

**Venture Development Corporation  
Automatic Identification and  
Data Collection Practice**



***A White Paper On:***

***KIOSKS FOR SELF-SERVICE AND INTERACTIVE  
APPLICATIONS:  
TECHNICAL AND VERTICAL MARKET ANALYSIS***

*Volume I: North America*

*Volume II: Europe*

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*Automatic Identification and Data Collection Practice  
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This white paper presents top-level findings from VDC's study, ***Kiosks for Self-Service and Interactive Applications: Technical and Vertical Market Analysis***. The report defines and analyzes the market for self-service and interactive kiosk solutions and components in North America and Europe. The research covers major industry forces and trends, including product and technology development, competitive analysis, distribution analysis, and end-user consumption analysis. Clear and objective shipment forecasts are provided, as well as actionable recommendations applicable to today's participants and tomorrow's leaders.

### **Self-Service and Interactive Kiosk Solutions Defined**

VDC defines a self-service and interactive kiosk solution as a freestanding, interactive multimedia system used to provide information or enable transactions. A kiosk includes a computer and display screen, and differs from a standard PC in that it is created for a specific purpose and is designed for public usage. Kiosk solutions are often located in high-traffic areas and must allow for customer data input via an input device such as a touch screen or keypad.

VDC segments the self-service and interactive kiosk market into the following product categories:

#### *Complete Solutions*

- Self-Service and Interactive Kiosks
- Self-Checkout Stations

#### *Input Components*

- Displays
- Keyboards/Keypads
- Bar Code Scanners/Engines
- Card Readers
- Electronic Signature Capture
- Coin/Bill Acceptors/Dispensers

#### *Output Components*

- Printers
- Coin/Bill Acceptors/Dispensers

#### *Emerging Technologies*

- RFID Technology
- Biometrics Technology

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*Software*

VDC's research also included the following vertical market and distribution channel segments:

*Vertical Markets*

- Retail
- Hospitality & Commercial Services
- Health Care
- Government

*Distribution Channels*

- Direct-to-enterprise end user
- Indirect to enterprise end user

**Technology Overview**

VDC defines a self-service and interactive kiosk solution as a freestanding, interactive multimedia system used to provide information or enable transactions. A kiosk includes a computer and display screen, and differs from a standard PC in that it is created for a specific purpose and is designed for public usage. Kiosk solutions are often located in high-traffic areas and must allow for customer data input via an input device such as a touch screen or keyboard.

Key features of a kiosk include:

- an enclosure with components such as a display screen, PC, communication device, card/cash payment option, bar code scanner/engine, keyboard/keypad and printer;
- an interactive experience for the kiosk user (e.g., a digital signage is not defined as a kiosk because it does not allow customer interaction);
- a combination of more than one component technology (e.g., a price checker with only a bar code scanner is not defined as a kiosk); and
- the capacity for full self-service without the assistance of an organization's employee (e.g., a payment transactional terminal is part of a larger POS system that is operated by a retail employee and is therefore not defined as a kiosk)

VDC segments self-service and interactive kiosk solutions into two categories: informational and transactional. These classifications are not mutually exclusive and are open to some interpretation. Certain applications are technically both informational and transactional. The defining feature of a transactional kiosk is the acceptance of cash- or card-based payments. VDC defines these two types of kiosk solutions as follows:

- **Transactional Kiosks:** kiosks employed to enable the transaction of business at the point-of-sale or point-of-transaction. Any kiosk that accepts some form of payment is included in this segment. These kiosks are typically employed to generate revenue for the enterprise end user most often by improving traffic flow and customer service.
- **Informational Kiosks:** kiosks employed to provide information to end user customers. These kiosks are typically not used for revenue generation and do not accept payments. If a kiosk solution does not accept some form of payment, it is included in this segment. These kiosks provide a value-add service for the enterprise that improves customer service, brand awareness, and operational efficiency.

