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Why Australian Car Retailers do not Adopt eCommerce Technologies

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Abstract

It is important for the small business sector to adopt electronic commerce (e-commerce) technologies. It improves the ability of small business to operate on an international scale and provides a cost-effective way for them to market their business, launch new products, improve communications and gather information. This study focuses on the Australian retail automobile industry, which is relatively slow in adopting e-commerce technologies, by studying the motivations of adopters and non-adopters. Analysis of case study data identifies the major facilitators (perceived benefits, customer/supplier dependency, external pressure to adopt, information intensity) and inhibitors (mistrust of the IT industry, lack of internal expertise, lack of IT experience) to adoption.

Introduction

This study was designed to collect in-depth information about the reasons why Australian small business owner/managers are reluctant to embrace e-commerce technologies even though many recognise the potential benefits to their organisation in adopting them. It addresses the question: "What facilitates or inhibits the adoption of entry level e-commerce technologies (such as web presence/marketing, web browsers and electronic mail) by small business?" In Australia, currently the small business sector has been relatively slow in adopting e-commerce technologies although Australia has traditionally been very quick in its uptake of new technology and ideas.

It would be difficult for a small business owner/manager to envisage the benefits associated with using Internet technologies without being familiar with the Internet and WWW. Hence it is appropriate to focus a study on the adoption of *entry-level* e-commerce technologies (such as web presence, web browsers, and electronic mail) as once small business is familiar with these technologies they are more likely to embrace further and more sophisticated e-commerce technologies. The paper proceeds as follows. First, previous studies on the adoption of IT and specifically electronic commerce technologies by small business are outlined. Second, a framework is presented that summarises factors thought to impact on IT adoption by small business. Following this, case studies are presented in detail followed by the analysis of findings using comparative case analysis. Finally, a summary of findings is presented.

Adoption of IT in small business

Many different factors have been identified in previous studies as impacting on IT adoption by small businesses, and all use differing models in determining factors of adoption. These factors can be categorised into factors relating to owner/manager characteristics, factors concerning firm characteristics, and other factors. Owner/manager characteristics include the following: p*erceived benefits* affecting technology adoption in terms of the perceived ease of use and/or usefulness of the technology (Iacovau et al, 1995; Kirby and Turner, 1993; Thong and Yap, 1995); the *computer literacy* of the business (Kirby and Turner, 1993; Thong and Yap, 1995); the *level of assertiveness, rationality and interaction of business decision processes* can also impact on IT adoption (Julien and Raymond, 1994; Harrison et al, 1997);*perceived control* has been shown to affect IT adoption (Harrison et al, 1997), which relates to the amount of requisite opportunities and resources (time, money, skills, co-operation of others) someone possesses to be able to carry out the course of action (technology adoption); and finally, *subjective norm* is thought to affect technology adoption (Harrison et al, 1997)in terms of the strength of the person's normative beliefs that 'groups' think the behaviour of interest (technology adoption) should or should not be performed, multiplied by a person's motivation to comply with the group.

Firm characteristics include the following: o*rganisational readiness/benefits* which refers to the level of technology currently incorporated into business processes (Iacovau, 1995); *external pressure to adopt* IT within the industry sector (Thong and Yap, 1995; Iacovau et al, 1995); *dependency of the small business customer on the supplier* which is linked to the previous factor (Kirby and Turner, 1993); *structural sophistication of the firm* in terms of centralisation and complexity will also influence technology adoption in its ability to incorporate new technologies into its work practices (Julien and Raymond, 1994; Harrison et al, 1997); and the *level of information intensity* within the organisation as influencing the owner to adopt or not adopt a technology (Thong and Yap, 1995). Another factor thought to impact on IT adoption relates to the need by small business owners for an immediate *return on investment* due to the necessity to be concerned with medium-term survival rather than the long-term attainment of market share (Fichman and Kemerer, 1993).

