

# **A LONGITUDINAL STUDY OF EXPECTATIONS IN SMALL BUSINESS INTERNET COMMERCE<sup>1</sup>**

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## **1. ABSTRACT**

*This paper examines the change in expectation among a group of small Australian firms who participate in Small Business Internet Commerce (SBIC) over a twenty-month period. Essentially, we found that small firms online believed the Internet is important in terms of competitiveness, although some of the early expectations about SBIC's ability to generate instant competitive advantage had started to wane. The most useful attributes of the Internet were information gathering and time-savings, while results on advertising and sales were less encouraging. Internet marketing effectiveness was found to be industry-sector-dependent.*

## **2. INTRODUCTION**

Internet Commerce (IC) is promoted as a major business revolution that will change the future of the global economy. There has been a concomitant upsurge of research studies into different aspects of Internet Commerce (see, for example, Galliers *et al.*, 1997; Vogel, *et al.*, 1997). However, few of these projects have focused on the small business sector. Given the important role played by small firms in many world economies, the success of small firms

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gaining business leverage from IC is critical to the future of the global (and many regional) economies (Adams *et al.*, 1997; Precost, 1997).

Many authors have defined Electronic Commerce, with different emphasis on the technology and business applications. In this paper, we adapt the definition of Electronic Commerce described by Zwass (1996) and modified it to describe Internet Commerce as:

*Internet Commerce is the sharing of business information, maintaining business relationships, and conducting business transactions by means of Internet-based technology*

Recent empirical studies on Internet Commerce (particularly small business IC, or SBIC) reveal a number of important issues, which appear to be consistent across geographic regions:

- many small firms participating in Internet Commerce are micro-sized businesses (less than 10 persons), rather than the more familiar small-to-medium enterprises (Barker, 1994; Abell and Lim, 1996; Sieber, 1996; Poon, Swatman and Vitale, 1996; Abell and Black, 1997; Bennett, 1997; Fink *et al.*, 1997). Authors of a number of studies report more than 50% of their sample being composed of micro-sized small firms;
- many small firms engaging in Internet Commerce are found in the service and knowledge-based industries — and there is an obvious lack of presence from the heavy and manufacturing industry sectors (Lederer *et al.*, 1996; Poon *et al.*, 1996; Sieber, 1996; Fink, *et al.*, 1997);
- many small firms initially embracing Internet Commerce activities do so in the hope of achieving marketing benefits, better global exposure and better customer relationships (Abell and Lim, 1996; Poon *et al.*, 1996, Hamill and Gregory, 1997).

Yet despite these findings, few studies offer a longitudinal view of SBIC. This lacuna might be partly attributed to the relatively short history of SBIC, but we believe the rapid development of SBIC is now mature enough to allow an assessment of its initial impact. We undertook such an assessment by examining the evolving experience of a group of small Australian firms engaged in online activities over a twenty-month period, focusing on their changes in expectation. We believe that the experiences we found are sufficiently general to provide a guide for micro-sized organisations around the world.

In the remainder of this paper we first explain the method by which we undertook the study and then provide a comparison of the changes in expectation regarding eleven business objectives related to SBIC. Next we examine the change in experience concerning competitive advantage and

investigate the reasons for such a change. Finally, we provide an examination of small business perceptions of the effectiveness of Internet marketing.

### **3. RESEARCH METHOD AND LIMITATIONS**

Our longitudinal study of small business Internet use was made up of two surveys carried out twenty months apart, between 1995 and 1997 (see Poon *et al.*, 1996 for a discussion of the first survey). We chose the survey research method as our tool for examination because of its ability to handle a large sample size and a large number of variables simultaneously (Galliers, 1991).

The first component of the longitudinal study (from this point called the 'initial exploratory survey') was conducted in 1995. The purpose of the initial exploratory survey was to obtain a preliminary understanding of the then current SBIC levels of activity. In 1995 there was a lack of research study in this area and, in fact, our initial exploratory survey was one of the first of its kind carried out in Australia (or indeed, in any country). Specifically, the initial exploratory survey managed to obtain a business demographic profile of small firms online and of the types of Internet Commerce activities conducted with their customers, suppliers and trading partners.

Following the initial exploratory survey, a multiple-case study was carried out to solicit qualitative information to complement the shortcomings of the survey research method (see Poon and Swatman (1997) for a description of this case study). This was necessary to provide a comprehensive understanding of the issues under investigation and conformed to the recommendation for such combined-method approaches (see, for example, Kaplan and Duchon, 1988; Gable, 1994).

