

Kiosks 21: a new role for information kiosks?

SLACK, Frances <<http://orcid.org/0000-0001-6638-798X>> and ROWLEY, J.

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/39/>

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

Published version

SLACK, Frances and ROWLEY, J. (2001). Kiosks 21: a new role for information kiosks? *International journal of information management*.

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

Kiosks 21: a new role for information kiosks?

Dr Frances Slack
School of Computing and Management Sciences
Sheffield Hallam University

Professor Jennifer Rowley
School of Management and Social Sciences
Edge Hill College of Higher Education

Abstract

Discusses and analyses the latest generation of information kiosks, Kiosks 21, which features information provision/promotion, interaction, transaction and relationships. In contrast to their task based predecessors, these kiosks focus on customer service delivery to 'customers in context'. Five case studies of such kiosks located respectively in an airport, railway station, car rental base, hotel lobby, and shopping mall are analysed to demonstrate the way in which the kiosks are implemented to meet the differing requirements of customers in different contexts. Case studies are analysed in terms of kiosk design and location, user profile, information architecture, interface design, communication, and commerce. A range of areas for research and development are proposed.

Keywords: kiosks, public access kiosks, e-business; customer service.

Introduction

Information kiosks, or public access kiosks, are located in public thoroughfares, shopping malls, airports, railways stations and other locations as a substitute for, or to complement customer service through a human service agent. In contrast to the other public access information arena, the Web accessed in the home or office, kiosks have received little media, professional or academic attention.

Early kiosks, such as those reviewed by Rowley (1995) were typically uninteresting boxes with relatively simple interfaces, designed specifically to allow customers to conduct a simple transaction, such as placing an order, or locating a specific item of information, such as a recipe or a repayment rate for a mortgage (Rowley and Slack, 2000). The kiosks that are now making an appearance represent a significant change of perspective on the role and nature of kiosks. These 21st century kiosks, described in Figure 1 as Kiosks 21, support multiple functions including most or all of: information provision, interaction between user and consumer to support the customisation of information, transactions (such as ticket purchase), and relationship building through loyalty schemes or other communication opportunities. They fulfil the four functions of kiosks described by Rowley and Slack (2000): information provision/promotion, interaction, transaction, and relationships. Most significantly, Kiosks 21 represents a shift from task focus to customer focus in kiosk design. Instead of being designed to allow a customer to complete a single task, or set of closely related tasks, the kiosks offer a range of information and services tailored to the 'customer in context'. Thus a kiosk in a shopping centre focuses on shopping-related transactions, and information, whilst a kiosk in a hotel lobby

provides travel and tourist information (often with several language options) appropriate to the location of the hotel. This transition to multi-functionality and the creation of a complete support service for the ‘customer in context’ necessitates strategic collaboration in the provision of the information and services that can be accessed through the kiosk. Responsibility for the management of the kiosk in these instances often lies with an infomediary, who specialises in kiosks, rather than individual retailers or store groups.

Another significant transition is in the area of dialog design. Early kiosks had very simple touch screen interfaces in which customers selected options by touching one of a number of buttons, and thereby navigated their way through the limited number of screens available for display. Kiosks 21 offer Windows or Web type functionality that includes scroll bars, pointer, hyperlinks, data entry forms, drop down lists and animation, which make for a more complex interface. This switch to more complex interfaces has been driven by:

- **Task or function** – With the shift from task completion to customer service delivery, kiosks are designed to support a wider range of activities, some of which are relatively complex, and include information retrieval and commercial transactions.
- **Information source** – when web pages are displayed this increases the detail on the screen, and also produces pages that need to be scrolled because they exceed the screen size.
- **Technology** – associated primarily with the connectivity offered by the internet, which provides access to real time information, and communication links, such as are available through e-mail.
- **User** – Kiosks 21 assume a computer literate user who understands a web page format, and is prepared to navigate a larger and more complex infobase.

