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ABSTRACT

A question facing contemporary entrepreneurs is: How can Electronic Commerce be used to exploit business opportunities now available through highly efficient electronic markets? This study aims to answer that question. Although the Internet is increasingly being adopted to market products and services, little academic attention has been paid to its linkages with database technology. This research used focus groups and convergent interviews to develop a framework illustrating how firms use the Internet and database technology for strategic advantage. Results revealed that integration of Internet and database marketing enhances the effectiveness of EC's potential, offering such benefits as increased accuracy and speed, cost saving, and more importantly greater interaction and better relationships with customers; thus providing more effective application of existing and emerging technologies. The extent, degree and speed of communication enabled by the Internet makes it a synergistic component of an effectual database marketing strategy. Findings from this research have implications for both theory and practice providing strategies to achieve optimal results through the integration of Internet and database technologies.

INTRODUCTION

Many firms have adopted the Internet for promotional purposes (Williams, 2000) but have not yet fully capitalized on its interactive marketing capabilities (Rowsom, 1998). Nevertheless, some *practitioners* and *consultants* are realizing the potential for integrating the Internet with organizational databases. For example, Rowson (1998, p. 24) noted the recency and potential of the integration of Internet information into database marketing in driving the success of electronic commerce by forecasting that 'instituting database marketing on the Web will be like making the leap from playing checkers to playing multi-level chess.'

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However, *academic research* relating to the integration of Electronic Commerce and database technology to gain strategic advantage is lacking. There has been recognition in the academic literature about the Internet and database marketing separately (Forrest & Mizerski, 1995; Montgomery, 1999; Hoffman & Novak, 1996), but not about their integration. Hence the *aim* of this paper is to develop a framework for integrating Internet and database technology to help entrepreneurs gain strategic advantage by improving their marketing effectiveness, based on the results of rigorous academic research. Essentially, the researchers argue that aspects of inputs, processes and strategic outputs describe and explain the integration of business to consumer and business to business marketing strategies utilizing database technology.

This paper has three parts. First, a preliminary framework based on the literature is outlined. Next, the methodology of focus groups and convergent interviewing is briefly described. Finally, results and a revised framework based on the findings are presented.

An extensive review of the literature concerning Internet and database marketing preempted development of a framework to integrate Internet marketing into database marketing processes so that related research issues could be identified. The background theories (Phillips & Pugh, 1994) or parent disciplines (Perry, 1998) used to develop the framework are Internet marketing and database marketing. Discussion of these begins broadly and then focuses more narrowly towards the immediate discipline of the research problem.

REVIEW OF THE LITERATURE

The literature provides a professional awareness of the background theories or fields of study of this research (Phillips & Pugh, 1994) that are the foundations of the theoretical framework (Perry, 1998). The Web has been around for a number of years in various forms. However, it only broke into the popular culture after the introduction of graphical browsers. Prior to that, it had been primarily an academic and scientific tool for sharing information. Because of this short existence there is very little to be found in the literature regarding behavior with respect to Web presence (McManis, et al., 2001). The parent disciplines for this research are emerging and are relatively under-researched compared to other parent disciplines like service or international marketing. Thus, the two parent disciplines had to be evaluated and shaped in a more thorough way than usual.

Parent Discipline One: Internet Marketing

The use of the Internet for commercial activities has rapidly become the norm for businesses of all sizes. Businesses have accepted and adopted e-commerce technology at a faster rate than any other technology in the history of mankind. Web sites are being designed and developed to enable organizations to conduct business using Internet technology (Godwin & Marquis, 2001-2002).

Various definitions of Internet marketing were reviewed to establish a suitable definition for the first parent discipline of this research.

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From a marketer's perspective. the Internet is a tool which marketers use as an integral piece of the marketing mix (Strauss & Forest. 1999). The growth of the Internet and in particular the exponential growth of the web has created commercial opportunities for electronic commerce. Worldwide, there are over 300 million people with Internet access. By 2003. Internet-based e-commerce revenues could reach US $1 trillion. or about 1.5 percent of all global sales (Global Internet Statistics, 2000).

Internet marketing definitions in the literature appear to have several emphasis. Synthesizing these definitions in the literature into the widely accepted definition of marketing by the American Marketing Association (Hunt, 1991), Internet marketing is comprehensively defined in this research as:

> all on-line activities that use interactive electronic dialogue with individuals in the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create direct or indirect exchanges (and personalized relationships where they are relevant), that satisfy individual and organizational goals.

A recent study revealed that 97% of the respondents were either very satisfied or somewhat satisfied with their Internet purchases (Stark & Meier, 2001). Web strategies have followed an evolutionary path reflecting the rapid development of Internet technology. Although emerging over time, how have these strategies developed in an orderly progression? Do they emerge one after another, or do they depend on the objectives of the organization's Internet marketing at a point of time? To address these questions, the next section discusses key elements of Internet marketing to understand how the Internet might be used for data collection in database marketing processes.

Parent Discipline Two: Database Marketing

There is great potential to obtain data from the Internet for database marketing purposes. Therefore, the researchers review issues relating to the database marketing literature - the second parent discipline of this research. Again, the discipline is evolving and some up-to-date and detailed synthesis of it was required for this research. Specifically, purchasing intention is largely influenced by customer service, purchase results and delivery, site design, purchasing process, and products sold (Cho & Park, 2001). Database marketing has elements of relationship marketing; direct marketing and interactive marketing thus must be distinguished from these marketing types. These three elements of database marketing provide a platform for developing a definition of database marketing for this research. Various definitions of database marketing have appeared in the literature and were explored in an effort to determine a suitable definition for this research.

Some definitions appear to provide a *broad* or extremely strategic picture of database marketing (Master, 2000) while other definitions are very *narrow* or tactical, thus missing database marketing's strategic significance. What is needed for this research is a definition that is both strategic and tactical. Thus we need to turn to a *comprehensive* and appropriate definition

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for this research -- the one provided by the National Center for Database Marketing (NCDM) (cited in Hughes, 1991, p. 4). This definition also includes the purpose, processes, and benefits of database marketing:

> Managing a computerized relational database system, in real time, of comprehensive, up-to-date relevant data on customers, inquirers, prospects and suspects, to identify responsive customers for the purpose of developing a high quality, long-standing relationship of repeat business by developing predictive models which enable marketers to send desired messages at the right time in the right form to the right people- all for the result of pleasing customers, increasing response rate per marketing dollar, lowering cost per order, building business, and increasing profits.