Adoption of e-commerce technologies

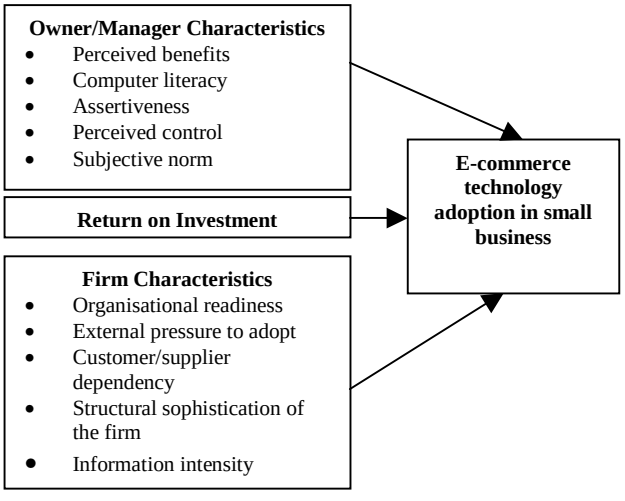
Existing studies have identified the following inhibitors of e-commerce technology adoption: *cost of implementation* inhibits adoption of some of these technologies, in particular, electronic commerce (Fielding, 1996; Lawrence, 1997, Piovesana and Rausch, 1998, Sillince et al 1998). This is linked to: *need for immediate return on investment* as inhibiting adoption (Lawrence, 1997; McGowan and Maddey, 1998). Internet technologies such as EDI and electronic commerce are considered too *complex* and too difficult to implement (Fielding, 1996, Lawrence 1997, Sillince et al 1998). *Lack of organisational readiness* - in many small businesses there are limited existing IT resources which makes it difficult to adopt new technologies (Lawrence 1997; McGowan and Maddey, 1998). Finally, *organisational resistance to change* (Lawrence 1997; McGowan and Maddey, 1998) where managers and employees prefer manual methods of undertaking business, therefore resisting newer technologies.

Most research on e-commerce technology adoption concentrates on Electronic Data Interchange and sophisticated electronic commerce. Research into the adoption of *entry-level* e-commerce technologies instituted within an organisation prior to adopting more sophisticated e-commerce technologies has been largely ignored. Sillince et al (1998) conducted a survey of small firm email use in the United Kingdom. The findings indicate that only 20 percent of companies with less than 100 employees had adopted email. The most important factors inhibiting email adoption were lack of external pressure and lack of perceived benefit; cost; complexity.

E-commerce technology adoption model

Figure 1 presents a summary of all the factors identified in the literature as affecting IT and e-commerce technology adoption. Figure 1 is the model that formed the basis for empirical investigation of the adoption problem.

Figure 1 Factors affecting e-commerce technology adoption by small business.



Research Approach and Research Method

Use of cases

The descriptive nature of this research made it suitable for a case study approach. Multiple case studies were used which allowed for the detailed examination of inhibitors and facilitators of entry-level e-commerce adoption by Australian small business. The findings provide understanding and add to existing knowledge on IT adoption by small business. Including both adopters and non-adopters as suitable cases added to the depth, context and richness of data, providing a more informed basis for theory development. Three preliminary case studies were undertaken based on the model; one adopter, one partial adopter and one non-adopter. Two new factors were added to the model under the category of owner/manager characteristics that were not previously identified in earlier studies as impacting on the adoption of IT: mistrust of the IT industry and lack of time.

It has been shown that IT adoption is affected by the size of the organisation, by the status of the organisation in terms of affiliation or non-affiliation influence technology adoption, and by industry sector (DeLone 1998, Fink 1998, Lawrence 1997). These factors were taken into account when criteria for case selection were identified: cases had to be small businesses, had to be non-affiliated and independent businesses, and had to do business within a specified industry sector.

The *small business* criterion relates to the size and sector of the cases to be chosen; organisations employing less than 20 people were sought. The *automobile industry* includes many different sectors. In this research the used-car sales sector was studied; this sector was selected because of its slow adoption rate of entry-level Internet technologies. Specifically, a small busi ness in automobile sales can be defined as an independent seller of automobiles (cars, utilities, four wheel drives), managed by one or two owners who take critical management decisions, and which employs less than twenty workers. The study focused on cases in *South East Queensland*; however, there is no reason to suspect any regional bias in the findings and hence case findings should be generalisable to Australia-wide small business sectors. *Independent non-affiliated* firms were chosen as affiliated owner/managers are likely to be influenced in their decision making by the parent company while owners of non-affiliated firms make independent decisions about the adoption of IT in their business.

Six cases were studied in depth; three of these were adopters of entry-level e-commerce technologies and three were non-adopters. Information about the cases was obtained by lengthy interviews with the owner and/or manager of the automobile sales business. Owner/managers were the obvious informants since they make decisions on capital expenditure including expenditure on technology and they were able to provide

information to explain why they did or did not adopt e-commerce technologies. Descriptive information about the six cases is summarised in Table 1.

The six cases used in this study

Case	Adoption status	Years of trading	Number of employees
A	Non-adopter	8	5
B	Non-adopter	11	2
C	Non-adopter	15	3
D	Adopter	14	18
E	Adopter	33	15
F	Adopter	36	20

Table 1: Details of cases

The non-adopters (cases A, B and C) have a relatively low level of computer sophistication. Cases B and C concede few benefits in introducing e-commerce technologies; case C has not adopted, but does see possibilities for their use in five to ten years time. The three adopters of e-commerce technologies (cases D, E, and F) all have a high level of sophistication in their adoption and use of information technologies; all have developed Web Sites, use email, and employ the Internet and WWW for browsing, checking competitors sites and downloading information.

