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Make IT Matter For Business Innovation

by Laurie M. Orlov

BEST PRACTICES

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Make IT Matter For Business Innovation
How To Boost The IT Organization's Contribution To The Enterprise
This is the second document in the "IT's Role In Innovation" series.

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with Navi Radjou, Tom Pohlmann, and Samuel Bright

EXECUTIVE SUMMARY

Business execs don't believe that the IT organization contributes business innovations to their firm. Not surprising given that IT allocates less than 25% of its budget toward "new" work — activities not classified as maintenance and ongoing operations. But IT's key and unique assets — broad knowledge of the business, awareness of technology, and the ability to detect solution potential — are invaluable innovation-enabling capabilities. This document outlines steps IT must follow to recover its innovation potential with changes that span people and organization, process, and technology. Where to start depends on the type and status of the IT organization today.

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NOTES & RESOURCES

Forrester interviewed 23 vendor and user companies, including: CTOs, CIOs, and consulting partners at firms such as Accenture, Capgemini, CSC, FedEx, Fidelity, Honeywell, IBM, and Procter & Gamble.

Related Research Documents

"Memo To CEOs And CIOs: IT Innovation Capacity — Not IT Spend — Is What Matters"
August 3, 2005, Best Practices

"How Do Users Feel About Technology?: Business Technographics® United States"
April 8, 2005, Data Overview

"IT For Growth And Innovation"
March 4, 2005, Best Practices

"Putting Innovation Back In IT"
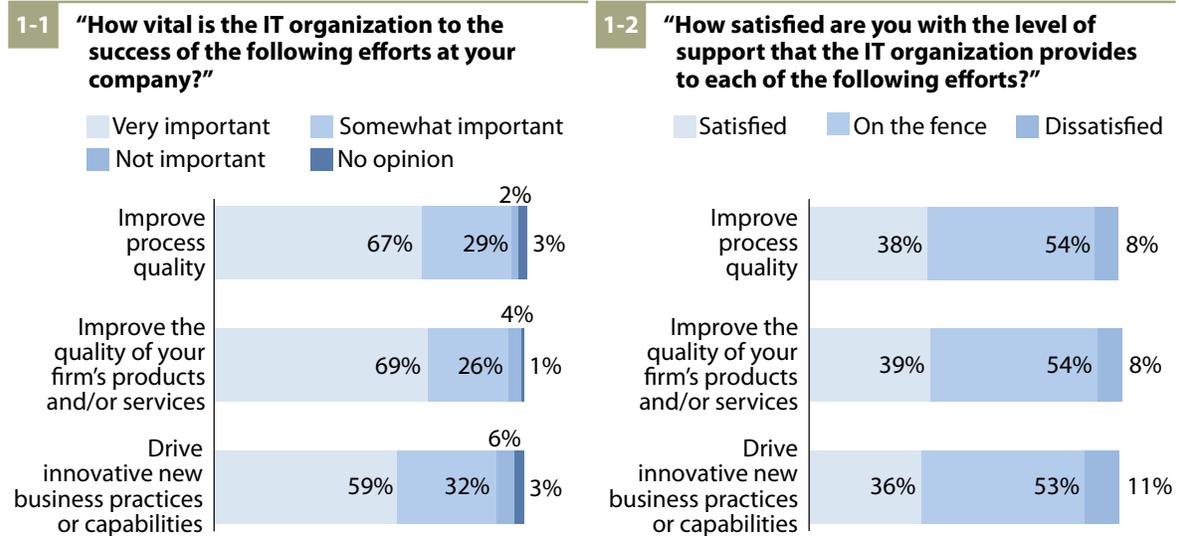December 31, 2002, Report

THE IT ORGANIZATION IS NO LONGER A FRONT-AND-CENTER BUSINESS INNOVATOR

During the past 30 years, information technology (IT) was the source of endless new possibilities and successful business innovations, moving well beyond the back office into the realm of customers and new products, processes, and services. Think of Sabre and American Airlines, Dell's supply chain management prowess, Schwab's online trading . . . the list is endless, and for leading firms, continues today at an even more accelerated pace. As a result, IT organizations — responsible for these innovations — have become increasingly intertwined with and integral to the success of the enterprise.

But many IT organizations have lost their way in the past few years. In a 2002 survey of business and IT decision-makers, only 22% viewed IT as a source of innovation.[1] And in Forrester's Business Technographics March 2005 United States Technology User Benchmark Study, while 59% of technology influencers said that IT was vital to "driving innovative new business practices or capabilities," only 36% were satisfied with IT's level of support to actually do it (see Figure 1).[2]

Why? Because IT organizations in many firms are known for their:

- **Mastery of constraints and failure to demonstrate flexibility.** Too often, firms today see IT as a hurdle to overcome when introducing new products and services. Why? Having consolidated app instances and centralized legacy environments to keep a lid on support costs, firms are left with change-resistant software — with tightly coupled user interface, business process, and database — that is costly to modify. For example, as insurance providers like Blue Cross Blue Shield of Massachusetts switch from a subscriber-centric model to a consumer-driven world, they must overhaul their entire applications portfolio to reflect changes in their business model.

