

WHITE PAPER

Realizing the Business Benefits of Kiosks

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THE VALUE OF KIOSKS

It has never been more important to offer customers what they want, when they want it, and how they want to receive it. Organizations from all industry sectors are seeking to identify ways of improving the customer experience while also extending reach — all in a cost-effective manner. Today, organizations are looking more closely at technology that can facilitate improvements in customer satisfaction, customer retention, and ultimately increase revenue per customer.

With these goals in mind, one technology solution deserving special consideration is the interactive kiosk. The remotely connected, unmanned kiosk leverages the Internet and modern computing power to dramatically change and improve the way that businesses and government agencies deliver customer service. It is an economic and attractive customer service solution for a diverse array of organizations.

Fueled by high-visibility, interactive kiosk solutions, such as gift registry and airline self check-in, kiosks are becoming a key revenue growth channel as well as an attractive means of enhancing consumer service. Organizations from retail stores and casinos to airports and government agencies are deploying kiosks in a primary customer-facing role to increase the number of customers served, enhance revenue opportunities, build customer satisfaction, and radically drive down their costs per customer.

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Networked and highly interactive, today's kiosk solutions deliver the following advantages:

- Create ability to deliver a wider range of products/services
- Enable customers to serve themselves when and where it is convenient for them
- Increase the efficiency of existing business processes
- Provide information when and where they need it to make a better buying decision
- Retain customers by easily administering and rewarding customer loyalty

This IDC White Paper explores the business benefits of kiosk solutions, using a return on investment (ROI) analysis and recent case studies drawn from an eclectic group of users from diverse industry sectors across three continents.

- Virgin Records, United States — a retail environment where kiosk technology was deployed to increase sales
- Valeo Group, France — an automotive components manufacturer wanting to improve information flow between employees and departments
- Incheon International Airport, Korea — a busy new airport with a goal to provide up-to-the-minute travel information

WHY KIOSKS NOW?

Kiosks are deployed to enhance the customer experience, improve revenue-generating opportunities, and reduce costs:

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- ☒ **Increasing revenue.** Kiosks allow organizations to reach more customers and, therefore, drive revenue. Busy, on-the-go customers use the kiosks for fast, convenient self-service. Kiosks also provide a platform for additional products and advertising. Targeted messages can attract new types of customers — and interactive sales, such as personalized special orders and try-before-you-buy offers, can boost average customer spend.
- ☒ **Building loyalty.** Kiosks help customers find exactly what they want, which reduces lost sales and fosters customer loyalty. By providing extensive product and service information, including comparisons of options, customer confidence in the retailer and service organization is substantially raised. Kiosks also decrease waiting time. For complementary services, kiosks enable customers to apply for credit, purchase gift certificates, and complete other tasks at their own pace without having to seek out floor or other service staff to handle such inquiries and transactions. This is also true for other service organizations, because where service information is time sensitive and valuable, the ready availability of the kiosk enables self-service and enhanced customer relationship management (CRM).
- ☒ **Extending product/service offerings.** With kiosks, retailers can give their customers access to a much wider assortment of merchandise without increasing existing floor space. More merchandise sizes, colors, flavors, options, and other alternatives can be offered, which satisfies a wider range of customers. Cross merchandising becomes easier because of the ready availability of information offered. Kiosks can extend and leverage the value of CRM and ERP systems from the back office through the organization to the point of customer contact.
- ☒ **Ensuring real-time customer access to information.** In the past, kiosk solutions were often standalone units with information that quickly became outdated. The availability of Internet access and, in some cases broadband connectivity, has made it very feasible for kiosks to have access to real-time information.
- ☒ **Handling complex customer queries.** It is always challenging to ensure that customer service inquiries are handled in the best manner possible. Many businesses are using self-service kiosks to enable customers to handle routine inquiries or transactions themselves. This increases the availability of employees to handle the exceptional or very complex situations. The employee can use kiosks to access information on behalf of the customer.
- ☒ **Combining knowledge and transaction management for profitability.** For multiservice counters, where both financial and informational transactions are a part of the service delivery, a complex query may significantly slow the speed of service and create unacceptable waiting times for customers. The provision of kiosks, though, allows those customers who have simple queries to conduct their business quickly, while those who have complex queries can resolve them either through a kiosk or a customer service representative. This speeds the volume of transactions, which decreases customer congestion while increasing their satisfaction.

