

# IBM Design Centers for e-business on demand

## *Help for Companies Creating Advanced e-Business Solutions*

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Today, organizations that need to deploy advanced e-business solutions face a serious dilemma. At the heart of that dilemma is the growing gap between the requirements that e-business solutions must meet to deliver tangible value and the IT resources that enterprises can marshal to meet those requirements.

The following report examines a group within IBM that can help many organizations resolve this dilemma: the Design Centers for e-business on demand™. After briefly discussing the e-business challenges that companies are facing, the report examines the Design Centers and the “on demand” computing paradigm that they are advancing. This sets the stage for a closer look at the Design Centers’ services and methodologies and an evaluation of their suitability for potential clients. Along the way, the report provides case studies of companies that are working with the Design Centers to bring advanced e-business solutions from concept to reality.

## **The Challenge of Creating e-business Solutions**

While bringing e-business solutions from concept to reality has never been an easy task, the experiences of the last two years have definitely added to the challenges surrounding that task. Increasingly, organizations find themselves caught between rising e-business requirements and limited IT resources.

If there is one thing that the “dot-com” era taught organizations about e-business requirements, it is that realizing a return on investment (ROI) from Internet applications takes more than building a Web site. It requires e-business solutions that integrate on an end-to-end basis not only with core business processes and applications within the enterprise, but also with those of customers and business partners. It also requires solutions that seamlessly extend enterprise applications to internal and external stakeholders with the same levels of availability, response time, and security that they expect from traditional systems. Such requirements must be met if e-business solutions are to effectively link organizations and individuals together to create value networks.

Unfortunately, meeting these requirements is a difficult and even daunting task for most enterprises. Few organizations have the internal skills to integrate e-business solutions with enterprise applications or to design those solutions so that they consistently

deliver high service levels. They also lack the financial resources to underwrite risky, experimental efforts to create such systems.

Faced with this dilemma, many organizations are looking for service providers that can help them bridge the gap between e-business requirements and resources. To effectively bridge this gap, however, organizations need service providers that can do more than just implement individual e-business solutions. They need service providers that can:

- Understand their business objectives.
- Assess their IT infrastructure’s ability to support those business objectives.
- Develop an e-business strategy that leverages their existing IT assets to advance their business objectives and quickly return a tangible ROI.
- Design an e-business infrastructure that can evolve to meet future requirements in a flexible and cost-effective manner.

It is rare to find service providers that can adopt such a broad-based approach to e-business systems. Among those that can do so, IBM’s Design Centers for e-business on demand deserve consideration, especially by organizations that have made considerable investments in IBM technologies and the open standards that the company supports.

## **What Are the Design Centers for e-business on demand?**

The IBM Design Centers for e-business on demand are a worldwide network of facilities that draw upon IBM’s hardware, software, and networking resources to help companies create advanced e-business solutions. Of course, many groups within IBM provide e-business services. Among them, however, only the Design Centers have a specific mission to help customers in the design and prototyping of e-business solutions and open, flexible e-business infrastructures.

To fulfill their mission, the Design Centers bring together highly skilled, multidisciplinary teams of IBM professionals to work with customers. These teams work from offices located in New York, California, France, and Japan. Depending on customer needs, the Design Centers can:

- Perform a high-level assessment of a customer’s e-business requirements to identify needs and challenges within their IT environment.
- Help the customer develop an architectural design for e-business solutions that is integrated, open, available, scalable, and secure.
- Work with the customer to develop a proof-of-concept prototype of an e-business solution, using actual customer data where available.
- Broaden the knowledge base of the customer’s IT staff so that it can develop advanced e-business solutions that address specific business problems.

Since the Design Centers can only provide their services to a limited number of firms each year, companies that want to use the Centers must apply for assistance through their IBM account

representative or business partner of record. After meeting with IBM representatives to learn about the company's various e-business services, the representatives may decide to nominate the company for a Design Centers engagement. The nomination process gives priority to customers looking to solve first-of-a-kind e-business solutions. Those companies whose nominations are accepted will send selected members of their IT staff to spend anywhere from one to eight weeks at one of the Design Centers. All expenses incurred through the design phase are paid for by IBM with the exception of the customers' IT staff's travel, lodging, and meals.

