IBM Case Study
March 2005

From reengineering to reinvention: the IBM journey to becoming an On Demand Business.

ON DEMAND BUSINESS™



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Executive summary

After a highly visible fall from the heights of information technology leadership in the early 1990s, IBM is healthy and growing again. The new millennium has brought record revenue and established IBM as the leader in servers, middleware, business transformation and outsourcing services, and momentum continues to build. Of course, a transformation of this magnitude doesn't happen overnight. It entails nothing less than a reinvention of the company, and it makes for a compelling story—a story that is still unfolding.

This transformation is not an event, but a journey—one that is taking place in the midst of greater turbulence and volatility than businesses have faced in more than half a century. And although IBM's story is in many ways unique, it mirrors the aspirations and challenges faced by many leaders of businesses and institutions today. They are grappling with how to manage their organizations through what feels like a very important—perhaps even historic—inflection point.

Once every 40 to 60 years over the past three centuries, society has witnessed a great surge of business innovation, sparked by technological advances, which ushers in a revolutionary new era. There have been five such surges in modern history, according to Cambridge University researcher Carlota Perez.[1] Each of them follows a predictable pattern with two distinct periods of 20 to 30 years: The first is the period of installation, going from initial exploration, exuberance and speculation; to a bubble, an economic meltdown, its correction and a market adjustment. The second is the period of deployment, during which new ways of doing business are explored and implemented—and broad-based wealth and value are created.



As world markets entered the most recent stage of sustained innovation, it's fair to say that IBM traveled a rough road. It's no secret: the company began this journey out of necessity—and was struggling to survive. Reengineering efforts at that time were driven by the need to simplify the enormous complexity—and attendant costs—that accompanied IBM's decentralization in the early 1990s. As did most other companies, IBM leveraged the Internet and global connectivity to simplify access to information and enable simple, Web-based transactions. The company took steps to integrate processes both within the business and among a group of core clients, partners and suppliers. That was a huge effort—and yet by late 2002 it was clear that the real journey had just begun. While IBM reaped enormous efficiency gains, it had yet to challenge long-accepted practices, processes and organizational structures that limited its—and most other companies'—options in the face of globalization, industry consolidation and disruptive technologies.

The answer lay in a new computing model and in a new business architecture. IBM Chairman and CEO Sam Palmisano dubbed this *On Demand Business,* and IBM committed itself to becoming not simply a case study, but a living laboratory for On Demand Business. The company identified key business characteristics—horizontally integrated, flexible and responsive—and the IT infrastructure needed to produce its enterprise transformation—integrated, open, virtualized and autonomic. IBM focused on tackling the complex issues surrounding significant changes to essential business processes, organizational culture and IT infrastructure, and worked to find new ways to access, deploy and finance solutions. Most importantly, IBM committed to use its own experience to deliver more value to its clients.

Today, IBM is hitting a new stride. A powerful combination of innovation and value creation is driving top-line revenue growth. Client satisfaction is climbing. And the company continues to operate in a highly disciplined manner, focusing on increased productivity and IT optimization to drive bottom-line earnings. Because this is precisely the type of growth that tops the majority of CEOs' agendas, many will find IBM's story particularly timely and relevant.

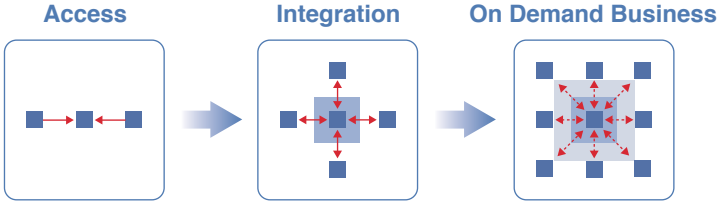
An *On Demand Business* is an enterprise whose business processes—integrated end-to-end across the company and with key partners, suppliers and customers—can respond with flexibility and speed to any customer demand, market opportunity or external threat.

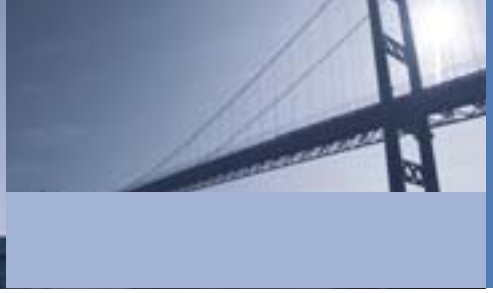
Putting IBM's journey to On Demand Business in perspective

IBM's shift to On Demand Business is not unique. The company conducts an annual worldwide tracking study with 6,000 organizations (30,000 interviews over the past five years). Through this study, IBM identified three major stages that an organization moves through as it transforms its operations through the use of the Internet and network-based technologies. Each stage has different characteristics, challenges and benefits.

- **Access —** Businesses have IT-related capabilities that tend to be limited to supporting single business units with little or no integration between them. A simple Web presence or basic e-commerce would qualify a business for this stage of adoption. The challenges? Fears about security. About financial risks. About the quality of vendor support available. About meeting demand.
- **Integration —** Businesses have begun to break down barriers by integrating and automating business processes, models and applications, and supporting infrastructure across their business units, moving them in the direction of end-to-end integration, a critical step to becoming an On Demand Business. Eventually such businesses include their ecosystem in their integration efforts, by including their suppliers, customers and other business partners. Those processes are still relatively static and inflexible, however, because they tend to build on and automate existing relationships. The benefit? Increased speed and quality, as much of the manual processing is eliminated. The challenges? Integration of disparate processes and systems built by different teams.
- **On Demand Business —** The ability to dynamically manage and reconfigure processes and relationships begins to emerge as a company becomes an On Demand Business. Relationships can be formed and dissolved on the fly, according to business need and external conditions. Processes and IT systems become increasingly modular to support reconfiguration, both internally and externally. All of this enhances the flexibility and resilience of a business, while giving it the ability to focus more tightly on its core, differentiating capabilities. For IBM, it also meant moving to financial reporting that is balanced between client and industry as well as products and services. The biggest challenge? Fostering a collaborative culture and breaking down the business and cultural barriers between internal and external teams, and then reaching out seamlessly to embrace customers, suppliers and business partners, and differentiate value.

