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IBM: Building the IT Function for a Global Business

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CENTER FOR INFORMATION SYSTEMS RESEARCH

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Title: **IBM: Building the IT Function for a Global Business**

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Abstract: In 1993, CEO Louis Gerstner initiated a transformation at IBM that Sam Palmisano continued when he took the reins in 2003. The transformation involved a change from a hardware and software business to a solutions and services business and from a regionally aligned organization to a global organization. IBM's IT organization, which became known as Business Transformation and Information Technology played a critical role in the firm's transformation that continued through 2010. This case study describes the evolution of the IT organization and how it was designed and governed to support global business processes in 2010.

Keywords: IT Unit of the Future, IT transformation, enterprise processes, global business processes, IT function

13 Pages

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Building the IT Function for a Global Business

In order to move a $100 billion company's needle, you have to do something in a profound way. You have to consolidate it and drive an agenda that will result in real value to the company. —Pat Toole, CIO

Pat Toole, IBM's CIO, was contemplating IBM's upcoming 100th anniversary. IBM was one of the world's top providers of computer products and services and among the world's leaders in every market in which it competed.

Toole had been with the company since 1984. Like most IBM executives, he lived through some difficult times. He knew that the recent transformation of his BT/IT[1] organization was not so much an accomplishment as a step on a journey. IBM's IT organization was undergoing changes internally while positioning the company for continuous—often dramatic—change. So, even as he worked to classify accountability for his restructured organization, he was looking ahead to future changes.

Company Background

Created by the merger of three companies, IBM was incorporated in 1911 in New York. Initially, it manufactured and sold a range of measuring and recording instruments and machinery as well as equipment like meat and cheese slicers. IBM quickly turned its focus to large-scale custom tabulating solutions for business. In the 1940s, IBM entered the computing business, and in 1952 introduced the first large computer based on the vacuum tube.

In the 1960s, IBM began unbundling its software and services from hardware, which eventually led to a multi-business unit structure. Regardless of the line of business, however, IBM sold computer products and services to technology managers and centralized purchasing departments who could authorize large IT-related purchasing or leasing decisions. The widespread adoption of the PC and client-server arrangements changed the way that companies bought computers; individuals and divisions purchased their own computers, rather than relying on central purchasing to provision the equipment and systems. IBM did not have relationships with these new buyers, and thus began losing money starting in 1990.

In 1993, when annual net losses had grown to $8 billion, IBM brought in Louis V. Gerstner, Jr. as chairman and CEO to tackle the firm's performance problems. Gerstner took the reins of a highly decentralized firm. One of his first moves

[1]The IT unit at IBM is called Business Transformation/ Information Technology—BT/IT.

This case study was prepared by Stephanie L. Woerner and Jeanne W. Ross of the MIT Sloan Center for Information Systems Research. This case was written for the purposes of class discussion, rather than to illustrate either effective or ineffective handling of a managerial situation. The authors would like to thank the executives at IBM for their participation in the case study.

was to restructure and consolidate the business (e.g., moving from country to global brand P&L statements), cutting expenses by $2.8 billion. Gerstner also initiated the shift to integrated solutions and services.

In 1994, net earnings rebounded to $3 billion. By 2003, when Samuel J. Palmisano succeeded Gerstner as CEO, the firm had been steadily growing profits. In 2008, IBM posted profitable results despite a rapidly contracting global economy. The global financial crisis led to a drop in revenues in 2009, but net income growth remained strong and gross profit margin increased in 2009 (see Exhibit 1).

The Path to Global Integration

In 2010, IBM was organized into five major business units and operated in over 170 countries. The business was focused primarily on its growing services business, which accounted for more than half of sales. Led by sales in Brazil, India, and China, revenue growth in emerging markets was eight points higher than in major markets. (See Exhibit 2 for a description of business units and 2009 gross margin for each unit.)

The firm's increasingly global business model led to highly distributed operations. Over 50% of IBM's people were outside the United States, and those people were increasingly mobile. Over 50% regularly worked outside of company offices. The global distribution of its people and the diversity of its businesses constantly challenged the firm's efforts to drive efficiencies in a competitive industry.

In 2006, Palmisano laid out Roadmap 2010, an initiative to raise earnings per share from $6 to $10–$11 per share. The focus of Roadmap 2010 was on reducing expenses and increasing efficiencies as well as driving top-line growth. Management identified standardization of global business processes across IBM's five businesses as a significant opportunity for business efficiencies. Although business units continued to have P&L responsibilities, process owners would have greater authority to dictate common processes.