The second, or final, part of the longitudinal study (from now on called the 'final exploratory survey') was conducted in 1997. The sample for this survey included all the respondents from the initial exploratory survey. As with the initial exploratory survey, a questionnaire was sent to participants using email and the respondents were asked to return the answered questionnaire using email.

As many of those who have conducted longitudinal studies in Organisation and Information Systems research can attest is inevitable (see, for example, Miller and Friesen, 1982, or Vitalari and Venkatesh, 1991), this longitudinal study suffered from a number of technical problems:

- attrition bias (decrease in sample size over time) — only 50.4% of original respondents participating in the second survey, despite phone call reminders. Further, many of the small firms had changed their email

contacts since the original contact, which resulted in undelivered email questionnaires;

- unreliability of results due to repeated surveys — while almost none of our respondents had been approached to participate in an Internet Commerce survey in 1995 (and were thus very enthusiastic about participating) we found a very different result in 1997. So many surveys were sent out to Internet-active small companies during 1996 and 1997, as a result of the surge in popularity of studying Internet Commerce, that many of our original group of participants were suffering from the ‘over-surveyed’ syndrome. As we discovered during the multiple-case study, one participant actually set up his email reader to automatically delete unsolicited emails with the word ‘survey’ in them.

Vitalari and Venkatesh (1991) mention unreliability biases in situations where respondents are repeatedly asked certain questions, leading to behaviour setting and thus unreliable answers. We believe such unreliability was not a major factor in our survey, because there were only two points at which participants were contacted. We noted, however, that the gain in Internet Commerce experience made some respondents become more capable and trained in Internet Commerce and this gain in experience was reflected in some of the responses;

- obsolescence of earlier results — was a concern and of particular relevance to this longitudinal study. The rapid pace of change in technology and applications of the Internet led to the obsolescence of some issues investigated in the initial exploratory survey. For example, technological issues such as the use of file transfer software and web browsers became irrelevant because twenty months later file transfer programs and web browsers have become a single application. Because of such developments, we had to modify the final exploratory survey to cover new and emerging issues related to SBIC to ensure the relevance of the longitudinal study.

Nonetheless, those organisations that did respond provided us with information about the experiences of tiny companies engaged in trade over the Internet.

## **4. RESULTS AND ANALYSIS**

Out of the 146 respondents in the initial exploratory survey, only 117 were able to participate in the final exploratory survey. Altogether 59 useable questionnaires were returned constituting a 50.4% response rate.

#### **4.1 Change of Internet Service Provider**

One of the difficulties in contacting respondents from the initial exploratory survey using their old email addresses was delivery problems. These problems were caused by a change of Internet Service Provider (ISP). 46% of the sample had changed their ISPs at least once during the twenty months. Anecdotal evidence gained from the multiple-case study (several months earlier) indicated that dissatisfaction with ISP services (both technical and customer service-related) was primarily blamed for such changes, with lower connection fees being nominated as another reason for switching to an alternative provider. Still, there was a positive reason for such changes — one-third of these respondents changed their ISPs because they acknowledged Internet Commerce had become such an important part of their businesses that they needed to register their own domain name.

#### **4.2 Size of firms**

The firm size percentages (in terms of persons in a firm) for the final exploratory survey was similar to those of the initial exploratory survey. This similarity was important because it ensured the responses were not biased by firm size. Table 1 shows the distribution of firm sizes between the two surveys.

<insert Table 1 here>

A repeated observation was that micro-sized firms again showed up as the largest group of participants, a phenomenon also observed in a study conducted by Fink *et al.* (1997). Both studies refuted the claims that micro-sized firms are unable to reap significant benefits from SBIC (CEC-Monash, 1996: 34). It seems most likely that these benefits are the result of the comparative advantage gained from the Internet's global connectivity — an advantage which larger companies tend to take for granted, but which can make survival a reality for innovative small businesses attempting to extend their activities world-wide.

#### **4.3 Industry sectors**

The percentage distribution of industry sectors was slightly different between the two surveys but shares an overall pattern. There was a smaller percentage of firms in the 'Internet and Related Services' sector as well as in the 'Tourism' sector, possibly due to the 'over-survey' syndrome mentioned earlier. The very small percentage of firms found in the traditional 'Manufacturing' sector, however, was constant across both surveys, while the percentage engaged in the 'Retail/Wholesale' sector was also similar. The percentage distribution of small firms from different industry sectors is illustrated in Table 2 below. The reasonably consistent pattern of industry

sectors between the two samples provided some assurance that minimum inter-survey bias would have occurred.

<insert Table 2 here>

#### **4.4 Achieving business objectives through SBIC**

Eleven business objectives (called ‘business drivers’ in the initial exploratory survey) were ranked by respondents on a Likert scale (5 – most achieved; 1 – not achieved), together with two additional business objectives which were found to be important during the course of the longitudinal study. The scores of the thirteen business objectives are listed in Table 3.

