December 2007

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Nina Mistilis

John D'Ambra
The University of New South Wales

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John D'Ambra
School of Information Systems, Technology and Management
The University of New South Wales
j.dambra@unsw.edu.au

Nina Mistilis
School of Marketing
The University of New South Wales
n.mistilis@unsw.edu.au

Abstract

Visitor Information Centres (VICS) play an important role in the promotion of tourist destinations. This important role is achieved through the provision of information. As the nature of information provision is changing, primarily in response to the evolving information infrastructure, this paper considers the information needs of virtual and face-to-face users of VICS and how their needs can be met in the context of the changing information infrastructure. A taxonomy of information tasks of virtual visitors to VICs is developed and then used to assess the e-capability of centres to meet the needs of virtual visitors.

Keywords: Visitor information centres, information seeking behaviour, information tasks, tourism.

Introduction

Visitor Information Centres (VICs) play an important role in the promotion, preservation and management of tourist destinations. This role is achieved primarily through the provision of information using a variety of media and information resources. For VICs to be successful in this role they must understand their users' information needs and how these needs may best be met by traditional information resources and new information communication technologies (ICT). The issue of how best to harness new and emerging information communication technologies in the context of VICs is emerging as a critical success factor for VICs as access to digitised content and data is changing user behaviour and expectations.

The purpose of this paper is to identify specific information needs that arise in the context of VICs and how these needs may best be met by VICs. This is achieved by developing a taxonomy of information tasks/motivation of users of VICs and matching these tasks to appropriate media. By understanding and satisfying the needs of their users VICs will ensure their success in promoting and preserving tourist destinations, as well as assess their capabilities in meeting the needs of virtual visitors.

Visitor Information Centres

A VIC is a "clearly labeled, publicly accessible, physical place with personnel providing pre-dominantly free of charge information to facilitate travellers' experiences" (Pearce 2004. p.8). Pearce identifies the functions of VICs as: Promotion Function; Orientation and Enhancement Function; Control and Filtering Function and the Substitution Function.

The promotion function refers to the active promotion of a city, area or region, advising clients on what to do and where to stay in an area. Essentially this role is about stimulating tourist demand and often seeks to increase visitor expenditure in a defined area.

The orientation and enhancement function seeks to improve the quality of the visitor experience and engender an appreciation of local culture and features. This is achieved through provision of information through a variety of media and experiences.

The control and filtering function allows centres to control the flow of visitors so that resources and settings come under less pressure. Typically such centres act as gateways and central points for visitor use of an area. Information media used in this role can include guided tours, films or other rich experiences to concentrate visitors away from fragile sights or viewing areas.

Centres emphasising the substitution function are centres which are attractions in themselves. These centres are established at sites where the resource is scattered or fragile and difficult to appreciate without some form of interpretation presented by the centre.

In order to fulfill these functions the primary role of VICs is to disseminate information. In line with the complexity of the function and related requirements VICs use a range of information resources, including traditional and new media. Traditional media would include staff and brochures, while the new media would be information and communication technology based.

This paper will focus on the information needs of visitors. It explores how VICs may identify the information needs of their clients and how to best satisfy these needs through appropriate media. Firstly the change in information seeking behaviour brought about by the evolution of the World Wide Web is considered. Secondly, VICs are considered in their role as an information resource in today's changing information environment. Thirdly as a response to this changing environment, a taxonomy of information tasks for both virtual and real time visitors is presented and explained. Finally the taxonomy is used to assess the capabilities of VICs in Australia to meet the needs of users of their websites.

Information Seeking Behaviour and Visitor Information Centres

Information seeking behaviour in the developing world is changing in light of the adoption of the World Wide Web (Web) as an information resource. The Web is now widely used as a primary information resource by the population at large in developed countries to satisfy their information needs that arise both within work and non-work domains. Tourism and travel is one information domain in which the Web is used both by providers of travel and tourism information and by the consumers of that information (D'Ambra & Wilson 2004). VICs have responded to this change in information provision by adopting ICT in meeting the needs of their clients. The level of adoption of ICT in VICs is problematic (Yuan 2003).