- **Continuing gap between business expectations and delivery.** Firms expect IT organizations to provide solutions that improve quality of business processes and help tune customer-facing products and services. But in the same Forrester Technographics Study cited above, there was a sharp disconnect between business execs' acknowledgement of IT's role to help with process quality (67%) and improve products or services (69%) and satisfaction with their ability to do so (38% and 39%, respectively). As one consultant put it: "We help sales and marketing bring customer service innovations to market — but having to go through the IT resource inhibits our efforts to get it done."

- **Sizable support burden with little room for new work.** IT organizations struggle to preserve capacity to continually deliver new capabilities as this year's new project becomes next year's maintenance burden. Across all industries, 76% of IT spending, on average, goes to maintenance and ongoing operations of systems and equipment, with less than 20% of IT budget available for new work in some industries.[3] Enamored with cost-reducing projects like server consolidation, IT executives implement remote system monitoring and storage virtualization and too often frame these achievements as innovations for the business, leaving business executives wondering — what's in it for them?

Figure 1 Importance To The Organization Versus Satisfaction With IT Support

| 1-1 | "How vital is the IT organization to the success of the following efforts at your company?" |

Legend:
- Very important
- Somewhat important
- Not important
- No opinion

Improve process quality: 67% | 29% | 3% — 2%

Improve the quality of your firm's products and/or services: 69% | 26% | 1% — 4%

Drive innovative new business practices or capabilities: 59% | 32% | 3% — 6%

| 1-2 | "How satisfied are you with the level of support that the IT organization provides to each of the following efforts?" |

Legend:
- Satisfied
- On the fence
- Dissatisfied

Improve process quality: 38% | 54% | 8%

Improve the quality of your firm's products and/or services: 39% | 54% | 8%

Drive innovative new business practices or capabilities: 36% | 53% | 11%

Base: 692 technology influencers at US companies
(percentages may not total 100 because of rounding)

Source: Forrester's Business Technographics® March 2005 United States Technology User Benchmark Study

Source: Forrester Research, Inc.

- **Energy-sapping experiments, diverting resources from meaningful contributions.** Business unit execs become cynical when IT organizations are captivated by vendor sales pitches ahead of any possible business application or redesigned business process.[4] So the business is rightfully skeptical when initial prototypes of wireless PDAs, RFID sensors, or empty shell portal frameworks are trumped as business innovations — instead of the unapplied experiments that they really are.

IT MUST RECLAIM ITS BUSINESS INNOVATION ENABLER ROLE

Today, while everyone acknowledges that information technology is integral to business innovation, firms have forgotten — and IT has let them forget — about IT organizations' core competence and the significant value IT staff can add when they are engaged with the business, including (see Figure 2):

- **Problem-solving creativity.** People have historically joined IT organizations because of their ability to identify patterns, whether it is in code or business process. This talent enables IT staffers to see and propose solutions to problems — either explicitly stated or implied — that plague the enterprise. For example, noting clumsy methods for pricing product promotions across multiple business units, the Lands' End IT staff proposed a single promotion pricing service for use by all units.

Figure 2 IT Assets Are Key Ingredients For Business Innovation

Assets	How IT assets can be applied
Problem-solving creativity	IT can identify technical and organizational patterns and then proactively develop solutions to the problems the business faces.
Business process knowledge	IT's role in developing applications can meet the demands of business processes — enabling it to see all of the stages, connections, and implications of these processes.
Technology awareness	IT's technological know-how can equip it to recognize and implement technology solutions to business problems.
Data asset guardianship	IT's extensive interactions with and shared responsibility for data position it to effectively manage and protect data for the organization.
Process platform ownership	IT's reconfiguration of its applications has prepared it for process change by incorporating a thorough, layered approach that boosts overall flexibility and reusability.
Collaboration enabler	IT-maintained Web-based portals are one example of the electronic forums that IT can provide for new ideas and products to be discussed across the company.

Source: Forrester Research, Inc.

- **Business process knowledge.** IT's responsibility for delivering the business applications that span front-to-back processes puts it in the best position in the enterprise — other than the CEO — to see the connections between cross-disciplinary process steps. For example, at Sprint-Nextel, IT staffers used process skills to redesign the mobile phone maintenance and repair process, avoiding a costly packaged app purchase and building up a wealth of insight to be used to influence new product and service design.