There is no doubt that customers rather than designers have the final say about the design quality of web sites in e-commerce (Arnett, et al., 2001).
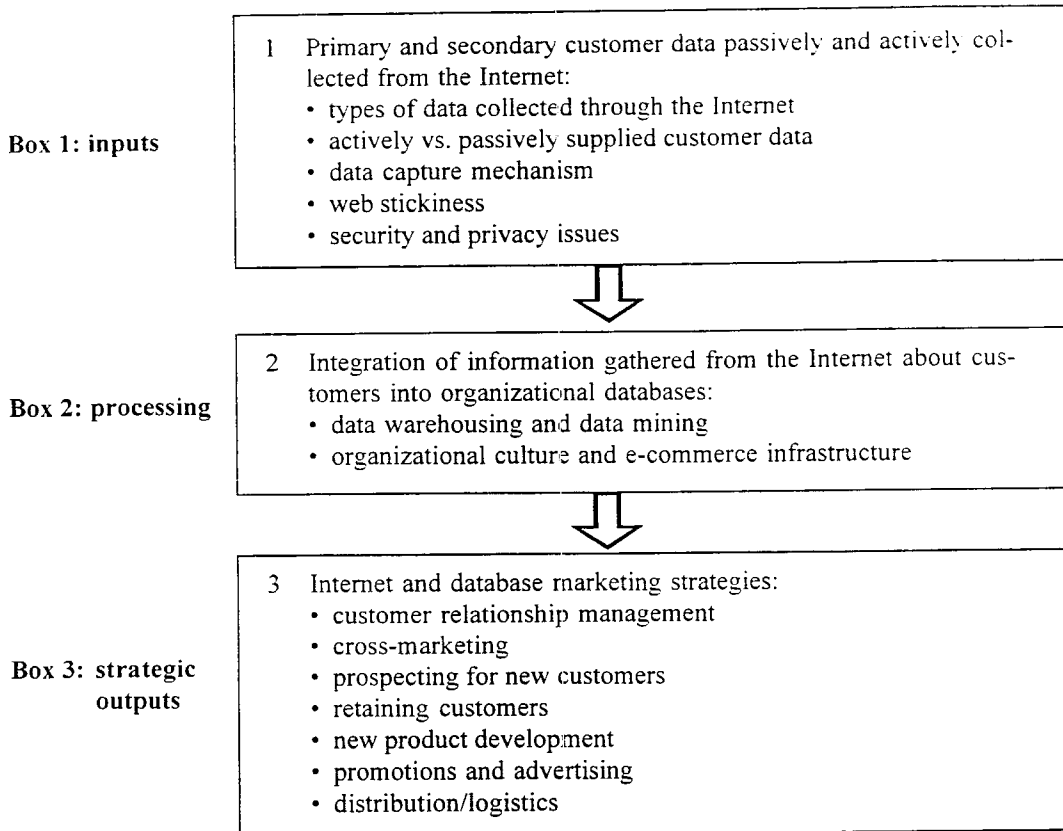
PRELIMINARY FRAMEWORK AND RESEARCH ISSUES

Internet and database technologies offer organizations the opportunity to gather market intelligence and monitor consumer choices through customers' revealed preferences in navigational and purchasing behavior. However, there are social, legal and technological issues and drawbacks at the present level of technology that prevent firms from fully capitalizing on these benefits (Caruso, 1998; Hoffman, et al., 1997). The literature identifies several methods for organizations to entice consumers to contribute information through the Internet. These issues are discussed next, aiming at developing a theoretical framework for this integration process.

The literature defining the process of integration of customer information through the Internet into other customer databases is principally practitioner based and revolves primarily around the concept of an effective marketing data warehouse (for example, Anon, 1998; Corey & Wilson, 1998). A theoretical framework outlining the process through which Internet derived customer information may be effectively integrated with other customer information to enable competent database marketing focuses on the three usual parts of a system: inputs, processes, and strategic outputs as modeled in Figure 1.

The *inputs* are the customer information gathered from the Internet. Four primary types of data are identified in the literature, namely, descriptive data, transaction history, direct preference measures and externally derived data (Hagel & Armstrong, 1999; Holtz, 1992). This information contains both *active* data (information provided by the customer with their full knowledge, participation, and often feedback) and *passive data* (information derived from observation of the customer's behavior that may occur without their direct knowledge). But how these types of information apply in the integration of Internet marketing and database marketing needs to be discovered. Thus the first research issue is: *How can customer data be gathered passively and actively through the Internet for database marketing purposes?*

Figure 1. Preliminary Theoretical Framework for This Research

Box 1: inputs

> 1   Primary and secondary customer data passively and actively col-
>   lected from the Internet:
>   • types of data collected through the Internet
>   • actively vs. passively supplied customer data
>   • data capture mechanism
>   • web stickiness
>   • security and privacy issues

Box 2: processing

> 2   Integration of information gathered from the Internet about cus-
>   tomers into organizational databases:
>   • data warehousing and data mining
>   • organizational culture and e-commerce infrastructure

Box 3: strategic outputs

> 3   Internet and database marketing strategies:
>   • customer relationship management
>   • cross-marketing
>   • prospecting for new customers
>   • retaining customers
>   • new product development
>   • promotions and advertising
>   • distribution/logistics

The *processes* integrate information gathered from the Internet and information in the organization's database. The literature suggests that the information gathered from the Internet is processed through identification, standardization, de-duplication and consolidation procedures, and a unique reference number is applied to a customer irrespective of whether the customer is a business or an individual (Seybold, 1999). Records are stored in an organizational data warehouse and updated automatically through data derivation methods such as cookies and web form log-ins. More details are required, however, for a comprehensive framework. Thus the second research issue is: *How can customer data from the Internet be integrated into database marketing processes?*

Finally, the *strategic outputs* are the possible uses of the Internet information that can be "mined" from databases (Peacock, 1998). This final part of the preliminary framework was synthesized through merging the literature on Internet marketing strategies and database

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marketing strategies. Eight possible strategies for Internet/database marketing can be synthesized from the literature (Campell, 1997; Hanson, 2000: Jackson & Wang, 1994; Nash. 1993; Sterne. 1999): cross marketing, prospecting for new customers. retaining customers. segmenting customers, new product development, brand development, distribution. and promotion strategy. Which of the strategies, if any, are most appropriate for effective Internet database integration needs to be investigated. Therefore, the third research issue is: *How can customer information gathered through the Internet be used in developing Internet/database marketing strategies?*

In brief, this preliminary framework was a starting point for understanding how Internet and database marketing can be integrated. The next step is to confirm or disconfirm the framework through rigorous research.

RESEARCH METHODOLOGY

Research that investigates the theoretical framework defined above is *exploratory* in nature; thus the design focused on two stages of *qualitative research.* First, Internet and database marketing are relatively new topics in the academic marketing literature. Therefore. qualitative methods were deemed appropriate to explore this complex topic in depth with experts who have studied and/or applied their knowledge practically and generate ideas rather than to evaluate ideas (Crimmons, 1988). This information could then be used to assist in theory building that may be further examined and tested through quantitative methods. Secondly. qualitative research allowed the researchers to obtain the rich and deep information required as to how and why the Internet and database marketing can be integrated. In summary, the complexity of the research subject warrants in-depth exploration that is only possible through qualitative research. Realism is the preferred paradigm for this research because of the nature of the problem it addresses (Hunt, 1991). That is, the area of this research is contemporary and deficient in theory and lacking in well-established constructs and principles about a real world phenomena that exists outside people's perceptions (Perry, et al., 1999). There are few studies regarding the integration of Internet and database marketing. Therefore, this research follows a process of discovery that uses inductive theory building as its approach (Eisenhardt, 1989).

In the first stage, data was collected through two *focus groups*. Because the research phenomenon is contemporary and no prior research has been conducted, focus groups were appropriate for generating ideas and obtaining insights from Internet/database marketing practitioners and consultants (Carson, et al., 2000). Two homogeneous groups were conducted in regional Toowoomba, Queensland (Australia) and cosmopolitan Sydney, New South Wales (Australia) respectively, because discussions within homogeneous groups produces more in-depth information than discussions within heterogenous groups (Bellenger, et al., 1989). The first group was comprised of marketing managers with some general knowledge of Internet and database marketing but limited practical experience. The second group were selected from several industry sources in Sydney comprised of marketing managers with both knowledge and experience of Internet and database marketing.