<insert Table 3 here>

The ‘All Sectors’ average scores given to the thirteen business objectives in the second survey clearly indicated that the most valuable attributes of the Internet were to ‘Save time to look for resources’. ‘Obtain useful expertise from the Net’, ‘Savings in communication costs’ and ‘Better company image’ followed this. It is interesting to note that the three business objectives which scored less than average in this survey (‘Trading in a virtual marketplace’, ‘Significant increase in sales’, and ‘Better supplier relationship’) had all ranked much higher in the original survey. By comparison, no business drivers scored below average in the initial exploratory survey (with the lowest attaining a 2.8 average).

Indeed, a number of business objectives changed their ranking over the period of the two surveys. In the initial exploratory survey, the top two business drivers were related to ‘Advertising’ and ‘Corporate exposure’, with ‘Expertise exchange’ and ‘Competitor benchmarking’ coming second last and last. Indeed from the qualitative evidence collected during multiple-case study (Poon and Swatman, 1997), we discovered that business and media reports sometimes influenced expectations of the business objectives. By the time of the second survey, the companies concerned had considerably more experience of the realities of Internet Commerce — and a more realistic expectation of what benefits could be obtained.

In order to evaluate how well the initial expectations of individual business objectives had been achieved, the scores from both the initial exploratory survey and the final exploratory survey were compared. By applying the Wilcoxon Matched-Pairs Signed-Ranks test to the scores, we analysed the amount of change occurring (the Wilcoxon Matched-Pairs Signed-Ranks test was used because of its ability to compare before and after effects and because it takes into consideration both the magnitude and direction of change). The results are shown in Table 4.

<insert Table 4 here>

In Table 4, those business objectives marked with a “✓” indicate a better than initially expected result, whereas those marked with a “✗” indicate a result below the original level of expectation. Business objectives which are not marked performed as originally expected.

The results in Table 4 indicate that expectations concerning business objectives related to sales and marketing were disappointing to respondents (as the high percentage of respondents giving a lower score in the final exploratory study). In contrast to the earlier speculations in the business literature and media reports (e.g., Cronin, 1994; Singleton, 1995) that the Internet would help small firms to advertise themselves and achieve global exposure, small firms online found that their expectations were not met. Although the final score for ‘better advertising and marketing’ were still above average, the drops were significant. Only 14.3% of the sample experienced better marketing results, and 64.3% believed they had been too optimistic about advertising and marketing over the Internet.

These results also show that participants did not experience the Internet as an effective virtual marketplace (Trade in a virtual marketplace), although the effectiveness of Internet marketing was industry-sector dependent (see Figure 3). Overall 45% of the respondents did not experience a significant increase in sales and 32% believed this came at no surprise (the average score for this item being 2.2 out of 5 in the final exploratory study).

Even though the multiple-case study conducted earlier (Poon and Swatman, 1997) discovered that small firms online found the ability to communicate with others over the Internet was valuable to business relationship development, most of the firms in this sample did not experience savings in communication costs. This became obvious when we included access charges by Internet Service Providers and set up costs (hardware and software). Furthermore, anecdotal evidence from the multiple-case study indicated that communicating over the Internet did not totally eliminate other means of communications (such as telephone or fax) so that the channels involved were additional, rather than substitutive — and the cost-savings were less than predicted.

Another observation was that the Internet did not facilitate business relationships to the same extent on both sides of the value system. Porter and Millar (1985) described a value system consisting of the upstream value-chain (often linked to the supplier) and the downstream value-chain (often linked to the customer). The results in Table 4 indicate that the Internet has helped to achieve better customer relationships, but failed to do the same thing with the supplier side of the value system. By triangulating with the results from the

earlier multiple-case study (Poon and Swatman, 1997), one reason for this was the lack of traditional suppliers within this sample. It seemed that suppliers were not as keen to interact with their small firm customers using the Internet. This may change when suppliers, which are often larger firms, start to realise the potential benefits to be gained from embracing Internet Commerce with their smaller customers.

The two objectives that have exceeded original expectation are 'learning more about competitors' and 'saving time for resource searching'. This is likely due to the increasing number of information providers (such as government bodies and trade organisations) which are making their services available online. The Internet has also shown itself useful for business networking and expertise exchange.

#### **4.5 Maintaining competitive advantage: Does it or Does it not?**

Other research studies into Internet Commerce provided mixed indicators on whether competitive advantage could be maintained over time by small firms online (Abell and Lim, 1996; Abell and Black, 1997; Barker, *et al.*, 1997). There is a complicated and intricate system of factors, which determine the outcome of this question. Based on the results across our two surveys, we found that there was a drop in the percentage of those who believed they had maintained competitive advantage through Internet Commerce (see Figures 1 and 2).