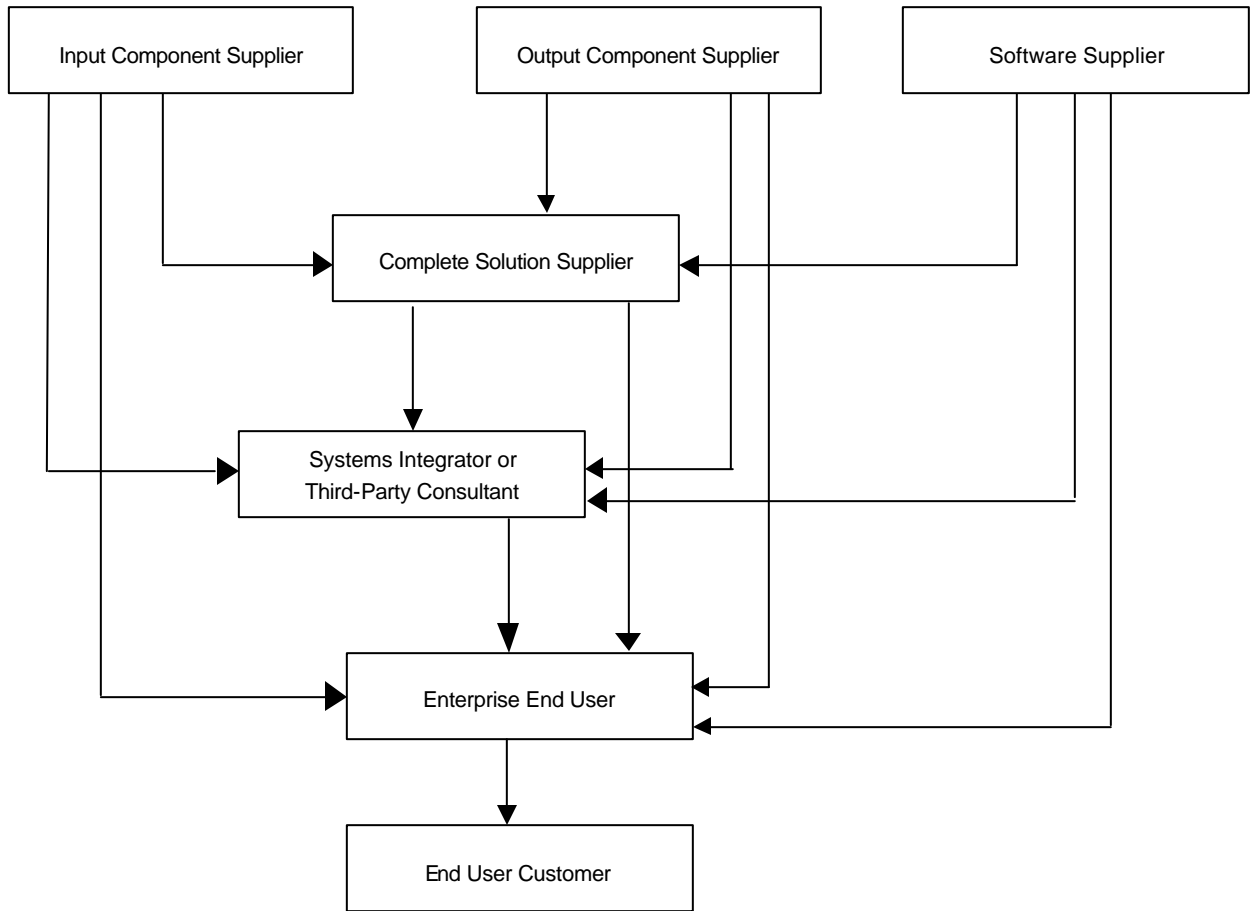
## INDUSTRY STRUCTURE

Enterprise end users exclusively rely on hardware and select software suppliers to provide kiosk and other self-service solutions. Direct channels are necessitated by the customization required for each installation and the lack of qualified channel organizations.

In addition, end users feel solution manufacturers best provide installation, support, and maintenance services. A limited number of systems integrators and third-party consultants are increasingly offering kiosk solutions as the technology becomes more prevalent and demand increases. These channel partners typically rely on the close strategic partnering agreements with suppliers to ensure user requirements are met and proper system support is offered.

Industry attention will continue to be heavily focused on direct-to-enterprise end user shipments; however, channel organizations and software suppliers will increasingly ship to end user accounts as the technology gains wider acceptance and the product become more standardized. The distribution channels are presented graphically in Exhibit 1.