For those companies that work with the Design Centers, the experience can be highly beneficial. Nominated firms can present their strategies for review by IBM's top e-business experts, allowing them to benefit from their extensive field experience. This expertise is also made available to each firm's IT staff so that it can become part of the firm's own intellectual property. This helps clients to avoid many of the pitfalls on the road to implementation and fully realize their e-business objectives.

### **Austria's Interior Ministry Advances e-Government**

Among the many requirements that public sector organizations have for any e-government services they deploy, the top two are cost-effectiveness and security. When Austria's Bundesministerium für Inneres (BMI)—the country's Ministry of the Interior—turned to IBM's Design Centers for e-business on demand, the government agency got the help it needed to meet both requirements.

In Austria, the BMI is responsible for all public security and includes municipal police forces, criminal investigation units, and groups responsible for state security. It also supports the IT systems that these agencies require. These include a mainframe-based data center in Vienna, around 3,000 Microsoft Windows servers located throughout the country, and over 15,000 Windows clients that access the BMI's mainframes using 3270 terminal emulation.

One of the key systems that the BMI supports is the Zentrales Melderegister (ZMR), a registry of all Austrian citizens that the government agency relies upon to identify and locate individuals. For years, Austrian local government agencies maintained their own local registries that resided on servers scattered across the country. This made locating citizens a time-consuming and expensive task. Searches often required BMI agents, financial and legal institutions, and even citizens interested in locating somebody, to query the databases of multiple offices. In 2000, therefore, the Austrian government mandated the creation of a single national citizen registry that could be accessed not only by the BMI, but also by other government agencies and private sector organizations. This would allow the ZMR to serve as a key component of many government services.

Creating such a registry proved to be a challenging task for the BMI. As Florian Bilek, Deputy Chief of the agency's computer center, explains, "Since the ZMR had to be accessible to many agencies and firms using different computer systems, the only way to provide access was through a secure Web site. When we started the project in 2000, we

determined that our System/390 mainframes could not adequately support such a Web-based system. As a result, we developed the ZMR on the IBM RS/6000 running WebSphere Application Server and DB2." However, even before the ZMR went live on the RS/6000 in early 2002, the BMI discovered that supporting the Unix-based Web site as well as its mainframes and Windows systems would dramatically increase its IT costs. That was when the IBM account team that worked with the BMI suggested that it reconsider its mainframes as Web hosts, and that it consult the Design Centers office located in Montpellier, France, to see if this option was feasible.

As Bilek notes, the Design Centers team was eager to help the BMI find a way to host the ZMR on its mainframes. "Once we provided the Design Centers with code from the existing registry, they ported it to a WebSphere Application Server environment running on z/OS partitions. They also tested the code at IBM's eServer Customer Benchmark Center to verify that the new system would meet our demanding scalability requirements." In addition, the Design Centers provided the BMI with critical information about designing the ZMR for maximum security and availability. Such design features are essential for a system that contains sensitive information about every Austrian citizen and must be accessible by government agencies around the clock.

Now that the BMI knows it can support the ZMR on the zSeries, it is preparing to upgrade its System/390 mainframes to zSeries servers running z/OS. The upgrades will enable it to host not only the ZMR, but also other e-government services that it has on the drawing boards. As Bilek points out, these efforts were made possible because IBM was willing to work on the ZMR as a proof-of-concept project. "With the Design Centers' help, we are now confident that we can cost-effectively deliver Web services on our existing systems with the security and high availability that Austria's citizens expect of us."

