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THE STATE OF PLAY OF THE WEBSITES OF LARGE AUSTRALIAN COMPANIES

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ABSTRACT

There has been a plethora of research on the internet and web sites especially in the area of usability. In addition, much of the research has focused on small to medium sized businesses. Little attention has been given to the purpose and content of web sites especially large organisations in an Australian setting. This study proposes a four stage model of e-commerce activity using the level of interaction as a measure to classify the web sites of 133 large Australian companies. The findings from the research suggest that many large Australian companies, whilst having a web presence, are not exploiting the available technology to conduct even a low level of e-business. Most companies are still at the early stage of e-commerce.

1. INTRODUCTION

The internet could be today regarded as simply another business tool, for some companies an essential tool. The rush to the web has meant for many companies developing an internet strategy that has resulted in little more than a web site. In Australia for example, 68% of large companies have a web site however only 6% were classified in the year 2000 as Internet commerce active ie. receive sales income from orders for goods or services over the Internet (Australian Bureau of Statistics, 2000). In recent years much has been written on how web sites should be designed. Little attention however has been paid to how companies construct their web presence and what should be included on their web site. This paper presents research which examined the web sites of 107 large companies, the research was specifically interested in the level of e-commerce activity in the company, that could be determined by the company's web site.

2. THE AUSTRALIAN CONTEXT

In Australia the use of the internet for business is more prevalent among large organisations with few classified by the Australian Bureau of Statistics (ABS) as 'internet commerce active' (ABS, 2000). The most recent survey by the Bureau found that "The majority of businesses with Web sites or home pages used their site to display company information (88%) and/or advertise their goods or services (79%) only 5% had online payments facility." (ABS 2000, p 6). The estimated total value of

sales/orders, in Australia was \$5.1 billion, and this was dominated by business-to-business transactions. It could be concluded therefore that most of the e-commerce activity in Australian is business to business with most companies yet to fully exploit the potential of the internet in terms of business to consumer e-commerce. This is not dissimilar to the situation in the United Kingdom (Hart et al 2000).

2.1 Web site content

The literature on web site design has in recent years focused on how to produce websites that are usable and attractive to a wide audience. Many companies are using web sites as an alternative channel to supply information, services and transactional capabilities to the general public, customers and suppliers. There is little research however on the extent of these channel enhancements in Australian companies. Information and interaction options common to many websites include:

- *Company information:* Simeon (1999) argues that “the most fundamental capability of a web site is the presentation of information about products, services, people, events or ideas.” (Simeon, 1999 p 300). Not surprising corporate information, the company profile and background is, as mentioned, prominent on 88% of large Australian businesses websites (ABS, 2000). Other company information usually provided includes contact details such as telephone and fax number and email. A study conducted in the UK found that only 7% of those surveyed offered customers the opportunity to correspond with them via email (Hart et al, 2000). Some companies also provide information relating to annual reports, recent news items etc.
- *Product information:* It would be expected, particularly in the retail sector that product information relating to goods sold would be included on company web sites. Hart, et al, (2000) UK survey however found only 6% of businesses surveyed provided product information on their web sites. Other product information consumers typically expect to find include prices for comparison, specifications and other details such as warranties (Miles & Howes 2000).
- *Conduct business:* Conducting business is the extent to which a user is able to conduct business to business or business to consumer transactions. In the UK Doherty et.al, (2000) found only 3% of companies provided consumers with the opportunity to purchase online. This is similar to the ABS findings of 6% in Australia.
- *Other online services:* Other services websites provide include frequently asked questions pages, problem solving, chat forums and answers to email questions. Interactive services such as marketing through the web site was also used by 7% of respondents to the UK survey (Hart et al, 2000). After sales service via a web site is provided by 11% of Australian businesses with some companies providing the facility to track orders and look at account information (ABS, 2000).
- *Special features:* Web sites can also include a range of other, ‘special’ features. For example maps to indicate where customers might find stores (Hart et al, 2000). Search facilities are another frequent feature on web sites (Miles & Howes 2000)

The level of web presence varies from company to company one method of evaluating web presence is by the level of interaction with the intended user. It could therefore be argued that through an examination of a company’s website that the level of e-commerce activity a company is engaged in can be determined, whether the company is simply using the site for promotion or providing full e-commerce functionality.