"One thing I always tell clients is that they can take advantage of what we've learned," says Linda Sanford, IBM senior vice president, Enterprise On Demand Transformation and Information Technology. "You can learn from both our mistakes and accomplishments. We have technologies today that can accelerate the integration process, and outsourcing capabilities that can enable operations—and potentially whole organizations—to move right to On Demand Business."




Reengineering: the making of a healthy business

Let's begin at the beginning. In 1993, under the guidance of then IBM Chairman and CEO Lou Gerstner, the company began its turnaround from a near-death experience. And a big part of that was the strategic initiative to reengineer IBM's core processes. A loose confederation of independent business units had created an unwieldy management structure, redundant operations and disconnected information systems. In 1993, the company experienced a US$8.1 billion loss, and the stock price was at a 20-year low. Although he was under pressure to break up the company, Gerstner decided that the sum of IBM was more valuable than its parts, and he recognized that IBM had to change to meet its clients' needs or the company would cease to be relevant.

To realize this value, however, IBM's leadership team had to tackle some very tough issues. They started by focusing on a few core functions—customer relationship management (CRM), product development, procurement and logistics. Between 1996 and 1998, IBM reduced redundant costs associated with decentralization and, as a result, achieved US$5 billion in cost avoidance and savings.

Between 1999 and 2002, IBM's priority shifted to integrating elements of these processes to create a more horizontal flow of work across the business. So rather than optimizing processes by business unit or within functional domains—like billing—the company focused on creating processes that would make working with IBM a better experience for its clients, IBM Business Partners and suppliers. During this phase, IBM gained more than US$7 billion in new efficiencies.

Reinvention: the making of an On Demand Business

By 2002, with a solid foundation in place, Sam Palmisano reassessed the company's approach to industry leadership. Recognizing that the IT industry was splitting between commodity-like and high-value businesses, Palmisano chose to focus IBM on high value: innovation, creating unique value, new technology and new business insights and models.

"Early on, we focused on reducing cost and expense," says Sanford. "We had to in order to survive. But today, our focus has shifted from reengineering to reinventing ourselves. We continue to deliver cost and expense improvements, but now we're tackling a more complex agenda—focusing on growth and innovation as powerful ways to manage and measure our progress."

To realize this agenda, IBM has shifted its focus to integrated, unique client solutions supported by business and technology innovation; identified business processes that would require radical transformation; and analyzed technologies and business practices that would foster improvement to business performance. Based on insights from clients and a wide range of internal and external experts, the company identified and nurtured more than 20 emerging business opportunities that had the potential to become multibillion dollar businesses in three to five years. Of these, life sciences, digital media, business transformation outsourcing and pervasive computing have already become over US$1 billion businesses for IBM, and the rest are growing by an average of 40 percent, year over year. The acquisition of PricewaterhouseCoopers Consulting was aligned with a US$1 billion investment, through IBM Research, to deepen On Demand Business insights for clients, and it served to launch new business capabilities, such

as the Center for Business Optimization. The rate and pace of horizontal integration across the business and ecosystem enabled significant business improvements. It also became clear that IBM needed to change its culture in order to create the level of cross-company collaboration necessary to achieve its objectives.

Transforming the way business is done

IBM's first priority was to improve the way it sells to and serves clients. Second was the company's supply chain. Third was the way work gets done inside IBM. Improvements within each of these areas were—and still are—fueled by operational innovation and advances in technology that not only can be leveraged by IBM, but also delivered to clients.

Reinventing the way IBM sells to and serves clients and partners

First and foremost, IBM listened to the needs of its clients and Business Partners. They said it was difficult to do business with IBM. For example, clients said that they wanted to be able to find information quickly and easily so they could make informed purchasing decisions and get the appropriate support from IBM with a minimal investment of time. Business Partners told the company that it needed to be more efficient in processing their orders—so they could, in turn, better serve their clients.

The resulting objective was very straightforward: fast, easy access to IBM's products and business expertise. This makes it simple for clients and partners to engage with IBM in every way, from finding product and pricing information to IBM's contracts, terms and conditions, to ordering, reconciliation of invoices and ongoing support, to providing and supporting solutions that meet clients' needs. IBM has a number of major initiatives under way in this arena, including:

- Using ibm.com to transform the way client interactions are managed
- Working with partners to drive On Demand Business solutions and to increase IBM's presence in the small and medium business (SMB) marketplace
- Streamlining the process of development, sales support, proposal and delivery.

IBM committed itself to becoming a living laboratory for On Demand Business—horizontally integrated, flexible and responsive—and focused on tackling the complex issues surrounding significant changes to essential business processes, organizational culture and IT infrastructure.

On Demand Business transformation through the eyes of Paul Farrell, IBM Business Consulting Services principal, Ireland

I'm told that surfing is dangerous, exciting, dynamic—a real thrill. Working with our client Allied Irish Banks (AIB) has been very similar. Riding that wave of change with them has been a really great experience.

Like IBM, AIB is customer-focused, tailoring its products to meet customer needs and adapting them as those needs evolve. One of the things I like about the team from the bank is that they're brave: risk takers who are prepared to go out there and try things that are new. They believe in themselves as an organization, which maps exactly to our beliefs at IBM.

Business in Ireland had been absolutely booming, growing five to ten percent for as many as ten consecutive years. But there were indications that the economy was going to slow down. And AIB had been extremely profitable. To maintain that profitability and leadership position, the bank wanted to be able to anticipate change and proactively adapt its business to accommodate it.

Initially, our relationship with the bank staff was transactional. But we wanted them to see us as a more strategic partner. We looked across IBM and formed a team (client manager, global banking industry strategist and director, business consulting services principal) that could leverage the On Demand Business expertise needed to take AIB where it wanted to go.

You have to remember that AIB is a bank. It's run by people who have this real feel for figures. They care about how an organization can save money, improve performance and grow in double-digit leaps. To demonstrate to AIB how this could be accomplished, we used IBM's own transformation as an example. And when we did, a light went on for AIB's CIO.