By providing Internet connectivity, the kiosks do not need the expensive hardware required to store very large product, service, and/or time-sensitive databases and timetables. Living in the silicon age has resulted in most consumers having a strong awareness, familiarity, and comfort with using electronic machines. In many ways, this was augmented by the advent of the original kiosk, the automated teller machine (ATM). Today, customers readily accept kiosks and often prefer this solution for addressing many of their needs.

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DIFFERING DEMANDS — DIFFERING VALUE

IDC found that the business value enjoyed by kiosk solution implementers is driven by their initial primary purpose for implementing the solutions. These objectives varied significantly by the type of customer and the nature of the transaction. In this study we looked at three different scenarios:

- Retail — To help customers learn more about the product to help them make purchase decisions
- Private enterprise (external) — To offer the public access to a range of information, while saving space
- Private enterprise (internal) — To make information available to employees, while reducing paperwork and saving time

RETAIL — BRINGING VALUE TO THE CONSUMER

Kiosks are typically employed in retail environments to provide information for the customer, enhance the purchasing experience, and may or may not be involved in the actual transaction. Retail kiosks are often standalone operations that increase sales outlets without the requiring additional staff.

For example, Virgin Records installed 133 kiosks in its 23 U.S. stores to enhance its customers' experience by providing them the opportunity to listen to songs from its "deep catalogue" list, knowing that the more titles it exposed to its customers, the more those customers would buy. The kiosks also freed up salespeople to spend more time discussing music with more customers. So whether it was the enhanced listening environment, the exposure to more titles, or the more productive sales force, the kiosks drove increased revenue.

On the soft benefits side, kiosks enhance the image of the retail enterprise by creating a leading-edge and user-friendly purchasing experience.

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PRIVATE ENTERPRISE (EXTERNAL) — REACHING OUT TO THE CUSTOMER

Kiosks are not always implemented to increase sales. Kiosks are ideal solutions to improve information flow to customers at significantly lower cost than information desks, which require staff. It is the ability to reduce costs that is the real driver in these installations. Kiosks can be placed in remote areas, require very little floor space (or even be portable), and operate 24 x 7 without the 2–3 staff required. Incheon International Airport deployed kiosks throughout its new terminal to provide gate and flight time information in a convenient format to air travelers. Each kiosk replaced a desk taking up nearly 10 square feet and 2–3 staff. Unburdened with answering mundane questions, service staff at ticketing and check-in counters can focus on special problems with ticketing and travel arrangements in a more productive fashion.

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Because the kiosk solutions tend to be easier to use than asking a live person, enable up-to-date information, and are not prone to human error, the customer experience is superior to the staffed desk. Again the kiosk enhances the business's image. In the case of Incheon, the kiosks fit the image of the next-generation airport.

In addition, the kiosk could be converted at any time to provide more than information. Incheon sold screen space to local hotels thus adding a revenue-generation capability.

PRIVATE ENTERPRISE (INTERNAL) — WORKFORCE MANAGEMENT

Enhanced customer service is the mantra of kiosk technology, but the customer is not always external. All the attributes that make kiosks adept at delivering timely information to external customers are suited to educating and informing the workforce. Company performance is often a function of workforce management, which is dependent on employee communications and feedback. In a traditional workplace, workforce management activities incur significant paper requirements, fall largely to midlevel managers, and can take upwards of 20–25% of their time. Kiosks serve to automate this process, reducing management time and eliminating unnecessary paperwork. As in external deployments, internally deployed kiosks reduce costs and enhance productivity.