## What Is e-business on demand?

As their name implies, the Design Centers have a special mission to help customers implement what IBM calls “on demand” e-business solutions. For the company, such solutions represent the next phase of e-business evolution. The aim of this evolution is to create information systems that respond instantly to the needs of customers, suppliers, and employees. Just as importantly, “on demand” information systems must respond instantly to requests from other information systems, whether they belong to the enterprise or its business partners.

IBM’s concept of e-business on demand points toward IT infrastructures that can sense changes in their environment—that is, requests from users and other information systems across networks—and immediately respond to them in a flexible, reliable, and secure manner. Such IT infrastructures will behave autonomically, much like the human nervous system or, at the least, like power grids that deliver electricity at the flip of a switch.

Unfortunately, most of today’s IT infrastructures behave less like electrical grids and more like loose collections of incompatible power generators. As IBM sees it, the answer to this problem is to redesign IT infrastructures with the following four characteristics in mind.

- *Integration.* To respond in an “on demand” manner to requests, all of an IT infrastructure’s applications and databases must be integrated in such a way that requests can travel across the infrastructure without delays or unnecessary human intervention.
- *Open standards.* To effectively integrate the thousands of applications and databases within an IT infrastructure, open standards are necessary to reduce integration expenses and create interfaces between systems that are both durable and flexible.

Open standards are even more critical for integrating an organization’s IT systems with those of external stakeholders.

- *Virtualization.* If IT infrastructures are to immediately respond to both internal and external requests, they must be able to instantly redirect computing resources to whatever workloads require it. They must also be able to draw upon additional “on call” computing resources to handle heavy surges in request volumes or unusual requests. Virtualization technologies such as dynamic server partitioning and grid computing will allow enterprises to achieve these capabilities without having to purchase large amounts of excess IT capacity.
- *Autonomic self-management.* When thousands of applications and databases as well as millions of devices must work together flawlessly around the clock, computing systems will be too complex for humans to manage, configure, secure, optimize, and repair. In such environments, therefore, IT infrastructures must have the autonomic technologies needed to perform the vast majority of these tasks themselves.

Since the Design Centers work with IBM’s customers on some of the world’s most advanced e-business solutions, they are in a good position to help clients design systems that embody these “on demand” characteristics. For instance, teams within the Design Centers are currently helping banks and brokerage firms explore the potential uses of grid computing to conduct complex assessments of financial risk in real time. Other teams are helping customers to use IBM’s autonomic computing technologies to solve availability, security, and performance challenges within e-business systems. For these and other reasons, IBM recently decided to incorporate “on demand” into the Design Centers’ name.

### **Citibank Saves on e-business Integration Costs**

Many e-business solutions create value not so much by what they offer users as how they integrate other information systems in the enterprise. This was the kind of value that Citibank needed when it asked the Design Centers for e-business on demand to help it build stronger links between its core retail banking systems and its customer-facing applications.

Though it is one of the largest providers of retail banking services in the United States, Citibank's North American division dedicates considerable resources to knowing its customers on an individual basis. To make this possible, the company developed the Citibanking Integration Facility (CIF), a database that makes customer information from back-end systems available to other applications. These applications include systems for managing customer relationships, helping consumers assess their financial needs, and many other solutions.

While CIF plays a critical role within Citibank, it recently faced significant challenges. As Thomas Worsham, a Vice President and Software Development Director for Citibanking Technology Solutions Group, explains, "When we created CIF in the mid-1990s, we developed it on a Unix system from a vendor other than IBM. That system was adequate for our needs back then, but it became increasingly difficult to cost-effectively scale the system to meet growing demands." As Worsham notes, many of CIF's problems stemmed from integration issues. "Since most of our core banking systems run on System/390 mainframes, we had to perform dozens of database extractions and replications each week to make data accessible to those systems. Moreover, since there were no open standards for messaging software in the mid-1990s, we had to use a proprietary messaging architecture to link CIF to our mainframes. This drove up management costs and made the system far less flexible and scalable than we needed."

