\_efficiency\\_study](http://www.energystar.gov/index.cfm?c=prod_development.server_efficiency_study)
  - 3 *State of the CIO 2008*, CXO Media Inc., 2007.