Finally, the location and physical design of kiosks suggests that their originators have confidence in the service that the kiosks provide. Kiosks have come out of the shadows. Instead of being relegated to a quiet corner, so that the user can focus on their task, kiosks are now proudly located in entrances to stores, malls, and other public thoroughfares. The enhanced physical design of the kiosk makes it more difficult for users to overlook them. Kiosk housings are stylishly designed and, where appropriate, consistent with corporate images. The use of moving images either on the screen itself, in the form of video feeds or animation, or on television screens above the kiosks attracts attention. Now users notice them, approach them and use them on their way through a thoroughfare.

The features of these new kiosks are summarised in Figure 1.

Figure 1: Comparing Early Kiosks to Kiosks 21

	Early Kiosks	Kiosks 21
Physical characteristics	Uninteresting boxes, static displays.	Eye-catching housings, consistent with corporate image. Moving images.
Dialog design	Manu based access to a limited number of screens. Touch screen.	Web/Windows-like interfaces, with data entry dialog boxes, dropdown

		lists, scroll bars, pointer and hyperlinks. Touch screen supplemented by keyboard.
Location	In-store, in a corner.	In public thoroughfares, entrances and centrally positioned.
Philosophy	Task based.	Customer service based.
Originator	Service provider or retailer.	Infomediary or assembler.
Transaction	Single transaction.	Multiple transactions, communication and information provision.
Connectivity	Stand alone or connected to one proprietary database.	Internet enabled for real-time information provision and communication.

Customer service kiosks designed to support the activities of the ‘customer in context’ will be different in each context. There is an important distinction to be made between environment and context. Environment is the physical environment in which the kiosk is located, and has characteristics such as noise level, propensity to interruption, traffic, and lighting; these issues are discussed, to an extent, in the ergonomics literature (Smith, 1997). Context embraces environment, but also includes other dimensions of the customer experience. These include the activities and purpose of the customer when they encounter the kiosk, and even social and emotional factors. Context is concerned with the way in which the kiosk experience is integrated into, or interfaces with the wider travel, leisure or shopping experience. Accordingly, this article describes and analyses kiosks in different contexts, with a view to demonstrating the way in which the characteristics in Figure 1 are evident in different kiosks.

Case Studies

Detailed observation of a number of state of the art information kiosks, located in Los Angeles, London and Manchester is used as a basis for further grounded theory development of the role of information kiosks in customer service and building customer relationships (Strauss and Corbin, 1998; Silverman, 2000). The kiosks described are all located in contexts in which the customer is ‘on the move’. The case studies form a foundation for proposals for further research and application development in this area.

Since very little has been published on information kiosks in any forum it has been necessary to develop a common framework to analyse the case studies reported here. The analysis uses a comparative method of examining the kiosks observed and identifying a number of features common to Kiosks 21. This framework embraces both usability issues as explored in the literature of human computer interaction

(Preece et al., 1994; Shneiderman, 1998), and customer relationship issues (refs???) that are central to recent marketing literature.

The framework for analysis covers the following aspects of the kiosk:

Kiosk design and location – the physical design of the kiosk, including colour, consistency with corporate image shape, coupled with location of the kiosk within the public area

User-profile – the characteristics of the target group of users or customers. Public access kiosks, by their nature, often have a relatively undifferentiated audience, however the location and functions of the kiosk may influence the composition of this audience.

Information architecture – the way in which the information is structured and packaged, including the targeted selection of information, the categorisation of information (often through the use of menu categories), and the variety of routes through which information can be accessed.

Interface design – the use of dialog design components, such as menus, multi-media features (such as sound), on-screen forms, keyboards, touch screens, hyperlinks, scroll bars and pointer.

Communication – any opportunities (beyond simple information provision) for communication, including one-way kiosk to customer marketing communication, such as advertisements, and two-way communication as in e-mail, or telephone exchanges.

Commerce – the opportunity for a commercial transaction that normally involves the customer in a purchase or banking transaction.

Case studies include:

1. How do you get there? – a kiosks by Alamo car rental in the pick-up area for rental cars (Los Angeles)
2. I+ tourist information kiosk, located in the Novotel lobby (London)
3. A CENTERLINQ kiosk located in the Beverly Center, a shopping mall (Los Angeles)
4. A BT kiosk located on the concourse of Manchester Piccadilly railway station (Manchester)
5. A WAMWorld kiosk located in the departure areas of Heathrow airport (London)

All kiosks were viewed between February and May 2000.