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In the second stage of the research, *convergent interviews* were used to further test and refine the theoretical framework (Carson, et al., 2000). For the exploratory stage of research where the extent of theory development is low, convergent interviews, in-depth interviews or case studies can be used to refine research issues and reduce uncertainty about the research topic (King, 1994). Convergent interviewing is *defined* as in-depth interview technique with a structured data analysis process - a technique used to collect, analyze and interpret qualitative information about a person's knowledge, opinions, experiences, attitudes and beliefs through using a number of interviews which converge on important issues (Dick, 1990; Nair & Riege, 1995). These methodologies are common in the realism paradigms while other methodologies like participant observation and action research are more often used in constructivism and critical theory research. Convergence is achieved when no new information is uncovered.

Selecting the optimal sample size for the interviews depends on what is to be found and why, how the findings are to be applied and the researcher's available resources (Patton, 1990). Research has suggested different sample sizes for convergent interviewing.

The stability-achieving approach was adopted for this research. That is, maximum information gathering was the primary aim of the interviewing for this research and the final number of interviews was determined when stability occurred. The researchers conducted a total of five interviews, three with Internet/database marketing industry practitioners and two with marketing consultants, based on steps recommended by Dick (1990, pp. 12-14), before stabilization was achieved. That is, the five interviews, a figure that is similar to Nair and Riege's (1995) suggestion, were sufficient for stabilization to occur during the information gathering.

Content analysis of the interview transcripts led to the development of a final framework of the integration of Internet and database marketing strategies that are described in the findings.

FINDINGS

Findings from the focus groups and the interviews extended the preliminary framework, providing evidence about how the integration can be accomplished in organizations. Findings are summarized in Table 1 and are discussed next.

The purpose of the data analysis was to seek patterns in the interview data. In this section, the interviewees' names are disguised with the letters A to E to maintain confidentiality. These codes will be used in brackets to indicate evidence of the pattern. However, a brief picture of each of these interviewees is necessary to set the scene for the detailed analysis of the interview data. Table 2 illustrates the interviewees' positions, industries they were operating in and location of their organizations in the order of interviews.

As the practitioners and consultants converged on similar issues quickly, only five respondents were necessary. These interviews represented five different organizations. Table 2 summarizes the organizations' characteristics and is followed by descriptions of these five organizations that are deliberately limited to protect the anonymity of interviewees but have been included to "set the scene" (Patton, 1990, p. 388).

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Table 1. Findings for Each of the Three Research Issues

Research Issue	Conclusions About the Research Issues
1	*How can customer data be gathered passively and actively through the Internet for database marketing purposes?*
	Conclusion 1.1: types of data collected through the Internet • Both primary and secondary customer data can be collected through the Internet. • Primary data collected through the Internet are more useful for Internet/database marketing purpose. • Permission marketing has to be in place in the collection and use of customer data. Conclusion 1.2: active vs. passive customer data • Customer data collected through the Internet can be categorized into active and passive data. • A mix of these two types of data is most effective for learning about the customers. • Passive data needs to be matched back with active data to become meaningful. Conclusion 1.3: factors influencing active customer data collection through the Internet • Trust in a web environment • Web stickiness Conclusion 1.4: data capture mechanisms • Cookies and click streams • Web registration forms and online surveys • Transaction records • Information self-service Conclusion 1.5: dealing with ongoing management and maintenance of data currency • Minimizing number of data variables • Real time updates
2	*How can customer data from the Internet be integrated into database marketing processes?*
	Conclusion 2.1: data integration through data warehousing and data mining Conclusion 2.2: requirement of supportive environment • Supportive organizational culture • Appropriate e-commerce infrastructure • Top management commitment
3	*How can customer information gathered through the Internet be used in developing Internet/database marketing strategies?*
	Conclusion 3.1: six strategies that are most likely to be derived from the integration of Internet and database marketing • Customer relationship marketing • Cross-marketing • Prospecting new customers • Retaining customers • New product development • Promotions and advertising

Source: results of data analysis in this research

Table 2. Interviewees' Background for the Convergent Interviews

Interviewee	Years in Operation	Industry the organization operates in	Position of the interviewee	Location	Primary Specialty
Public Servant (A)	200	Public service	Marketing manager	Brisbane, Australia	Domestic and international postal services. postal solutions and philatelic products
Photographer (B)	20	Film processing	General manager	Gold Coast, Australia	Direct mail photo processing and other photography-related products
Conference Organizer (C)	5	Conferencing	Consultant	Sydney, Australia	Innovative Internet development and solution delivery
Database Manager (D)	10	Data management	Consultant	Sydney, Australia	Setup, implementation and incorporation of database marketing campaigns and strategic recommendations for use of data to enhance corporate growth
Web Developer (E)	10	Web developing	Marketing manager	Sydney, Australia	Solutions design and development for Internet marketing, e-commence and Internet systems and incorporating these with databases

Source: developed for this research, sometimes disguised for confidentiality

In brief, these five interviewees are from five different Australian industries. However, all interviewees have extensive experience in both Internet and database marketing.

Interviewee responses are summarized and categorized in Table 3.

The following discussion includes each of the three research issues derived from the preliminary theoretical framework and key points of the findings from interviews. Italics are used to highlight patterns found in the data.

Questions Related to the Overall Research Problem

The interviewees were initially asked, "What do you understand by the term of Internet marketing and database marketing?" Although this question was also included in the focus group discussions, it was asked in each interview to ensure the following discussion is within the same scope. Internet marketing is generally perceived as a new marketing approach that encompasses all of the organizations' on-line activities, using the Internet as an interactive dialogue (Row 1 in Table 3). This interactive dialogue provides opportunities for marketers to personalize their prod-

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Table 3. Summary of Results from Convergent Interviews

COMMENTS	A	B	C	D	E
1 Understanding of Internet marketing					
- interactivity	✓	✓	✓	✓	✓
- personalization	✓	✓	✓	✓	✓
- relationship building	★	✓	✓	✓	✓
2 Understanding of database marketing					
- is a customer data storage system	✓	✓	✓	✓	✓
- is used for segmenting customers	✓	✓	✓	✓	✓
- is direct marketing with one or more databases	✓	✓	✓	✓	✓
3 Characteristics in common for the above two concepts					
- are part of direct marketing	✓	✓	✓	✓	✓
- play a role in customer relationship management	★	✓	✓	✓	✓
relationship between Internet and database marketing					
- facilitating effect imposed on each other	★	✓	✓	✓	✓
4 Does your web site and/or e-commerce uptake have a life stage?	★	yes	yes	yes	yes
5 Do you currently integrage information gathered from the Internet into your database?	no	yes	yes	yes	yes
6 Types of customer data collected through the Internet					
- customer personal details	★★	✓	✓	✓	✓
- direct preference measures	★★	✓	✓	✓	✓
- transactional data	★★	✓	✓	✓	✓
- externally derived data	★★	✗	✗	✗	✓
7 Collection of actively supplied customer data					
- importance of active data for marketing use	★★	✓	✓	✓	✓
- purpose of data use	★★	★	✓	✓	✓
- function of web design	★★	✓	✓	✓	✓
- web incentives	★★	★	✓	✓	✓
- community	★★	✓	✓	✓	✓
8 Active data capture mechanisms through the Internet					
- registration forms	✗	✓	✓	✓	✓
- on-line surveys	✓	✓	✓	✓	✓
- help desk	★	✗	✓	✓	✓
- information self service	★	★	✓	✓	✓
9 Passive data capture mechanism through the Internet					
- clickstreams	★★	✓	✓	✓	✓
- cookies	★★	✓	✓	✓	✓
- inability of identifying customer at individual level	★★	✗	✓	✓	✓
- can be problematic	★★	✗	✓	✓	✓
10 Dealing with the ongoing management issues of handling information and maintaining its currency:					
- degree of difficulty	VD	VD	D	D	VC
- data synchronization	★★	✓	✓	✓	✓
- real-time data update	★★	✓	✓	✓	✓
- understanding of data requirement	★★	✓	✓	✓	✓
- outsourcing data collection	★★	★	★	✓	✓