- **Technology awareness.** IT staffers have an appreciation for, and deep knowledge of, existing and emerging technologies — and at their best, can see how the patterns in business problems relate to technology solutions. For example, at Procter & Gamble, IT has led engineering and marketing in the use of simulation and modeling technology to replace laborious physical lab testing and consumer focus groups — saving money and boosting the success rate of new products.

- **Data asset guardianship.** Because IT organizations touch most of an enterprise's data, they can extract meaningful business insights or build entire new applications from disparate data by aggregating and/or reassembling it. For instance, Harris Corporation's IT organization uses a standard part-numbering scheme to siphon disparate divisions' engineering data repositories into standardized hubs of enriched engineering information. They then augment it with the latest Avnet-supplied data and feed it back to the R&D teams with refreshed and now-standardized bills of material.

- **Process platform ownership.** Many IT organizations overhauling their application portfolios implement intermediate layers between transaction capture and back-end systems. Such abstraction layers can be exploited to ease business process change. For example, at 1-800-Flowers, IT has abstracted its back-end transaction systems and built a simplification layer that enabled "snap-in" integrations for its newly acquired companies.

- **Collaboration enabler.** Since the '80s — starting with groupware — IT has been instrumental in deploying collaboration technologies that facilitate and enhance people-to-people interactions. Innovation-hungry firms can turn collaboration tools such as Web-based portals into incubators of new products and ideas. For instance, intranets such as IBM's ThinkPlace, FedEx' Innovation Web site, and Reuters Innovation Program are idea solicitation platforms linked to a formal process for review and feedback.
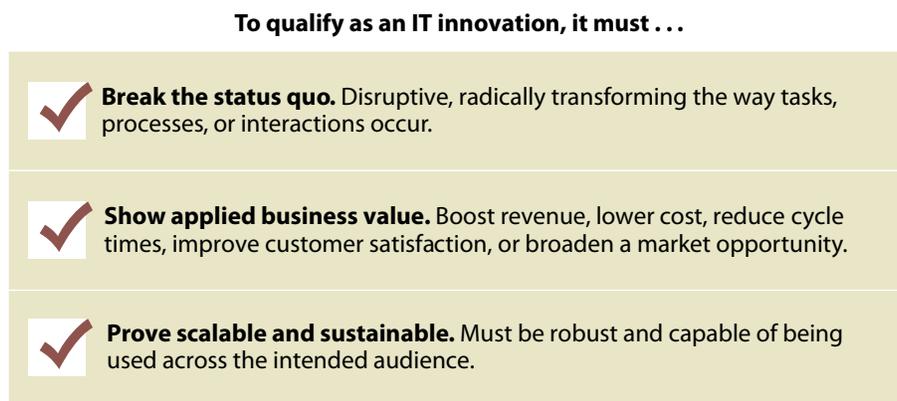
How IT Should Apply Its Unique Assets To Enable And Drive Business Innovation

Incremental process improvements or streamlining of IT's own operations are necessary but not sufficient to drive business innovation — and can sap IT's resource and energy if not tightly controlled. Instead, Forrester defines IT-enabled business innovation as:

Transforming a business process, market offering, or business model to boost value and impact for the enterprise, customers, or partners.

Given this definition, what are the key characteristics of an IT-enabled business innovation? As Andy Mulholland, CTO of Capgemini, put it: An IT innovation must "marry the art of the possible with the art of the valuable." To qualify as an IT innovation, the initiative must (see Figure 3):

Figure 3 Characteristics Of An IT Innovation

To qualify as an IT innovation, it must . . .

✓ **Break the status quo.** Disruptive, radically transforming the way tasks, processes, or interactions occur.

✓ **Show applied business value.** Boost revenue, lower cost, reduce cycle times, improve customer satisfaction, or broaden a market opportunity.

✓ **Prove scalable and sustainable.** Must be robust and capable of being used across the intended audience.

Source: Forrester Research, Inc.

- **Break the status quo.** If an IT innovation isn't disruptive — radically transforming the way tasks, processes, or interactions occur — it's an improvement, not an innovation.[5] One such disruptive innovation is being piloted in London, where drivers into the congested Westminster center of the city pay to park by typing a text message on their mobile phones — triggering a deduction to a debit card they have preregistered on a Web site. Each of 6 million cars and their license plates are photographed on closed circuit television — so scofflaws are also fined immediately.[6]

- **Show applied business value.** The value of IT-enabled business innovation is like the value of any technology initiative — in the end, it must boost revenue, lower cost, reduce cycle times, improve customer satisfaction, or broaden a market opportunity. This ultimate value should be clear by the time it is classified as a business innovation and broadly marketed internally. As Tom Lesica, CIO of Avaya, put it: "You must be able to cash the check as a result."