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Valeo, a manufacturer, deployed kiosks to serve as electronic bulletin boards, providing updated information and allowing employees to offer suggestions more easily. Managers were able to improve productive time by 12% per month, and the company saved thousand of dollars by eliminating paper, printing, and distribution costs.

THE KIOSK'S FINANCIAL EDGE

All the sites interviewed were able to significantly reduce costs. However, that is only half the story. Because the kiosks were customer facing, the kiosk owners found that their customers found the kiosks so effective and easy to use that the number of users rapidly increased so that each site enjoyed a steady drop in costs per customer.

- ☒ Virgin Records increased sales of its broad array of music offerings while increasing customer satisfaction and reducing load on employees.
- ☒ Incheon Airport saved the staff and real estate costs associated with an information desk (roughly 10 square meters of space and 10 people) in order to serve nearly 56 million travelers per year.
- ☒ Valeo Group eliminated the time and costs associated with producing about 1,000 pages of work scheduling information each week. Further, it increased the level and efficiency of the interaction between the factory workers and management.

In this study, only Virgin Records deployed kiosks with revenue enhancement as a primary goal. The others were seeking to enhance a customer-service-sensitive part of their business. Incheon International Airport initially implemented kiosks to provide better travel information at a lower cost per customer than a staffed information desk. They realized that the acceptance of the kiosks was so strong that they could deliver more than flight schedules and gate information. They began providing hotel information through the kiosks and charging local hotels for the service. Although not a big revenue generator (yet), this creative use of the kiosk opens the door for other revenue-generation opportunities.

COMMON OBJECTIVE — ENHANCED CUSTOMER SERVICE

All of the sites interviewed for this study were focused on enhancing customer (or user) service in very different ways. All of the sites achieved significant improvements in customer service that resulted in increased customer satisfaction, although not all were quantifiable.

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So what is the business value of user satisfaction? How do you measure the relief of a traveler in a busy airport, a factory worker, or someone unemployed for the first time in their life? Valeo would say that user satisfaction is measured in employee participation and retention. Virgin Records would point to its volume of repeat customers and increased sales. Incheon International Airport would claim that the upsurge in kiosk usage and concurrent drop-off in complaints quantifies customer satisfaction.

BUYER'S GUIDE — IS A KIOSK THE RIGHT SOLUTION FOR YOU?

Kiosk solutions fit a wide variety of implementations, some of which are justified through ROI analysis. Whether you are a private or public entity, you should evaluate how well kiosks fit with your needs based on the following criteria:

QUANTIFIABLE BENEFITS

- Will the kiosk increase revenue?
- Will the kiosk reduce cost?
- Will the kiosk enhance productivity?

NON-QUANTIFIABLE BENEFITS

- Will the kiosk enhance the customer experience?
- Will the kiosk improve your image?
- Will the kiosk draw more users?

QUANTIFIABLE COSTS

- Purchase and installation — The standard IBM kiosks discussed in this study cost approximately \$6,700 each, including software and installation costs; the custom airport kiosks used at Incheon were considerably higher
- Update and maintenance — Annual costs for updates and maintenance add 10–15% (of initial hardware and software costs) annually
- Marketing and advertising costs — Annual costs for generating customer awareness and motivation to try the kiosks

NON-QUANTIFIABLE COSTS

- Development of employee support (buy-in) for kiosks; this may include training and marketing

Assess the potential benefits and costs for your organization, being sure to include all quantifiable as well as non-quantifiable costs and benefits. ROI is calculated by subtracting ongoing costs from benefits and dividing the result by the investment costs. All future costs and benefits are discounted to a present value.

Of course it is helpful if you can leverage existing assets to lower the total costs of your kiosk project. For example, if a persistent network connection is already in place for other reasons, the kiosk can take advantage of it for little incremental cost. Similarly, if Internet content has already been developed, the kiosk solution could possibly leverage some of the components/infrastructure.

CONCLUSION

Kiosks yield tangible and compelling benefits to organizations seeking to improve their customers' experiences while reducing costs and increasing revenue. The usage of kiosks to improve and extend the customer service function is reaching into new areas and changing the way public and private entities deal with their customers.