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11 Methods of integration					
- central data warehouse	**	✓	✓	✓	✓
- purpose specified data marts	**	✓	✓	✓	✓
- dual data bases	**	✗	✓	✓	✓
12 Benefits from integration					
- better understanding of customers	**	✓	✓	✓	✓
- more efficient in collecting data	**	✓	✓	✓	✓
- more accurate data	**	✓	✓	✓	✓
- relationship building opportunities	**	✗	✓	✓	✓
13 Requirement of a supportive environment					
- supportive organizational culture	✓	✓	✓	✓	✓
- top management commitment	**	✓	✓	✓	✓
- collaboratoin between IT and marketing divisions	✓	✓	✓	✓	✓
14 Marketing strategies that are more likely to be developed through the information gathered from the Internet and the databases	**	all but S7	all but S7	all	all but S7
15 Comments on the proposed model					
- comprehensiveness	yes	yes	yes	yes	yes
- applicability	yes	yes	yes	yes	yes
- importance of organizational structure	✓	✓	**	✓	**
- importance of organizational culture	✓	**	**	✓	**
- addition of Internet call center or help desk	✗	✗	✓	✓	✓

Notes for Table 5:   ✓ = interviewee is in confirmity with the statement
✗ = interviewee is in disconfirmity with the statement
* = question had not been raised
** = interviewee did not answer the question because it was not applicable for the organization
D = difficult
VD = very difficult
S7 = strategy 7: distribution/logistics

ucts/services and messages and build closer relationships with their customers. The Internet marketing definition also included using the Internet to market on a one-to-one basis as interviewee B stated, "We communicate with our customers through e-mail on a one-to-one basis . . . every customer is treated individually and welcomed when they visit our web site."

On the other hand, database marketing involves gathering and storing customer data such as names, addresses, and transaction history into a storage system for prospecting and acquiring customers and building relationships with them (Row 2 in Table 3). It is most often used for segmenting existing customers based on their demographic, geographic, demo-geographic or behavioral characteristics.

Both Internet and database marketing are part of a direct marketing effort (Row 3 in Table 3) - 'the basic direct marketing rules apply to both Internet and database marketing.' (B) They also play an important role in customer relationship management (CRM) - '. . . literally you can have a one-to-one relationship with the customer through the complete information of a particular customer.' Moreover, for organizations who have intensively engaged in Internet marketing (D and E), the two concepts and consequent marketing activities were not separated. This inte-

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gration may indicate that the extent to which the Internet marketing can be integrated into database marketing processes depends on the amount of Internet activities in which organizations are involved.

Comparing the two types of marketing practices, most organizations believed that Internet marketing facilitates database marketing (Row 3 in Table 3).

Evolutionary Process of Internet Marketing

Interviewees were asked if their web sites evolve through different life stages. This question was developed during the second interview and was asked in the remainder of the interviews. All interviewees gave positive answers (Row 4 in Table 3). That is, Internet marketing and e-commerce for most organizations in Australia is a learning process which determined that their web design is evolutionary in nature. The first stage is brochure ware where information on an organization and its products are posted onto the web site; the second stage developed a certain level of interactivity where customers use the site as a functional tool--for example, purchasing online; the third stage cultivates a personalized customized site, where customers are able to obtain a unique experience with the organization based on individual preferences.

Research Issue 1: Inputs

After this general foundation was established, the first research issue concerns customer data that can be collected actively and passively through the Internet for database marketing purposes. Issues raised in the interviews are based on the literature and focus group discussions, including types of data gathered through the Internet, the effective collection of actively supplied customer data, various data capture mechanisms and dealing with data management and data currency. Each of these issues are now discussed.

During the discussion, a pattern of evidence showed that both passively and actively supplied customer information can be gathered through the Internet. Indeed, most individuals interviewed indicated that Internet information integrated into their organization databases gathered both types of data (Row 6 of Table 3).

The interviewees were asked specifically, "What information is more likely to be gathered through the Internet?" Actively and passively supplied customer information collected through the Internet varies from basic information such as customer personal details to life style information or self-service specifics.

Apart from primary data, organizations may also obtain secondary data about their prospective customers (Row 6 of Table 3). A few organizations that used external information derived from on-line surveys conducted by other entities believed this information also provided general information on their on-line customers. "Even though they do not provide direct information on our customers, it is still reliable in giving us a general idea about, say, their demographics . . ." (E). Nevertheless, external information is not a significant part of information derived from the Internet (Row 6 in Table 3).

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In summary, both passively and actively supplied customer data can be gathered through the Internet. While actively supplied data included customer personal and life-style information, passive data indicated customer preference. These data can also be classified into primary and secondary data. While secondary data can be obtained through the Internet, primary data is more favorable in Internet data collection.

The interviewees explicitly emphasized the importance of collecting *actively supplied* customer data and identified this type of data as the cornerstone of data collection for marketing purposes (Row 7 in Table 3).

Therefore, the interviewees were asked how they would *structure* their Internet mechanism to get consumers to contribute information about themselves. This question was developed during the third interview and was asked in the remainder of the interviews. Strategies that were used in this respect can be summarized with two 'Cs' - content and community (Row 7 of Table 3). In this respect, issues were raised in the interviews including the function of web design; customers' perceived benefits, purpose of data collection and dealing with privacy and security issues.

All interviewees emphasized that a web site of a particular organization should not only include product or organization information because this sort of information may not be effective in attracting web traffic (Row 7 in Table 3).

Some organizations noted that customers' *perceived benefits* more directly influence what types of information they are willing to give (Row 7 in Table 3). ' . . . the more fields a registration form has, the less incentive a consumer has to fill in the form unless the perceived 'payback' to the customer is accordingly high' (E). Therefore, a major game rule in Internet marketing is not to ask for information from a customer that is perceived unnecessary. 'There is a high level of intolerance among Internet customers if they think the information you ask them to give is irrelevant' (C). Thus these organizations more or less provide information on their web sites as to how the required information will be used and to ensure the security of their customer information.

Most organizations agreed that the types and amount of active data that are collected through the Internet should depend on the *purposes* of data collecting or how the data is going to be used (Row 7 in Table 3). That is, to collect information that is or organizational value because customers are empowered in controlling their information in a web environment and will not tolerate irrelevant information collection.

Moreover, the *openness* of the purposes of data collection was identified as one of the factors assisting in data collection (Row 7 in Table 3). For example, interviewee D commented, 'We always let the customer know why his/her information is needed, either for the fulfillment of an e-commerce transaction, or to personalize the site for him/her and so on . . . so it becomes the customer's self interest to provide correct information.'