The Alamo Kiosk – How do you get there? (Los Angeles)

Kiosk design and location

Kiosks are located in in the pick-up area of the Alamo car rental offices at Los Angeles International Airport (LAX). Three are available in the busy foyer, between the waiting area and the restrooms. The kiosks comprise a touch screen, including a touch screen keyboard and a printer output slot. They are approximately two metres tall in an asymmetric shape, blue in colour and of an interesting design. Mounted on the top of the kiosk housing is a logo and in black lettering is the slogan “How to get there?”. Other wording appears in pale blue lettering, such as “fun”, “directions” and “pick up this phone to get more information”.

User profile

Users of these kiosks are in transit between the airport and their final destination. They may be interested in an activity that can enliven their waiting time and also help them to find out directions to or information about their destination. They belong to the socio-economic group that can afford air travel, and many will be international travellers. Many of the users will travel in family or other groups and may be engaged in both business and leisure activities. Nationalities and native languages will be mixed.

Information architecture

The main screen shows six options:

1. Directions

This provides a telephone number for Alamo's Travel Service Center and information about other tourist attractions. Clicking on any of the list brings up the address and phone number; a further click will provide a map and textual directions. The map and directions can then be printed as the user waits at the kiosk.

2. Hotels

This screen lists hotels by price (\$\$\$, \$\$, \$) or in alphabetical order. Clicking on any of the hotel names provides further information such as address and phone number; a map and directions to the location can also be accessed and printed.

3. Dining

It is possible on this screen to select restaurants by cuisine: American, Continental (European - French, Italian, Spanish, Greek), Asian (Chinese, Indian, Korean, Japanese, Thai, Vietnamese) or Latin. In the same format as previous screens, a click on further information gives the address and phone number and access to a map and directions which may be printed.

4. Entertainment

This screen has a number of choices: Events calendar; Attractions; Venues; Recreation: Night life; Shopping. These choices provide more options when selected. For example, Attractions lists a choice of: parks and fairs, theme parks, museums and historical places, tourist information, zoos and gardens, conference facilities. Again, by clicking on an option the address and phone number can be accessed together with a map and directions.

5. Weather

This screen, which takes some time to load, provides a five day forecast for the local area.

6. Promotions

This screen displays items which are not yet available, so are described as "coming soon". These items include: coupons, local promotions (not specified), travel publications, an audio magazine.

As well as the options listed above, the user may touch the logo — a capital N surmounted with an arrow — and access the opening screen. This allows a choice of language for the interface of English, Spanish, French or German. It also allows the user to see an overview of the system and also to press the help button, if required.

Interface design

The main screens use simple touch screen buttons. Specially designed scroll bars allow movement up and down and left and right in the display. The structure of the kiosk has been designed as a piece and there is good consistency between the options

and screens available. This helps usability as the user becomes accustomed to similar functions on all screens.

Speakers are attached to the kiosk, but as yet there is no audio output. This system is clearly under development; evidenced by a number of screens which have incomplete information and the Promotions option which alerts users to forthcoming features. A credit/debit card slot is installed but is not yet functioning.

A touch screen keyboard is available when the user chooses an option which requires an alphanumeric input. As is common with this technology, the keyboard is fairly unresponsive and it takes time for each letter to appear on the screen. Searches for specific information, such as the location of a known restaurant, use a data entry box. Drop down lists, and up and down buttons were not used on any of the screens examined. Dialogs, however, mirrored the dialogs on the websites of the respective information providers. This was apparent on the LA tourism option for maps and directions, and also on the Weather option.

Communication

As yet communication, beyond information provision, is not available on this kiosk. However, facilities for these links are in place, waiting for functionality to be provided. For example, advertisements on some of the option screens respond briefly, with the appearance of the hour-glass, to the user's click, but subsequently nothing else happens. This indicates that the advertising logos have been designed as objects with the potential to have data installed behind them.

Commerce

Commercial transactions are not yet possible on this kiosk.