Businesses using kiosks justify them with a wide range of tangible and intangible benefits, which depend on the self-service application.

Benefits realized by participants:

- Increased revenue from a broader range of products as a result of sampling the product
- Increased availability of sales people allowing a more consultative approach in selling by using the information in the kiosk
- Enhancement of the brand as the organization is seen as innovative and cutting edge in customer service, or high tech
- Lowered cost approach to provide timely information, 24 x 7, compared to staffed, large footprint information desks
- More up-to-date information, free from human error
- Additional revenue from advertising
- Flexible platform for adding services in the future
- Increased ease of use for the factory workforce and better flexibility than lower cost PCs or LED display systems
- Reduced administrative cost of managing a workforce through automation of common processes and elimination of paperwork
- Higher employee morale resulting from faster response to employee suggestions and better access to job-related information

Kiosks yield tangible and compelling benefits to organizations seeking to improve their customers' experience while reducing costs and increasing revenue.

☒ Ability to deliver services and media to customers and guests

☒ Reduction of management costs through centralization of access

This is a sampling of kiosk benefits that relate to the three applications studied in this paper. Other kiosk applications may share many of these benefits and may also have some additional benefits not experienced in this study.

Kiosk ROI is very application dependent, so be sure to explore all of the possible quantitative and qualitative benefits when considering a self-service kiosk solution for your application.

CASE STUDIES

VIRGIN RECORDS: EXPANDING SALES

Virgin Entertainment Corporation is a leading music retailer in the United Kingdom and United States. To add an innovative approach to customer service, with the objective to increase sales, Virgin Stores deployed 133 kiosks (as of December 2002) in its 23 US stores. The kiosks are a new twist on selling music by offering the customer the ability to listen to CDs before purchasing. Traditionally, Virgin, like other music stores, had workstations that allowed a customer to choose five or six CDs and trial them. The problem was that customers were limited to only those CDs loaded into the machines, and in some cases, only one person could listen to one song at a time.

With a typical Virgin store having 300,000 titles, only providing listening access to a limited number of CDs does little to enhance the customer experience or drive increased sales. Virgin therefore sought to extend the opportunity for potential customers to experience its "deep catalog", which are those CDs that are not the latest best sellers. Through the kiosk technology, Virgin is now able to allow customers access to the majority of all 300,000 titles.

DEEP INTO MUSIC

By vastly increasing the number of titles available, the kiosks changed the business proposition of the store itself. Before, the six CDs in listening stations were typically new releases of the best selling artists. Now all music tastes can be showcased appealing to a wider range of Virgin's target audience. As a result, in-store listeners can now indulge in sampling a wide range of music, and as most deep catalog music is purchased once listened to, and not because of mass marketing efforts, increasing access opens additional sales opportunities.

SELLING TUNES

Increasing sales and customer satisfaction were the drivers for deploying the kiosks, and Virgin confirms that it is succeeding. Virgin customers are very happy with the kiosks. There might be about 10–15 users per hour at the listening stations. In a period of decline in the rest of the industry, Virgin is growing its music sales, and part of the growth is in the deep catalog sales driven by the kiosks. In addition to increasing revenue, the kiosks have other financial benefits, according to Steve Winningham, Virgin Stores CIO:

"We all think that it's increasing sales, I know it's helping the sales people. They spend less time now answering questions that can be answered by the kiosks. And the kiosks can provide the customers more information, often, than a single salesperson can from his or

her head. For example, in early September, we added the capability to do searches. The bottom line is that we want to give the customer as much information as possible. And being able to listen is getting information, isn't it?

"Customers can go straight to the kiosk without seeking help from the sales staff. And they seem to like the new kiosks quite a bit. Before, the titles had to be available in the store. The product had to be in hand. But now, if it is coded, you can find it, get the information on it, and listen to it, and it doesn't even have to be in the store.