- **Prove scaleable and sustainable.** When a new technology is being prototyped or piloted, it is still an experiment, however great the potential. But by the time business and IT celebrate success, it must be capable of supporting its intended audience over the long term. For instance, FedEx' PowerPad, a new device for couriers that offered always-on, real-time communication, was not acknowledged as an innovation until it was robust enough to be rolled out worldwide.

The Types Of Business Innovation That Should Be Enabled by IT

Although most IT innovations today are focused on enterprise processes, IT has both the skills and assets to significantly contribute to new products, new services, and transformative business models with (see Figure 4):

Figure 4 Examples Of IT-Driven Innovations By Type

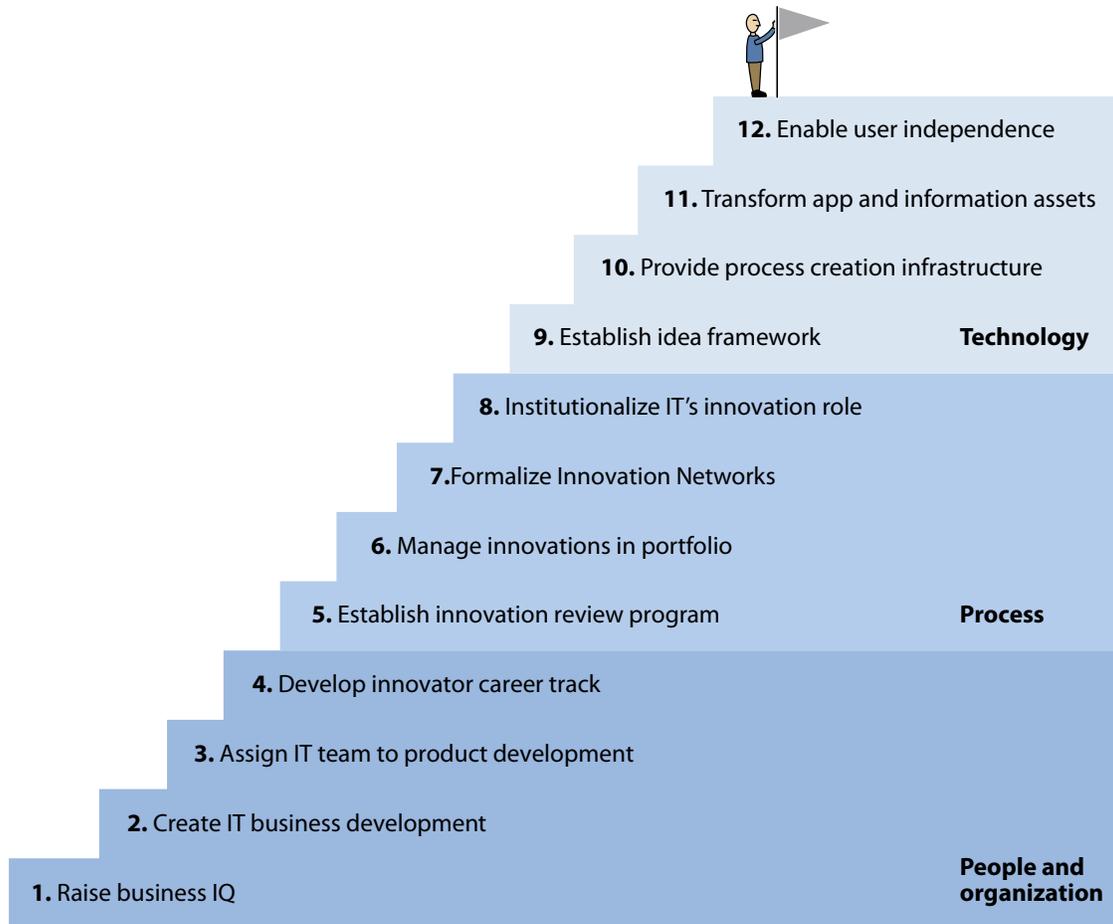| Types of innovation	Examples
A new service derived from existing components or capacity	Harris resells its broadcasting capacity to external partners because of its strong grid computing expertise and infrastructure.
A technology that transforms an internal or external process	At P&G, virtualization and simulation technology reduced engineering time-to-market and improved product success through in-store simulations.
Solution to a latent problem not yet fully expressed	Intel's launch of PDAs in its chip manufacturing clean rooms was led by IT people who had worked in the factory. Multiple screens were eliminated and factory downtime was slashed.
Existing information used in a new business model	Honeywell's maintenance info is being converted by a BU into a service business for predictive and preventive maintenance.

Source: Forrester Research, Inc.

- **A new service derived from existing components or capacity.** IT organizations manage the infrastructure, databases, and applications that can fuel new offerings — if they and their business peers are open to harnessing them. Firms should encourage IT organizations to identify ways to improve or create a product or service, expand a market, or introduce a new business model. For example, Harris' grid computing infrastructure is so optimized for broadcast delivery that the firm's business units have created a new revenue stream by reselling its capacity to external partners.