3. WEB BUSINESS MODELS

The current literature presents a number of models that describe how businesses approach the task of web site and e-commerce development. Quelch and Klien (1996) proposed in 1996 an information to transaction model to describe existing companies moves to the internet. The stages include, image/product information, information collection/market research, customer support/services, internal support services. Quelch and Klein (1996) further describe companies' use of the internet using four quadrants. Quadrant 1 are companies using the internet for communication, Quadrant 2, companies offering information and some services these could include faxed orders, Quadrant 3 represents information for an international audience with no transaction facilities and Quadrant 4 are companies with full international transaction facilities.

Wilcocks and Sauer (2000) describe a four stage model to describe the move of businesses to e-commerce. At Stage 1 a company is thinking about establishing a web presence. Stage 2 sees companies developing a web site and providing information while also investigating the potential to transact business. The move to an e-business takes place at Stage 3 and finally at Stage 4 companies are regarded as having successfully implemented e-commerce.

The research for this paper uses a model modified from the Quelch and Klein (1996) and the Wilcocks and Sauer (2000) models to assess the stage of e-commerce activity a company has reached as determined by an assessment of the content of their web site and the level of interaction with the intended user. The stages of the model are:

- **Stage 1 Early stage web presence:** The company has a developed a web site providing corporate and or product information but with no interactivity. This includes no ability to communicate with the company via email. This style of web site is often referred to as an “electronic brochure”.
- **Stage 2 Developed web presence:** The company web site has moved beyond corporate information and product or service details and provides some interactivity via email communication, online forms or product configurators.
- **Stage 3 Early stage e-commerce:** The company provides product details and pricing and provides a facility for purchasing. However this is limited to fax or email for ordering of products or services.
- **Stage 4 Mature e-commerce:** Full e-commerce activity including online ordering and pricing. It may also include added functionality such as order history and delivery details.

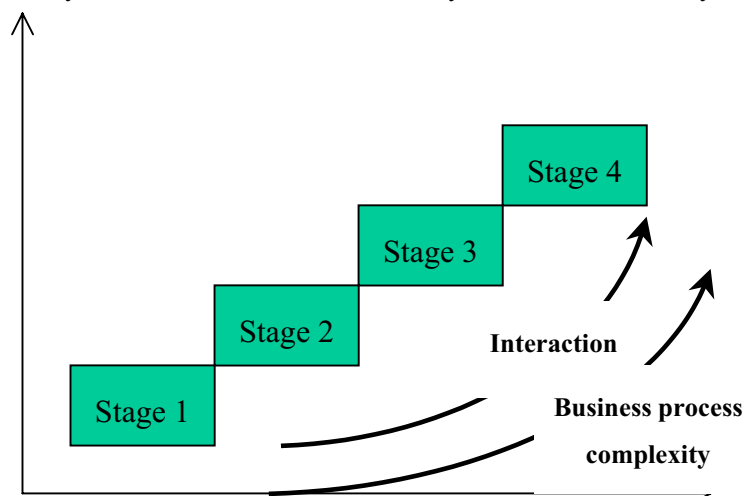


Figure 1 Stage model of e-commerce activity

The more advanced stages have a greater degree of interaction which must be supported by more complex business processes. It would be expected the costs of development and maintenance would also increase as described in Figure 1

4. METHODOLOGY

The purpose of the research was to classify the stage of e-commerce development companies had reached by examining the content of their web sites using the model proposed above. A random sample of companies (n133) which had implemented an enterprise resource planning system (ERP) software were selected. This sample was thought to be representative of Australia's major companies and by implication have committed major expenditure to their information technology budget (Hawking and Stein 2001). The web sites were drawn from the list of customers of a large ERP vendor. The ERP software installed provides a broad range of e-commerce functionality and therefore using a list of companies who have installed ERP software ensures that all the web sites investigated were from companies who have the facility to implement full e-commerce functionality.

A search on each company was performed using Yahoo.com.au search engine and if no results were found a more comprehensive search was performed using Google.com. A check list was developed covering items that would typically be found on web sites classified under four main areas. Each web site was then assessed on the following:

- *Company information:* Corporate information, Other information
- *Product information:* Specifications, Prices/Costs, Warranty Information, Inventory levels, Delivery details, Configurator (provision for interactivity for example building quotes and specifications)
- *Online business:* Business to consumer, Business to Business, Ordering (email, telephone, fax, on-line), Order status, Order History, Payment methods.
- *Other online services:* Frequently Asked Questions, Problems, Solutions, Email questions, Chat/Forum

Each web site was investigated using the set of criteria described above.

4.1. Company demographics

The companies sampled were randomly selected from an ERP vendor's customer list. The customer list included 320 companies of which 133 were selected. The ERP vendor using their own classification had classified each company's industry sector. Table 1 represents the percentage breakdown of companies in the sample as per vendor's industry sector classification.