In summary, this kiosk at present provides information for travellers using the car rental office to find out the location of commercial and tourist enterprises in the Los Angeles region. However, it has been designed with greater functionality for communication and commercial transactions in mind. It is web-enabled, offering simple access to a weather site and a local tourist information site. Further web provision can be made in the future.

The I+ Tourist Information Kiosk (London)

Kiosk design and location

The kiosk is located in the foyer of a major London hotel in the Olympia area. The kiosk plays low volume music whilst not in use. It is in a low-key housing with no special features to attract the customer. When left idle after a search the kiosk flicks back to the entry screen.

User profile

The kiosk is designed for hotel guests, in a large hotel that is part of an international chain. Potential users might come from a variety of different countries, Accordingly, the tourist information is displayed in one of six languages. Users are all away from home, and include both business and leisure travellers.

Information architecture

The I+ kiosk offers information, transactions, and e-mail access. Using the kiosk a user can send an e-mail, buy tickets for an event, plan which sights to visit, find a job, get the latest public transport updates, and discover community and council information. A simple series of buttons allows the user to select one of these activities. Information is then organised under the specific headings. For example, London Transport information provided includes: travel news (such as station closures), station information. Ticket and travel card information, bus route list, bus service guide, and contact information. At various points a keypad is displayed on the screen to support the selection of stations, and bus routes.

Details of key sites, such as St Paul's Cathedral, Hyde Park, Piccadilly Circus and Eros are available. Touching on a picture of the attraction displays a paragraph of text, and four further buttons, viz Description, Information, Map, Video. The map can be printed, and is issued through the print out slot.

There is no access to Web pages.

Interface design

All interaction is through a simple touch screen and buttons. Even a full touch screen keyboard is displayed as a series of buttons. For the e-mail application described below, a form with boxes to be completed with the use of this keyboard is used. Similar interfaces and forms are used for ordering tickets.

Communication

The free e-mail service, freemail allows users to enter short e-mail messages, using a keyboard on the touch screen. It is difficult to type at any speed using this keyboard. The stages in the dialogue are:

1. Please enter your name
2. Please enter your e-mail address
3. Please enter the recipient's e-mail address
4. Please enter the subject of your message
5. Please enter your message (maximum 500 characters)
6. Please check that you have entered all your details correctly

The final screen offers the user the option to send now, or to change details. If the change details option is selected each of the above screens is displayed in turn and details can be edited.

Commerce

The Ticketshop has three basic options: Tickets for Today, Tickets for Tomorrow, What's On: All Shows. A button for each show is displayed, and clicking on one of these provides an access route to booking details, and the possibility of transacting an order.

In summary, the kiosk offers access to a limited set of information and services that might enhance the hotel guest's experience of the central London environment in which they find themselves. The feature of particular interest in this kiosk is the e-mail facility and the attempt to operate this with a touch screen keyboard.

The CENTERLINQ kiosk in the Beverly Center, Los Angeles, California.

Kiosk design and Location

Kiosks are located in a central position, close to the escalators on each floor. The kiosk includes a touch screen and a full keyboard that is flush to the kiosk. Mounted on the top of the kiosk housing is a display screen with a moving advertisement. This is clearly visible within the shopping mall.

User profile

The kiosk is intended for shoppers in the shopping mall. Since the mall is located in a socially and economically mixed area, it is reasonable to expect that the activities and background of the audience will be wide. Most of the shoppers will be regular visitors and can therefore be expected to become familiar with the kiosk and the mall, but due to the location of the mall in Beverly Hills there will also be tourists.

Information architecture

The main page for the kiosk displays the following categories:

- Mall information, including opening hours, ATM's, information centre, telephones, restrooms
- Events
- Food and drink – lists the outlets in the mall. Clicking a specific outlet leads to the display of directions, and in some cases the offer of a coupon that can be printed, and taken to the store in order to collect discounts.
- Coupons – stores are shown listed in alphabetical order, with any discounts available (e.g. 10 % off Bennetton goods). Some of these offers are only available when payment is made by American Express
- Directory – lists the stores in the mall in alphabetical order
- Sales – lists the stores currently offering goods at sales prices
- Movies - lists the movies currently being screened in the Beverly Hills and Hollywood areas, through the display of the Internet site of Moviefone.com. Information on show times, and location is offered, and tickets may be ordered for later collection at the cinema.
- Frequent shopper – a loyalty scheme.