VICs are just one information resource for visitors; they are major providers of information for visitors through the web before arrival at their destination and through this and other means *during* their visit. VICs play an important role in meeting the information needs of visitors to the destination. They must educate visitors on the sight itself in terms of its history and significance to both the local and broader community.

There has been some investigation on the use of emerging technologies to manage and facilitate access to the vast amounts of cultural heritage information. Bonfigli et al (2004) propose a Web-based application that enables virtual visits to access cultural information tailored on the basis of the user profile, permitting the building of virtual visits that can be reused by other visitors interested in the same subject. Lutz and Weintke (1999) used virtual reality to present the Magao Grottos in Dunhuang, China, this cave site being one of the most important cultural and religious places by the ancient Silk Road. Lutz and Weintke claim that the presentation combines virtual reality and archaeology to give tourists a realistic experience of the cave site and support scientists in their research work. Benjamins et al (2004) propose that Semantic Web Technologies can be used to disclose cultural heritage information to provide better access to the huge amounts of literature that have been scanned to meet the needs of humanities researchers and teachers. They claim that this vast amount of information that is now available digitally has created a problem of information overload. Kretschmer et al (2001) describe a virtual reality project that enhances the experience of visitors to the "olde town" and castle at Heidelberg, Germany. The techniques used in the project include augmented reality, digital and intelligent story telling. The system involves the user in a thrilling story while exploring the history and attractions of the city.

These emerging technologies illustrate some of the potential of ICT to promote and safeguard destinations and cultural heritage sites. As the information seeking behaviour of clients continues to change in-line with the emergence of new information and communication technologies VICs must recognise their role in information dissemination in the education of not only visitors to their destinations but also virtual visitors through the web and how ICT can be harnessed to integrate the needs of these two types of users and other visitors to the centre.

The Taxonomy

This paper proposes that part of the solution to this problem lies in understanding the information needs of **all** the users of the centre. To facilitate this, the paper proposes a taxonomy of information needs/tasks of all users, both virtual and face-to-face, of the centre. Figure 1 presents the taxonomy of information tasks.

	Virtual visitors		Face-to-face
Context	Broadcast information, computer-mediated		Human interface

Task	Experiential
	
	Information
		Goal-directed
		
		Q&A
		Transact:
		    Book/reservation
		    Itinerary planning
			Goal directed
			
			Information
			Q&A
			Transact:
			    Book/reservation
			    Itinerary planning

Motive	• Pre-purchase deliberation • Build inf. Bank • Opinion leader • Recreation	• Pre-purchase deliberation • Task completion	• Pre-purchase deliberation • Task completion
Information	Static Customised	Static Customised	Customised
Technology	• VIC Web site • Destination marketing system	• Interactive VIC Web site • Interactive destination system	• Counter staff • Tour guides • Virtual reality • E-kiosks • Television/video • Mobile/wireless applications

Figure 1. A taxonomy of information tasks at visitor information centres

The development of this taxonomy has been guided by the seminal work of Hoffman and Novak (1996). In considering the research issues of investigating the behaviour of consumers in computer-mediated environments Hoffman and Novak present a dichotomy of **experiential** and **goal directed** behaviour in computer-mediated environments (CME). In considering the motivation of these two behaviours Hoffman and Novak conclude that **experiential** behaviour is relevant for (1) word-of-mouth strategies based on influencing opinion leaders, (2) providing entertainment and recreation, and (3) enhancing consumers' product knowledge, whereas **goal-directed** behaviour is relevant for task specific use of a CME, such as pre-purchase deliberation. Much of the research in consumer behaviour on the Web confirms this approach (Atkinson & Kydd, 1997; Agarwal & Karahanna, (2000); Teo, 2001; Venkatesh & Brown, 2001; Sexton et al., 2002). It is this dichotomy of experiential behaviour in CMEs that is the foundation of the proposed taxonomy.