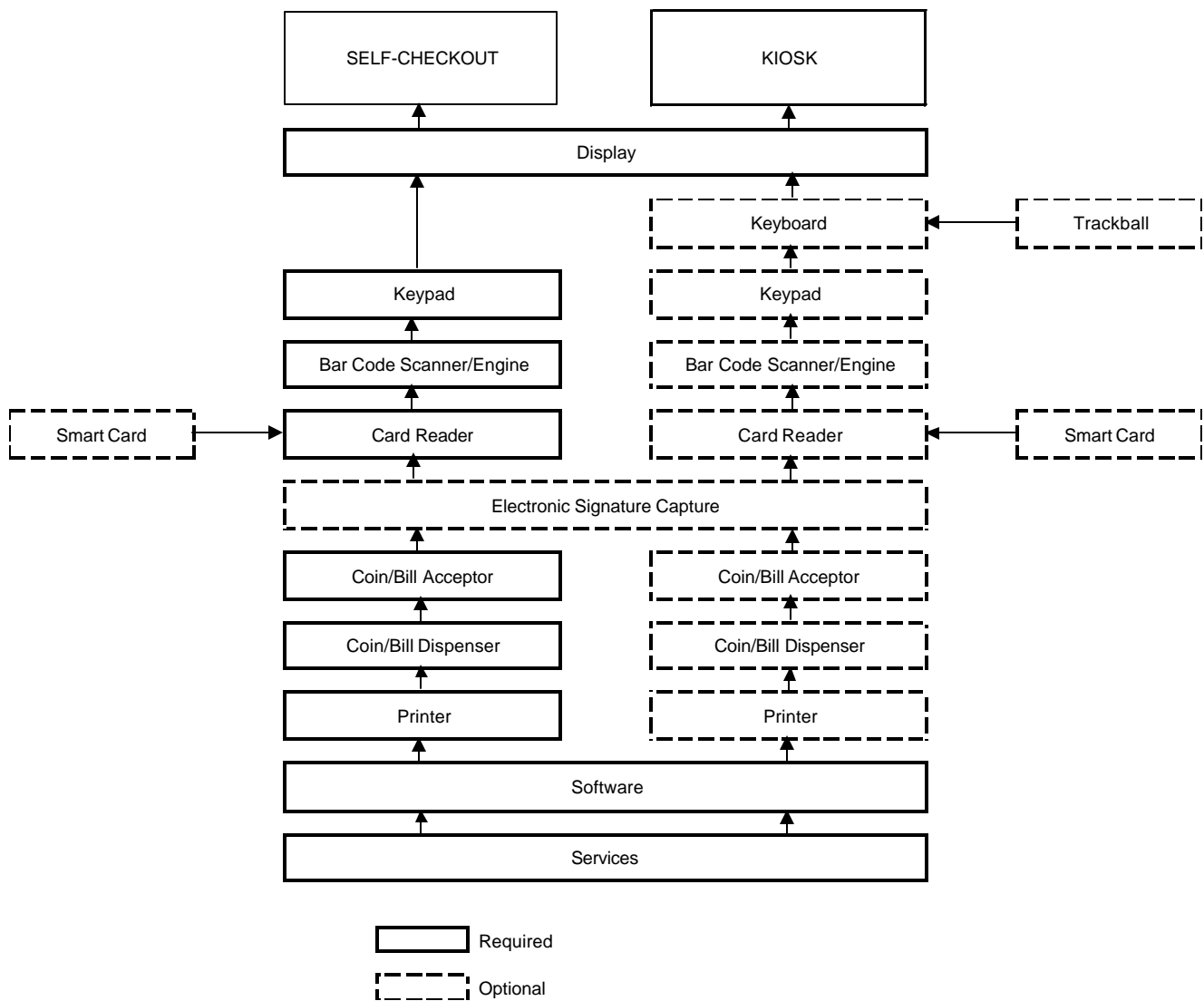
Exhibit 1  
Diagram of the Distribution Channel for the Kiosk Industry



The value chain for the kiosk industry is defined by multiple OEM and supplier organizations that interact via strategic and short-term partnering agreements. No solution supplier manufactures the enclosure, component hardware, and system software that comprise a complete kiosk solution. Intricate partnering strategies are employed between the various suppliers for each kiosk rollout to secure hardware and software components that meet user requirements and budgetary constraints.

Component suppliers almost exclusively ship hardware to complete solution suppliers. Solution suppliers, on the other hand, almost exclusively ship directly to enterprise end users. This two-tiered value chain is presented in Exhibit 2.