Most of the above options provide information on the stores in the mall, and are designed to help the shopper to locate stores, bargains and discounts. Once one of these options has been selected, the remainder are displayed as buttons at the bottom of the screen. Other options appear down both sides of the central window. In general, these provide access to a wider range of consumer services. Categories are: The news, Autos, Fashion, Sports, Get Blue (American Express), Homes, The Weather, Sunmaker's Travel. Many of these categories provide access to real time information, that is constantly updated through access to an appropriate website. Sunmaker's Travel, for example, first offers information about locations, such as Hawaii, Mexico, Las Vegas, and special interest holidays, such as Golf. Once a location had been selected, a list of the hotels in the area, with prices, is displayed. Reservations can be made through a free phone number. Turning to another option, when Homes is selected options displayed include: property search, neighbourhood information, mortgage information, Commercial Investment Network, and office search. Information was delivered in real time from the Century21.com web site.

Interface design

The main interaction mode is through buttons on the touch screen. The web pages often display pictures, and use form type dialog boxes with drop down lists of categories, as well as boxes into which it was necessary for the user to type a search term, using the keyboard. Windows also have touch scroll bars, and hyperlinks to other pages.

Communication

Shoppers have the opportunity to join the mall's loyalty scheme, ShopBeverlyCenter; the customer data collected from registrations is useful in profiling shoppers. Members are offered special discounts not available to other shoppers, prize draws and other benefits.

Commerce

An interesting option is Get Blue which, in addition to offering the opportunity to apply for an American Express card, provides access to a range of financial management service on the searcher's account, such as online statement, and bill payment online. The services on offer mirror those that might be expected from an advanced bank ATM, except for the delivery of cash, a function that becomes redundant in a credit card-based, wired and cashless society. The Movie option described above supports the ordering of tickets.

In summary this kiosk offers a carefully targeted set of services that might interest shoppers in the mall. Shoppers are not confused or diverted by the presence of marketing messages, or information that is not relevant to their current task. Much of the information on offer relates to the shopping mall and its facilities, and discounts are available to those who take the time to use the kiosk. Other information and service mirror those often found in malls or shopping centres, such as travel information (travel agents), property information (estate agents), and credit card transactions (banks and other financial institutions). They serve to expand the physical shopping facilities. In order to deliver these services, carefully selected websites are accessed, and communication and transaction facilities are available. The whole experience embeds significant marketing communications, and this is further strengthened by the loyalty scheme option.

BT Multiphone at Piccadilly Railway Station (Manchester)

Kiosk design and location

The kiosk is located in the booking hall of the major railway station in Manchester. It is part of an installation of BT pay-phones and, on first glance, looks as though it is also a payphone. On closer inspection, however, a screen offers a wider range of services than a simple phone call. When left idle after use the kiosk returns to the main screen.

User profile

The kiosk is intended for travellers and passers-by through the station concourse. Rail travellers come from a socially and economically mixed background and the concourse is also a thoroughfare for passengers on the city's tramway service, Metrolink. Most of the passengers will be regular commuters and can therefore be expected to become familiar with the kiosk. Due to Manchester's importance as the

commercial and academic centre for the north of England there will also be business people, conference visitors and tourists.

Information architecture

The main screen for the kiosk displays a tiled window offering the following categories:

- Free sports news – 5 minutes. This screen connects to an Internet service offering a variety of sports, depending upon the season. The prominent service is Football 365, which takes the user into another series of options such as: Mailbox, Special Features, Fun, UEFA Cup News.
- Send and receive email – this option allows access to Multiphone Talk21 email, but only through a BT phonecard with at least £1.00 credit.
- Free gig guide – there is nothing provided behind this option as yet.
- Phone call – this is available through the use of a BT phonecard .
- Free street map – there is nothing provided behind this option as yet.
- Yell services – this option allows access to Yellow Pages, but only through a BT phonecard with at least £1.00 credit.
- Surf the Internet – this option allows access to Internet services, but only through a BT phonecard with at least £1.00 credit.
- Free BBC news – 5 minutes. This option connects with the BBC News Internet service. It is free to the user and times out after five minutes. A user may touch various news items on the screen for further information, but response time is varied and, on the whole, slow.
- Free health information – 5 minutes. This service is provided by NHS Direct but there is no response at present.