Because of these problems, Worsham and his staff decided to migrate CIF to the IBM mainframes where most of Citibank's core systems already reside. Once the team made

this decision, however, it had another tough choice to make. On the one hand, it could rewrite CIF as a Customer Information Control System (CICS) application; on the other hand, it could develop CIF as a series of Java objects running in IBM's WebSphere Application Server. Though the later option would allow Citibank's systems to integrate more easily with CIF using open standards such as XML, the team was concerned that the resulting solution would not scale adequately to meet growing needs. To address this concern, the team had already started designing a Java-based prototype to test scalability. However, it wanted to quickly validate the prototype in a WebSphere environment and have IBM experts available to expedite the validation process.

At this point, an IBM representative suggested that Citibank contact the Design Centers to see if they could help the firm achieve these objectives. As Worsham remembers, the IBM group was more than willing to help. "When we arrived at the Design Centers, we were greeted by a cross-disciplinary team of WebSphere, CICS, and DB2 experts that spent several days reviewing our requirements and discussing solutions. A week later, we came back to the Centers with some CIF transactions we had written in Java and worked with IBM to implement them in WebSphere on their zSeries servers. When we saw how well the prototypes performed and scaled, we knew that the WebSphere-Java option was the right one for us."

Today, Citibank is porting the entire CIF code base to WebSphere running on the zSeries. When the system goes live, it will dramatically expand the bank's ability to provide customer information to applications across the company. Just as importantly, applications will be able to access CIF using standard interfaces that will significantly reduce integration costs. This is especially important to Worsham, who states, "Our partnership with the Design Centers has enabled us to improve our customer service capabilities while reducing the cost and complexity of delivering those services. We now have a clear path for taking our systems to the next level of integration."

## A Technical Exploration of the Design Centers

While the previous paragraphs summarize the services and benefits of the Design Centers, they may not answer some of the questions that IT managers often ask about the Centers. With their concerns in mind, we offer the following “frequently asked questions” section for those IT professionals who may work directly with the Centers.

### What hardware, software, and networking resources are available at the Design Centers?

The Design Centers house a considerable array of technologies in their four data centers worldwide. Customers can test their solutions on IBM’s zSeries, pSeries, iSeries, and xSeries servers, as well as Unix- and Windows-based servers from other vendors. They can configure servers with IBM’s storage subsystems, PCs, and laptop computers, as well as Cisco Systems networking equipment. Practically all of IBM’s operating systems and e-business software are immediately available for development and testing purposes. The Design Centers also have considerable expertise in multiple Linux distributions and in the deployment of IBM middleware on Linux.

### What is the relationship of the Design Centers to other IBM e-business services?

The Design Centers are only one of several groups within IBM that provide e-business services. Each group has its own strengths and areas of focus. *IBM Global Services*, the largest of these groups, helps customers implement tested and proven e-business solutions rather than the untested, “first-of-a-kind” solutions developed at the Design Centers. In addition to IBM Global Services, the *Advanced Technical Support Centers* help customers who are experiencing critical problems with their existing e-business solutions, especially scalability problems. The *Global e-business Integration Center* helps customers integrate multiple e-business applications, but does not offer the high-level infrastructure design and prototyping services available at the Design Centers. The *Porting Centers* and *Customer Benchmark Centers* focus on porting, benchmarking, and validating e-business software on new servers and operating environments.

In many cases, the Design Centers for e-business on demand call upon the resources of one or more of these groups to help its clients with particular problems. In addition, the Design Centers may redirect a client to one of these groups if that group is more suited to the client’s needs.