- **A technology that transforms an internal or external process.** IT's interest in and exposure to technologies used elsewhere and for other purposes can be transformed into go-to-market improvements. At Procter & Gamble, virtualization and simulation technology shortened engineering time-to-market by eliminating laboratory time and improving product success with simulations of product placement in stores.

- **Solution to a latent problem not yet fully expressed.** Business opportunities may not be obvious — and it may be even less obvious how IT knowledge or assets can help. But where there's an idea, there's often an opportunity. For example, as part of IBM's Technology Adoption Program (TAP), an innovation created expertise locator filters to broadcast an instant message problem to a prequalified pool of available solvers. Before, IBM employees on the phone with a customer would have to search a directory to find someone who might both know an answer and be online. Now the system can instantly locate 20 knowledgeable — and online — solvers.[7]

- **Existing information used in a new business model.** More industrial firms are beginning to discover the market after the sale, including the use of customer service and maintenance information to create new margin-rich services and longer-term relationships with customers.[8] For example, Honeywell's maintenance information, managed by IT, is being converted by a business unit with IT's help into a new predictive and preventive maintenance service.

NURTURING IT INNOVATION AS A CORPORATE ASSET — 12 STEPS TO RECOVERY

As many IT organizations spent the past five years focused on cost reductions — with downsizing, outsourcing, and deferred technology purchasing — they lost much of their innovation talent, visibility, and momentum. So it is no small task to change from being viewed as a constraint to being engaged in business innovation. The transformation must start at the top with a CEO mandate — and encompass people and organization, process change, and the appropriate use of technology (see Figure 5).

Figure 5 12 Steps To Recovering IT's Role In Business Innovation

12. Enable user independence

11. Transform app and information assets

10. Provide process creation infrastructure

9. Establish idea framework   **Technology**

8. Institutionalize IT's innovation role

7. Formalize Innovation Networks

6. Manage innovations in portfolio

5. Establish innovation review program   **Process**

4. Develop innovator career track

3. Assign IT team to product development

2. Create IT business development

1. Raise business IQ   **People and organization**

Source: Forrester Research, Inc.

People And Organization

Re-energizing the IT organization itself is a critical success factor to boosting IT's contribution to business innovation. CIOs should:

1. **Raise the business IQ of IT staffers**. The best way to cultivate innovation from IT staffers is to get them attuned to the firm's mission by rotating IT talent into the business and bringing business execs in to fire up IT staffers with passion about the firm's mission. The key mandate from management to Wal-Mart's IT staff? They must "think like a merchant."[9]

2. **Move IT R&D within IT planning — and create IT business development.** Rather than isolate technology research from business needs, IT must embed research and small-scale experimentation in strategy and planning groups — shifting R&D's focus from technology

prototyping to business simulation. And CIOs should create a new business development team consisting of three to four talented and business-aware people to seek new uses for IT assets. Reuters' innovation team, for example, includes people with marketing, business development, and startup backgrounds.

3. **Assign an IT team to work with the firm's product developers.** Although engineering or product designers may not approach IT, IT must reach out and become involved with new product innovation — including assigning staff to work closely with development groups. For example, Avaya's IT organization collaborates with product and services development teams that are creating enterprise-scale communications and mobility solutions so that they can be deployed and tested internally before they are brought to market.

4. **Augment the technology track with a new innovator career track.** In addition to IT's traditional technical advancement track, firms must encourage creativity in IT and launch an innovation career track for future IT leaders that encompasses business rotation, IT business development, and incubation of pilot projects. At Intel, IT is piloting an "innovation associate" position — a role for a senior person with a visible track record of high-impact innovation who can mentor innovators-to-be.

Process

Firms must create new processes to be the underpinning of turning ideas into experiments and then into innovations. They must:

5. **Establish an innovation review program.** Firms should create time-boxed innovation solicitation, which is a well-communicated formal process for business assessment and guaranteed response to innovative ideas proposed by the business and IT staffers. At Georgia-Pacific, for example, a time-limited idea challenge involving 4,000 employees elicited an idea from an IT employee for a disposable sports wipe that ranked among the top five ideas submitted.

6. **Use portfolio management to monitor and manage innovations.** With portfolio management, firms can track and manage the profitability of multiple innovations across their life cycle, killing unproven innovations during the experiment phase — and reallocating resources to more promising projects. The portfolio process should resist putting experiments through the full calculation of potential business value until the pilot succeeds and the project is deemed scalable.