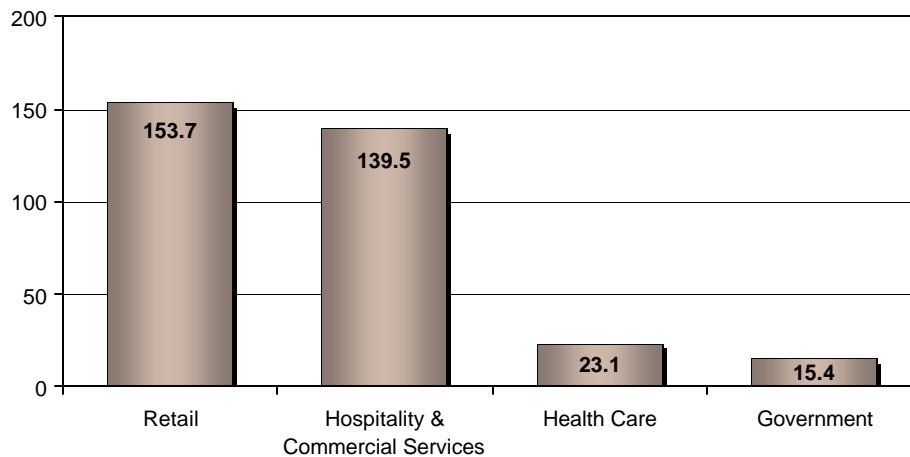
Exhibit 2  
Diagram of the Technical Value Chain for the Kiosk Industry



## MARKET ANALYSIS

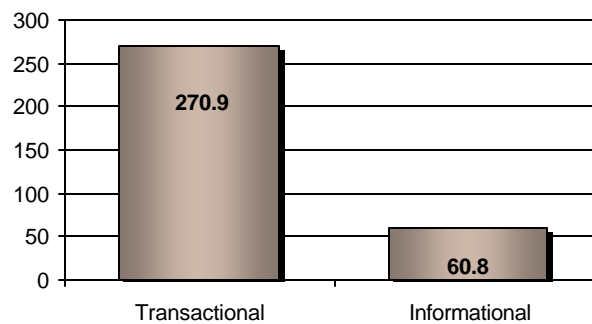
### Vertical Market Segmentation

Exhibit 3  
2005 North American Shipments of Self-Service and Interactive  
Kiosk Solutions Segmented by Vertical Market  
(Millions of Dollars)



### Application Segmentation

Exhibit 4  
2005 North American Shipments of Self-Service and Interactive  
Kiosk Solutions Segmented by Type of Solution  
(Millions of Dollars)



The self-service and interactive kiosk industry is expanding and spurring opportunity for a variety of vendors and OEMs. At any given time, the kiosk industry is largely being driven by one or two highly successful kiosk applications. Previous examples include gift & wedding registry and airline check-in terminals. Most suppliers presently offering kiosk-related solutions focus on a particular product offering that can be tailored to fit the needs of multiple application segments. The combination of application-specific market drivers and application-ambiguous suppliers results in strong vendor interest in locating emerging applications with strong market potential.

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## **MARKET OPPORTUNITIES**

### **Kiosk Road Map and Product Screening**

The self-service and interactive kiosk industry is comprised of hundreds of application segments, each with a unique value proposition and market potential. Revenue shipments within the kiosk industry are concentrated in several large, successful application segments, such as airline check-in, passenger ticketing, gift & wedding registry, and photo development. In Europe, health care applications that support socialized health care systems are common. In the US, private applications that reduce overhead and improve transaction speed are very prevalent.

The success of a particular application can drive the growth of the entire industry. As a result, suppliers gauge which nascent applications have significant future market potential. Currently, quick service restaurant, loyalty programs, and music downloading are promising applications. The study provides a full classification and ranking of the potential for growth of emerging kiosk applications.

The exhibit below presents a list of kiosk applications, their definitions, and relevant vertical markets. The type of kiosk solution (i.e., transactional or informational) is also indicated. In this figure, one can observe that several applications exist in more than one vertical segment. Please note this list does not encompass every kiosk application, but rather presents a broad sample of existing kiosk solutions within each vertical market.