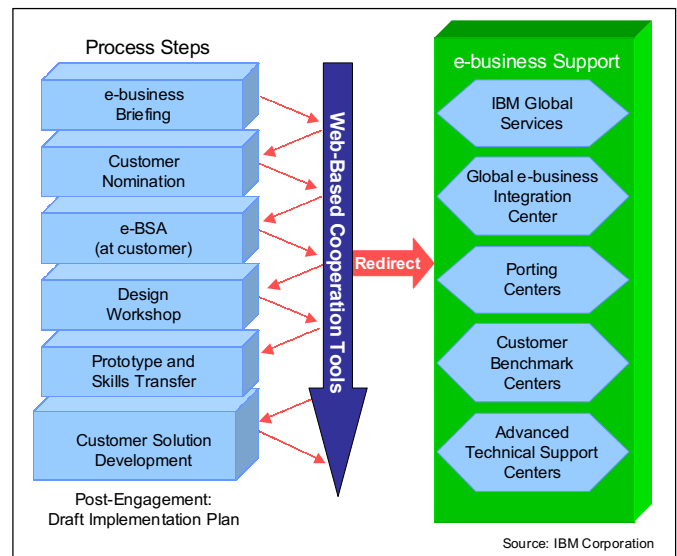
### How does a typical engagement with the Design Centers progress, and what are the steps in the work process?

As we explained earlier, most companies find their way to the Design Centers because they applied for assistance on a particular e-business challenge. Normally, IBM responds to these requests by briefing the company about its e-business solutions and consulting services. As part of this briefing, IBM representatives and the company work together to determine which IBM consulting services would be most appropriate for the engagement. One possible outcome is to nominate the company for an engagement with the Design Centers.

After some preliminary reviews of the nomination, most companies take part in a conference call with IBM to further explore and validate the potential engagement. In this call, IBM seeks to determine whether the company’s business and technology problems can be best addressed by the Design Centers or another IBM group. If the Design Centers remain the best fit, IBM schedules an e-business Solution Assessment (e-BSA) to take place at the company’s site. If another consulting service makes more sense, IBM redirects the company to that service.

The e-BSA gives IBM and a company’s top IT and corporate management an opportunity to meet and develop a plan for the Design Centers engagement. During the assessment, the two parties reach a “go/no go” decision on whether to move forward with the engagement. If the parties agree to work together, they

Figure 1: The Design Centers engagement process



document the problem to be addressed, define the scope of the engagement, and identify the resources and skills that will be needed. The parties also determine which of the company's IT staff members will travel to the Design Centers as well as the software and data they will take with them for the prototyping efforts. The end product of the e-BSA is a statement of work that documents the agreement between IBM and the customer.

When the customer's team arrives at the Design Centers, they typically take part in a weeklong design workshop. During the workshop, the Design Centers' staff works with the customer's team to create a detailed picture of their IT environment. IBM

and the customer agree on an architectural design to best fit the infrastructure plan, select best practices, and determine which technologies they will use over the remainder of the engagement.

For some companies, this workshop marks the end of the engagement, as the design documents provide adequate guidance for additional work with other IBM consulting services. However, many companies stay another five to seven weeks for the prototyping and skills transfer phase of the engagement. During this phase, the customer team works with the Design Centers to build prototype components of the e-business solution. The customer team may also attend classes that complement the hands-on skills

### **Lawson Products Delivers on New Web Site**

When an enterprise needs the right parts and services to keep its operations running smoothly, it can count on Lawson Products to deliver them in record time. When Lawson Products needed help to get its Web-based sales systems running smoothly, it found an equally reliable resource in the Design Centers for e-business on demand.

Lawson Products is an Illinois-based distributor and manufacturer of products and services for the maintenance, repair, and operations marketplace. Through its network of independent agents and regional warehouses, it sells and delivers over 80,000 products on an overnight basis to organizations throughout North America and the United Kingdom. It also provides ordering services for an additional 700,000 products carried by TruServ Corporation and other suppliers. With its enormous product breadth, Lawson Products has established a reputation as a one-stop resource for all MRO products and services.

Last year, Lawson Products decided to build on its reputation by creating a Web site that would offer customers a similar one-stop purchase experience. As part of its plans, the company decided to sell the products of multiple manufacturers and distributors via its Web site. However, the distributor faced significant obstacles to its ambitious objectives. As Frank Snyder, Lawson Product's Manager of Technical Support, points out, "We understood that to provide our customers with a seamless ordering and fulfillment experience, our Web site would need to be tightly integrated not only with our own core business systems, but also with those of our business partners." Snyder also knew that the site would have to scale beyond any system that the company had ever supported, as it would eventually need to support more than one million SKUs. This made the site a substantial systems integration and design challenge.

