New Technology Briefing

Kiosks — Hype or hope?

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Abstract

New marketing technologies allow marketers unprecedented access to the buying habits and behaviours of their customers. But hundreds of targeted television channels, websites, retail stores and magazines make it increasingly difficult for marketers actually to get their customers' undivided attention. As channels and points of influence increase, marketers must work harder to have consistent messages and experiences while striving to collect as much accurate data through as many points of contact as possible. Although kiosks hope to decrease operational costs through self-service, they also offer yet another contact point for marketers and their customers. Even as costs for display technologies and networks are falling, there are still lingering questions about user adoption and return on investment. This paper looks at what kiosks are, how they work and their uses, problems from the past and what we can hope to see from them in future.

What are kiosks?

In information technology, a kiosk is a physical structure, usually with a computer and a display. Through devices such as touch screens, keyboards and smartcard readers, kiosks usually also provide some method for interaction. Kiosks can be networked to access information on the internet or simply work unconnected using information stored on the kiosk's computer. The first and best-known kiosk was the ATM, but the word 'kiosk' can now describe a wide spectrum of devices from a stand-alone touch screen to a large multifunctional machine.

How do they work?

Using a touch screen, keyboard or mouse a user interacts with a kiosk by entering data, completing some task or accessing information. A typical kiosk comprises an enclosure, computer hardware, software and content. This usually is connected to a network infrastructure.

Enclosures

The enclosure houses the hardware, and can be manufactured *en masse* or specifically designed with varying colours, styles, lighting and sound to attract attention, promote a brand image or provide a specific function. Depending on the use, enclosures are often designed to suit the location of the kiosk. The traditional 'computer in a box' look of kiosks has given way to enclosures specifically designed to promote a consistent image or

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Inside the box

to be colourful and streamlined. Enclosures can also incorporate point-of-purchase materials or even actual products.

Computer hardware

Computer hardware is the hard disks, RAM and processors that make up a computer much like the one that sits on a desk in every office. Hardware can range dramatically depending on how taxing the demands of the kiosk are. Included in computer hardware are the peripheral components that allow users to interact with the kiosk. These include touch screens, keyboards, mice and trackballs, card and bar-code readers, coin accepters, printers and even biometric devices such as fingerprint scanners.

Software

Software can be divided into two categories: operating systems and applications. Operating systems are generally the same as those that run on conventional PCs, including Windows 98, NT, 2000, XP, Mac OS, Solaris and Linux, or can be specifically designed for the purpose of the kiosk. As on desktop PCs and servers, operating systems for kiosks have similar advantages and disadvantages such as cost, reliability, hardware availability and software support. Applications are used for specialised functions including content management, remote management, restricted internet browsing and security, and have functions on both the kiosk and the servers that provide data to kiosks over the network. Content management is the distribution, placement and maintenance of the content published to a kiosk. Remote management is proactive monitoring and maintenance of hardware and network performance to ensure the kiosk is functioning properly. A common purpose of software on a kiosk is to control how a user accesses the internet by limiting what they can see. Applications can also be written to provide additional specialised functions and methods of interaction. Finally, software also collects precious marketing data that can be analysed and used for a number of marketing purposes. In addition to tracking potential purchases, it assists in understanding which content is the most effective and what promotions users are responding to.

Content**Content matters**

The content refers to what is presented on the screen of the kiosk. If the kiosk is strictly for web access, the content is usually delivered from the same web server(s) that supports the website. Unfortunately, kiosks with just a touch screen that lack a keyboard or mouse (which users can damage more easily) are not as suited for typical web browser functionality, such as drop-down menus. Many kiosk buyers opt to create bespoke interfaces and content that is more kiosk-friendly. Images, audio, movies and text can be created specifically in order to create a richer multimedia experience. Kiosk content can range from unsophisticated web pages with potential usability issues to totally customised user interfaces using more advanced technologies, including XML, Macromedia's Director and Flash.

Technical environment

Network architecture

Networked kiosks make many tasks easier, such as the distribution of content. For example, a retailer which is using kiosks to display product information could update content to many units simultaneously or distribute different information to stores depending on the segments those stores target. Network bandwidth and reliability can have a profound effect on how a kiosk operates. If content is made up of high-resolution images, audio or video it may require significant bandwidth depending on what type of hardware is being used and where the content is stored (on the computer or on the network). The reliability of the network can also contribute to consistent functionality. Kiosks on networks that require continuous connectivity, particularly for financial transactions, require significant back-end services.

As the cost of display technologies falls and the number of in-store wireless networks increase, marketers are increasingly opting for multiple kiosks or displays on a store wireless network. This greatly relieves pressure on store design and location issues, as kiosks no longer need to be located near a network connection but simply within range of the wireless access point.

What are kiosks used for?