"All in all, because of the kiosks, salespeople are more efficient. They spend less time searching for things, and they don't have to load 100 CDs into the listening stations, like they did before. And kiosks can also help sales associates learn. If they have 15 minutes free, they can go over and listen to music that they may not necessarily get to hear."

BENEFITS CHECKLIST

Criteria	
Increase revenue	√
Reduce costs	
Enhance productivity	√
Enhance the customer experience	√
Improve image	√
Draw more users	√

KIOSKS ARE COOL

Winningham further explains:

"The concept of kiosk is great. The customer has taken to the application like fish to water. I went to the Salt Lake City opening about a month ago. Five minutes after the doors open...with no prompting ... I mean there are no neon signs pointing you to the kiosks. They just see them and go to them. They were there, they were scanning, they were listening, they got it. And a lot of that has to do with the user interface, which has to be fairly intuitive. And I think we've done a reasonably good job at that."

Virgin employees are convinced that there is tremendous value in the kiosk concept. If you go into the stores at the busy part of the day, you'd see most of the kiosks in use, and people being able to scan everything in the store from each device. That translates into either increased sales at the moment, or increased perception of the customer of Virgin, or both. In Florida, the staff of one store nominated one of their kiosks as "employee of the month."

The response from the stores and the customers indicates that kiosks have been a huge success. But at Virgin, it's not just about the business but also about image. Virgin believes that technology will help them serve their customers better and in the long run create a better, longer-lasting relationship with those customers, says Winningham:

"Because of our demographic, we want to be on the front edge of technology...not bleeding edge, but definitely on the forefront."

VALEO GROUP: BETTER WORKFORCE MANAGEMENT

For this manufacturing company, the kiosk solution enables the company to streamline the transfer of information as well as enhance workforce communication and management. Valeo required an information system that is easily usable by the workforce on the manufacturing floor and facilitated frequent updates.

KIOSK WAS THE TECHNOLOGY OF CHOICE

Valeo evaluated three alternative technologies that would enhance their information flow. They could have implemented a system to display information by reconfiguring an existing server for very little cost, but this would have been a limited system. Another solution considered was a "classic" badging system, but estimates showed it would cost about the same overall and offer little of the integration advantages of a fully automated system. Finally, an LED-panels system was briefly considered, but these systems were rejected as too expensive and proprietary.

IBM's kiosk system was chosen primarily on qualitative grounds, such as design and scalability. Another very important aspect of the solution is the WiFi (wireless) network that was chosen at the same time. This is seen as an important cost-reduction tool, as a fixed kiosk installation is estimated to cost \$1,000, and Valeo has moved the kiosks around the plant four or five times already following a very dynamic layout optimization. The WiFi solution has also led to a change toward a thin-client system as a result of the IT implementation, which is cheaper and easier to maintain, says Yvon Defour, Valeo's IT Director for Friction Materials Activities:

"A combination of good technology, perfect fit with the plant environment, and magnificent design has tipped the balance for IBM."

ADDITIONAL BENEFITS

The old system was paper based so that work schedules were updated once a day and displayed on 12 sites throughout the plant. Suggestions for improvements in production are now also entered into the kiosks, making this process quicker and more effective.

Kiosks provide access to up to the minute information, which saves several hours of time for management, not to mention reducing the paper requirements to zero.

For many reporting procedures, data was updated, distilled, and displayed once a month. This is now automated and the system saves a number of days of work each month. There have been additional benefits not necessarily conceived in the initial evaluation. The system enables previously unreleased information to be disseminated quickly throughout the workforce, an example of this being the commercial news (as when the new Renault Megane was voted "Car of the Year" — Valeo provided this model's equipment). This serves as a morale booster and makes the workforce feel better informed.

"With only two touches (on the touch screen), the operators have access to an up-to-date list of first aid contacts with phone numbers, in case of an incident or accident." says Defour.

The user-friendly nature of the kiosk systems encourages greater interaction between the factory workers and management in addition to reducing the time managers spend in purely clerical activities.