When Lawson Products took stock of the resources it could devote to its Web site, it knew it needed help. Like most

distributors, the company supports its IT systems with a small staff and a modest budget. This made it critical to find a cost-effective strategy for designing a highly scalable Web site and deploying it wherever possible on systems that the company already owned and supported. "Since we run most of our core business systems on a System/390," states Snyder, "We decided to explore whether we could support the site in Linux partitions on the mainframe. That's when our IBM account representative suggested that we contact the Design Centers for e-business on demand about our needs."

Once the Design Centers understood Lawson Products' challenges, they assembled a team to assess the company's IT systems and determine the most cost-effective solution. The team also spent a week briefing the company on the solution's overall design and the technologies needed to implement it. As Snyder explains, "The Design Centers showed us how we could effectively support the site on our System/390 using WebSphere Application Server running in Linux partitions. While this option gave us tremendous scalability, it also reduced our integration costs, since we run most of our core business systems on the mainframe using DB2 and CICS."

Today, Lawson Products has a Web site that is capable of effectively supporting thousands of customers and millions of products. Just as importantly, the company is integrating the site with its enterprise applications and is preparing to extend that integration to its business partners. As they are doing so, they are turning to the Design Centers for further advice and assistance. As Snyder stresses, "The Design Centers continue to help us leverage the new technologies we need to meet our e-business objectives. In my experience, they are an invaluable knowledge resource."

they are developing in the labs. By the end of this phase, the customer team should have the confidence they need to complete development of the e-business solution back at their company.

In the final days of the engagement, the customer team and Design Centers' staff use actual data and driver scripts to exercise the prototype solution model. This allows both parties to validate key features of the prototype and gain information needed for development of the complete system. The customer team leaves the Design Centers with an implementation plan that includes follow-up meetings with the Centers' staff. Such meetings typically continue until the complete solution is developed and deployed.

**Do the Design Centers use any specific methodologies as part of their engagements?**

The Design Centers employ a nine-step methodology that, while broad and flexible, provides a definite structure to engagements. Here is a brief description of the steps.

1. *Clearly define the business problem.* To ensure that the e-business solution being designed will meet business goals, engagements start with a definition of the business problem. This definition is frequently created prior to any meeting with the Design Centers.
2. *Understand the workload.* To ensure that its infrastructure designs meet best practices, the Design Centers work with clients to gather data on their existing e-business workloads. Information such as transaction volume and complexity, page view counts, search engine usage, data volatility, and security considerations are critical factors that define workload patterns and the ideal designs to support them.
3. *Assess skills and resources.* Because the client is ultimately responsible for the solution under consideration, the Design Centers assess the ability of the client to develop the solution. This assessment helps the client to determine the extent to which it will build the solution internally versus externally, and to create a plan for supporting the solution.
4. *Architect to open standards.* Early in engagements, the Design Centers assess their clients' use of open standards and identify paths to their implementation. This reflects their belief that e-business solutions should be built to open standards to ensure ease of integration across IT infrastructures.
5. *Design for scalability.* Because most e-business solutions experience unpredictable changes in workload demands, the Design Centers evaluate the scalability of potential solutions as part of the engagement.
6. *Plan for security.* Most organizations only consider how to secure an e-business system after they have designed it. The Design Centers include security experts who evaluate a potential solution's security at the design level. This can considerably improve a solution's overall security.
7. *Define integration points.* As part of the solution design, IBM experts work with the client to identify the number, breadth, and functional requirements of the integration points between the solution and all other systems. This enables the Design Centers to assess the scope of the integration task and make appropriate recommendations for enabling technologies.
8. *Leverage advanced technologies.* It is important for organizations to position themselves for tomorrow by thinking about how advanced technologies and strategic thinking should be built into their infrastructures today. Each Design Centers engagement includes a review of the advanced technologies that IBM is pioneering and a consideration of how the client could best use them.
9. *Test and reevaluate.* Through testing and tuning processes, the Design Centers examine e-business solutions with the client to eliminate bottlenecks, minimize the effects of bottlenecks that cannot be eliminated, and work around areas that cannot be altered.