Most of the above options provide information for the traveller on the move. Once one of these options has been selected other options are displayed as buttons at the bottom of the screen. These include: Main screen, Internet, Email, Yell. Many of these categories provide access to real time information, that is constantly updated through access to an appropriate website. However, the response time on the services which are functioning is very slow.

Interface design

The main interaction mode is through buttons on the touch screen. Windows also have touch scroll bars, and hyperlinks to other pages. It is not easy to manipulate the scroll bars and the touch screen is very slow to respond

Communication

There is a limited amount of advertising on this kiosk and two-way communication such as email and telephone services are provided at a cost.

Commerce

Commercial transactions are not yet possible on this kiosk.

In summary, the kiosk offers access to a limited set of information and services that might enhance a passenger's visit to Manchester's Piccadilly railway station. The feature of particular interest in this kiosk is slow response of the free services and the charges placed on other services which are available free of charge elsewhere.

WAM World kiosk at Heathrow Airport (London)

Kiosk design and location

The kiosk was part of a unit that incorporated a moving text display at the top, with two television screens below this, and then a lit display showing the information on the kiosk and, finally the screen and the keyboard at normally standing operator level.

More specifically:

1. the moving text displays featured various of the facilities and products on the kiosks e.g. Welcome to WAM WORLD – Competitions – Touch the lower screen – Win a BMX23 – Touch the screen below – Send flowers from here – Order Franklin Mints exclusive Manchester united collection ones
2. television screens showing pictures that change to synchronise with the moving text above, so, for examples, the Interflora details are displayed when the text shows ‘Send flowers from here’
3. Lit screen announcing kiosk functions including: Airport information. Competitions, Car hire, Vouchers, Special Offers, Business news, News headlines, Travel insurance, Weather forecasts, Access to advertisers, entertainment reviews. Not all of these options are currently available on the kiosk, suggesting that the kiosk is still under development.
4. The kiosk screen, with an attached flat keyboard. The keyboard was inset into a shelf, which was useful for placing a purse on or making a note of information. Underneath the shelf there is a card slot and a printer slot.

These components were not very effectively integrated, since there was no overall kiosk housing, although they were all mounted on a central pillar.

Three kiosks were observed (all slightly different in design), located in transit areas and departure lounges. The WAMWorld website says that there are 50 kiosks based across all four Heathrow terminals. They were clearly visible and in locations where people would need to pass them.

User profile

WAMWorld claim that their kiosks are visible to 32 million people each year, or in other words, all international and domestic departing passengers from the four Heathrow terminals. These passengers are in transit, and may be waiting for departure (Rowley and Slack, 1999) and may show an interest in any activities that make their wait pass more quickly. They all belong to the socio-economic group that can afford air travel, and most have experience of other countries. Business and leisure travellers, are included, and most people travel in family or other groups. Nationalities and native languages will be mixed.

Information architecture

The main screen shows just three options: help, airport shops and restaurants, and special offers. This screen offers quick access to details of airport shops and restaurants. The user is invited to choose a terminal. A map of the chosen terminal is displayed, and when a shop on that map is touched, a list of the products that it sells is displayed. The Help option provides some information about the designers of the kiosk, WAMWorld.

The special offers icon has four embedded buttons: a passport, a book, a case and a map. Selecting one of these causes it to be displayed as a background with icons for a

number of retailers or service providers overlaid on the background. These icons include:

Interflora

Waitrose

BMW

The Dome at Greenwich

Avis

Weather

Travel insurance

Smirnoff

Sport

Win a Car

Free champagne prize draw

A number of these options just provided information. For example, on The Dome at Greenwich, details were available on how to book, how to get there, and inside the Dome, but no booking facilities were available. Communication and Commerce opportunities are described below.