The authors propose that Hoffman and Novak's dichotomy can be used to classify, at a level of abstraction, the motivation of visitors to a VIC. Both virtual and real-time visitors. Virtual visitors are those visitors who access the Web site to satisfy both intrinsic and extrinsic needs, while real-time visitors are those visitors who actually present at the site.

The taxonomy considers the information tasks of users of the centre in two contexts: virtual visitors with no human mediation (broadcast information, mediated medium) and visitors whose interaction requires some human mediation (information transactions with human interface). Each of these two contexts will now be considered in turn.

Experiential Tasks

Within the virtual visitors domain the task can be either experiential or goal-directed. **Experiential tasks** are intrinsically motivated by the need to gather information for one or more of the following motives:

Pre-purchase deliberation

Experiential tasks are intrinsically motivated by the need to gather information to facilitate a pre-purchase deliberation this may include users who may be considering visiting the destination or the location/city/country where the destination is situated and if the destination should be included in their itinerary. These visitors may be seeking information on access to the destination, what activities are available, how much time is required to visit the destination, costs associated with visiting the destination.

Build information Bank

Users with a personal interest in the nature of the destination and other similar sites would be looking to adding to their information bank on the generic nature of the destination and its contribution and or place within the general domain of interest.

Opinion leader

Users who have a research/professional interest in the destination would visit the web site to maintain their expertise in that domain.

Recreation

Recreational users would be motivated by the engagement that "surfing" the Web offers and the related flow experiences (Csikszentmihalyi 1989). Such users would be of a casual nature with some interest in the context of the destination.

The genre of the information in this context would be static and customised, used in a broadcast mode in the provision of information which would serve the purpose of promoting the site but at the same time meeting the needs of the users.

The technology which may be used in this context may include:

- VIC web site

The Web is used extensively today within VICs to support the staff of centres in meeting the information needs of clients. The Web is now an additional information resource available to a VIC. VICs can now utilise the Web to promote their destination to virtual visitors. The Internet is an enabling technology giving centres access to specialised information and communication services, including destination marketing systems, information/interactive kiosks, email and related communication services.

- Destination marketing system

The internet allows centres to access destination marketing systems. Destination marketing systems are specific websites that have been designed to promote destinations and at the same time consolidate many of the services available in the region to provide a "one stop shop" for visitors and potential visitors to satisfy their need for information on the destination as well as the ability to purchase and book services for their visit.

- Virtual Tours of the destination

Virtual tours are one means for a VIC to both inform and educate virtual visitors. Virtual tours can either be two dimensional or in three dimensions with multi-media functionality.

Goal directed information tasks

Goal directed information tasks are extrinsically motivated by specific information need related to a task. These tasks may include:

Question and answer

Users in this context will be seeking answers to specific questions regarding visiting the destination and the destination itself. Such users would have higher levels of certainty in their intention to visit the site than those whose motivation is experiential. Goal directed visitors would have specific needs that should be addressed.

Transact

Information based transactions which users wish to complete. Such transactions may include: booking tours of the destination and other educational experiences, booking accommodation and or planning an itinerary. The information in this context will be customised rather than static. Users would have the option to query databases and complete transactions online. The technology which may be used in this context would include:

- Interactive web site offering storage and retrieval functionality

- Web based tourist guides (knowledge management)

Pushing the functionality of destination marketing systems further is the emerging trend towards "itinerary planning/recommendation systems". Such add ons to destination marketing systems recommend sightseeing destinations and itineraries by taking into account the preferences of heterogeneous tourist groups (such as families with children, or senior travellers)and explains the recommendations by addressing the group members' requirements. Some systems provide an interactive agenda for scheduling the tour as well as XML-based technologies supporting the generation of the user interface and its adaptation to Web browsers and WAP minibrowsers (Ardissono et al. 2004)

- An interactive destination marketing system with storage and retrieval functionality.