Exhibit 5 Primary Kiosk Application Definitions Segmented by Vertical Market					
Application	Definition	Retail	Hospitality & Commercial Services	Health Care	Government
Bill Payment	terminal that accepts cash and sometimes credit/debit cards for the payment of store purchases and tax & utility statements ; often targeted at the cash-preferred market	X	X		X
College Course Registration	terminal enabling college students to register for classes; often complements online and phone-based systems		X		
Directions/Wayfinding	solution that provides users information such as area/building maps, directions to areas of interest, and building directories	X	X	X	
Financial Services Terminal	self-service solution enabling many financial services, such as online banking, check cashing, money order dispensing, PIN programming, etc.		X		
Flower Dispensing	vending terminal for fresh-cut flowers	X			
Health Information and Health Risk Screening	niche solution that provides health advice and recommendations, including healthy lifestyle choices and basic symptom recognition advice			X	
Hotspot Accessibility	public terminal that enables wireless internet access for individual laptop computers; often found in high-traffic business environments such as airports and coffee shops		X		
Jukebox Kiosk	solution that enables advanced music playing features such as creation of playlists, burning/downloading capability, etc.; typically located in bar, restaurant, and music store environments		X		
Local Attraction Information	solution that provides information on local tourist attraction sites, including history, location, and hours of operation; often located in outdoor environments		X		X
Mobile Printing Terminal	online terminal that enables users to upload files from the Internet, disk, laptop computer, or mobile device for high-resolution printing in public environments such as hotels, airports, and copy shops		X		
Movie/Event Ticketing	solution that enables either the purchase or pick-up of tickets for any movie, concert, sporting, or entertainment event		X		
Museum Information Terminals	solution that provides users with museum information and services, including directions throughout the building, preview of special displays, and location of exhibits		X		
Music Downloads (mp3 or CD)	enables end user customers to search and download music files to an mp3 player or the burn it on a CD; a transactional kiosk that typically charges per individual song	X			
Parking Citation Payment	one type of the citizen access solutions; employed by local governments to enable parking or traffic citation payments				X
Patient Self-Service	terminal that replaces the paper check-in and registration process for hospitals and clinics, some accept payments (co-insurance and co-pay), whereas other are strictly informational			X	X

Continued...

Exhibit 5 (continued) Primary Kiosk Application Definitions Segmented by Vertical Market					
Application	Definition	Retail	Hospitality & Commercial Services	Health Care	Government
Photo Development	emerging and quickly growing application that enables digital processing and developing of film; additional features include cropping and touch-up of individual photos	X			
Prescription Refill Dispensing	solution that enables users to refill prescriptions with proper biometric or chip & PIN identity authentication; often used for after-hour operations at 24-hour drug stores			X	
Public Assistance	terminals that provide information to the general public about services such as job openings, governmental assistance programs, and tax rate/rebate programs				X
Public Internet Access	transactional kiosk that enables general public Internet access for a fee; often combined with a public telephone		X		
Self-Service Ordering	a queue-busting application that enables the food, beverage, or service ordering while the end user customer waits; the product can be paid for at the kiosk (order & pay) or at the point-of-sale where the order is picked up (pre-order only)	X	X		
Virtual Reception Terminal	solution located in an office environment that provides information to customers upon arrival, such as staff directory, services provided, and operating hours		X	X	
Voluntary Identity Credentialing	terminals that enable prescreened applicants express passage through security screening points at airports, sporting events, etc.		X		X

An application screening model is also provided in the report, and examines a broad range of kiosk applications within each vertical market. Several applications exist in more than one vertical segment.

The results of the application screening model are based on a total of 40 points; the highest score was 34 and the lowest was 16. The mean score is 24.6. The results reveal the following:

- Present and near-term large potential opportunities;
- Tomorrow's mid-potential kiosk opportunities; and
- Laggard low-potential kiosk applications.

Each device is scored according to the following criteria:

- application fit;
- return on investment;
- average kiosks per site;
- application market growth;

- business benefits;
- kiosk hostile environments;
- rate of adoption; and
- density of competitive landscape.

### **Present and Near-Term Large Potential Opportunities**

The application segments that represent the largest current market growth potential are those that scored significantly higher than the mean. They include:

- self-service ordering;
- photo development;
- music downloads;
- voluntary identity credentialing;
- patient self-service; and
- prescription refill dispensing.

These applications, which span a variety of vertical market segments, tend to rank high among all scoring criteria. With respect to several key scoring criteria, these applications tend to rank as follows:

- fast return on investment (ROI) (i.e., less than 12 months);
- high market growth rates (i.e., higher than 20% CAGR); and
- high adoption rates (i.e., less than 2 years).

Self-service ordering achieved the highest score based on the screening model's criteria. This application is expected to achieve the strongest near-term growth potential. Although self-service ordering currently exists within gas/convenience stores such as Sheetz, large growth is expected in the quick service restaurant (QSR) environment, which is part of the hospitality & commercial services vertical market. This segment is projected to grow as these applications enable the restaurants to reduce overhead and labor expenses while providing improved customer service with decreased wait times.

### **COMPETITIVE ANALYSIS**

The market for complete kiosk solutions is comprised of a large number of suppliers competing for market share. Most suppliers capture only a small portion of the overall market, with no supplier accounting for more than 15% of either the North American or European market. In North America, the top three suppliers account for approximately 30% of the total market. The remaining market is widely distributed among small suppliers and in-house kiosk development initiatives.