Interface design

The main screen uses simple touch screen buttons. It also has animation with a moving train and other transport pictures. The moving train appears at the background to the other screens in the kiosk provided by WAMWorld. Once airport maps are displayed being able to touch a shop to display its product range is useful. Under Special offers, one icon is used for each content provider. There is no apparent structure to the display of content providers. The interface features used by different content providers varies, and there is a lack of consistency.

Speakers announce simple audio instructions.

Interface design is influenced by the need to support data entry for communication or commerce. The availability of a keyboard was essential for a number of these applications. However, this keyboard was fairly unresponsive, with several attempts being necessary to type a letter. The keyboard was probably based on the same technology as a touch screen, and certainly had the same poor response characteristics. Commerce and communication applications used forms with several data entry boxes. Drop down lists, and up and down buttons (for, for instance, specifying the number of people from whom insurance is required) were used on some forms but not others. Dialogs often mirrored the dialogs on the websites of the respective information and commerce providers. For example, the GoSure.com dialog on travel insurance closely mirrors that on their website, although there are some changes to modify page lengths, and to reduce the amount of information displayed on the kiosk as compared with normal website viewing. Similarly, the Interflora screen has the same basic structure as their website, but there is no language option, and the country options are simplified, and fewer options are offered.

Communication

All of the providers offering commercial transactions collected customers contact details that could subsequently be used to contact customers known to be air travellers. Waitrose also collected such information by offering a free prize draw; customers need to register for this and therefore provide contact details. Other offers

on the kiosk included 'Win a Car' and 'Free champagne prize draw'. The last of these asked for contact details as well as destination. These options allow WAMWorld to collect individual customer information, and to develop customer profiles.

Commerce

Commercial transactions include: ordering flowers from Interflora, ordering a CD-Pack from Waitrose which supports registration with Waitrose.com as an internet provider, and travel insurance from GoSure.com. This later application is interesting. Whilst it is a very appropriate application for travellers who have not organised travel insurance in advance, and, indeed since it offers competitive quotes for those who are seeking a good deal on travel insurance, it is difficult to avoid a relatively lengthy dialog of the type that users may be reluctant to pursue at a kiosk. Figure 2 summarises this dialog. In addition, since the customer is on the move, it is difficult for a policy contract to be sent to and received by the customer. The only possibility is an e-mail contract sent to a hotmail address; this can be picked up by the customer at any Internet enabled workstation.

In summary, this kiosk offers useful location information within the airport terminals, for travellers who are unlikely to be familiar with their surroundings. The kiosks are located centrally, and the kiosk is embedded in a promotional device that attracts attention, and has movement. It also offers a number of other services that might be of value to travellers, such a instant travel insurance at competitive rates, or the opportunity to dispatch a floral tribute that might have been overlooked in a busy period of travel. There are however, other features, such as e-mail, and currency exchange rate information that the kiosk does not offer, and opportunities are not pursued for promotional offers such as coupons, or frequent flyer advantages. In addition, it is difficult to understand why some of the content providers are included. Would a traveller really want to register for Watirose.com as an ISP whilst waiting to board at an airport? This kiosk is an interesting application, but it needs further development before it offers the integrated information, communication and commerce experience targeted at air travellers.

Figure 2 : GoSure.Com Dialog

1. Choose a country – press here to choose your travel insurance from this console.
Enter length of stay, number of people travelling (categorized in age groups), and destination
Press Give me a quote
2. Quote displayed, together with a table showing extra cover options and reduced cost options.
Press Go with this quote
3. Policy details displayed
Press Buy
4. Medical form for completion displayed
Press Continue
5. Check details enters (details displayed)
Enter names of people to be covered
Press Continue

6. Enter Policyholder's details
Enter cardholder's details (so that payment can be collected)
7. Policy contract is sent by e-mail.

Conclusion

The above case studies offer a number of examples of Kiosks 21. Each of these kiosks is necessarily different as they seek to serve the 'customer in context', but the features listed in Figure 1 can be used to characterise this new generation of kiosks. Kiosks are on the move from the shadows to the limelight. Kiosks have been physically relocated to centre stage. The stage is set for kiosks to make a significant contribution in e-business, and to the use of IT in service delivery in traditional retailing and other service environments.