Information Transactions with Human Interface

Within the human interface domain we find the more traditional communication media and information resources to meet the specific goal directed tasks of visitors who present at the centre itself. VICs by their nature provide information via traditional media. However these traditional media are now supported by ICT.

The tasks of visitors who present at VICs are goal directed. Specific needs for information to satisfy immediate needs related to the destination itself or its immediate environment and the needs of visitors while at the destination. These visitors would be seeking an experience of the destination through some form of interactive experience: guided tour, information sessions other educational/substitute experiences. The technology which may be used in this context would include:

- Virtual reality

Virtual reality is an emerging technology that can be used in either the enhancing or substitution role at tourist destinations. The work of Kretscher et al (2001) outlined above is a good example of virtual reality in the enhancement role, while the work of Lutz and Weintke (1999) demonstrates how virtual reality can also substitute a visit to the destination itself.

- e-kiosks

Emerging trends overseas indicate that information providers are seeking ways to add value to services provided by e-kiosks by increasing the functionality in terms of what information tasks can now be completed by using e-kiosks. A recent implementation being: British Telecom (BT) and London marketing, London's marketing and technology agency, have joined forces to make a special edition of LondonTown.com available through BT's Internet kiosks across the capital. These kiosks bring together online and outdoor elements with an interactive direct response mechanism (Londonmarketing 2003).

- Information/Interactive Kiosks (Web based)

Information/interactive Web based kiosks are implemented in centres to give clients direct access to information and services directly through Internet technology. These kiosks may provide "hard wired" links to specific visitor services giving visits access to services for specific, structured queries as well as access to the Web for less structured more equivocal needs (M2 2003).

- Television/video

Television, and its variations, is a multi-media technology that may be used in VICs to provide clients with a "rich" experience of the attractions of the region.

- Mobile/wireless devices/solutions (PDA, mobile phones, WAP, Wi-Fi, hotspots)

The growth of mobile data usage and the widespread adoption of wireless LAN (WLAN) solutions together with the increasing number of personal mobile devices for voice or data access are the main driving factors shaping the development of mobile wireless services. Organisations in the travel sector that are investing in mobility are generally implementing solutions in two main areas: deployment of mobile solutions to increase customer retention, satisfaction, and ultimately protect and grow revenue and the deployment of mobile solutions to increase employee efficiency. The rising number of travellers using a mobile device (phone, PDA, laptop) and the possibility of leveraging visitor-based networks as well as personalisation and location features are making it attractive for travel organisations operating in a variety of segments, including: hotels; airports and airlines (Wireless News 2003).

The taxonomy as a tool to measure e-capability

This section of the paper applies the taxonomy, specifically that part which is pertinent to virtual visitors, to data collected as a part of a national study of ICT adoption by Australian VICs. It is proposed that the taxonomy can assist in assessing the capabilities of centres in meeting the information needs of virtual visitors.

A study of a cross-section of VICs across Australia was conducted to collect data on what ICTs are currently being used and how they are used in VICs. The sample of the study was selected to include a range of VICs based on size and geographical location. 61 centres took part in the study, Table 1 provides a distribution of the 61 centres across the Australian states and territories.

Table 1 Location of VICs by state/territory

State	Frequency	Percentage
NSW	20	32.8
QLD	11	18.0
VIC	10	16.4
TAS	7	11.5
WA	6	9.8
SA	4	6.6
ACT	2	3.3
NT	1	1.6
	61	100

The Survey

The survey instrument used was adapted from a study conducted by Yuan et al. (2003). Yuan et al. developed the instrument to investigate the factors affecting the use of Internet technology by American convention and visitors' bureaus. The current study was conducted in the following manner:

- Initial Contact was made with each centre manager, or their delegate, by telephone.
- The study was described to the manager and their agreement to participate was sought by the research assistant. If the manager agreed to participate a consent form and information sheet was faxed to them for their signature and a time agreed for the survey to be conducted by telephone. Once the signed consent form was received by the research assistant, the survey took place at the agreed time.