Globalizing and standardizing business processes involved a major business transformation that increased the firm's reliance on IT. To start, the firm had to develop a low-cost IT infrastructure on which the globally integrated systems would run. But the bigger challenge was introducing common systems and processes—a partnership effort between IT and the business units. These requirements on IT led to a new name for the IT unit—Business Transformation and IT (BT/IT)—and started a transformation within the IT unit itself.

Transforming IBM's IT Function

IT in IBM had grown-up within the individual business units. Thus, when Gerstner arrived in 1993, IT was as decentralized as the businesses. One count put the number of CIOs at 128. As Gerstner, and then Palmisano, consolidated the businesses, they also consolidated IT, gradually transitioning from a decentralized to a federated structure.

By 2008, IBM had 5,000 IT employees, of which 4,500 were embedded in IT organizations within the business units; the remaining 500 people were in the central IT organization. Leaders of the five embedded IT units were dotted line reports to the global CIO, who set policy and standards, and gave technical guidance (see Exhibit 3 for the 2008 organization structure). For IT infrastructure support, the business units relied on IBM's Global Technology Services (GTS) unit—the same unit that provided infrastructure services for external customers. The business units regularly called on IBM's Global Business Services (GBS) for application development services. GTS and GBS maintained an arms-length relationship with BT/IT, treating IBM the same as external clients.

In 2008 IT budgets, resources, headcount, prioritization, and planning all supported the needs of the individual business units. The business units made their own investment decisions and spent money to sponsor their particular business unit objectives. The CIO reviewed plans but did not have the authority to direct spending towards specific business unit initiatives. There were some enterprise initiatives which the CIO's office funded from a small pool of approximately $300M.

The 2009 Transformation

> *At the end of the day, we really only do three things: we run IT, we do transformation, and then we try to integrate everything.*
> *—Pat Toole, CIO*

When BT/IT was created in early 2009, IBM centralized the entire IT budget and all 5000 IT people under then-CIO Mark Hennessey. IT people from all over the enterprise—geographies, business units, functional areas, and shared services—were consolidated to focus on enterprise processes, although very few were physically moved from their prior location.

Consistent with IBM's practice of regularly reassigning executives, Hennessey was replaced by Pat Toole, formerly general manager of IBM intellectual property, in March 2009. Toole entered the CIO position focusing on three broad goals for IT:

- To support the items that were absolutely necessary for Roadmap 2010 to succeed from a BT/IT perspective and then making sure they were funded
- To be world-class when managing risk and compliance for the enterprise
- To determine how IT was going to sustain the IBM Corporation going forward

Although all IT staff reported to him, Toole still had work to do to overcome the embedded focus on business unit and geography IT requirements. He further streamlined the IT organizational structure cutting the number of his direct reports to nine:

> *When I came in there might have been 12 or 14 direct reports. A lot of the people were doing kind of the same thing, just carved a little too narrow. In the last five months, we've moved ten executives out of 90 back to the business, including directly to our growth markets. That's a pretty good start.* *—Pat Toole*

By early 2010, BT/IT was composed of a Run organization, three Transform organizations, and five horizontal IT functions, working across Run and Transform. (See Exhibit 4 for a schematic of the current IT organization and Exhibit 5 for a listing of the IT executive team.)

The Run Organization

The Run executive, Leslie Gordon, and her global team ran IBM's day-to-day IT operations. Her responsibilities included all IT infrastructure operations—networks, server management, storage, help desk, etc.—as well as application maintenance and support for the applications that ran on the IT infrastructure. The Run team worked to ensure the reliability, security, and cost effectiveness of infrastructure operations.

The Run organization procured most of its operational services from IBM colleagues in GTS and most of its application maintenance services from GBS. Gordon's team consisted of several thousand people spread across her Run organization and both GTS and GBS people dedicated to IBM accounts.

Like IBM's customers, the Run team worked with GTS and GBS to find opportunities for cost savings in both infrastructure operations and in the application portfolio (e.g., standardizing middleware and sunsetting applications):

> *Part of our job is to figure out how to become more efficient to drive more costs out of the steady state . . . to find a way to continue to run the factory at a lower price point so that we can free up more dollars to do transformational efforts.*
> *—Leslie Gordon, Vice President, Application and Infrastructure Service Management*

The transformation created opportunities for cost savings by encouraging development and use of enterprise-wide technology platforms. IBM had set enterprise-wide technology standards many years earlier, but IBM's IT infrastructure in 2008 reflected IT's alignment with the individual business units. Multiple standards, e.g., a standard for print, a standard for voice, a standard for network, and, for that matter, "a standard for every hosting environment that exists," had been created over the years by people who would take on standards projects and then would move on to their next jobs, leaving the standards orphaned.