"We receive an average of two or three suggestions per month per employee. The kiosks, which allow employees to directly type on the screen, accelerate the processing of production improvement suggestion. They are sent directly to managers without a paper validation circuit, as was previously the process." says Defour.

BENEFITS CHECKLIST

Criteria	
Increase revenue	
Reduce costs	√
Enhance productivity	√
Enhance the customer experience	√
Improve image	√
Draw more users	√

INCHEON INTERNATIONAL AIRPORT: DEVELOPING THE NEXT GENERATION OF AIR TRAVEL

When it opened its new airport in March 2001, the Incheon International Airport Corporation deployed 58 integrated Internet enabled airport kiosks in its passenger terminal to dispense real-time information and services for travelers. The deployment includes two servers to manage the kiosks and one server for test/backup, IBM Netfinity and the IBM Kiosk Manager remote management software. IBM developed the custom application for the airport, and provided the system turnkey, including the systems integration.

The Incheon International Airport (IIA) Kiosk System is designed to deliver the following services:

- Location of major facilities of main passenger terminal and transportation center in IIA (e.g., public telephones, boarding gates, information desks, shops, restaurants, public conveniences)
- Travel procedures information at immigration, quarantine, customs, and airport operations points
- Location of airlines' check-in counters, lounges, etc.
- Hotel and airline reservations via the Internet

- Flight schedule search service (one week in advance)
- Information on countries, cities, and airports
- Important/emergency telephone numbers and automatic connection service to them
- Real-time information on ground transportation links, including car park facilities, major highways, buses, taxis, and road maps
- Tourist-related information, including popular resorts, restaurants, duty-free shops, department stores, and travel agencies
- Real-time search on countries' currencies and calculations of local exchange rates.
- National weather information
- Major calendar of events, sports games, concerts, movies and other cultural activities
- World time zones, continental maps, maps of countries, and national subway map
- Braille keypad and enforced voice announcement program

The 58 kiosks are placed in the main terminal and in the transportation center. The plan is to deploy an additional seven by 2007. Deployment and integration of the kiosks was very detailed and required nearly a year. Critical to ensuring the value of the kiosks was integrating the kiosk systems with 10 other airport systems, such as the weather system. Custom middleware to interconnect the different systems was developed specifically for this project.

AUTOMATING TRAVELER ASSISTANCE

The kiosks were deployed to provide travelers information about transportation, such as gates and departure times. Korea was seeking to create the most modern airport in the world, and the kiosks were part of that design. In addition to providing convenience to travelers, the kiosks were deployed to reduce the costs of providing travel information. The kiosks are highly interactive and easy to use and unlike some of the personnel that would have staffed customer support centers, the kiosks communicate in multiple languages.

The returns for automating travel assistance have been immediate. Airport representatives estimate that they have reaped significant savings by not having to build and staff customer services centers. In this equation, the 58 kiosks have already saved about \$500,000 and should continue to save about \$300,000 per year over the next five years.

Mr. Park, an Incheon International Airport representative, evaluated the savings in the following way, "If we didn't have the kiosks, we'd need five more information counters. We save about 10 customer service representatives. We also save in facilities costs because the kiosks take up less space."

Going forward, there is a debate as to whether or not the kiosks should be a cost center or serve as a revenue source. Under consideration is enabling the kiosks to provide ticketing and other services, such as selling travel insurance. In the near future the kiosks will provide a platform for generating revenue by serving as interactive info-advertisements for hotels, restaurants, and other travel-related services.

"International travelers are happier with the kiosks. The kiosks have the option for the traveler to get information in different languages. We believe that the kiosks increase on-time departures," says Park.

CHANGING ATTITUDES

Acceptance was slow at first, but now travelers are heavy users. The kiosks are in operation 18 hours per day and handle 80,000 travelers per month.

Informal surveys with customers have revealed that early concerns about not having a human representative have given way to confidence in the kiosks. Travelers feel that the kiosks help them get better information, so they get to the departure gate on time, which helps with increasing on-time departure.