Privacy and *security* issues need to be dealt with properly in enticing the customer to provide their information over the web (Row 7 in Table 3). Customers need to be ensured that the information about themselves is safe and will not go anywhere without their authorization. For example, interviewee E stated, 'On our web site, there is a section about our privacy and security

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issues. In particular, we warrant that no customer details are to be distributed to any third party unless such a transaction had been specifically authorized by the customer concerned.' Two tactics were suggested in the convergent interviews. The first one is that the organization may give customers the ability to control their own information through permission-based marketing and opt-in and opt-out of all offers; and second, organizations may show genuine respect for the privacy policy on their web site explicitly.

In summary, actively supplied customer data is the cornerstone in capturing customer information through the Internet. However, organizations need to develop appropriate Internet marketing strategies in obtaining such data, including increasing the attractiveness of the organization's web pages, disclosure of data collection purpose and proper handling of concerns and issues relating to security and privacy.

Actively and passively supplied customer data can be captured through different mechanisms. Specifically, *actively supplied customer* information was generally gathered through the navigation with users (Row 8 in Table 3). For example, some organizations use registration forms and surveys, others use a help desk on their web site to gather customer data (interviewees B, C and D). That is, the customer's completion and submission of personal details is required before the organization provides requested information.

In turn, most organizations gather *passive* information through several back-end tracking systems that monitor customers' movements on their web site(s) (Row 9 of Table 3). For example, one interviewee stated ' . . . every mouse click presents an organization with an opportunity for data capture' (C). Tracking systems include cookies that give information about customers such as his/her interests.

However, *shortcomings* associated with the current passive customer data collection mechanisms were identified in the third interview hence a relevant question was developed and asked in the remainder of the interviews. First, in some situations, organizations are unable to identify customers at the individual level and accordingly cannot track any customer information with any degree of certainty. For example, respondents commented, 'Mouse click can only track customer behavior at the browser level -- we don't know who is clicking' (C), and 'if more than one user uses a specific computer to access the Internet, such as in the situation of university campuses and households, we can not be exactly sure which customer is visiting our site at a particular time' (D). Second, the use of the main passive data mechanism - cookies - can be problematic. For example, respondents stated, 'Cookies can be deleted and turned off by the customers' (C), and 'the use of cookies is often perceived as intrusive to the customer's privacy' (E).

Because of the problems associated with passive data capture mechanisms, most organizations suggested that these mechanisms should be used in conjunction with active data collection and that the capture of actively and passively supplied customer data cannot be separated from each other (Row 9 in Table 3).

In summary, different mechanisms were used in obtaining active and passive customer data. However, there are also shortcomings associated with these data capture mechanisms. Thus

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it is important for organizations to design and structure their Internet and database marketing mechanisms in a way that will ease the integration process.

Each interviewee was asked, 'How does your organization deal with the ongoing management issues of handling and maintaining currency of the information in an integrated Internet data warehouse environment given the large volumes generated?' All organizations emphasized that this data management issue is where they experienced various degrees of difficulties in integrating the data collected as they receive millions of visitors from all over the world (Row 10 of Table 3). The situation was likened to 'upgrading an airplane while it is flying' (E), and ' . . . data generated can be colossal, and over time the build-up of this data can lead to exorbitant data volumes.'

Some organizations *outsource* their data collection applications to web providers because of the growing data volumes. Nevertheless, outsourcing data collection does not represent an important method of handling data volume. Most organizations emphasized the importance of database synchronization and real-time update (Row 10 of Table 3). ' . . . We had to make sure that customer communication points are integrated into a singular and total view . . .' (D). In addition, some organizations stated that the central point for maintaining data currency is to allow customers to access their own data and self-service to maintain data currency. This could also remove the need for administration of customer data and allow a streaming process.

Further, most organizations agreed that the optimal infrastructure depends on an organization's specific customer data requirements (Row 10 of Table 3). Thus, some organizations minimize their data variables to those deemed absolutely necessary so that data processing and updating becomes easier to manage.

The use of a dual data update system involving both real time and batch data update, in conjunction with concentration on data attributes that are of value to marketing objectives proved beneficial to organizations in managing large volumes of data and maintenance of data currency.

Research Issue 2: Processing

Research issue 2 asks how customer data from the Internet can be integrated into database marketing processes. Issues raised in the interviews centered on three aspects: methods, benefits of the integration and the requirement of a supportive organizational environment that the integration can be operated in.

The interviewees were asked, 'How do you integrate customer data derived from the Internet with your organizational databases?' Organizations who *integrated* information collected through the Internet with their organizational databases appeared to be able to come to a consensus on the method of integration. Most organizations considered the establishment of a central marketing data warehouse to be the most important element in the integration process (Row 11 in Table 3) since a central data warehouse provides a unified view of the organization and provides incorporation of disparate data sources.

However, most organizations also find it difficult to keep the central data warehouse suffi-ciently flexible to grow effectively with changing organizational requirements. These organiza-tions generally had larger or more complex structured databases that make it very difficult to fulfill the requirements of different user groups. To solve this problem, some organizations estab-lished specific data marts (Row 11 of Table 3) in addition to the central data warehouse for the ease of data accessibility because these data marts can be queried directly by the users and enable specialized data mining, modeling, and analysis without affecting central database performance. For example, interviewee D suggested, 'Data marts optimize system access . . . we have created data marts that are specific to the requirements of different divisions in the organization.'

Nevertheless, a central data warehouse with separated data marts might not be the ideal solution for some organizations (C). Interviewee (C) suggested a more appropriate approach would be to abstract the data integration; for example, using the data integration technology products to create a *virtual* data warehouse. However, it may take a couple of years for the technology to be refined and popularized because currently the operational systems were de-signed for a specific purpose and cannot intercommunicate when data is in different, inconsistent formats.

Another option of integrating Internet derived information into the organization's databases for some organizations if 'dual databases' (Row 11 of Table 3) where the organization has two synchronized databases, one is attached to the Internet, and the other as a central repository' (D). The web-linked database is used to obtain basic customer details and is also linked to a more secure database for the storage of more sensitive customer information through such mechanisms as unique fields or look-up tables.

No matter what the integration method is, all interviewees emphasized the importance of data mining and data modeling which involves periodical update data feeds from the organiza-tional system and webservers and the procedure of data cleaning and de-supplication operations. In addition, because data that is relevant to a particular customer may come from different divi-sions within the Internet, the integration system should be implemented as an organization-wide system.

In summary, data integration can be effectively achieved through the loading of all relevant data into a centralized data warehouse and creating a profile for each customer. Specific data marts and dual database systems may also be created in accordance with particular organiza-tional or divisional needs.

The interviewees were asked, 'Why is it beneficial for the Internet-derived customer infor-mation to be integrated into organizational databases?' Most organizations believed that integra-tion creates a single customer data source and the information about that customer gives them a better understanding of the customer in a more efficient and accurate manner (Row 12 of Table 3).

In summary, the benefits of integrating Internet and database marketing include the im-proved quality of customer information in terms of data currency and accuracy. This customer

information enables marketers to target their most valuable prospects more effectively and tailor their offerings to individual needs. Moreover, the interactivity, personalization, and relationship enhancement elements of Internet marketing enables organizations to learn more about their customers' needs, form relationships with those profitable customers, and provide them with customized products and services so a long-term relationship develops.

Discussion with all interviewees emphasized the impact of organizational culture orientation, and strategic focus on the data processing stage (Row 13 in Table 3). It was suggested that the key successful factors for the integration should include supportive organizational culture, collaboration between IT and marketing teams and top management's commitment as well as its overall e-commerce infrastructure (Row 13 in Table 3).