Then an unexpected, unsolicited aggressive bid came from a competitor. It made us accelerate our thinking and work even harder together to develop new, insightful intellectual capital to enable us to evaluate how we could help AIB drive down costs and improve its cost-income ratio. With these recommendations, AIB's individual On Demand Business transformation was on its way.

On Demand Business has enabled IBM to integrate, to rally around one common element—our client. The thing that really excited AIB's CIO was our team. We quickly assembled a group from around the world that had the right skills and the right approach to understand and meet AIB's needs. We had to go in there as one company, with a unified approach. We came in as a technology supplier, but ultimately built the relationships needed to win AIB's business and deliver true business value to our client.

"As a result of their own on demand experience, we find IBMers—from the people we deal with every day to those at the most senior levels of the company—behave differently than their competitors. It's as if they're actually working in the mindset of their clients—not simply in their best interests."

–Michael Baume, CIO, Allied Irish Bank

The ibm.com Web site has long been recognized as a leading e-commerce environment. It is the focal point of IBM's sales interaction with enterprise and small business clients, partners, original equipment manufacturer (OEM) partners and consumers. To maximize responsiveness, IBM combines a rich online environment with global sales center operations to create a fully integrated TeleWeb sales, service and support channel. In 2004, ibm.com recorded 284.4 million net Web visits and more than 15.2 million sales calls. The ibm.com site provides this capability in 83 countries and manages online transactions in 31 currencies.

In November 2004, IBM launched a complete redesign of its public Web site. The One IBM Web Experience provides a unified Web environment that delivers relevant information to a variety of constituents. The ibm.com team is piloting innovative technologies to continue to improve the quality of client interactions—from simple features, like Call Me or Text Chat capabilities, to an instant messaging feature that alerts clients when their inside sales representatives are online. Is it working? Fifty-seven percent of clients worldwide say they prefer to do business via the TeleWeb channel. More than 65 percent of all client interactions are now Web-based, leaving more than 4,000 specialists in 39 sales centers free to respond to more complex queries.

At the other end of the client experience lifecycle, providing technical after-sales support, is My Support Portal, which provides clients with a unified view of up-to-date technical information tailored to their individual needs. When clients log on to My Support Portal, the system automatically pulls their profile from a registration database and instantly presents them with a page of relevant information based on their last session and/or previously identified interests. Clients can obtain answers on their own, empowering them to solve problems and enhancing their productivity. By streamlining support processes, My Support Portal contributed to a US$757 million 2004 cost avoidance associated with IBM's technical eSupport initiatives, while increasing overall client satisfaction.

Another important dimension of IBM's reinvention of the way it sells and serves clients is the IBM Business Partner program. To improve its flexibility and coverage of key markets like SMB, IBM relies on Business Partners as the primary channel for bringing IBM technology solutions to small and midmarket clients. In return, IBM delivers support and incentives to better enable Business Partners to profit from all aspects of the small and medium business opportunity. IBM Business Partners also bring value-added solutions and services to IBM's largest clients. In order to enable Business Partners to deliver the integrated solutions its clients need, IBM developed a seamless extensive suite of collaborative tools that enables the company and its Business Partners to work securely across time and distance to coordinate tasks, discuss issues, track actions and



make better decisions—faster. In addition, IBM has initiated a set of business to business (B2B) capabilities to enable automation of sales transaction processes between Business Partner and IBM systems. IBM may receive Business Partner orders/requests, directly pass them to the appropriate internal applications to be fulfilled and return the appropriate response information back to the Business Partner—completely touchless. A single solution architecture supports IBM's XML-based B2B customer and Business Partner connections, based on E2open's multicompany process management solution. The XML messages are implemented using the RosettaNet open standards. IBM and its Business Partners can now be seamlessly integrated, handling transactions 24x7. Each of these initiatives is designed to enable IBM and its Business Partners to provide better solutions and to be more responsive to clients.

IBM also has demonstrated success in developing industry-specific solutions that help clients solve their business and IT problems, large and small. To provide high-value business benefits, IBM fuses services with industry and technology expertise to craft solutions that meet particular business needs and help companies to achieve their objectives. Recently, IBM enhanced its solutions capability, with its continuing technology investments and acquisitions of consulting expertise, furthering its trusted advisor relationships with clients. By teaming with leading independent software vendors (ISVs) to supply integrated solutions, providing differentiated insights through research and by integrating its hardware, software and services, IBM has the breadth of capabilities to support a client through business process and model redesign, application/infrastructure design and solution implementation. The results have been significant. By working closely with clients and moving toward seamless and timely access to a range of insights and hands-on capabilities through its consulting services and Business Partners, IBM has been able to offer solutions that are both responsive and flexible to meet the needs of its clients.

Although far from done, IBM is making solid progress. Client and Business Partner satisfaction numbers continue to rise. For example, according to a recent North American study from VARBusiness, IBM's commitment to business partners took center stage in the VARBusiness Annual Report Card (ARC).[2] The study ranked IBM as the overall winner or tied in business partner satisfaction in eight major categories that included software, systems, personal computing and network storage.

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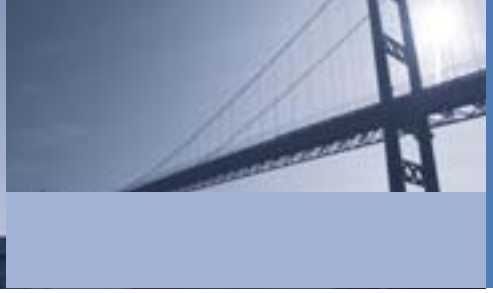
On Demand Business transformation through the eyes of Fabian von Kuenheim, president and CEO, Magirus—a leading value-added distributor of IT infrastructure in Europe and one of the largest European IBM Business Partners

Our goal was ambitious: We wanted to be more responsive to customers by slashing order cycle times from days to a matter of hours. We were convinced that achieving our goal meant that order transactions between Magirus and IBM needed to be processed completely electronically. But then, isn't that what it takes to be an On Demand Business?