Even before the transformation, an infrastructure team began an effort to get the infrastructure spend under control by reducing the number of infrastructure standards, using work done by IBM's security and privacy team as a model. The infrastructure team identified all of the standards that had been published internally and created six infrastructure categories—the "vital few"—which included client, network, print, voice, file systems, and hosting. The team then reached out to the authors of the standards, and if the authors could not be identified or found, those standards were sunset.

By the end of the first year of the transformation, the infrastructure team reduced the number of infrastructure standards from 121 to 20. Those 20 standards were designed to be referred to and used, and to be relatively easy to keep updated. The increased standardization created a more stable infrastructure with higher levels of availability. From 2008 to 2009, the average number of outage minutes for a single outage decreased 50% and the average time to restore service following an outage decreased 15%. Average availability of a critical set of 85 applications/processes was 83% in 2008 and increased to 88% in 2009.

IBM also cut infrastructure operations costs by distinguishing mission-critical systems that required the highest level of service from all other applications:

> *If it's required to run your process, we want to know about it. I don't care whether it's some Web 2.0 little thing you've done. If you can't get your job done that day without it, we need to know about it.*
>
> *—Susan Watson, Vice President, Enterprise Integration*

BT/IT planned to drive down the number of mission-critical applications (while maintaining always-on availability) by examining how they were used, looking for opportunities to consolidate applications, and developing common services. Many applications, while not mission-critical, contributed greatly to individual workers' productivity and could receive a different level of support than mission-critical systems:

> *What I care most about is "how much does it cost to run our applications?" [If] only 250 applications are mission critical, what does it cost to run and how do we drive that 250 down to a lower number? Then there are going to be thousands . . . [where] we have to get people to understand they may not be up all the time. They're just going to be in a cloud, tier IV architecture infrastructure that we can run for pennies. We just have to know what's in there. —Pat Toole, CIO*

The transformation had made Gordon's job of running infrastructure operations more manageable. The opportunities for cost savings by developing common services were greatly increased, and common services simplified the environment, which reduced risk and enhanced reliability. She also had fewer relationships to manage, because she no longer had to work with IT heads in each of the business units:

> *One of our major objectives was to spend more time doing work and less time talking to each other. I went from managing 17 customer relationships to managing three. It sounds kind of simple, but there are fewer meetings to set up and attend and less reporting.*
>
> *—Leslie Gordon, Vice President, Application and Infrastructure Service Management*

The three primary clients of the Run organization were BT/IT's new Transform Executives. The Run organization's efforts to simplify the technology environment were an important enabler of the Transform organization's efforts to build enterprise process capabilities.

The Transform Organization

In early 2009, senior executives started to define a set of Level 1 business processes, which numbered 15 by early 2010. The Level 1 processes included core operating processes such as Idea to Opportunity, Opportunity to Market, and Market to Sale, which were executed within each of the five business units. Other Level 1 processes such as Manage Finances, Manage Human Resources, and Procure to Pay were assigned to global cor-

porate functions and run as shared services. (The full list of Level 1 processes, in early 2010, is listed in Exhibit 6.)

Each Level 1 process was assigned an enterprise process owner (EPO) responsible for process design, execution, and improvement. Level 1 process owners were senior level executives (VP), usually with line business responsibility over the execution of the processes; they reported to the senior VPs, who in turn reported to the CEO.

IBM had also defined a set of Level 2 processes for each Level 1 process. Each Level 2 process also had a process owner, usually an executive with accountability for successful execution of that process (one executive could own more than one Level 2 process), as well as clear KPIs. In 2009, IT went from having KPIs for approximately 15% of the Level 2 processes across the company to defining KPIs for virtually 100% of the Level 2 processes.

Enterprise process owners worked with BT/IT to streamline processes, making each process as efficient as possible, with as few touch points as possible. New projects and development initiatives were based on supporting the business needs that grew out of the enterprise processes. Accordingly, BT/IT structured itself around the enterprise processes, with each of the three Transform executives (TEs) responsible for a subset of processes. One TE had responsibility for the client-facing processes; one TE owned the back-end processes; and the third TE covered all the global workforce processes. (The TE accountabilities are listed in Exhibit 2.)