While the overall e-commerce infrastructure impacts on the data processing, organizational culture, structure and strategic orientation not only impact upon data processing but also the data collection and strategic outputs. Thus this issue was raised again in the discussion of the last question that asked the interviewees to comment on the preliminary theoretical framework.

In summary, the key successful factor for the integration should include supportive organizational culture, collaboration between IT and marketing teams, top management's commitment as well as its overall e-commerce infrastructure.

Research Issue 3: Strategic Outputs

After the data collection and processing phases are complete, how can data be used to generate marketing information? The third and last research issue is related to the possible marketing strategies that can be developed from the integrated customer data and the information they generate about the customers. What are the paybacks of the integration of customer data derived from the Internet with other data sources?

To investigate the last box of strategic outputs in the preliminary theoretical framework, the interviewees were requested to respond to the question, 'what marketing strategies are more likely to be developed through the information gathered from the Internet and organizational databases?' A table listing the seven most frequently used marketing strategies from the Internet and database literature was presented to the interviewees. They were asked to tick the appropriate ones in the table and to give explanations or examples; no extra strategies were suggested. For the first (A) and second interview (B), the tables separated strategies developed through information gathered from the Internet from those that can be derived from the databases. Interviewee B commented that this table caused confusion as strategies are developed from the integrated data instead of two sets of data. Therefore, this table was modified for the rest of the interviews and the results are illustrated in Table 4.

As shown in Table 4, most interviewees agreed on six of the seven proposed strategies. Only one interviewee (C) ticked the distribution/logistic strategy. This is likely a result of the industry they operate in. In addition, interviewees did have different focuses in implementing these strategies. For example, interviewee B stressed the importance of using the Internet in

cross-marketing while interviewees C and D emphasized the role of the integrated information in new product development.

Table 4. Results of Most Likely Used Strategies Developed from the Integrated Customer Data

COMMENTS		INTERVIEWS					
		A	B	C	D	E	Total in Row
1.	Customer relationship management	✓	✓	✓	✓	✓	5
2.	Cross-marketing	✓	✓	✓	✓	✓	5
3.	Prospecting for new customers	✓	✓	✓	✓	✓	4
4.	Retaining customers	✓	✓	✓	✓	✓	5
5.	New product development	✓	✓	✓	✓	✓	5
6.	Distribution/logistics			✓			1
7.	Promotions and advertising	✓	✓	✓	✓	✓	5
	Total in Column	6	6	7	6	6	31

Source: developed for this research from field research

A highly desirable strategy is in the area of customer relationship management, judging from the number or examples given by interviewees. Much customer information derived from the Internet can be used in database marketing to enhance the relationship between the organization and its customers. Interviewees recognize that organizations need to strengthen their relationships with customers as much as possible. ' . . . the Internet had empowered the customers in terms of information search . . . it is very easy for them to switch to other vendors if you don't know your customers' needs and wants and provide for such needs and wants' (D).

The interaction of Internet marketing and database marketing provide major advantages for customer relationships enhancement. First, the integration of the Internet marketing with database marketing increases relevancy, turnaround and personalization in marketing communications with organization's customers. Specifically, the near real-time ability for an organization to understand what specific product/service attributes appeal to a customer.

In addition to its effectiveness in enhancing customer relationship management, the integration of Internet and database marketing also improves the *efficiency* of the effort of customer relationship management. 'Our marketing and delivery costs actually were reduced in providing better service to the customer.' (A) A second advantage that the integration provides for customer relationship enhancement is that customers are incorporated fully and promptly into the organizational value chain because customers' needs are easily identified through the interaction in the Internet marketing process.

The second marketing strategy that can be derived from the integrated customer information is cross-marketing when accurate and timely customer information is gathered through the Internet. The interviews revealed that information is augmented to gauge derived information

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such as customer profitability through segmentation methods. 'Through segmentation, we target the most profitable customers and customize our product/service and communications based on what we know about them . . .' (D).

The Internet opens new opportunities for marketers to earn the trust of the right customers. In addition to repeat purchasing, retained customers also frequently refer new customers to a supplier and the effect of referral is amplified by the Internet because word of mouse spreads even faster than word of mouth. For example, interviewee B emphasized that, 'On-line customers can use e-mails to broadcast a recommendation for a favorite web site to dozens of friends and family members.'

Customer retention is one of the popular strategies practiced in both Internet and database marketing. ' . . . our knowledge of customers is based on a careful analysis of the retention rates and life-cycle economics of different customer segments,' and ' . . . retaining customers largely relies on improving customer service and Internet marketing provides a powerful tool because cyberservice overcomes many of the problems in traditional customer service such as the lag effect.' 'We have continual loyalty programs to reward customers for their frequent purchases of our product . . . also give our customers a choice of opt in/out to the loyalty programs' (C).

The integration of the Internet in database marketing processes provides for seamless customer feedback to be used to identify new products/services and new ways of marketing them. ' . . . Before we introduce any new product, we can test the idea in the on-line discussion group to see whether they like that idea or not and how much they are willing to pay for such a product or service' (E).

'Affiliate' marketing programs were identified in the discussion about promotion and advertising strategies. It builds on the organization's ability to monitor and track activity in real time. ' . . . we've established partnership and/or revenue sharing arrangements with other member web sites. The number of visitors, the number of new customers, and the number of repeat customers have increased dramatically' (D).

Promotion and advertising through the Internet offers advantages over traditional advertising through other media. 'On the web, it is not only possible to measure the amount of advertising delivered, but also possible to track the amount consumed' (C), and ' . . . through tracking the click stream of a particular customer, we can follow a prospect who clicked through on a banner to an actual purchase in a way that is not possible with advertising in traditional media'. Interviewees also identified the importance of integrated promotional strategies, including the Internet. For example, ' . . . there should be a balanced mix to be able to optimize the organization's overall marketing productivity' (B).
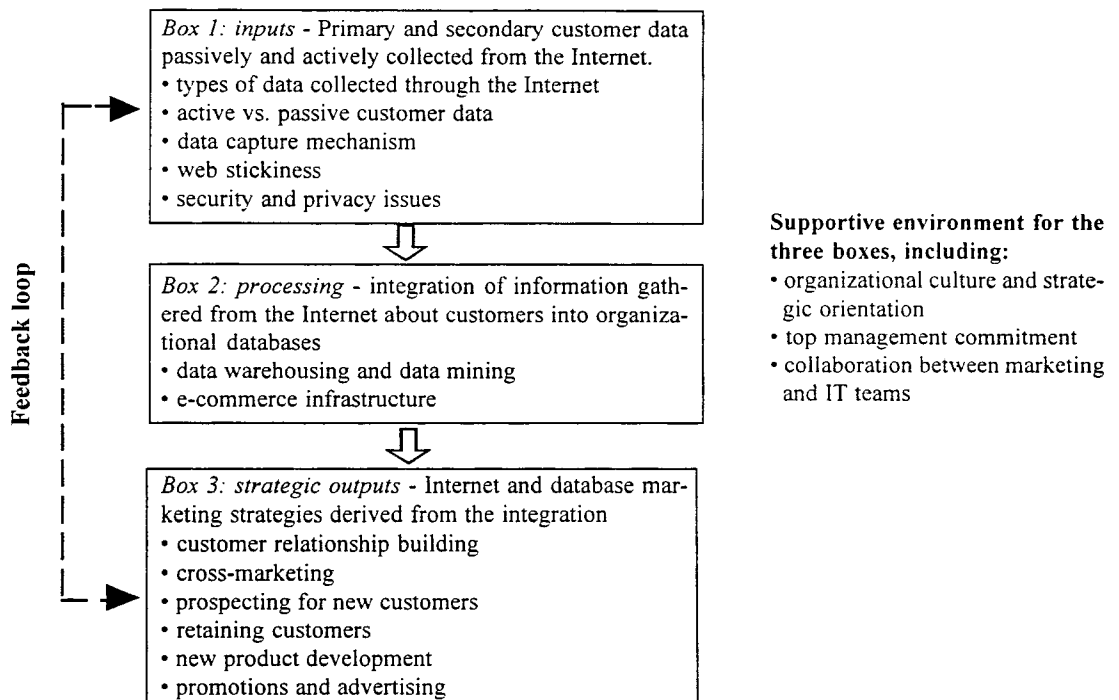
In summary, six of the seven proposed strategies were used in the integration of Internet and database marketing. The distribution/logistic strategy is not used by many organizations because it sometimes creates channel conflicts. In addition, organizations may have different focuses in implementing these strategies. For example, some organizations stressed the importance of using the Internet in cross-marketing while others emphasized the role of the integrated information in new product development.