Over the past decade, suppliers have placed increased focus on the flexibility of their manufacturing efforts. Although start-ups often emerge to develop solutions for a particular application or vertical segment, most kiosk suppliers of all sizes assert the capability to design and develop solutions for practically any application. This solution-development flexibility has defined the kiosk industry and facilitated a competitive landscape that has prevented significant market consolidation by any one supplier.

<b>Exhibit 6</b> <b>Shipments of Self-Service and Interactive Kiosk</b> <b>Solutions Segmented by Vendor Share</b> <b>(Ranked in Descending Order)</b>		
<u>Rank</u>	<u>Supplier (North America)</u>	<u>Supplier (Europe)</u>
1	Kiosk Information Systems	ULTIMedia
2	IBM	NeoProducts
3	NCR	Wincor Nixdorf
4	Meridian Kiosks	friendlyway
5	Slabb	IBM
6	Symbol	NCR
7	Compar	IER
8	The Kiosk Factory	Rittal Terminals
9	NeoProducts	Earlsgate RGT
10	5Point	Internet Kioskos

## ENTERPRISE END-USER ANALYSIS

VDC conducted numerous telephone interviews and online surveys of current and emerging enterprise end-user communities in the self-service and interactive kiosk market. These surveys targeted current and potential enterprise end users of kiosk and self-checkout stations. They include responses from end users currently using, evaluating, and planning to install kiosk solutions.

More than half of the respondents currently use kiosk solutions, with an additional 11% currently testing/evaluating or planning to install before the end of 2006.

### End-User Respondent Demographics

The respondent pool for 2005 includes replies ranging from airlines to quick service restaurants to public libraries, representing organizations of various sizes. Key demographic information of the surveyed kiosk end users include the following:

- in 2005, the average planned expenditures on kiosk deployments by respondents was \$575,000;
- the average annual revenue of the companies represented by respondents was \$3.3 billion, employing 16,525 individuals;
- approximately 75% of kiosk purchase decisions are made within the headquarters of an organization, followed by approximately 19% of respondents citing kiosk purchase decisions are made at local sites; and
- Survey respondents' involvement in the kiosk solutions of their organizations was wide ranging, primarily including evaluation (51%), acquisition/purchasing (46%), and specification (41%) of kiosk solutions, demonstrating that the decision makers within organizations are being targeted.

## ABOUT THE STUDY

Venture Development Corporation's 2005 ***Kiosks for Self-Service and Interactive Applications: Technical and Vertical Market Analysis*** is an in-depth market intelligence report examining the self-service kiosk solution and components industries. This market research effort includes two volumes analyzing two different regional markets, North America and Europe. Within each volume VDC provides separate chapters examining both quantitative and qualitative market issues.

## ANALYSIS COVERAGE

### Product Categories

- **General Purpose Kiosk:** a freestanding, interactive multimedia system used for informational or transactional purposes that are often located in high-traffic areas and typically comprised of an enclosure with components such as display screen, PC, communication device, card/cash payment option, and printer; VDC does not include ATMs, petroleum station payment stations, or self-checkout stations in this category since these are more specialized versions of the "general" purpose kiosk
- **Self-Checkout Station:** a retail-based device for self-service check out that typically includes an ATM (automated teller machine), bar code scanner, weighing scale, and check-stand
- **Select Kiosk Components:** typically divided into input and output components; this study will specifically focus on the following components: displays, bar code scanners/engines, credit/debit card readers, coin/bill acceptors/dispensers, and printers

### Geographic Regions

- North America (United States and Canada)
- Europe (Western Europe, Central Europe, and Eastern Europe)

### Vertical Markets

- Retail
- Hospitality & Commercial Services
- Health Care
- Government

## ABOUT VDC

Venture Development Corporation (VDC) is an independent technology market research and strategy consulting firm that specializes in a number of retail automation, AIDC, RFID, mobile & wireless, embedded, industrial, defense and niche enterprise IT markets. VDC has been operating since 1971, when the firm was founded by graduates of the Harvard Business School and Massachusetts Institute of Technology. Today, we employ a talented collection of analysts and consultants who offer a rare combination of expertise in the market research process; experience in technology product and program management, and formal training in engineering and marketing. VDC's clients include thousands of the largest and fastest growing tech suppliers in the world and the most successful investors participating in the markets we cover.

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