While some process owners fully embraced responsibility for process design, IBM lacked process expertise in some areas. In those cases, TEs defined high-level business architecture. Working with process owners, Sal Calta, IT Transformation Executive, developed a high-level view of the sales, marketing, product design, and order fulfillment process (See Exhibit 7). This view shows the flow of critical master data (customer, product, and employee) from Level 1 and some Level 2 processes. It also shows important interfaces with the processes of the other TEs. The role of TE involved orchestrating the changes needed to deploy new business functionalities:

> *We understand how four elements—the people who are doing real work, and the data and the process and the IT—come together to deliver NEW business functionality. If you never wanted to change anything—if you didn't have a new business strategy, if you weren't trying to get into a new growth market or sell a new type of product, if you weren't trying to significantly improve the cycle time, etc.—you could eliminate my team. Of course, we ARE doing all those things, so my job is to find ways to deliver more business functionality per dollar invested each and every year.*
>
> *—Sal Calta, VP and Transformation Executive*

The Transform organization was responsible for developing the business requirements. It then outsourced most development to GBS. The TEs also managed the total portfolio for these enterprise processes including application life cycle costs.

Most change initiatives within IBM—from something as simple as a screen change to a major process change—created more demand for IT. The Transform organization's job was to deliver more benefits and to solve more demand every year for less money. It did so, in part, by identifying and shutting down areas of duplication among the business units, and optimizing enterprise processes. Identifying additional services that could be shared enterprise-wide and beefing-up the shared services organization was another source of efficiency.

A Renewed Emphasis on Shared Services

> *When Lou Gerstner joined IBM as CEO in the 1990s, one of the first decisions he had to make was whether IBM should remain whole, or sell off its parts. Once the decision was made to keep IBM whole, amongst many other business decisions that focused on creating structure and rigor, Gerstner knew he had to focus on ensuring that everyone in the company*

was on the same page regarding strategy, product development and execution. We began by using the intranet for corporate communications, but over time, we've expanded by consolidating and centralizing core functions, which we call shared services. *—Carol Sormilic, Vice President and Transformation Executive*

BT/IT was one of eight shared services in IBM, along with HR, Finance, Communications and Marketing, Real Estate and Site Operations, Legal, Global Sales Operations, and Integrated Supply Chain. These shared services organizations defined enterprise processes that could be implemented across the business units. The eight shared services were not combined under a single head, but a senior management council provided governance across the shared services.

In the past, the corporate services organizations had struggled to reconcile the different requirements that each business unit had for their global activities. This invariably led to global processes that were not standardized and integrated, with ten to 12 different groups doing the same things using different processes. These redundant processes presented opportunities for savings. From 2008 to 2009 IBM reduced IT spending by 25%, due largely to consolidating, integrating, and streamlining global processes, particularly shared services.

IBM did not charge for services but relied on process owners to manage costs as well as the quality of service. Each shared service had a process owner. Within BT/IT, Susan Watson, a CIO report, was the enterprise process owner for BT/IT. She headed efforts to formalize IT processes common to all of IBM.

Because business units did not pay for shared services, moving the entire BT/IT budget under the CIO introduced opportunities for business units to reduce costs by relying more on BT/IT shared services:

If we make the enterprise solution the least expensive and most productive option, that drives behavior. It makes more business sense to distribute costs over 300,000 users, versus 20 users. And, of course, it also benefits the business to have one tool to do the same task, versus 100 tools that don't talk to one another. Bringing business units into the shared services model benefits everyone: we reduce costs while improving productivity by ensuring everyone's on the same platform. *—Carol Sormilic*

The shared services council leaders met regularly after the transformation to decide on the next generation of shared services. Leaders expected to identify additional global processes that could be standardized. Possible targets for standardization included moving to common customer briefing centers rather than centers aligned by brand, developing common Level 2 processes, and consolidating transaction-oriented work systems like call centers into shared support centers.

Changing IT Prioritization and Investment Processes

The consolidation of IT under a single CIO and the firm's emphasis on global business processes combined to force a new IT investment prioritization process. Traditionally, business unit leaders had made individual IT investment decisions. The firm's new global process orientation meant that IT investments would target the demands of processes.