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The last question asked the interviewees to comment on the proposed framework model presented. Generally, this model that was based on traditional data warehousing and data integration procedures, was received favorably. Interviewees believed that the model does represent an appropriate infrastructure for the integration of Internet-derived customer data with other customer information from marketing databases. For example, interviewee B commented that the model is both comprehensive and applicable. Interviewee E commented that the centralized data warehouse provides a more accurate data source.

However, several recommendations were made by the interviewees, including more emphasis on a supportive environment for the integration and inclusion of a call center to increase customer coverage and the inclusion of a help desk to enable the effectiveness of the feedback loop in the model.

In summary, the findings from the convergent interviews confirmed the literature and focus group findings with minor differences. All interviewees agreed that the integration of the Internet information about their customers with the customer databases assist in getting better understanding of their customers and thus enables them to fully embark upon database marketing. Support for the proposed model was elicited from the interviews with some minor modifications needed. The modified theoretical framework is presented in Figure 2.

Figure 2. The Final Framework for the Integration of Internet and Database Marketing

Box 1: inputs - Primary and secondary customer data passively and actively collected from the Internet.
• types of data collected through the Internet
• active vs. passive customer data
• data capture mechanism
• web stickiness
• security and privacy issues

Box 2: processing - integration of information gathered from the Internet about customers into organizational databases
• data warehousing and data mining
• e-commerce infrastructure

Box 3: strategic outputs - Internet and database marketing strategies derived from the integration
• customer relationship building
• cross-marketing
• prospecting for new customers
• retaining customers
• new product development
• promotions and advertising

Feedback loop

Supportive environment for the three boxes, including:
• organizational culture and strategic orientation
• top management commitment
• collaboration between marketing and IT teams

Source: developed for this research from findings

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CONCLUSIONS

There is little research about how Internet information can be used in strategic database marketing processes. From the sparse literature and our empirical findings, a revised framework for integrating Internet and database marketing was developed and is shown in Figure 2. That framework provides a contribution to the discipline because it is a new comprehensive and rigorously researched step towards understanding the important confluence of two new and powerful streams of business activity.

This research was designed to address the research problem: *How and why can Internet marketing be integrated into the database marketing processes of organizations?* Thus, the concluding discussion reports on the research undertaken and the outcomes generated in response to this research problem.

In this final framework (Figure 2), organizational culture, top management support and collaboration between marketing and IT teams provide a supportive environment for the integration and is critical for the success of the integration.

Within this environment, there are three components of inputs, processes and strategic outputs that have been established from rigorous theory-building research about the integration of Internet/database marketing. That is, the basic process of database marketing still applies - it is initiated from data collection to data processing and finally marketing uses of this integrated data.

The findings of this research also emphasized that these marketing uses or marketing strategies, when used properly and strategically, not only assist in achieving marketing goals for the organization but also provide feedback as to how effective the collected data is and assists the organization in further data collection. For example, it may be used in their web site updates to encourage customers to more actively contribute their information. Thus a feedback loop is depicted in the framework (Figure 2).

The next conclusion about the research problem relates to the benefits of integrating Internet and database marketing. First, improved quality of customer information (in Box 1 of Figure 2) enables marketers to target their most valuable prospects more effectively, tailor their offerings to individual needs, improve customer satisfaction and retention, and identify opportunities for new products or services (Box 3 in Figure 2). Secondly, the interactivity, personalization and relationship enhancement elements of Internet marketing enables organizations to learn more about their customers' needs, form relationships with those profitable customers, and provide them with customized products and services so that the relationships become enduring.

In conclusion, the future of the Internet appears to show increasing volumes and levels of transactions, as the medium becomes more commercially mainstream. The extent, degree and speed of communication enabled by the Internet makes it a synergistic component of an effectual database marketing strategy. The integration of all the marketing tools, including the two powerful ones -- the Internet and databases -- is the key to executing effective one-to-one marketing. That is, information technology of the Internet and database technology are making one-to-one

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marketing a reality (Pitta, 1998; Peppers, et al., 1999) and so the term one-to-one marketing is used again in the implication of this research. The concept of an integrated Internet and database marketing solution appears promising for organizations.

This research makes several levels of contributions, as summarized in Table 5. The table lists the research issue number (column i), the corresponding research findings (column ii), and the three levels of contribution made by this research to the literature (column iii). The contributions arise where the literature has not recognized the issues or has not closely investigated these issues. The three levels of contribution are in ascending order of investigation and therefore importance. The first level of contribution is confirmation and/or disconfirmation of expectations about a phenomenon that has been investigated in some depth in the literature. This level of contribution is referred to in column iii of Table 5 as *'to minor extent'*. The next level of contribution concerns an issue about which there was only speculation or limited empirical investigation in the literature. This level contribution *adds to* the literature and is labeled in column ii of Table 5 as *'to some extent'*. The last level of contribution involves a new area where no previous research has been done, therefore *extends* the literature and is labeled in column iii as *'to great extent'*.

As e-business grows, the ability to monitor and measure results becomes strategically critical. Findings from this research provide implications for both theory and practice providing strategies to achieve optimal marketing results through the integration of the Internet and database technologies.

Limitations

It should be noted that the results of this study represent the views of consultants and practitioners in Australia and should not be generalized to a global population.