7. **Formalize an Innovation Network.** Recognizing they can't innovate alone anymore, forward-thinking firms like P&G, Boeing, and FedEx are forming Innovation Networks — collaborative innovation partnerships with other resourceful institutions.[10] Proactive IT execs will help formalize their firm's Innovation Network — brokering their firm's access to external

technology inventors and process experts, and transforming external ideas into internal business innovations. At FedEx, for example, this IT-led Innovation Network is comprised of industry associations, tech vendors, venture capitalists, and colleges.

8. **Help institutionalize IT's role in innovation as a way of life.** To strengthen its role in business innovation, IT should become a sponsor in the enterprise of regular reviews of industry trends, bring in outside speakers, and send staffers to conferences. GM's Process Information Office (PIO) groups are chartered to keep the rest of GM's business and IT staff abreast of emerging technology trends as well as the IT-enabled business innovations of competitors like Ford Motor and Toyota.

Technology

IT should use its technology assets, architectural initiatives, and project management skills to:

9. **Establish a collaborative platform for finding and using ideas.** To accompany the innovation review program, IT should propose and implement an online environment where these ideas can be collected, screened, and approved for implementation.[11] Whether it is an idea management environment like IBM's ThinkPlace, or a portal framework like its TAP program for matching innovators to adopters, IBM IT execs know that they own the implementation, asset reuse, and scalability of environments needed to move new ideas and innovations along.

10. **Deploy new process creation infrastructure.** Simulation and virtualization can be applied to flying an airplane, developing a new product, or changing an existing process. Firms should follow the example of P&G and its simulation effort by offering process modeling or simulation tools to innovative IT and business staff who want to improve existing — or create new — ways of working, be it in R&D, production, marketing, or customer service.

11. **Inventory and transform app and information assets.** Like Lands' End, IT organizations have the process know-how to create new business services from existing software components. But the firm's data assets are also jewels for entire new offerings. Recognizing this, Nasdaq is taking its existing IT infrastructure and data sets and coupling them to a new workflow for its trader clients.

12. **Create ways for business users to innovate independent of IT.** The biggest challenge for IT will be to devise a way to get themselves and their processes out of the way of business innovation that depends on changes to current applications. At Capgemini, technology architects are working on creating a software layer that business users can use to provision new services — without depending on IT.

FIRMS MUST PRIORITIZE RECOVERY EFFORTS BASED ON THEIR STATUS TODAY

No IT organization can master all 12 steps at once. Instead, IT organizations must prioritize these steps based on where they are today, what type of firm they belong to, what type of IT organization they aspire to be, and what the enterprise expects of them. In particular (see Figure 6):[12]

- **Solid utilities need to extend line of sight outward.** IT organizations falling in this category are focused on delivering a reliable, low-cost infrastructure and back-office support — in fact, there may even be a separate CTO organization that nurtures the bulk of technology-enabled innovation initiatives. Solid utility IT orgs should get started by raising the business IQ of in-house IT staffers, establishing new business relationship manager roles, and effectively marketing their existing contribution to the business.[13] In addition, execs in these organizations must sow the seeds of a future Innovation Network by encouraging staffers to attend industry conferences to see what peer IT organizations are doing — and begin networking with them.

- **Trusted suppliers should show more initiative.** Trusted supplier IT organizations are well-positioned to contribute IT-enabled business innovations because they use a portfolio management process, enjoy a positive rapport with their business peers, and are successful at delivering projects. These IT shops should focus on structural changes — they should incorporate IT R&D into the strategy and planning group, assign IT staffers to work more closely with the firm's product development teams, and pilot an IT business development group to make better use of IT assets. Such changes will position them for the move to become a partner player, with a strategic innovation role in the firm's future.

Figure 6 Key Priorities Depend On IT Organization's Status Today
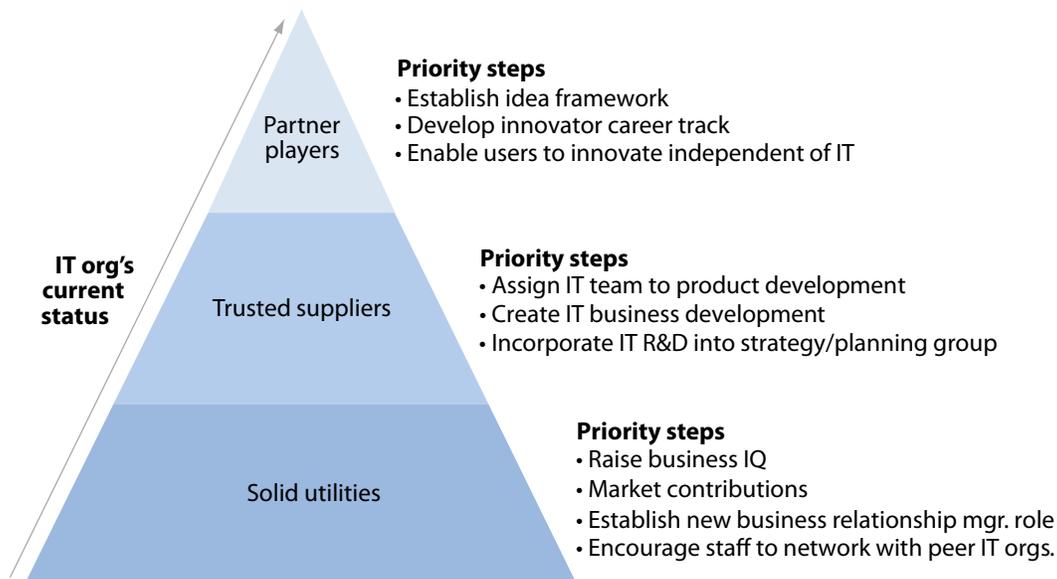
Source: Forrester Research, Inc.