In 2008 process owners and business unit leaders, along with some people who aligned with the brands, attended the fall planning meeting to decide the allocation of the limited global IT budget. The IT budget was not yet centralized under the global CIO but IBM was moving toward a process-based structure. All the proposed projects had compelling business cases but there was no easy way to assess the impact of the projects and prioritize them. The executives in attendance were asked to vote for the projects they thought were most important:

We put them all together in a room and said, "Here are all the initiatives that have come forward for where you think we ought to spend our money. …There were business cases built for each and every

one of those initiatives. …But it was in the end 12 process owners and business unit leaders making the decisions.

—Susan Watson, VP, Enterprise Integration

In 2009, IT met with the senior vice presidents to identity the set of objectives that should be met in the planning process. They developed a common framework for deciding on IT investments: (1) hard business benefits (usually cost reductions); (2) a qualitative assessment of contribution to making IBM a "smarter" enterprise; and (3) risk management benefits. Leslie Gordon noted that having a set of objectives to guide decisions helped shape the debate:

Now we can really talk. "Here are the bazillion things we're trying to do. Let's prioritize them and rationalize them against each other as well."

—Leslie Gordon, Vice President, Application and Infrastructure Service Management

The process leaders met and allocated the IT budget according to the framework. BT/IT leaders found the process faster, and they estimated that business leaders got 85% of what they wanted. No major business need was left unsatisfied.

We chose the projects with the highest value and with the right 'mix' of short term vs. long term value and overall impact to the business... —Susan Watson

Business units continued to present IT initiatives, but those projects were prioritized along with everything else, leading to a more transparent view of the IT dollars available:

We're doing fewer smaller types of investments and more larger investments and those investments are in better alignment with IBM's enterprise priorities and strategy. —Bruce Greiner, Director of Operations and Enterprise Portfolio Management

The move to an enterprise process framework surfaced tensions about how to fund individual productivity needs in the business units. For example, one team might focus on doing a high volume of simple deals, while another team does a small number of highly complex deals. There were also instances where individual business units had to upgrade legacy technology or had individual productivity needs that were not part of a global enterprise process. Those cases did not easily fit into the investment prioritization process, even though they all had good business cases. One method proposed to address these cases involved allocating a small pool of funds to TEs for discretionary spending:

There are some individual productivity initiatives in a business unit where I'm inclined to say to the Transformation executives, "Take 10% of the IT investment budget and you decide who you're going to satisfy in the business unit." Because there were some small business unit items being escalated… That may be important work for the transformation execs to sort out, but we can't devote our time there. For instance, there is an enormous amount of energy spent on developing business cases... From a process perspective, let's make sure we have everything covered for the 90%. And then you, as an individual, decide what you need to do to advance your piece of the business.

—Pat Toole, CIO

Although the new prioritization process addressed changing business needs—deploying new software, bringing in iPhones, tuning the network to run faster—one of IBM's highest priorities was delivering operational excellence. The Run organization had to ensure that every system was up at quarter close so that every sale was closed. Legacy systems hindered the effort. Thus, IBM intended to monitor its investment process to make sure that it did not compromise infrastructure investments.

Positioning BT/IT for the Future

By the time the majority of the transformation was complete, reporting structure, roles and investment emphasis had changed significantly. However, the job activities of 60–80% of BT/IT employees had not changed. Nor was there any significant geographic movement of employees.

Professional career ladders did shift from a vertical hierarchy (within business units) to a horizontal virtual work environment (across enterprise-wide processes). Half the people in BT/IT focused on business transformation and were process and business subject matter experts who interpreted and understood the requirements of the business and translated them into IT requirements.

Yet reporting relationships changed as the 5,000 IT people were moved from one line of business to another and established career paths were disrupted. This created an opportunity for IBM to develop people into BT/IT roles—like project managers and end-to-end business analysts—that were widely needed throughout the organization (for instance, project managers and business architects/analysts comprised 80% of at least one of the three Transform teams). And these roles would continue to be important according to a recent internal talent benchmarking study.

Other key expertise needed in IT included some subject matter expertise in supply chain processes and architecture, as well as those skills that enabled the IT unit to talk to and work with people in order to translate needed functionality into requirements for 40-hour pieces of work that someone either within IBM or outside IBM could deliver. Systems integration skills—cross-process expertise—were important to both the outsourcing partners (GBS and GTS) and IT because those skills facilitated pulling together those 40-hour pieces of work.

Before the reorganization, a software group employee might spend an entire career within the group with limited options for advancement. The reorganization expanded the lateral moves that could be made within BT/IT and across IBM.