Findings about facilitators and inhibitors to E-commerce adoption

Facilitators

Of the three categories addressed in the study, surprisingly owner/managers rate firm characteristics the most prominently as facilitators of adoption while return on investment is considered of little importance.

Firm characteristics

Both adopters and non-adopters rated the following equally in importance: *organisational readiness/benefits*, *external pressure to adopt*, *customer supplier dependency*, and *information intensity*. Structural sophistication of the firm was also suggested as an important facilitator to adoption.

Adopters. Cases D, E, and F (adopters) consistently rated firm characteristics as average to highly important as facilitators to Internet adoption. One exception was case F who rated *external pressure to adopt* as being of low importance. However, this owner/manager was the first in this industry sector to adopt the Internet and associated technologies, hence this firm had not experienced organisational pressure to adopt. *Information intensity* is described by all adopters as highly important and all owner/managers consider Internet technologies as improving business communication. Case E described information intensity in the business as high and stated "We use email to deal with communication and have inventory and invoicing on-line [to help deal with the high volume]". Similarly, case F claims that "Due to the high volume of business, nearly all of it is on-line. Adopting these technologies improves it definitely".

Customer*/supplier dependency* also influenced the participants to adopt Internet technologies. In terms of the customer, case F states "people's lifestyles are changing and people living in the country use our virtual car-yard – they look for this type of thing now". Cases D and E felt that industry suppliers and networks within the industry including the banking industry had influenced their decisions to adopt. Case D stated that "The suppliers insist, as do the networks within the industry". Case E supports this, adding "We had encouragement from industry bodies to adopt". *Structural sophistication of the firm* was seen by participants as a facilitator to adoption. Case F claims "We're pretty right out there – front runners I suppose". Case E stated "You've already got your machine and connection before adopting, hence making it easier [to adopt]". All three adopters had a sophisticated level of information technology before adopting, and handled most business processes through the use of up-to-date hardware and software. Case E felt that going on-line "enhanced what we already had".

Organisational readiness/benefits was also seen as important by adopters with case F recognising the Internet as "…an investment for the future". Case E saw the Internet as "…replacing the Yellow Pages…quite a big thing and it'll really start to move". Case D was less enthusiastic towards organisational benefits as the owner/manager felt threatened by the Internet. However, he did concede that it is "a necessary evil for my firm". *Size* of the firm was rated as average importance by adopters. However, the most established firms (years trading), and the larger firms (number of employees) appear to correlate with the Internet adoption status of the firm. The non-adopters (cases A, B, and C) had been trading for a shorter length of time, and the most innovative adopters (cases E and F) have been trading for over 30 years. Hence, there appears to be a correlation between size of the firm and readiness/willingness to adopt Internet technologies.

Non-adopters**.** For non-adopters, *organisational readiness/benefits* were seen as facilitating adoption by cases A and C. Both owner/managers felt that the Internet would lower communication costs and help their firms keep in touch with the industry. Case C stated "We need to pick up every avenue available and keep abreast of what's going and coming into our industry". Case A felt that the Internet was particularly important in lowering communication costs and to be on-line to finance companies. However, the owner/manager was not willing to adopt Internet technologies at this stage. In contrast however, case B saw little in terms of organisational benefits, stating that "there are no benefits to our firm adopting…it's just as easy to pick up the phone".

External pressure to adopt was also seen as an important factor by cases A and C. Case A stated that industry bodies are "sort of encouraging people to get with the computer style of things by offering pretty hefty discounts to be on-line". Case C had a more cynical outlook, claiming "There are groups out there trying to create their own business by forcing us on-line". Interestingly, case B acknowledged external pressure to adopt as an influencing factor to the adoption of the Internet, however he stated "We have resisted this so far". *Information intensity* was rated by cases A and B as being of average importance. Both deemed that there was a high volume of information to be dealt with on a daily basis in their industry. Case A felt that they would need to go on-line at a later date to deal with the paperwork. Similarly, case B sees the level of information intensity as "high and complex" and conceded that Internet technologies could assist in dealing with it all.

Owner/manager characteristics.

The following factors were mentioned the most consistently as facilitators of adoption: perceived benefits, and assertiveness of the owner/manager.

Adopters**.** Cases D, E and F (adopters) rated *perceived benefits* and *assertiveness of the owner/manager* highly as facilitators to adoption. Although case D felt threatened by the Internet, stating "It will overtake and close down businesses", he added that "It is a growing phenomenon and businesses need to be connected".