**What types of companies and e-business projects have the best chance of being accepted for engagements?**

Because the Design Centers focus on building complex, groundbreaking solutions, they are more likely to work with companies that have large-scale, ambitious problems to solve. In most cases, such problems involve the use of high-capacity servers, such as IBM's zSeries and pSeries. However, this does not mean that the Design Centers only work with large companies. They have also worked with mid-sized companies, such as Lawson Products, that need to solve unique e-business problems with advanced technologies. In short, if a particular solution requires a design that helps to validate the emerging "on demand" model of e-business, the Design Centers are likely to take an interest in it.

## What Clients of the Design Centers Have to Say

Since the Design Centers opened their doors in 1999, they have helped over 300 enterprises to design and deploy advanced e-business solutions. In post-engagement interviews with clients, Andrews Consulting Group has found most organizations to be extremely satisfied with their experience. While clients cited a variety of benefits, they most frequently stated that the Design Centers helped them to:

- Clarify business objectives for their e-business solutions.
- Reduce the time needed to develop effective designs.
- Integrate their e-business solutions with core enterprise systems.
- Identify and agree upon the technologies and best practices needed to meet system objectives for high availability, scalability, and security.

- Equip IT staffs with the necessary skills to develop, deploy, and support the solutions.

Based on the interviews, it is our assessment that most or all of the clients significantly improved their return on their e-business investments because of their work with the Design Centers. Much of the credit for this improvement lies not only in the expertise of the staff at the Design Centers, but also in the ability of the nomination process to identify clients that could benefit from an engagement. These two factors allow the Design Centers to enjoy higher success rates and satisfaction levels than traditional IT consultants.

## Conclusions

As our interviews and the case studies in this report illustrate, the Design Centers for e-business on demand have an established track record for helping companies deliver advanced e-business solutions. That track record is one reason why IBM has made the Design Centers a key component of its “on demand” computing initiatives. Given the strategic importance of these initiatives for IBM, the Design Centers should continue to be valuable sources of e-business expertise for years to come. They could also become an important proving ground for prototypes of the “on demand” computing paradigm.

While the Design Centers are best suited for the development of solutions on IBM’s hardware and software platforms, they have a substantial knowledge base that allows them to respond flexibly to a broad array of e-business challenges. In addition, companies should realize that the Design Centers possess software engineering

skills that transcend any particular operating environment or software product. These skills derive from IBM’s years of experience developing some of the world’s most sophisticated high-volume Web sites. By integrating these skills and best practices with an in-depth knowledge of IBM’s e-business technologies, the Design Centers can help almost any firm that wants to deploy an advanced e-business system that includes IBM products as a critical part of the solution.

In short, the IBM Design Centers for e-business on demand provide a unique service that can help organizations overcome the challenges of bringing robust, transaction-based solutions to the Internet. With their ability to bridge the gap between e-business requirements and IT resources, they are a group that IBM’s customers would do well to explore.

**Andrews Consulting Group** is a full-service consulting and systems integration firm that has been helping mid-sized organizations understand and make highly effective use of information technology for over 18 years. As part of its consulting services, the company has written more than 50 white papers; over a million copies of these papers have been distributed in over 20 languages. Hundreds of organizations have also taken advantage of Andrews Consulting Group’s uniquely effective RITE Approach to IT projects, which is described in the new book by David Andrews and Kenneth Johnson called *Revolutionizing IT* (John Wiley & Sons, October 2002). Information about the book and Andrews Consulting Group may be found at <http://www.riteapproach.com/>.

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