"People like to use the kiosks. And that's especially impressive because we have a culture here where people prefer to talk to people rather than machines," says Park.

BENEFITS CHECKLIST

Criteria	
Increase revenue	√
Reduce costs	√
Enhance productivity	√
Enhance the customer experience	√
Improve image	√
Draw more users	√

METHODOLOGY

IDC employed its consistent approach in evaluating the business value delivered by kiosk technology. IDC quantifies the costs and benefits generated by technology through in-depth interviews with technology users. Thus the ROI model is experience based rather than assumption based. In assessing the impact of new technology, IDC has developed a complex ROI model that accounts for a wide number of factors. There are eight principal rules that need to be observed:

1. An ROI assessment must capture all costs, direct and indirect, associated with the project/technology, including products and services devoted to direct support.
2. ROI must be based on quantifiable results. The baseline metric is money, often measured through calculating time saved. As commonly stated, time is money.

3. ROI must also be based on observable results. Automation has business value only when results, such as faster production or higher quality, can be seen.
4. Each company will experience a unique ROI. Despite identical investments, no two companies will reap identical returns. Therefore each study must also be customized and unique.
5. Each product yields a unique ROI. Technology is too complex and changes too quickly to expect uniform results from even the most standardized or commoditized products.
6. ROI methodology must be consistent. Use a consistent way to quantify changes and a consistent set of assumptions for growth, salary loading, time value of money, and so forth.
7. Always lean toward the conservative when estimating savings. It helps when you are being challenged. The numbers tell the story, but not the whole story.
8. Some benefits may not be quantifiable today in terms of dollars (ease of use, competitive advantage, customer loyalty, etc.). However, these benefits are still worth including in the value story.

CALCULATING THE BUSINESS VALUE OF ENHANCED CUSTOMER SERVICE

IDC assessed the benefits and advantages of kiosks to quantify the business case for investing in kiosk solutions. IDC quantifies business value through a standard approach based primarily on in-depth interviews with customers who have deployed a technology for at least 3–6 months and who can articulate the difference in their businesses before and after deployment. IDC then models the difference over a time increment relevant to the period used by the business. In the case of kiosks, most of the customers interviewed were making long-term decisions, so the analysis looked at the investment and benefits over a 5-year span.

The investment in kiosk solutions includes the initial cost to purchase the hardware and software as well as any peripheral equipment such as printers and networking gear. Costs for deployment include fees paid to systems integrators as well as internal staff time and any training that is required. Finally, the costs to operate, upgrade and maintain the kiosks over the five years are considered part of the total investment. Most of the kiosk solutions deployed in this study required an initial investment of \$3,500–\$5,000 per kiosk and a five-year total investment of \$5,000–\$8,000. The exception was the Korean airport deployment, which invested more to accommodate its highly customized structure and integration requirements.

Business value was based primarily on hard dollar benefits; either reduction in costs or increased revenue directly related to the kiosk. Additionally, where it could be quantified, IDC included the value of enhanced staff productivity. Components measured included:

- Improved staff efficiency — Through automation, kiosk sites were able to reduce staffing, reallocate staff, or avoid increasing staff despite increased demand. IDC quantifies the business benefit of improved staff efficiency by assessing headcount requirements and multiplying the salary times a load factor (1.4) to account for overhead and factoring a 5% annual salary increase.
- Reduced overhead — Kiosks replace outdated technology, information desks, paper and other now obsolete cost centers. IDC treats this as a set cost that grows in proportion to the number of customers being served.

- ☒ Increased revenue — Through enhanced customer-purchasing opportunities, kiosks directly contribute to the top line. IDC takes a conservative approach and reduces users estimates of increased revenue to account for taxes and other variable costs.

We also observed increased customer satisfaction usually indicated by increased use of the kiosks and general comments from users. Another factor observed but not directly quantified was better staff utilization because staff was freed from their more mundane information duties. The staff involved could then devote a higher percentage of their time in engaging in higher value-added activities (e.g., completing difficult or custom information searches and analysis, sales activities).

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