While kiosks can be used in every industry for many purposes, from personnel training to making a telephone call, all kiosk projects balance three primary purposes: transaction, information and promotion.

Self-service transactions

Transaction

Outside the ATM, the most prolific kiosk use to date has been the Kodak Picture Maker, with more than 35,000 kiosks. Invented by Kodak, it essentially created the photo kiosk category. Kodak's Picture Maker machines began nine years ago as print enlargement kiosks, but with growing success Kodak added enhanced features. The kiosks can now allow the user to alter, frame and enhance their own pictures and accept digital media such as CDs and Compact Flash cards. With the success of Kodak's Picture Maker, many rivals have gone on to implement photo kiosks with success, such as the FujiFilm Aladdin Picture Center and the Sony Picture Station.

According to Kodak, market research shows that among US consumers, about 50 per cent of Kodak's target market know about the Picture Maker. Consumer satisfaction is high — a recent study of more than 400 users showed 95 per cent would use the Picture Maker again. For the retailer, 'experience shows the kiosk can be a tremendous profit generator when it is properly positioned to consumers'.¹

Another successful transactional category is self-checkout kiosks, or kiosks that allow customers to scan, bag and pay for their own purchases without the intervention of store personnel. Initially designed for grocery purchases, most self-checkout kiosks can now accommodate virtually any product category. Optimal Robotics Corporation is a world leader in the category with their U-Scan system. The latest U-Scan model focuses on remote locations, such as music departments and convenience stores, and

is offered as an alternative to an ATM. Another successful use for kiosks has been airline ticketing check-in. Continental, Northwest Airlines, Air Canada, British Airways and Gulf Air are just some the airlines that have pioneered and developed kiosk self-service.

Kiosks are employing countless unique technologies to create transactional free-standing units. The Coinstar network of kiosks that allow users to dump bags of coins into the top to deliver a voucher redeemable for cash or groceries has processed more than \$4bn worth of coins. Video rental giant Blockbuster has been experimenting with kiosk DVD vending machines. Fast-food companies including McDonald's and Burger King have also been piloting self-ordering kiosks around the world with much success.

Other transactional kiosks provide a wider breadth of products or services and capitalise on offerings exclusive to other buying channels. For years retailers which have extensive inventory selection, including seasonal, regional, online and catalogue merchandise, but limited retail space have been placing kiosks instore. Giving customers access to additional items helps to close sales when customers cannot find what they are looking for in that location. Kiosks also provide a means for retailers with very large items, like furniture or automobiles, to have consumers configure and buy products right from the sales floor. Kiosks offer a streamlined way of ordering these products while allowing access to a wealth of accurate and extensive information.

Information

Processing information with little need of human assistance is one of the leading motivators for kiosk deployment. Beyond simple internet access for information, kiosks can eliminate paper and personnel in data-entry tasks such as entering job application information. The Jobpoint kiosk network, developed by Australia-based Neoproducts and launched in both Australia and the UK, is the most successful employment kiosk in the world to date, with more than 9,000 kiosks provided for the Australian Department of Employment and the UK Employment Service.

Many informational kiosks are also eliminating personnel costs through self-service. Wal-Mart has more than 3,000 web kiosks titled 'automated customer service machines' (ACSMs). The gift registry ACSMs are located near the jewellery department and enable shoppers to create bridal, baby and/or birthday registries by scanning the items they wish to include. Those wishing to purchase gifts simply access the information from the same kiosk network. Retailers including Target, Debenhams, JC Penney, Canada's Hudson Bay Company and Macy's have adopted similar systems. Home Depot has piloted both self-checkout kiosks and Colour Solutions Centers which give customers virtually painted rooms and colour palette creation.

Kiosks also provide new ways to deliver product, service and training information. This information can act on its own or enhance the knowledge and expertise of the sales personnel by allowing the personnel to show up-to-date information and product images directly to shoppers. Daimler Chrysler employed an interactive kiosk located in their

Communication and information

dealerships to be used as a sales tool and for staff training. The kiosk provided extensive product information and allowed a potential customer to visualise options not present in that dealership. Another successful kiosk developer, Healthnotes, provides information about general health, vitamins, supplements and food. Installed in healthfood, grocery and vitamin stores it provides extensive information from drug interactions to recipes. Kiosks can also be ideal for product location information, such as Border's Title Sleuth, providing information about books in store and access to its extensive fulfilment database.

Kiosk and related technologies are also adding new ways to access information from more traditional technologies such as payphones. Marconi Neptune, through a major project with BT in the UK and AT in the USA, has implemented kiosks which allow users to make calls, access the internet and send SMS and e-mail.

Promotion

Perhaps the most exciting aspect of kiosks for marketers is the enhanced ability to gather information and deliver personalised promotional messages to a relatively captive audience. As marketers improve their ability to share customer information across departments and technology allows more dynamic and consistent personalisation, kiosks can deliver Amazon-like personalisation in store.