This article has proposed and used a framework for the analysis of kiosks that embraces the following criteria:

- Kiosk design and location
- User-profile
- Information architecture.
- Interface design
- Communication
- Commerce.

This framework has been applied to kiosks located in Los Angeles, Manchester and London. Although early emphasis has been on the information architecture, and the interface design, these are in fact dependent variables. The key issue is the role of the kiosk. In this context we propose that as the number of kiosks increase and their range of applications develop, it will be useful to categorise kiosks in terms of their objectives. These objectives can be positioned along four dimensions:

Target audience – Amongst these case studies there are examples of kiosks that will be used primarily by frequent users to a facility (such as a railway station), and those that will be used by 'tourists', or people who are new to the facility. Frequent users can be expected to gain a level of familiarity with the kiosk and its services, and may be susceptible to loyalty schemes. 'Tourists' are all naïve users of the kiosk, and are often in environments that are unfamiliar to them.

Business model – Some information and transactions will be free, and others will be charged. Free services may be seen as promotion and/or public service. Charged services are part of commerce and its associated customer service. Most kiosks will include a mixture of free and charged services.

Location – There are two options for kiosk location – the premises of the retailer or service outlet responsible for the kiosks, or public thoroughfares.

Content source – There are two options for content source, and these have implications for the strategic relationships underpinning the creation of the kiosk. Kiosk content may derive from a single source and be focussed on the services of one organisation, or may be assembled from various sources. In this case, kiosks are likely to be managed by an Infomediary.

This analysis suggests a range of areas for future development of kiosks and research that will provide further insights into the most effective design of kiosks, and their

role as a customer service and communication interface. These are framed as a series of questions:

1. Will kiosks still be necessary with the advent of mobile technologies? What are the respective roles of kiosks and mobile technologies for the customer on the move?
2. What are the business opportunities presented by kiosks? Who will take the strategic control over kiosks? Retailers, local government services (such as libraries and other providers of community information) infomediaries, or financial service organisations?
3. What is the link between e-business use in the home and over the Internet, and kiosk use? Will customers transfer between these environments? For example will some retailers, such as Interflora, or car rental, be able to make an easy transition between these two contexts, and provide e-business opportunities through whichever outlet suits the customer and generate reciprocal loyalty through their presence in both channels?
4. What will make a customer a regular or loyal user of a particular kiosk or a chain of kiosks to be found, for instance, in every railway station or airport? Banking or credit card transactions, commerce, or directional information?
5. What is the optimal information architecture and interface design for different applications?
6. How can kiosk managers understand the needs of users so that the content is restricted to the information and transactions suitable for the target audience, and so that all interactions are quick and to the point?
7. What is consumer reaction to and behaviour in the context of kiosks? What is the frequency of use? What is the optimal frequency of use? For how long are consumers prepared to search a kiosk? How can interest be created and usage level raised? What impact do coupons and discount offers have on use of the kiosk and visits to stores? What do customers view as the actual and potential value added features of kiosks?

References

- Preece, J. et al. (1994) Human-computer interaction. Addison-Wesley.
- Rowley, J (1995) Multimedia kiosks in retailing. *International Journal of Retail & Distribution Management*, 23 (5), 32-40
- Rowley, J E and Slack, F (1998) Designing public access systems. Gower
- Rowley, J and Slack, F (2000) Kiosks in retailing: the quiet revolution. (Submitted)
- Rowley, J E and Slack, F E (1999) The Retail Experience in Airport Departure Lounges: Reaching for Timelessness and Placelessness. *International Marketing Review*, 16 (4/5), 363-375.
- Shneiderman, B. Designing the user interface. 3rd edition. Addison-Wesley.
- Silverman, D. (2000) Doing qualitative research: a practical handbook. Sage.
- Smith, A. (1997) Human-computer factors. McGraw-Hill.
- Strauss, A. and Corbin, J. (1998) Basics of qualitative research. 2nd edition. Sage.