<insert Figure 1 here>

<insert Figure 2 here>

However, this drop in percentage was found to be due to the fact that the Internet is now a 'competitive necessity'. Respondents were asked to explain their answers on competitive advantage together with their decisions to keep connecting to the Internet. 95% of the respondents said they would continue to use the Internet. This shows that the drop in percentage was not due to disappointment with Internet Commerce. Among those who did not believe they still had competitive advantage, the reasons put forward were:

- Other competitors are already on the Internet
- Not putting enough effort to exploit the Internet
- Not convinced that they have competitive advantage over competitors
- Competition is irrelevant (e.g., not-for-profit firms, fully captured market)

Based on these results, it is logical to suggest that small firms online saw the Internet having become integral to their business strategy.

#### 4.6 Effectiveness of Internet marketing

The importance of the Internet for small businesses involved in export and internationalisation has been repeatedly advocated by researchers in the marketing domain (Quelch and Klein, 1996; Bennett, 1997; Hamill and Gregory, 1997; Hamill, 1997), to the point where we, too, investigated the effectiveness of the Internet as a marketing tool. Since the business objective of 'better advertising and marketing' was not particularly well achieved over a twenty-month period among small firms online (see Table 3 and Table 4), we clearly needed further analysis to obtain an explanation. Respondents were asked how Internet marketing compared to other existing marketing methods in terms of effectiveness. Figure 3 shows the answer to this question.

<insert Figure 3 here>

Figure 3 shows that the effectiveness of Internet marketing varies according to industry sector. For example, no firm from the Business and Professional Service sector experienced the Internet as a more effective marketing medium compared to other channels they had been using. By contrast, a good percentage of firms from the Internet and Related Service sector and the Retail and Wholesale sector found the Internet to be more effective.

Another observation was the high percentage of firms from the IT (non-Net) sector that found the Internet a less effective marketing tool. Anecdotal evidence from the multiple-case study suggested that not all IT firms get their business through the Internet — in fact some software producers did not even advertise using traditional media, let alone the Internet. For example, one 20-person software consulting firm obtained almost all its business by means of client referral (the home page of this firm is little more than an electronic brochure) (Poon and Swatman, 1997). This leads us to suggest that IT firms which are not directly providing Internet services might not find the Internet an effective marketing medium.

We also explored the relationship between the percentage of a company's customers on the Internet and that company's view of the effectiveness of Internet marketing. Using bivariate correlation analysis, we found that there was little correlation between the percentage of customers online and the company's views of the effectiveness of Internet marketing (correlation coefficient = .1281; Pearson's 2-tailed significance = .380). Even some has a high percentage of customers online, unless business is primarily obtained through on-line marketing, the effectiveness of the Internet as a marketing medium is considered to be insignificant.

## 5. CONCLUSION

In this paper, we have discussed the findings of a longitudinal study carried out on a sample of small firms online in Australia. We found that Internet Commerce managed to fulfil some, but not all, business objectives satisfactorily. Over a twenty-month period, we discovered that the speculation by business and media reports about what the Internet can do was not always right — sales increase was far lower than initially expected; and many small firms were disappointed with the performance of the Internet as a virtual marketplace. However, the Internet did help small firms to save time in looking for resources, to build business networks and to share expertise.

Some small firms expressed the view that, after twenty months, they no longer gained competitive advantage merely because they were online. Yet 95% of the sample said they would continue to use the Internet Commerce for their businesses. Often the loss of competitiveness was due more to competitors had also gone online — with the result that Internet Commerce had become a competitive necessity, rather than a matter of competitive advantage.

Whether the Internet was an effective marketing medium depended on the industry sector a firm was in. A high percentage of firms from the Internet and Related Services sector found the Internet was either ‘as effective’ or ‘more effective’ than other marketing media, but this finding was not true for other sectors. The determinants of the effectiveness of Internet marketing appear complicated and clearly require further research.

This longitudinal study has provided us with both encouraging and disappointing results. We are encouraged by the number of companies which feel that they could no longer function without their connection to the Internet — and disappointed that so few of our micro-enterprises have gained real, solid benefits in terms of sales and marketing. It may well be that the Internet has not reached its full potential as a business tool. If so, a further study of this group (in, say, another two years time) should provide evidence of growing sales-based success. We believe that research into small business Internet Commerce is still in its early, formative stages. But we also believe that this is a very important sector for researchers into Internet Commerce.

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