Fitted with card swipe machines, bar-code readers and keypads, marketers from restaurants to retailers have already realised that kiosks can give loyalty programmes added value. Begun in September 2000, the RoadKing Club is a rewards programme for 375,000 truckers at TravelCenters of America plazas. The kiosks check in drivers by reading a bar code or magnetic stripe on their cards. In return for buying food and fuel, they get points valid for buying food, showers and other perks. Continental Airline's upgrade from e-ticket machines to e-service centres allowed customers to verify One-Pass frequent-flyer miles. Participants of Nectar, a remarkably successful UK loyalty programme including Barclaycard, Sainsbury's, Debenhams, BP, Threshers, Vodafone, Adams and Ford, have been using kiosks for members to access information about their Nectar accounts.

Kiosks also offer a digital medium for advertising. When swiping a loyalty card, marketers can gather data on the buying habits of their customers and deliver personalised or generic advertising to users, offering complementary products and services based on stated interests of users.

Finally, kiosks have been employed in a number of flagship locations for numerous retailers to promote a location by creating an entertaining customer experience. In order to attract children to their locations, fast-food giant Burger King installed interactive touch-screen kiosks specifically targeted at children in almost 1,000 locations. With the built-in camera, children can frame, alter and disguise their faces in addition to playing various games. Targeted at adults, Vodafone has installed kiosks across its retail estate in several countries to promote handsets and packages by providing interactive games, product demos and audio.

Advertising, loyalty and promotion

Hype or hope?

Despite the thousands of successful kiosk implementations, many marketers have lingering doubts as to the effectiveness of kiosks reaching customers. During the technology boom, when the costs of screen technologies remained high, the optimistic and financially questionable attitude towards technology resulted in many under-thought, expensive and unsuccessful roll-outs. Faced with the economic meltdown, many projects were cancelled, postponed or scaled back. In response, marketers today face an increasingly high level of accountability in relation to technology projects and the benefit of kiosks can be difficult to quantify due to the fact that many uses simply enhance a store experience and can be a qualitative improvement difficult to translate to the bottom line. In addition to being expensive, user adoption of earlier kiosk projects was in many cases lukewarm. Although many factors could contribute to a poorly adopted kiosk, including poor design, poor location and poor staff support, users' fear and pessimism towards technology has been cited numerous times as a possible cause.

Technology and behavioural trends

There are, however, many trends, both technological and behavioural, that suggest a positive future for kiosk technologies. As a generation that has never known life without the internet comes into its own, the overall attitudes towards technology, and more importantly computer interaction, have begun to a shift. With more than 500 million people with internet access worldwide and almost two-thirds of the USA online, more and more consumers are making computers a part of their buying process. This impressive growth has a positive effect on the kiosk industry, as virtually every kiosk solution is heavily intertwined with internet-related activities and all industry sectors, from government to entertainment, are actively involved in capitalising on the benefits the internet brings to their marketing activity.

While attitudes toward technology create a better environment for kiosk adoption, technology developments are simultaneously improving to create better and more seamlessly interactive experiences for users and kiosks. Larger screens, more intuitive interfaces and more appealing design are just some of the enhancements that are making kiosks a more appealing technology for interaction. Other technologies will provide a more personalised and rewarding experience to the individual. As marketers begin to realise the promise of the 'one view' of the customer, kiosks will provide a bridge for the customer from online channels to the physical world, enhancing the consistent message of the brand to the consumer. For example, a user could use a smartcard or loyalty card at a kiosk to access personalised promotions and an account history of online purchases and catalogue orders, and buy complementary products in store. Other technologies hope to make kiosk use even more seamless. Movement-sensing infrared sensors can cue content automatically, while other technologies, such as radio frequency identification (RFID), could even allow marketers to cue content based on the customer ID, past purchases and even the contents of the shopping cart in front of the kiosk. Kiosks can be integrated into other store technologies, such as plasma and LCD flat-screen displays, in order to generate targeted messages. For

example, a user using an interactive store guide is then tracked through the use of motion-sensing cameras to the department that contains the item the user was searching for, and upon entry to the department is confronted with branded messages via a flat-screen display. Many retailers are adopting this type of scenario due to the added benefit of brands being able to deliver (and pay for) targeted messages at a decision-making point, in hopes of differentiating themselves from the other choices on the shelf. As devices get more advanced, kiosks can actually become a point of purchase for content. Already kiosks are used to beam music, ring tones and images to mobile telephones while users, using camera phones, can send SMS and multimedia messaging service (MMS) messages directly to the kiosk in front of them. As technology advances the possibilities for transaction, information and promotion through kiosks will be limited only by the imagination of the marketers who employ them.

Reference

1. O'Neill, J. (2001) 'Industry news', *International Contact*, Vol. 20, No. 2.