Today, when Magirus logs an order into its procurement system, it's routed directly to IBM through a new, standards-based order processing system—called B2B Touchless Order System. The system uses industry standards (XML based on RosettaNet) to help enable orders to flow seamlessly, despite the differences between the Magirus and IBM order management systems.

This new system has helped improve business in two ways: by helping to reduce the costs associated with order processing, while at the same time allowing us to deliver more revenue from our existing staff. The hard benefits take three forms. First, Magirus was able to reduce the administration overhead for dealing with IBM by two people, whom we then redeployed to sales activities. This, among other things, like the Authorized Assemble Program, contributed to a 23 percent increase in Magirus' IBM @server® iSeries™ and pSeries® systems revenue in the second half of 2003. Second, we're expending less time and fewer resources on managing problems, because we've reduced the occurrence of errors in the order process. Third, we're seeing that reduced cycle time means that orders can be invoiced faster and, therefore, revenue flows in faster.

This is one of the best projects I have ever run with anyone. It was on time and on budget. I know this project touched many parts of IBM: the sales organization, the supply chain group, IBM Research and others. But instead of seeing the differences, there was a sense of partnership that went from the working level all the way up through management. The whole project took fifteen months, start to finish.


Reinventing IBM's supply chain

When IBM created its Integrated Supply Chain in 2002, the driving force behind this decision was how to harness end-to-end supply chain capabilities for competitive advantage—how to enable IBM to become the most adaptive and responsive enterprise in the industry, in order to serve clients better. IBM integrated its 30 existing supply chains into one, working across 35,000 suppliers and 45,000 Business Partners. In addition to huge cost savings—nearly US$20 billion over the last three years—another long-term benefit has been the unprecedented level of flexibility that this cross-business view provides. This approach—linking the supply chain strategy to IBM's business strategy and then assembling the right combination of skills and resources to support it—has never been more important. By creating a new model for managing the operations of the business, IBM is moving toward operating at the speed of clients' demand and becoming not only faster and more efficient, but a qualitatively different kind of enterprise.

The focus, originally on hardware, needed to align with solutions in a way that was consistent with IBM's business direction. This goal led IBM to tackle challenges at both ends of its supply chain, integrating its systems to give clients a personalized, consistent experience across all IBM brands through an enabling infrastructure that includes SAP, Siebel and IBM WebSphere® software. In addition to moving toward providing clients with a seamless view of their business relationship, IBM is applying its supply chain experience to managing its services business. A sharper focus on sourcing has reduced cost for the company's services business by more than US$700 million in 2003 and US$2.4 billion in 2004. Efforts to increase visibility of IBM Business Consulting Services resource deployment has resulted in a three to five percent improvement in utilization in 2004. Also, IBM is using its hands-on expertise in supply chain to drive new revenue growth. IBM's internal supply chain organization is collaborating with IBM Business Consulting Services in client engagements, to not only help companies transform their supply chains, but operate aspects of them, as well. In 2004, IBM's internal supply chain organization participated in more than 100 client engagements globally, with contracts valuing more than US$600 million in revenue.

In addition, the company is creating a seamless environment that can support Business Partners throughout the entire sales cycle, from opportunity to cash. Process integration is already underway. IBM has 375 business-to-business connections designed to simplify order management, including dozens of Business Partner-developed processes enabled across the network via open standards.

Results so far are outstanding. IBM reduced days sales outstanding (DSO), representing an improvement in rate and speed greater than in the previous five years combined, thanks to common, integrated processes with better data leading to fewer errors and fewer delays. The company is realizing historically low levels of inventory for IBM products, is continuing to improve inventory turns and has synchronized demand and supply to achieve the lowest number of unfilled orders in its history, all of which has allowed IBM to generate US$500 million in cash over the last two years.

Furthermore, IBM has improved productivity by reducing the time its sales teams spend on fulfillment and related supply chain issues by 25 percent over the last two years. To date, the IBM supply chain transformation has helped the company exceed its target for the percent of clients that are very satisfied with its delivery commitments. IBM continues to work on improvements to ensure a positive delivery experience for every transaction.

For example, IBM is overhauling its Customer Order and Analysis Tracking System (COATS)—a shared order entry application supporting 20 manufacturing plants worldwide—to translate sales orders into manufacturing materials lists and instructions for manufacturing hardware, such as iSeries and IBM @server zSeries® servers. COATS is an aging legacy application that required up to six months for new capability delivery. Rather than a very costly replacement of the entire system, IBM's flexible and scalable service oriented architecture is enabling rapid, incremental, implementation of component-based Web services with rule-driven workflows. Using the same approach that IBM Business Consulting Services recommends to its clients, the company is creating reusable, high-return-on-investment, process and IT assets. It is doing so by implementing the IBM Enterprise Component Based Architecture methods and standards, while focusing on the cultural change aspects of the project. As a result, and thanks to development and deployment support from IBM Business Consulting Services, the IBM COATS team is now realizing up to 25 percent faster development cycles, reduced development costs and easily adaptable operational workflows, capable of responding to On Demand Business needs.

At IBM, an on demand supply chain ripples outward to all aspects of the enterprise. It's about having an unwavering focus on building flexibility and responsiveness into the systems and processes used to run the entire business, not just the supply chain. This has required major changes in how departments conduct their work and relate to one another. It entailed getting down to the nuts and bolts of business processes, and finding innovative ways to get work done for sustainable improvements in productivity, to ignite growth.



Reinventing IBM's work environment

Given its focus on delivering higher value through innovation and integration, intellectual capital and services expertise are priceless to IBM. In an information intensive business, productivity is a function of how liquid these assets are across the enterprise. Leveraging them to maximum advantage requires tools, processes and a culture that make knowledge transfer and information sharing as seamless and friction-free as possible.

Achieving maximum productivity can be challenging, considering that nearly 40 percent of IBM's nearly 330,000 employees don't go to an IBM facility every day. In fact, tens of thousands of the company's employees may never work in a traditional office location. On top of that, more than half of IBM employees have been working for the company for five years or less. How do you ensure that a decentralized workforce of this magnitude knows what resources are available, how they can connect with the people they need to support clients and each other, and then act on the information they receive?