By early 2010, Pat Toole noted that the BT/IT transformation was addressing his first two goals: (1) supporting Roadmap 2010 and (2) providing world class management of risk and compliance. As for the third goal, to sustain the IBM Corporation going forward:

> *That is inextricably tied to the acceptance of my organization as a true partner in transforming the processes at the heart of the business, while using cutting edge technology, such as analytics and cloud computing, in supporting IBM's 2015 Roadmap and its ambitious financial, growth and productivity goals. —Pat Toole, CIO*

Exhibit 1
IBM Financial Results

Year	Revenue ($ mil.)	Net Income ($ mil.)	Gross Profit Margin	Net Profit Margin	# Employees
Dec 2009	$95,758.0	$13,425.0	45.7%	14.0%	399,409
Dec 2008	$103,630.0	$12,334.0	44.1%	11.9%	398,455
Dec 2007	$98,786.0	$10,418.0	42.2%	10.5%	426,969
Dec 2006	$91,424.0	$9,492.0	41.9%	10.4%	355,766
Dec 2005	$91,134.0	$7,970.0	40.1%	8.7%	366,345

Exhibit 2
IBM Business Units

Business Unit	Description	2009 Gross Margin	2009 Revenue %
Global Technology Services (GTS)	Provides IT infrastructure services and business process services. Delivers business value via global scale, standardization, and automation.	**35.0 %**	**39.4%**
Global Business Services (GBS)	Provides professional services and application outsourcing services. Delivers business value and innovation to clients through solutions. Leverages IBM's industry- and business-process expertise.	**28.2 %**	**18.6%**
Software	Consists primarily of middleware and operating systems software. Enables clients to integrate systems, processes, and applications across a standard software platform.	**86.0 %**	**22.5%**
Systems and Technology	Provides clients with business solutions requiring advanced computing power and storage capabilities. Approximately 55% of Systems and Technology's server and storage sales transactions are through the company's business partners; approximately 45% are direct to end-user clients.	**37.8 %**	**17.1%**
Global Financing	Facilitates clients' acquisition of IBM hardware, software, and services.	**47.5 %**	**2.4%**