• **Partner players need to fill in the gaps.** Partner player firms recognize the strategic value of information technology and are highly dependent on IT for new processes, offerings, and business models. So these IT organizations recognize the recovery steps identified — and are well along the way in their implementation. But even they need to fill in gaps, especially in establishing an innovation career track, a structured environment and process to solicit and review innovations, and the ultimate challenge — designing new ways for the business to innovate — unconstrained by IT systems and the IT organization itself.

R E C O M M E N D A T I O N S

CEOs: HELP IT HEAL ITSELF AND HELP YOU

CEOs are in the hot seat today to drive innovation in the enterprise and across the organization — and IT can help. But it can't do much without a CEO mandate to:

• **Fuel IT's passion for the business.** Like the FedEx IT commitment to getting the package to its destination overnight, CEOs should view the IT organization as a mirror of the business operation and future direction, making sure that IT execs and staffers develop, as FedEx' Kevin Humphries describes it, a visceral understanding of the business mission.

• **Inform CIOs that the time for innovation is now.** If a firm doesn't view IT as a source of innovation, top execs have no one to blame but themselves if innovation stagnates. The CEO and executive team should reset their own low expectations about IT and demand new ideas and game-changing initiative. And they should warn risk-averse CIOs of the career limitations of too insular a focus.[14]

• **Bring back the talent — and the incentives.** As one CIO lamented recently at a conference: "We've spent all this time cutting costs and shrinking the IT organization — and now we're expected to become innovative." It may not be possible without bringing in a few talented people, especially those with deep business insight and domain knowledge. CEOs should instruct IT to work with HR to bring back or bring in these key players. But hiring them is only half the story. To retain them, IT must provide them with incentives that encourage innovation, rewards for contributing, and attractive career development options.

• **Overcome attention deficit — complete all 12 steps.** Innovation-hungry executives will encourage IT's contribution to innovation and be supportive of the steps to recovery — as long as business is improving. But at the first sign of a downturn, the first place top management will turn — again — for cuts is in these new initiatives. Forward-thinking CEOs must resist this urge, realizing that they lost significant competitive ground the last time they tried it. This time, they should ask IT organizations to offer innovative ways to help maintain and even grow portions of the business.

WHAT IT MEANS

IT AND INFORMATION TECHNOLOGY PART WAYS

As the IT organization reverses its insular focus, plays a more strategic role, and works more closely with the business groups, its innovation impact will become noticeable. But the IT organization and spending will not grow significantly as:

- **Rotations to the business are one-way streets for IT staffers.** As talented IT staffers — like relationship managers or business development team members — move out to work with the stores, trucks, and business units of their enterprises, and even venture out to broker external innovation linkages, it will be no surprise that they don't come back. Instead, they will become bitten by the business bug, developing careers in marketing, sales, service, or product development. But this is good news — they bring their technology knowledge with them — becoming the most technology-aware generation of business executives to date. These tech-business hybrid executives will startle IT staffers by considering data architecture implications when deciding on new business initiatives.

- **Full-value extraction from existing IT assets delays the next tech boom.** Proactive IT staffers will help business partners see the market potential in existing assets — like post-sale maintenance information, customer preference data, partially implemented apps for price optimization — or devices underused by field service technicians. As IT innovators identify and deploy new business applications for shelf-ware and never-used devices, their firms will reap near-term business value — and postpone new IT purchases. The result? The anticipated boom in tech spending in 2008-2010 is delayed several more years.

- **IT and information technology in the enterprise go separate ways.** IT organizations attempting to reclaim their innovator role might be engaged in a race against time. In some companies, innovative uses of information technology have already become the responsibility of non-IT organizations and business units, leaving the IT shop with back-office infrastructure and transactional applications. History shows that when technology procurement decentralizes, CTO organizations outside of IT tend to fund innovation initiatives, and the most forward-thinking uses of technology are brought in by business units in partnership with outside consultants or vendors. For these organizations, information technology innovation is the responsibility of a growing partner ecosystem in which the IT organization plays at best a broker role — or at worst only a bit part.