The IBM On Demand Workplace addresses many of those challenges. Created a decade ago as a vehicle for employee communications, IBM's intranet has been transformed into a 24x7 interactive platform connecting a global workforce serving clients in 170 countries. Since 2003, the On Demand Workplace has saved the company more than US$680 million by Web-enabling processes for travel reservations, procurement, software installations and employee help desk calls, among others. But the savings are just the beginning.

On Demand Workplace is becoming the platform for how work gets done within IBM—providing a personalized, customizable user experience, specific to geography, business unit, function or interests. And we're taking the lessons learned from our own implementation and offering our expertise to clients in the form of the IBM On Demand Workplace suite of software, hardware and services for On Demand Business.

To enhance employee productivity, IBM is shutting down outdated and redundant Web sites and portals (over 900 in 2004 alone). Eventually, most content on individual business unit and organization Web sites will be integrated into the On Demand Workplace, which will feature role-based portlets and will eliminate the need for employees to go to multiple places for relevant information, avoiding conflict in content across the intranet.

On Demand Workplace boosts employee satisfaction and cost savings

- 81% of IBM employees access the On Demand Workplace daily.
- 50% of IBM's employee training is delivered through On Demand Workplace.
- 9 out of 10 U.S. employees enroll for health benefits via On Demand Workplace.
- An estimated 30 minutes per employee are saved each month as a result of the ability to quickly locate and engage colleagues who have the needed expertise.
- Since 2003, IBM has realized more than US$680 million in savings as a result of Web-enabling processes to the On Demand Workplace.



In late 2004, the first global, role-based portlet on the On Demand Workplace was launched. The Manager Resources Portlet provides a consolidated view of corporate, geography-specific and local manager resources and human resources (HR) policy information based on the On Demand Workplace profile. By integrating the Manager Resources sections of 40 global Manager Portals into the On Demand Workplace, 30,000 managers across the business have faster access to tools, policies and practices that they need to work more effectively.

Another new portlet, called Learning@IBM, provides employees with personalized learning recommendations based on the roles and interests they specify in their On Demand Workplace profile. This portlet centralizes learning activity management and execution for each IBM employee, allowing individuals to manage their planned learning activities, identifying education based on need while effectively and efficiently completing the learning activities they have selected.

To further improve productivity, IBM is making it easier to find subject matter experts wherever they exist within the company. Using IBM's BluePages, employees have searchable access to a vast array of information about their colleagues—everything from skills and expertise to interests to client relationships. More than just a corporate directory, BluePages, used in conjunction with talent solutions and tools, provides one view of expertise and skills across IBM. This comprehensive view of employees helps IBM connect talent to opportunities, whether it is securing subject matter experts to fulfill client needs or internal business unit requirements. Building off that talent management capability is the ability for employees to have job opportunities presented to them rather than searching for a job, and conversely a manager with a job opportunity will receive qualified candidates with their profiles.

Information technology that enables fundamental transformation

The way IBM sells to and serves clients, the way it manages its supply chain and the way the company works internally have all seen profound improvements, made possible by technology. But far from promoting technology for technology's sake, IBM's IT strategy is built around a view of using technology to achieve business objectives—as a way to support and accelerate the On Demand Business transformation. IBM looks at IT through two different lenses—how IT can be used to *run* the business and how IT can be used to *transform* the business. By making more effective use of the dollars spent to operate the business, IBM frees up money to invest in transforming it. IBM's spending on what might be termed "maintenance IT" has declined steadily since 1999, while its spending on transformation-enabling IT has increased by 54 percent.

In addition to devoting a higher percent of its IT budget to transformation and keeping flat or lowering its overall costs, IBM is satisfying a growing internal demand for services. For example, since 2003 network usage has risen by 38 percent, client seats by six percent and audio conference volume by 16 percent.

"Where once our focus was simply reducing cost through IT simplification and consolidation, today our challenge is to deliver the infrastructure, applications, data and insights needed to support IBM's business objectives," says Brian Truskowski, vice president and CIO, IBM. "To achieve this, we are investing in component and service-oriented architecture, and an open, virtualized and autonomic infrastructure. In 2004, this allowed us to reduce overall IT spending while supporting more employees and delivering more function."



IBMersValue

Dedication to every client's success.
Innovation that matters—for our company and for the world.
Trust and personal responsibility in all relationships.

In-the-moment collaboration leads to ongoing innovation

Engaging a global employee population in a conversation about best practices or critical company direction may seem like nothing more than a metaphor. But thanks to the capabilities of the On Demand Workplace, for IBM employees it's a real-time event. IBM has held a series of online "WorldJam" events that engage employees worldwide in mass collaboration—from uncovering and ranking new business opportunities, to ideas on how to overcome obstacles to achieving goals, to helping its 33,000 managers work more effectively. This has changed the company in significant ways. In 2003, for instance, the honest, thoughtful, free-flowing views and experiences of tens of thousands of participants in "ValuesJam" produced a set of definitions of what IBM employees most fundamentally value, and a follow-up event in 2004 then developed an action plan to make it real.

As Sam Palmisano told the *Harvard Business Review,* "There is a collective impatience that we've been tapping into to drive the change needed to make IBM everything that all of us aspire for it to be. I'm convinced that we wouldn't have gotten to this point if we hadn't found a way to engage the entire IBM population in a genuine, candid conversation."[3] WorldJam is now a key component of IBM's ongoing operations—both a tool and a new management approach for a more open, democratic age.

A secure foundation

Worldwide threats have heightened security requirements and risks to IBM information. Its strategic direction here is clear: continue to increase security and enhance the resilience of its operating environment.

This is a problem shared by all businesses. IBM knows this, because it monitors network security for businesses and governments in 134 countries. A 2004 IBM report shows that attacks on networks surged 17 percent—in one month. And stopping these attacks takes more than rigorous security policies alone. The IBM Global Services account team collaborates with their client, the IBM CIO organization, to ensure service integrity and infrastructure availability, in part by automating and monitoring processes and using network security analysis software to detect and close security vulnerabilities on more than 1,800 Internet servers and 17,000 internal network servers in real time.