Exhibit 3
IBM IT: 2008 Structure

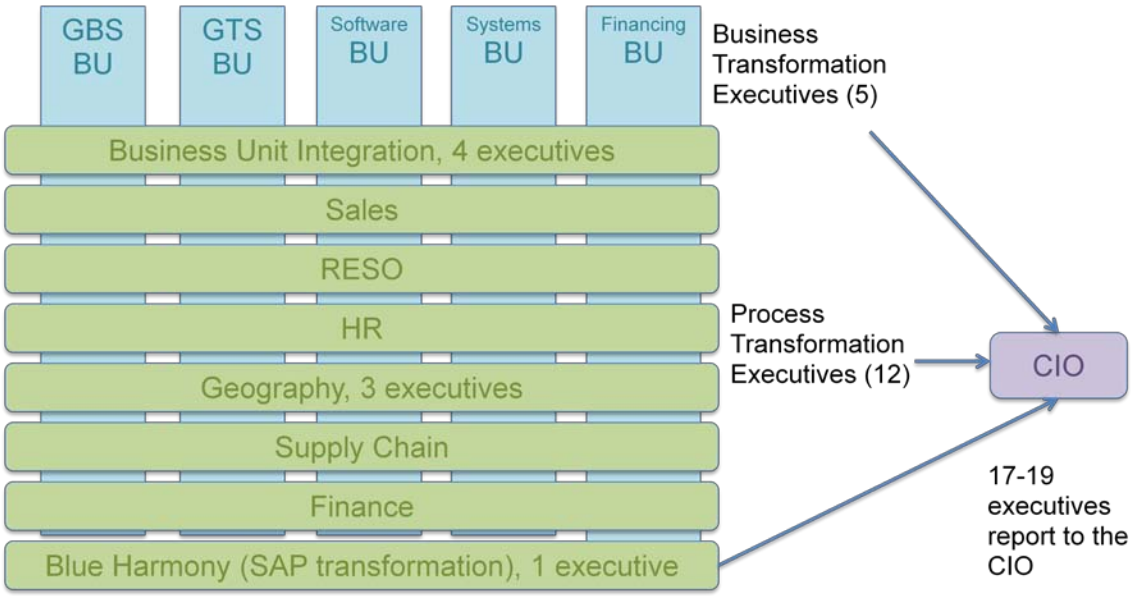


Exhibit 4
IBM IT: Current IT Structure

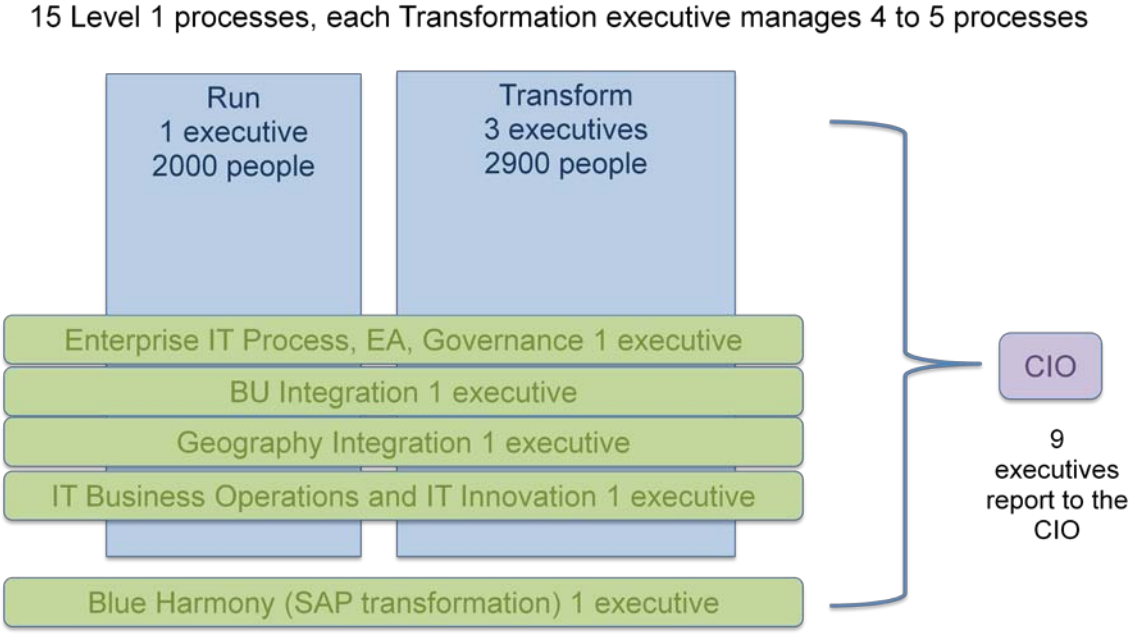


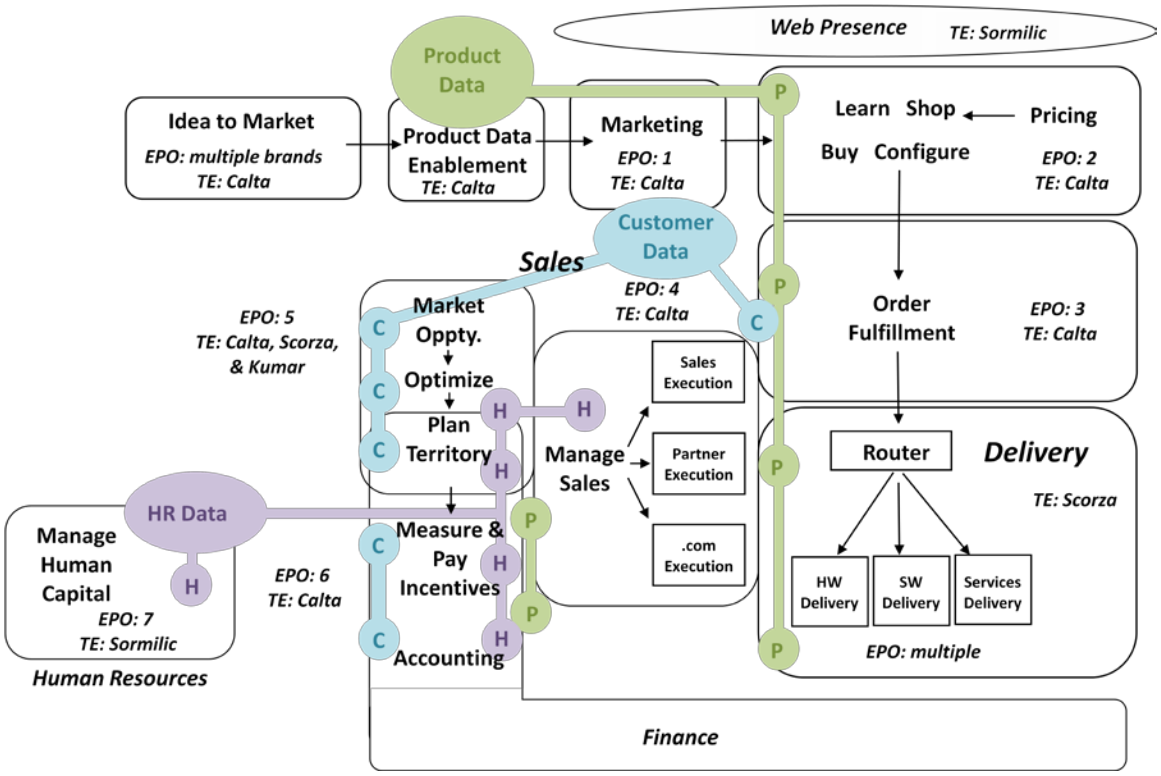
Exhibit 5
2009–2010 IBM IT Leadership Team