The survey instrument focused on the following issues:

- Descriptive attributes of the centre;
- Accessibility of ICT resources in the centre;
- The adoption of ICT in the centre;
- The alignment of ICT with centre strategy;
- The Perceived effects of ICT in facilitating the centres operations.

Results

Regarding the descriptive statistics of the sample, 74% of the 61 VICs are funded by local, city, state or federal government with 26% being independently operated. 85% of the VICs have budgets that are less than $500,000. Four have budgets ranging from $500,00 to $1,000,000, two have a budget between $1,000,000 and $2,000,000, while two centres have budgets in excess of $2,000,000. Two VICs declined to provide budget information. 85% of the VICs surveyed employ 9 or less full-time staff, with 5% employing more than 10 full-time staff; 7% had no full-time staff. 77% employed part-time staff with the remainder having no part-time staff.

Table 2 VICs IT Resources *(n = 61)*

Number of computers	Frequency	Percentage
1-5	48	78.7
6-10	6	9.8
11-20	5	8.2
More than 20	1	1.6
None	1	1.6
Linked to LAN		
Yes	51	83.6
No	9	14.8
Access to Internet		
Yes	60	98.4
Missing	1	1.6
Type of Internet access		
High speed local area network	26	42.6
Dial up	15	24.4
Broadband	16	26.2
missing	4	6.6

Table 2 provides data on computing resources available in the centres. The majority of centres, 88%, have 1–10 computers installed, with 10% having more than 11. All the centres, with one exception, have access to the internet. The mode of connection to the internet is: 24% dial-up; 26% broadband; 42% high-speed local area network; four centres did not respond to this question. 84% of the centres have access to dedicated IT staff, of these dedicated staff 56% were employed full-time.

Table 3 Web & ICT Usage *(n = 61)*

Centre provides own website	Frequency	Percentage
Yes	46	75.4
No	14	23.0
missing	1	1.6
Website(s) part of VIC business strategy?		
Yes	45	73.8
N/A	10	16.4
Missing	6	9.8
VIC's Web content updated		
Daily	6	9.8
Weekly	12	19.7
Monthly	17	27.9
Irregular basis	12	19.7
Don't know	7	11.5
N/A	4	6.6
missing	3	4.9
Information broadcasting methods		
centre website	25	41.0
Destination marketing system	12	19.7
On-site electronic kiosk	18	29.5
Off-site electronic kiosk	1	1.6
Email lists	32	52.5
Television (video or cable)	24	39.3
Brochures	56	91.8
Other	10	16.4
Enquiries via website		
Yes	51	82.3
No	6	9.7
missing	4	6.5
How to make enquiries via website		
Interactive website	12	19.7
Email	50	82
Telephone	31	50.8
Call centre	6	9.8
Fax	24	39.3
Off-site electronic kiosk	1	1.6
destination marketing system	3	4.9
other	2	3.2

Bookings via website

Yes	14	23.0
No	44	72.0
missing	3	4.9

How to make bookings via website

Interactive website	5	8.2
Email	12	19.7
Telephone	9	14.8
Call centre	2	3.3
Fax	10	16.4
Off-site electronic kiosk	0	0
destination marketing	0	0
other	1	1.6

Paying via website

Yes	9	14.8
No	49	80.3
missing	3	4.9

How to pay via website

Interactive website	4	6.6
Email	4	6.6
Telephone	5	8.2
Call centre	2	3.3
Fax	3	4.9
Off-site electronic kiosk	0	0
destination marketing	0	0
other	1	1.6

Trip planning via website

Yes	31	50.8
No	27	44.3
missing	3	4.9

How to do trip planning via website

Interactive website	7	11.5
Email	24	39.3
Telephone	18	29.5
Call centre	4	6.6
Fax	16	26.2
Off-site electronic kiosk	3	4.9
destination marketing system	1	1.6
other	3	4.9

Resources access by staff when handling face-to-face enquiries

centre website	27	44.3
Internet	50	82.0
Brochure	59	96.7
Destination marketing system	55	90.2
On-site electronic kiosk	12	19.7
Telephone	55	90.2
database	27	44.3
other	9	14.7

Table 3 provides data on the level of adoption of the Internet as an information dissemination tool as well as e-business activities. 75% of the centres provide their own website of these 74% stated that the web site was part of their business strategy. 31% of the centres that did provide websites either updated the web sites on an irregular basis or did not know when the web-site was updated. The Internet is a significant tool for counter staff in handling face-to-face enquiries with 82% of centres providing Internet access for their counter staff.