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Table 5. Contributions Made by this Research for Each of the Three Research Issues

Research issue (i)	Conclusions about the research issues (ii)	Level of contributions (iii)
1	*How can customer data be gathered passively and actively through the Internet for database marketing purposes?*	
	Conclusion 1.1: types of data collected through the Internet	
	• Both primary and secondary customer data can be collected through the Internet.	To minor extent
	• Primary data collected through the Internet are more useful for Internet/database marketing purposes.	To some extent
	• Permission marketing has to be in place in collection and use of customer data.	To some extent
	Conclusion 1.2: actively vs. passively supplied customer data	
	• Customer data collected through the Internet can be categorized into actively and passively supplied data.	To minor extent
	• A mix of these two types of data is most effective for learning about the customers.	To some extent
	• Passive data needs to be matched back with active data to become meaningful.	To great extent
	Conclusion 1.3: factors influencing active customer data collection through the Internet	
	• Trust in a web environment	To some extent
	• Web stickiness	To some extent
	Conclusion 1.4: data capture mechanisms	
	• Cookies and click streams	To some extent
	• Web registration forms and on-line surveys	To minor extent
	• Transaction records	To some extent
	• Information self-service	To great extent
	Conclusion 1.5: dealing with ongoing management and maintenance of data currency	
	• Minimizing number of data variables	To great extent
	• Real time updates	To great extent
2	*How can customer data from the Internet be integrated into database marketing processes?*	
	Conclusion 2.1: data integration through data warehousing and data mining	To some extent
	Conclusion 2.2: requirement of supportive environment	
	• Supportive organizational culture	To great extent
	• Appropriate e-commerce infrastructure	To some extent
	• Top management commitment	To some extent
3	*How can customer information gathered through the Internet be used in developing Internet/ database marketing strategies?*	
	Conclusion 3.1: six strategies that are most likely to be derived from the integration of Internet and database marketing	
	• Customer relationship marketing	
	• Cross-marketing	To great extent
	• Prospecting new customers	
	• Retaining customers	
	• New product development	
	• Promotions and advertising	

Source: results of data analysis in this research

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REFERENCES

Anonymous (1998). How to use the Internet for database marketing. *Folio: The Magazine for Magazine Management, 28*(1), 68-169.

Arnett, K. P., Capella, L. M. & Taylor, R. D. (2001, Fall). Key dimensions of web design quality as related to consumer response. *Journal of Computer Information Systems, 42*(1), 70-82.

Bellenger, D. N., Bernhardt, K. L. & Goldtucker, J. L. (1989). Qualitative research techniques: Focus group interviews. In T. J. Hayes & C. B. Tathum (Eds.) *Focus Group Interviews: A Reader.* Chicago: American Marketing Association.

Campbell, L. (1997). Orange sets up loyalty scheme. *Marketing* (CD-ROM). Available: Infotrac/SearchBank.

Carson, D. A., Gronhaug, K., & Perry, C. (2001). *Qualitative research in marketing.* London: Sage.

Caruso, D. (1998, May/June). The law and the Internet beware. *Columbia Journalism Review, 37*(1), 57-61.

Cho, N. & Sanghyuk, P. (2001). Development of electronic commerce user-consumer satisfaction index (ECUSI) for Internet shopping. *Industrial Management & Data Systems, 101*(8), 400-405.

Corey, R. & Wilson, D. T. (1994). Using motivation as a basis for understanding and improving directing marketing relationship. *Journal of Direct Marketing, 8*(4), 28-39.

Crimmons, J. (1988, Spring). More truth and more consequences. *Applied Marketing Research, 28,* 44-49.

Dick, B. (1990). *Convergent interviewing, version 3.* Brisbane, Australia: Chapel Hill.

Eisenhardt, K. (1991). Better stories and better constructs: The case for rigour and competitive logic. *Academy of Management Review, 16*(4), 620-627.

Forrest, E. & Mizerski, R. (1995). Interactive marketing: The future present. *American Marketing Association.* Lincolnwood, Illinois: NTC Business Books.

Global Internet Statistics 2000 (2000). [Online]. Available: http://www.glreach.com/globstats.index.php3 [Accessed 21 November, 2000[

Hagel, J. & Armstrong, A. G. (1999). *Net gain.* Boston, MA: Harvard Business School Press.

Hanson, W. (2000). *Principles of Internet marketing.* Ohio: South-Western College Publishing.

Hoffman, D. & Novak, T. (1996a). A new marketing paradigm for electronic commerce. *The Information Society, 13*(1), 26-37.

Hoffman, D., Novak, T., & Chatterjee, P. (1995). Commercial scenarios for the web: Opportunities and challenges. *Journal of Computer Mediated Communications.* [Online]. Available: http://shun.huji.ac.il/jcmc/vol1/issue3/hoffman/html [Accessed 12 January, 2000]

Holtz, H. (1992). *Database marketing.* New York, NY: John Wiley and Sons.

Hughes, A. M. (1991). *The completed database marketer: Tapping your customer base to maximize sales and increase profits.* Chicago, IL: Probus Publishing Company.

Hunt, S. D. (1991). *Modern marketing theory: Critical issues in the philosophy of marketing science.* USA: South-Western Publishing.

Jackson, R. & Wang, P. (1994). The convergence of database marketing and interactive media networks: New source, new uses, new benefits. In E. Forrest & R Mizerski (Eds.) *Interactive Marketing: The Future Present.* Lincolnwood, IL: American Marketing Association, NTC Business Books.

Jackson, R. & Wang, P. (1994). *Strategic database marketing.* Lincolnwood, IL: NTC Business Books.

Master, H. (2000). Database marketing segmentation for strategy formulation in Australia industries. Ph.D. Thesis, University of Southern Queensland.

McManis, B. L., Ryker, R., & Cox, K. C. (2001). An examination of web usage in a global context. *Industrial Management & Data Systems, 101(9),* 470-476.

Montgomery, B. (1999, October). Net sales surge as shoppers go on-line. *The Australia, 3.*

Nair, G. S. & Riege, A. M. (1995). Using convergent interviewing to develop the research problem of a post graduate thesis. Paper presented at the Marketing Education and Researchers Conference, Gold Coast, Australia.

Nash, E. L. (1993). *Database marketing: The ultimate marketing tool.* New York, NY: McGraw Hill.

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* Newbury Park: Sage.

Peacock, P. R. (1998). Data mining in marketing: Part 1. *Marketing Management, 6(4),* 9-20.

_____. (1988). Data mining in marketing: Part 2. *Marketing Management, 7(1),* 14-25.

Peppers, D. & Rodgers, M. (1995). A new marketing paradigm: Share of customer, not market share. *Managing Service Quality, 5(3),* 48-51.

Peppers, D., Rogers, M., & Dorf, B. (1999b). Is your company ready for one-to-one marketing? *Harvard Business Review, 77(1),* 151-160.

Perry, C., Riege, A., & Brown, L. (1999). Realism's role among scientific paradigms in marketing research. *Irish Marketing Review, 6(1),* 12-21.

25

Perry, C. (1998). A structured approach to presenting PhDs: Notes for candidates and their supervisors. *Australian Marketing Journal, 6*(1), 63-86.

Phillips, E. M. & Pugh, D. S. (1994). *How to get a PhD*. Milton Keynes: Open University Press.

Pitta, D. A. (1998). Marketing one-to-one and its dependence on knowledge discovery in databases. *Journal of Consumer Marketing, 15*(5), 468-480.

Rowsom, M. (1998). Bridging the gap from traditional marketing of electronic commerce. *Direct Marketing, 60*(9), 23-36.

Seybold, P. B. (1999). *Customers.com: How to create a profitable business strategy for the Internet and beyond.* New York, NY: Times Business.

Stark, J. & Meier, R. (2001). A longitudinal study of usage and satisfaction levels of Internet shipping by college students. *Journal of Computer Information Systems, 41*(4), 65-68.

Sterne, J. (1999). *World wide web marking* (2nd Ed.). Chicago, IL: John Wiley and Sons.

Strauss, J. & Forest, R. (1999). *Marketing on the Internet: Principles of online marketing.* Upper Saddle River, NJ: Prentice Hall.

Udo, G. J. & Marquis, G. P. (2001-2002). Factors affecting e-commerce web site effectiveness. *Journal of Computer Information Systems, 42*(2), 10-16.

Williams, M. (2000, March). Spam bam thank you ma'am. *Marketing and E-business.* 38-40.

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