Executive	Responsibilities
Pat Toole	VP and CIO Reporting Structure: Pat Toole → Linda S. Sanford → Samuel J. Palmisano CIO → Senior Vice President, Enterprise Transformation → CEO
Leslie Gordon	Run Organization: Application and Infrastructure Service Management
Sal Calta	Transformation Organization: Sales, Marketing, Product Design, Order Fulfillment
Carol Sormilic	Transformation Organization: HR (Global Workforce—includes 20% of workforce that are contractors), Global Financing, Collaboration, Internet and Intranet
Paul Scorza	Transformation Organization: Supply Chain, Procurement, Manufacturing Support Systems
Bruce Greiner	Director of Operations and Enterprise Portfolio Management for CIO Office (running CIO organization including financial planning), Compliance Testing, IT Advocacy
Susan Watson	Strategy and Governance, Enterprise Architecture, Outsourcing (with GBS), Business Process Management Framework
Jeannette Horan	SAP Consolidation (plan to eliminate 20% of application portfolio)

Exhibit 6
IBM Level 1 Enterprise Processes (mid-2010)

IBM Level 1 Enterprise Processes
Idea to Market (Develop)
Market to Opportunity
Opportunity to Order
Manage Client Relationship
Manage Sales and Channels
Order to Cash
Procure to Pay
Support
Develop Strategy/Execute
Manage Human Resources
Manage Finances
Manage BT/IT
Manage Business Support
IBM Global Financing
Deliver Services

Exhibit 7
Work and Data Flows for Sales, Marketing, Product Design, and Order Fulfillment



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In July of 2008, Jeanne W. Ross succeeded Peter Weill as the director of CISR. Peter Weill became chairman of CISR, with a focus on globalizing MIT CISR research and delivery. Drs. George Westerman, Stephanie L. Woerner, and Anne Quaadgras are full time CISR research scientists. MIT CISR is co-located with MIT Sloan's Center for Digital Business and Center for Collective Intelligence to facilitate collaboration between researchers and faculty.

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Danfoss A/S (Denmark)
Det Norske Veritas (Norway)
Direct Energy
Embraer – Empresa Brasileira de Aeronautica S.A. (Brazil)
ExxonMobil Global Services Co.
Fidelity Investments
FOXTEL (Australia)
Grupo Santander Brasil
Guardian Life Insurance Company of America
Hartford Life, Inc.
Holcim Brasil S.A.
Intel Corporation
International Finance Corp.
Itaú – Unibanco S.A. (Brazil)
JM Family Enterprises
Johnson & Johnson
Leighton Holdings Ltd.
Level 3 Communications
Liberty Mutual Group
Lloyds TSB International
Marathon Oil Corp.
MetLife
NASA
Nomura Research Institute, Ltd. (Japan)
Origin Energy (Australia)
Parsons Brinckerhoff
PepsiCo International
Pfizer Inc.
Procter & Gamble Co.
Raytheon Company
Reed Elsevier
Schneider Electric Industries SAS
Sears Holdings Mgmt. Corp.
Standard & Poor's
State Street Corp.
Sunoco, Inc.
Telstra Corp. (Australia)
Tetra Pak (Sweden)
Time Warner Cable
Trinity Health
VF Corporation
Wal-Mart, Inc.
WellPoint, Inc.
Westpac Banking Corp. (Australia)
Woolworths Limited (Australia)
World Bank