IBM is migrating to a comprehensive identity-management solution and a single sign-on access authorization solution for employees to access a wide range of internal business

systems and applications. Through penetration testing and security health check services, IBM evaluates its own security capabilities across its ecosystem to ensure that it is able to deliver solutions that meet its security standards and those of its clients. Workstation management efforts have increased security compliance at the employee level and resulted in fewer potential threats within the borders of the IBM network. IBM also has real-time security compliance tracking throughout the organization, security software metering and required application detection. For example, in 2004 IBM has avoided approximately US$9.6 million in lost productivity that could have resulted from virus infections.

Based on open industry standards

Fundamental to IBM's own On Demand Business strategy is a deep and abiding commitment to open industry standards. Its internal deployment of open industry standards-based technologies not only reflects its principles, but also provides proof of the value that standards bring.

As of year-end 2004, there were more than 2,900 servers running on the Linux® platform within IBM's corporate infrastructure, up from nearly 1,300 in 2002. With Linux technology, IBM has more flexibility, better system performance, lower costs and a secure operating environment for many mission-critical applications on its infrastructure, spanning customer order support, chip manufacturing, sponsorship Web events and antivirus and antispam solutions. Integration is made easier, and new capabilities are deployed faster. IBM also has moved more than 100,000 users to Voice over IP (VoIP) telecommunications.

Better use of IT resources

For IBM, performance improvements initially require moving workloads to fewer, higher performing servers and storage devices. IBM is continuing to consolidate and therefore simplify its server and storage infrastructure, especially in its deployment of IBM Lotus® Workplace™ Messaging™ (IBM Lotus Sametime®) and IBM Lotus Notes® software, the backbone of its employee communications and collaboration environment. Since 2000, the company has reduced the number of IBM Lotus Domino® mail servers from 1,200 to 240. Not only has this consolidation reduced its costs, it has also resulted in higher availability and performance. By year-end 2004, more than 320,000 Lotus Notes users were on clustered servers—ensuring systems are available when employees need them. In fact, availability for Notes users on clustered servers averaged 99.97 percent in 2004. IBM also is consolidating storage and processing power to enable efficient sharing and rapid scaling, and has already consolidated 31 separate internal networks to a single internal network.

But consolidation is only one piece of the utilization equation. Virtualization is another. Virtualization improves the utilization of human resources, IT and information assets by allowing IBM to pool resources, accessing and managing them by effect and need, rather than by physical location. IBM is leveraging the virtualization capabilities built into IBM servers and storage systems, and its expertise in managing those capabilities, to dramatically increase the flexibility and utilization of its infrastructure, reduce costs and improve availability and scalability. IBM is moving toward eliminating application-specific dedicated servers and storage. Instead, applications will acquire resources on demand from a virtualized infrastructure pool. In

On Demand Business transformation through the eyes of Jesse Stein, Power Architecture marketing manager, IBM Systems and Technology Group

After 15 years at Apple as a Power Mac® product manager, I joined IBM in 2001. When I arrived, there were two separate teams in Systems Group and Technology Group. Our priorities were driven by the organizational structure, not by trying to jointly leverage the capabilities of the full spectrum of IBM Power Architecture™ flexibility.

From its beginning, the IBM PowerPC® platform was used for collaborative innovation. It delivered Power Architecture technology server performance at a lower cost and continues to push the technology edge at IBM today. Initially, Systems Group was responsible for building servers based on the IBM POWER™ family of chips. Technology Group was focused on embedding the PowerPC processor family into solutions from other companies.

Those artificial, internal boundaries no longer exist. Now, everything we do is holistic—looking across the whole spectrum of Power Architecture capabilities. We're working as a whole with industry innovators to leverage Power Architecture processor-based solutions in all types of devices, from gaming consoles to some of the fastest supercomputers in the marketplace today.

Clearly, this shift is good for our clients. Now, we're encouraged to find ways to apply what one team has learned in completely new areas. We joined to offer Apple next-generation, mainframe server-class performance within workstation heat and power constraints in the PowerPC 970 (G5) processor. This processor is currently used in both IBM and OEM products, including Apple Power Mac systems.

In line with IBM's values and dedication to supporting the development of open standards, IBM has taken the next great step by cofounding Power.org, a community movement to develop, enable and promote Power Architecture technology as the preferred open standard hardware development platform for the electronics industry and to administer qualification programs that optimize interoperability and accelerate innovation for a positive user experience. Community members and developers will represent a variety of industries from all corners of the globe and parts of the electronics value chain.

Systems and Technology Group also collaborated to deliver the processors used to build the IBM Blue Gene® Computer. The Blue Gene prototype is approximately 1/16th the physical size of machines of comparable computing power, uses 512 of these embedded microprocessors and rocketed the first stage of the Blue Gene project into the top 100 of the world's fastest supercomputers. This accomplishment could not have been achieved if we had not all worked together. Our collaboration is a prototype of the new IBM, where people work across divisional boundaries, and the result is incredible innovation.

2003, IBM migrated more than 20 terabytes of stored files—the equivalent of 20,000 copies of *Encyclopedia Britannica*—to a new global storage environment that provides virtualized access for end users worldwide. In addition, by the end of 2004, IBM moved 200 applications to On Demand Centers supported by its UMI (Universal Management Infrastructure) delivery platform. This provided a framework for improved resource utilization, reduced deployment time and significantly reduced hardware and operating costs, by up to 40 percent in 2004.

Consolidation and virtualization lay the groundwork for grid computing. As in most companies, there are pockets of IBM that have an unlimited appetite for processing power. One such area is IBM Systems and Technology Group, where product development teams require extensive computation to support chip design and chip verification simulation. Although these teams are widely dispersed, a grid infrastructure enables them to prioritize their workloads and make sure processing capacity is available for the most important jobs at any one time.

Through a connected grid infrastructure, this team has access to processing resources totaling approximately 7,000 processors from all locations. By having these resources managed in a grid, processor utilization averages above 70 percent since 2Q04, compared with typical industry average utilization rates of 20 percent.