SUPPLEMENTAL MATERIAL

Methodology

Forrester conducted 23 in-depth interviews with senior executives from user companies, consultancies, and vendors.

Companies Interviewed For This Document

1-800-Flowers.com	Kaiser Permanente
Accenture	Mills & Mills Consulting
Avaya	The Nasdaq Stock Market
Capgemini	Ogilvy & Mather
CSC	Pfizer Limited, India
FedEx	Procter & Gamble
Fidelity	Reuters
Harris	Rufus Leonard
Honeywell	Sprint Nextel
IBM	Syncata
Imaginatik	TransCanada Pipelines
Intel	

ENDNOTES

[1] Twenty-nine percent of business responders considered information technologies as a source of business innovation, but 22% of combined business and IT responders, and only 19% of business responders, viewed the IT organization itself as a source. Retail was the most enthusiastic at 36%, and the chemicals and energy industry was the least at 17%. See the December 31, 2002, Report "Putting Innovation Back Into IT."

[2] Tech influencers want IT to help with process quality and the quality of products and services, but they are on the fence about IT's ability to do so — with the least satisfied responders in the financial services industry. See the April 8, 2005, Data Overview "How Do Users Feel About Technology?: Business Technographics United States."

[3] Forrester forecasted IT spending as a percentage of total revenue for 2005 to be an average of 3.8% across all industries, with spending on existing systems to average 2.9%, the ratio of the latter to the former being 76%. See the November 19, 2004, Trends "North American IT Spending In 2005."

The government sector, for example, was projected to spend 81% of total budget on maintenance and ongoing operations in 2005. See the May 24, 2005, Best Practices "US IT Spending Benchmarks For 2005."

[4] Sixty-four percent of portal projects were sponsored by IT executives, who cited the business case and establishment of business-IT common goals for the portal as the biggest challenge — and a third of respondents did not know how much money they were spending. See the April 21, 2004, Trends "Portal Projects In Search Of A Purpose."

[5] A disruptive technology is a new technological innovation, product, or service that eventually overturns the existing dominant technology. Source: Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Harvard Business School Press, June 1997.

[6] The City Council of Westminster, a city within London, seeks to become the "world's first wireless city" — where it is using partnerships with vendors like Intel and Cisco to innovate with the use of closed-circuit television, mobile phones, and cashless parking ticket payments, including the pilot of text messaging payments. Source: City of Westminster Web site (http://www.westminster.gov.uk/transportandstreets/parking/news.cfm) and "Feel free to work from home - or a park bench," *Guardian Unlimited,* May 18, 2003 (http://observer.guardian.co.uk/business/story/0,6903,958374,00.html).

[7] IBM's Technology Adoption Program was begun in early 2005 as a partnership between IT, IBM Global Services, and IBM Research. The goal is to match employee innovators with employee early adopters willing to try out the innovations. See the September 29, 2005, Quick Take "IBM's Technology Adoption Program Taps Ideas."

[8] Beyond the transaction of selling a product, smart firms will use technology to establish an ongoing service relationship with the customer, including identifying what their future service needs will be. See the August 23, 2005, Quick Take "My View: Bow Ties To Diamonds."

[9] From a keynote address by Wal-Mart CIO Linda Dillman at the InformationWeek 500 conference held in Palm Springs, Calif., in September 2005.

[10] Vertically integrated invention-to-innovation cycles will be deconstructed into a far more productive ecosystem of roles for firms, including the roles of Inventor, Transformer, Broker, and Financier. See the June 17, 2004, Forrester Big Idea "Innovation Networks."

[11] Collaboration and idea management software markets will combine into a new contextual and role-based "information workplace." See the June 1, 2005, Forrester Big Idea "The Information Workplace Will Redefine The World Of Work — At Last!"

[12] Moving forward in 2006, IT organizations are separating into tiers, including solid utilities that are largely outsourced, cost-controlled, and focused on dial-tone reliability; trusted suppliers that are focused on delivering solutions, but view themselves as quite separate from the business; and partner players, IT organizations that are tightly integrated into strategy and innovation in the enterprise. See the September 29, 2005, Trends "What's Important To IT Management In 2006?"

[13] Lack of marketing locks IT organizations into a cost center role, yet IT is mediocre at marketing, with responders indicating that IT typically communicates primarily about system-related issues and projects, but is not proactive and does not communicate with the business about the organization's priorities. See the August 23, 2005, Best Practices "The Marketing Of IT."

[14] CIOs are increasingly being positioned as general business managers, not just technology professionals, with a growing number of CIOs that came from the business' own responsibility for a business unit or function in addition to IT, or that moved from IT into the business. See the March 8, 2005, Trends "CIOs Must Join Their Firms' Executive Rotation."

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