Table 1 Percentage of sampled companies per industry sector

Sector	%	Sector	%
Public sector	17%	Primary metal & steel	3%
Consumer products	10%	Textiles production	3%
Retail	8%	Transport & storage	2%
Chemicals	6%	Automotive	2%
Information Technology	6%	Forest products & paper	2%
Utilities	6%	Metal products	2%
Media	5%	Oil & gas	2%
Mining	5%	Pharmaceuticals	2%
Building materials, clay & glass	4%	Telecommunications	1%
Engineering & construction	4%	Insurance	1%
High tech & electronics	3%	Higher education & research	1%
Banking	3%	Non classified	2%

Where revenue figures were available for the sampled companies (N71, 53.3%) the revenues indicated that the sample contained many of Australia's biggest companies. Table 2 provides a breakdown of the sampled companies by revenue.

Table 2 Net Revenue of companies

Net Revenue (\$AUD million)	Number	%
100 to 500	25	19
500 to 1,000	17	13
1,000 to 1,500	10	8
1,500 to 2,000	8	6
>2,000	11	8
Not available	62	47

5. RESEARCH RESULTS

An assessment of the Australian companies in the sample revealed that of the 133, the researchers were unable to find a web presence for 25 (19%) of the companies and one site was unable to be evaluated as it was "under construction". This resulted in 107 company web sites evaluated for this study. Many of the companies (13%) were international entities and their web sites were based on their global operations rather than having a specific web site for their Australian operations.

5.1. Company information

Many companies establish web sites to provide an alternative channel to markets, or as an alternative method of marketing or to enhance their support and service provision. It would be expected that implicit in this is the provision of contact details, whether via telephone, facsimile or email. The research revealed however that:

- Corporate information was available on 86% of web sites (92)
- Contact via email was available on 65% of web sites (69)
- Telephone details were provided on 82% of websites (88) and 65% of web sites provided fax numbers (69).

It is surprising that only 65% of the sampled companies had email contact details. There is little doubt that email technology would be used extensively within the sampled companies as the main medium of communication. The companies would have the necessary technological infrastructure and corporate culture to support the use of email as a contact medium. The lack of uptake of this technology by 35% of the sample requires further investigation.

5.2. Product information

It would be reasonable to expect that most companies, especially large companies, would provide detailed descriptions of the goods / services they supplied on their web sites. The research however determined that this is not always the case as the following results show:

- Product specification details were found on 68% of web sites (73)
- Prices of goods or services were detailed on only 22% of sites (23)
- Warranty information was provided by just 16% web sites (17)
- Configurator facility provided on 9% of web sites (10)

5.3. Online business availability

The extent to which companies provided online trading facilities were explored. This included an examination of both the business to business and business to consumer e-commerce options. Also assessed was the methods used by the companies to transact their business in terms of ordering and providing details to customers on orders in the system. Again few companies provided much in this area:

- Business to consumers transactions were available from 21% of the web sites (22)
- Business to business transactions were available from 14% (15) of the companies .

Ordering

- Ordering via the telephone was possible for 22% of the companies (24)
- Email orders were possible in 22% of cases (24)
- Orders taken by fax was accepted by 16% of companies (17)
- Details relating to payment methods were provided on 19% of the web sites (20)
- Online ordering could be done through 18% of the web sites (19)
- The facility to determine the status of an order was possible on 8% of sites (9) however the order history could be determined by 10% of sites (11)
- Delivery details were provided by 10% of web sites (11)
- Information relating to inventory levels on available goods was provided on just 5% of sites (5)

5.4. Online services

A number of companies provide a range of services for users online to assist with support and problem solving.

Each of the websites was explored and the different services noted. The common services were:

- Frequently asked questions pages were provided by 24% of web sites (26)
- Problems pages provided by 13% of web sites (14)
- Users able to ask questions through email was available from 19% of the web sites (20)
- Chat/forum facility provided by 7% of web sites (7)

- Knowledge base 4% (4)

The research indicated that there was no significant difference between industry sectors with any of the above findings.

6. THE E-COMMERCE ACTIVITY MODEL

The data gathered from the 107 web sites was then used to establish the activity of organisations with regard to e-commerce using the level of interaction as a criteria. Increased levels of interaction require an increased level of technical infrastructure and a greater financial commitment to the development and maintenance of the web site (Sauer 2000)

Stage 1 represented companies that had a minimal level of interaction with their target audience via their web site. The web site acted as an electronic corporate brochure, providing corporate details and contact details but no contact mechanism via the site such as email or online forms. The research indicated that 11% (12) of companies could be classified in Stage 1. Many of these companies promoted communication via telephone or fax but six companies included no contact details at all.