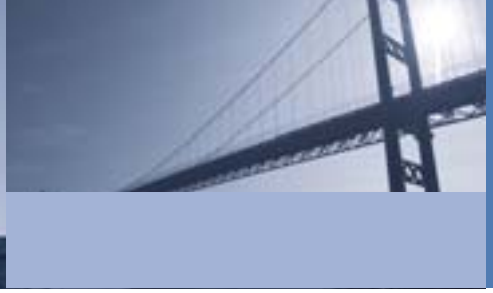
The result? The additional computing capacity enables more comprehensive testing, yielding lower error rates in microprocessor designs, enabling IBM to deliver higher-quality offerings, reduce development cycle time and avoid costs as a result of fewer chip re-spins. And this doesn't have to cost a lot. In fact, IBM's efforts to optimize similar resources at its Boeblingen Lab in Germany delivered 100 percent payback in one year (2002–03) due to savings and accelerated revenues. Maintenance of the grid is now covered within normal IT operations without additional funding.

Some IBM competitors advise clients not to accept the so-called "bells and whistles" the company keeps adding to its offerings. But IBM's experience with its own On Demand Business transformation demonstrates that advanced technologies are far from bells and whistles. These advanced technologies are fundamental to helping achieve business objectives. They help improve responsiveness, increase productivity and enable deeper collaboration among extended teams.

A collaborative culture for innovation and growth

Although business process and technology are both keys to On Demand Business, neither can contribute its full potential without an organization that enables, encourages and rewards transformative change. Culture is a broad phenomenon that encompasses many things—but one crucial element in any healthy organizational culture (especially for a business based on innovation) is collaboration.

Of course, collaboration has always been important in business. But in today's complex, interconnected global marketplace, the need for collaboration has reached a whole new level. For an IT company selling servers or software 20 years ago, the degree of internal and partner collaboration was relatively modest. Today, clients' need for integrated solutions creates very different demands.


Suppose a retail store is interested in creating a more personalized shopping experience for its customers. Management would like to explore the possibility of deploying some type of wireless device that can access data from its loyalty program and feed customers personalized shopping lists, manufacturers' coupons and special offers that keep perishable items from sitting on the shelves for too long. Management needs a proposal by the end of the week.

The team required to respond to an opportunity like this will come from across IBM. It will include retail industry specialists who understand what works and what doesn't. It will include people with technical experience in pervasive hardware and software. It will include people with deep expertise in data mining and customer loyalty programs.

On the surface, this scenario is challenging because of its operational and systems complexity. Now think about the cultural aspects. IBM, like most other large companies, was once structured to focus employees' attention and efforts on the objectives of their own particular business unit. Compensation was tied to business-unit performance. The only risks that were encouraged were the ones that would directly impact the revenues or profits of the unit itself.

IBM's solution-based value proposition, and the resulting focus on collaboration, is intended to change that culture. The goal is to create a worldwide workforce unencumbered by geography, processes or business unit structures—so it can efficiently and effectively work across boundaries to share whatever knowledge and skills are needed to bring new value to its clients and to IBM.

Why is this so important? Because part of what enables IBM to deliver the innovation that its clients can't find elsewhere is its ability to bring together people who have industry-specific knowledge, consulting skills, deep technical expertise and in-the-trenches operational experience through their work with clients and in solving similar challenges in support of IBM's own On Demand Business journey. That expertise doesn't live in any one individual or even within a single division. It is distributed across IBM and its partners, among people who may not yet have had occasion to meet, talk or work together.

So how does a large, complex, global company change its culture and create a more collaborative environment? By enabling people to quickly identify, contact and engage the experts who have the complementary skills required. By recognizing and rewarding collaborative behaviors. By reshaping its compensation strategy to weight business unit and IBM performance equally. By changing management behavior: training managers to create a climate that encourages both staff and client-facing teams to collaborate outside of their job-specific silos. And by celebrating the heroes who create innovative and broadly applicable solutions by collaborating with others from across the company.

On Demand Business transformation through the eyes of Jim Ackerman, corporate account director, Solectron—a longtime IBM supplier and leading global provider of electronics manufacturing and integrated supply chain services

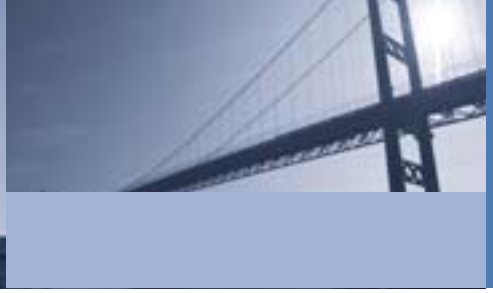
The environmentally safe disposal of computing assets has become a very real issue in today's world. Servers, desktops, laptops, printers—every day, thousands of reusable assets hit Solectron's docks around the world. And the clock is ticking. For many of these recovered assets, there's already demand—another organization that is willing to buy them, extending their useful life dramatically.

Asset recovery is one of Solectron's core businesses, and it's a critical service that IBM is committed to providing to its clients. IBM Global Asset Recovery Services has worked with companies like Solectron to deliver the IT industry's first seamless, worldwide, end-to-end solution encompassing the acquisition, remanufacturing and final disposition of used equipment.

Solectron has been a longtime supplier of IBM, providing PC circuit board and subassembly manufacturing since 1977. In 2002, we had an opportunity to extend our relationship, when IBM decided to divest itself of its remanufacturing facility in Raleigh, North Carolina. The deal closed in February 2003. Since that time, we have worked closely with IBM to streamline the processes and systems we use to support IBM Global Asset Recovery Services. Although at least three or four companies are involved at any one time, the process actually operates seamlessly.

For example, when a large client has assets—say laptops—coming off an IBM Global Financing lease, a return date is scheduled and an advance-ship notice comes to Solectron. The notice includes information about each asset, such as the serial number and current configuration. At the same time, the equipment-trading organization is notified that the assets are available. The equipment trader's job is to find buyers for the assets—and to let us know what needs to be done in order to maximize the value of the machines. This includes everything from erasing the hard drives and reloading with a certain configuration—operating system, applications, etc.—to complete remanufacturing to bring the asset to a "like-new" state.