In terms of evaluating the e-capability of the centres with regard to the taxonomy we have aligned the experiential and goal-directed tasks in the following manner:
- Experiential tasks with information broadcasting methods;
- Goal-directed tasks with: enquiries via Web and how to make enquiries via the web; bookings via the website and how to make bookings on the website; paying via website and how to make payments via the website; trip planning via the website and how to do trip planning via the website.

Experiential

41% of the centres maintain a website and 20% a destination marketing system.

Goal directed

82% of centres claim to be able to handle enquires via the website, however in terms of how these enquiries are handled only 25% of centres handle enquiries interactively via the website or destination marketing system. 23% of centres claim to handle bookings via the website, with only 8% managing this via an interactive website. Regarding accepting

payments online 15% of centres indicated capability while only 7% manage this function interactively. Finally, 51% of centres claim to provide trip planning on their website with 13% having this functions delivered by an interactive website or destination marketing system.

Discussion and conclusion.

The majority of centres in the sample are small to medium size organizations with budgets under $500,000 employing less than 20 people. In terms of analyzing the sector we are dealing with organizations that have limited resources to invest in ICT and strategic planning. The results indicate that centres in Australia are currently limited in their ability to meet the needs of virtual users.

75% of the centres provide a website, while 41% utilise websites as the medium for broadcasting information. 20% claim to use a destination marketing system for broadcasting information.

With regard to goal-directed tasks 82% of centres claim that enquiries are handled via the website, while only 25% manage this communication via an interactive website or destination marketing system. For bookings 23% of centres claim that bookings can be measured via the website, however only 8% can manage this function on the website. Related to bookings is the task of payment, 15% of centres claim that this function can be managed via the website, with 7% managing payments via the interactive website. Finally for trip planning 51% of centres claim that trip planning is available on the website with 12% handling this function interactively.

This paper attempts to address the issues of information provision by VICs and the changing environment of the information infrastructure. VICs play a major role in promoting tourist destinations, at the same time they have an important role to fill in meeting the information needs of their clients both virtual and face-to-face.

The taxonomy of information tasks proposed in this paper aims to assist VICs in two dimensions:
1. Identify the motivation of users of VICs online content and services;
2. As a tool to assess the e-capability of centres in meeting the needs of online users.

It is clear from the analysis that VICs in Australia are small to medium size business with limited resources subject to the same constraints of SMEs in other sectors. However tourism is an information intensive industry and the provision of information is the core business of VICs. The research reported in this paper indicates that VICs are lagging behind in meeting the needs of virtual visitors who are potential tourists of the locations promoted by the centres. With regard to experiential tasks 75% of centres surveyed provide a website, of course the quality of the website is a major metric when considering the value of the website to users, however this question is out of the scope of the present study. A cross-tabs analysis of the budget of centres and the provision of a website indicates that 18% (n = 11) of the sample without a website are in the budget range of $250,000 or less. This lack of a Web presence is significantly due to the size of the budgetary constraints of the centre.

In terms of goal-directed tasks (Q&A, book, transact and itinerary planning) the mean capability of managing these tasks interactively is 11% for all centres. Email and traditional media are the main media for handling goal-directed tasks, tasks with higher levels of complexity. It is clear that VICs in Australia have limited e-capability in resolving the more complex tasks of potential tourists on line.

In terms of limitations and further research more needs to be done, particularly in validating the taxonomy and auditing and assessing the actual functionality of VIC web sites.

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