In Stage 2 of the model companies move beyond the “electronic brochure” offering an increased level of interaction. This could include the use of email for requesting information about the company, product, or service difficulty. The interaction could also occur via a configurator which facilitates the development of a product specification, troubleshooting solution or a quote based on a particular configuration. However companies in this stage don’t provide the facilities for online business. 47% (50) of companies were classified in this stage. The majority of these companies provided email interaction at the corporate level (80%, N40) while 38% (19) provided email interaction in relation to service difficulties and faults. 6% (3) of the companies provided interaction in this stage via the use of a configurator which implies a more technological advanced level of interaction.

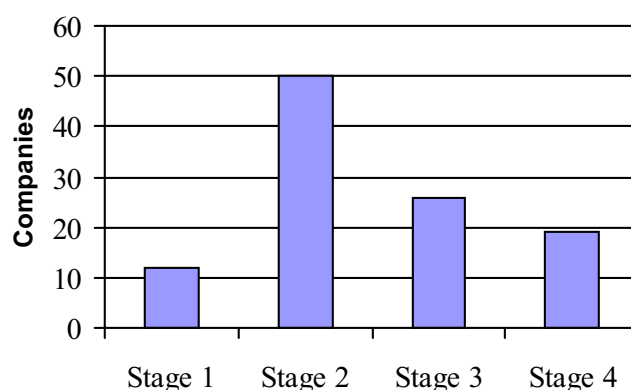
Stage 3 of the model includes companies that have developed web sites to sell their products and services but use a minimal level of interaction. Product details are included but the full capabilities of the internet are not realised with ordering performed either via the phone, fax or email. The major difference between stage 2 and stage 3 of the model is the ability to purchase goods via one of the mechanisms mentioned previously. 24% (26) of companies were classified in this stage of web interaction. 92% (24) of the companies used the telephone to conduct sales, 84% (22) email, and 65% (17). While 46% (12) of the companies used all three technologies to enable consumers to purchase goods and services. However 19% (5) of the companies did not include payment details.

The final stage of the model reflects (Stage 4) companies that perform business over the internet using technologies such as a shopping cart or online ordering. 18% (19) companies were classified in this stage. Many of these companies (N15) also appeared to provide the facility for business to business services but whether these were online transactions was difficult to determine, as many sites required a logon for trading with business partners.

The business to consumer sites provided a range of extra interaction functionality. Nine provided order status features, while eleven enabled consumers to review their order history.

A distribution of the sample of Australian companies as classified as per the e-commerce activity model can be seen in Chart 1. The majority of companies (89%) have moved beyond the “electronic brochure” type of website and offer some form of automated interaction. 47%

(45) of these companies are selling goods or services over the internet using various technologies.



Graph 2 E-commerce activity of Australian companies

RESEARCH LIMITATIONS

The limitations of the research include, the complexity of some of the websites. Many of the companies researched had various divisions and departments that maintained their own web presence. The evaluation of the websites was performed at the “home” page of the companies’ website. The navigational structure from this site was used to perform the research. There may have been cases where the level of interaction at lower levels within the website may have differed from those found on the “home” page. However there appears no way around this limitation as the sample companies are large, with complex organisational structures which is reflected in their web site structure. It could also be assumed that for business to consumer transactions, the ‘home’ page is the natural entry point for users wishing to transact business online.

Another factor is the assessment of the business to consumer functionality in Stage 4 of the model. Often this functionality is not apparent until an online order has been completed. The data gathered was from the menu structure which indicated that these options were available.

Finally to be more widely applicable the model needs to be applied to more international websites and future research will consider this.

CONCLUSION

The research endeavoured to assess the e-commerce activity of web sites for large Australian companies. The four stage model of e-commerce activity using the level of interaction as a criteria forms a foundation for this assessment although the authors recognise that refinement of the model is needed. The model is not designed to be prescriptive in suggesting that companies in Stage 1 should aim to reach Stage 4. The model simply provides a snapshot of a company’s level of e-commerce maturity as determined by their web site at a particular time. This model provides researchers with a foundation for longitudinal studies following the development of corporate sites and the ability to compare companies within different industry sectors and other countries. The research suggests that, at least in terms of large Australian companies, that despite the available functionality provided with their ERP systems, most companies are yet to take advantage of the technology and move more aggressively to trading electronically via the web. Although outside the scope of this research, further investigation is required into the lack of web presence by 19% of the sample.

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