As an analogy, we're dealing with very ripe fruit that has to be moved before it spoils and loses all value. Used equipment is basically a commodity. We have to get these assets in, refurbished and out quickly to maximize value in the marketplace. To achieve the level of integration and transparency required, we've worked very closely with IBM to leverage and standardize business processes across multiple regions, allowing IBM to get what it needs, when it needs it, on demand. As a result, we've streamlined everything about the process—and reduced costs to IBM by approximately 30 percent for PC refurbishment based operations from 2003–05. We've also worked with IBM as it expands the program for non-IBM hardware—a rapidly growing offering and something its clients find very attractive. To me, this is a great example of what On Demand Business is all about.


In all of these transformation efforts, the technological changes are integral with the process and cultural changes. They're not "parallel" workstreams, but different aspects of the same management system. The On Demand Workplace, for example, is integral to turning IBM into a learning organization—and in turn, continual, just-in-time learning is integral to process transformation, to the changing role of the manager and to the employee empowerment required for on demand client responsiveness. This fusion of technology and insight is, in the end, a manifestation of IBM's business model, portfolio and long-term strategy: delivering innovation by integrating invention and insight.

A business model built on accountability

For IBM, the On Demand Business model has three core pillars: governance, performance measurements and reinvestment.

- **Governance —** To guide the transformation process and track its progress, IBM formed an executive advisory group with representation from every business unit. This team's mission is to identify, prioritize and staff cross-IBM initiatives that will contribute to an increased level of productivity and top-line growth within the organization. Team members are responsible for incorporating productivity measures into their business unit management systems. There are milestones and checkpoints, and regular progress reports to IBM's chairman and senior leaders. Finally, IBM formed advisory panels comprising clients, employees, Business Partners and suppliers to keep IBM focused on issues pertinent to improving its own business performance and that of its clients and partners.

- **Performance measurements —** To understand the impact of its investments, IBM tracks various transformation metrics. IBM measures results through growth and innovation performance measures tied to its annual compensation program. The company can measure specific growth commitments for each of its business units and reward employees for innovation that drives that growth.

  One of these growth and innovation metrics is productivity improvement. IBM views productivity as one of the most important measures of progress in its transformation to becoming an On Demand Business. IBM can track productivity gains by assessing how much revenue it generates for every dollar it invests in total labor costs. Annual targets for productivity improvements are created for each business unit, and roadmaps are developed that specify the actions necessary to reach the target. Diagnostic metrics and milestones are utilized to track whether the actions are being accomplished. Employee compensation is based, in part, on whether the annual targets are achieved.

- **A cycle of reinvestment —** From the beginning, one of the thorniest issues IBM had to grapple with in its journey to On Demand Business was funding. No one authorized a big bucket of money and said, "Let's go make all of this change right now." Fundamental to IBM's approach was the concept of value creation and reinvestment—tracking the savings and productivity gains and then reinvesting a large portion of these savings in its transformation initiatives. And continuing the cycle in an iterative fashion.

  This is a highly disciplined process, especially when it relates to planned IT savings. In fact, these savings are incorporated into IBM's own outsourcing agreement with IBM Global Services, something that more and more organizations are opting to do.

Proven results to date

IBM has begun to see results from its On Demand Business focus. Not simply the discrete results of each individual initiative, but systemic gains that have produced increased revenue and share improvement across all of the company's core business units in 2004.

In keeping with IBM's strategy to lead in driving industry innovation, IBM has increased its revenue in business and technology consulting services, infrastructure services and infrastructure software and hardware, all of which generate superior value for its clients, as evidenced by improving client satisfaction worldwide. IBM used the insights of clients and internal and external experts to identify emerging opportunities that had the potential—in three to five years—to become multibillion dollar businesses. So far, life sciences, digital media, business transformation outsourcing and pervasive computing have become US$1 billion businesses for IBM, while year-over-year growth of the other identified opportunities has averaged 40 percent. Coupled with this growth is a concerted effort to ensure that the execution of IBM's own On Demand Business strategy is equal to its vision.

While the genesis of IBM's reengineering efforts had to do with simple business survival, the commitment to make IBM an On Demand Business showcase has been about something else entirely. It's been about ensuring that IBM can demonstrate to its clients both the why and the how of On Demand Business. It continues to be a journey that's founded on IBM's core values—dedication to client success, innovation that matters, and trust and personal responsibility in all relationships.

Today, when clients talk about customer relationship management, they're not interested in having a software discussion—or a call center discussion. They're looking for new business insights, for experience and for integrated process and technology innovations that can improve client satisfaction and increase revenue flow from existing relationships. Whether their intent is to manage a stream of discrete improvements themselves or find a partner that can provide a comprehensive solution—clients want real-world know-how.

The same is true of clients who want to talk about improving their supply chains. They know the subject is complex, and they're looking for a partner that can bring to the table not just world-class products, but hard-won expertise.



For every client that still wants to talk about the speed of a new microprocessor, hundreds more want insights about simplifying the complex infrastructure that they're trying to manage. They want proof that it's possible to spend fewer resources on running the business—in order to free up the capital necessary to improve it.

And no matter where the discussion starts, it eventually comes around to culture and organizational change. How do you influence people to behave differently? How do you work behind the scenes to modify the way they work, eliminating the ingrained thought pattern that says the objectives and metrics of my business unit come before all else? Clients recognize that this is an issue, and they want to talk to someone who knows what works and what doesn't.

The ability to offer fresh insights and to prove that the impact of change will far outweigh the investment—these are two big reasons this journey is so important to IBM. IBM is passionate about tackling the tough business, cultural and IT issues critical to business success in the 21st century. The company is using its hands-on expertise and insights to shape its products, offerings and solutions. IBM is committed to sharing what it has learned, so that others can benefit from its experience. And it is devoted to collaborating across its extended ecosystem to develop new insights, disciplines and methodologies that deliver outstanding business value to its clients.

The journey continues.

For more information

To learn more about how your organization can become an On Demand Business, visit:

ibm.com/ondemand

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