Perceived benefits was seen as a very important facilitator by cases E and F. Case E stated "[The Internet] will make doing business a bit easier in the form of finding a car – it's going to keep getting better". Case F perceived the Internet as "giving us an edge and raising our profile. Internet technologies are another point of advertising and recognition to the public". Both owner/managers in cases E and F were assertive and were early adopters claiming that getting on-line gave them an edge over other competitors. Case D was the only participant to suggest subjective norm as an important facilitator, stating that he "felt the need to keep up and not miss out".

Non-adopters**.** Cases A, B, and C (non-adopters) did not consider any of the owner/manager characteristics to be very important in facilitating the adoption of entry-level Internet technologies. Case A saw *perceived benefits* as an influencing factor to a degree, particularly in relation to the benefits of email and the use of a Web site for advertising purposes. However, the owner/manager states "Selling cars is a hands-on thing and people like to deal with you…I don't think we are missing out on anything by not been involved with the Internet". Hence, although the owner/manager saw benefits to his firm in terms of email and advertising, he does not perceive that the technologies will help to sell cars. Cases B and C saw few benefits to their organisations; particularly case B saw no need to introduce the technologies. Similarly, case C posits that "For a small operator, [the Internet] doesn't fit into what we need to do at this stage".

Return on investment.

Only two of the six owner/managers rated *Return on Investment* as moderately important in their decision to adopt. Neither adopters nor non-adopters expected to receive dollar returns from the adoption of entry-level Internet technologies in the short term. However, there is a perception amongst participants that a return will be realised in the future with the growth of E-commerce.

Inhibitors

Owner/manager characteristics.

Of the owner/manager characteristics, the factors most consistently assessed by participants as inhibitors to adoption were: (Low) computer literacy; mistrust of the IT industry; (Lack of) time; and (Lack of) perceived control (adopters).

Adopters. Cases D, E, and F (adopters) felt that some of the owner/manager characteristics had inhibited earlier adoption, or further diffusion of E-commerce technologies. Most consistently rated by adopters was computer literacy, perceived control, and mistrust of the IT industry. In terms of *computer literacy* and *perceived control*, case D stated that he had to "buy in the IT expertise". He added that a lack of control was a "big concern. Technology is unreliable…". Case E stated "I didn't know anything about the Internet. [Name of employee] knew something but we had to get a group [to help]". In terms of control, this case stated "Initially it was a problem not understanding the technology". Case F also saw lack of computer literacy as initially slowing adoption. He states "I didn't become Internet educated until about three years ago and my employees are still scared of it". Perceived control however was not an issue for this case.

Mistrust of the IT industry was mentioned by all adopters as an inhibitor to adopting in the past, or preventing the diffusion of further Internet technologies. Case D states he had "…some mistrust of the industry. For $2500 a month to maintain and support the systems, I told the IT person to stick the Internet up his tail". Case E had continuing problems, and posits "It's difficult to find our site – [it's] not in the proper search engines and it is still an issue". Case F felt that caution was needed when employing services of the IT industry. He states "We didn't go into it saying: look here's such and such a firm – design us a site, and get ripped off which a lot of people are doing". He also added, "Like some used car dealers, there are some very good people out there and some very ordinary people out there". Only Case D felt that *time*

was an inhibitor to adoption stating that "[A] lack of time to maintain the site is an issue". For cases E and F, the investment in time was not seen as prohibitive to adoption..

Non-adopters. Cases A, B, and C (non-adopters) rated all owner/manager characteristics without exception as important inhibitors to adoption. Lack of *perceived benefits* rated consistently by non-adopters. Case A stated: "We just don't have the belief that it's an important sort of tool for us at the moment". Cases B and C also see little benefit to adopting at this stage with Case B stating "there is no need for us [to adopt] at this stage". Lack of *computer literacy* and *perceived control* appear related: none of the non-adopting participants have a great deal of computer experience and therefore find many of the technologies daunting. For this reason, owner/managers feel that control of the technologies is difficult. Case C posits that he has "…little computer experience and control would be a problem if adopting". Case A adds "[Lack of computer literacy] would be an issue if I decided to go on-line". Also related to a lack of computer literacy is need for dependence on the *IT industry* for advice on sales, implementation and maintenance of Internet technologies. Case C felt most strongly about the IT industry inhibiting adoption stating "I've never been treated so rudely in my damn life. They do all this computer speak…eventually I had to get a mate to talk to them. They're a pack of nerds…in a world of their own". Case A adds "I suppose some of them have a bit of professionalism". Case B had no experience with the IT industry but felt "A little apprehensive".

Subjective norm was seen as an inhibitor to some extent: the non-adopters do not see a high adoption rate in the industry and do not feel the need to keep up. Case A states '[Some traders] had a bit of a dabble but I'm pretty sure they're not doing a whole heap on it", with case C adding "Only a few are on it…it's too early". Finally, *time* is seen as an important inhibitor to adoption, with case A stating "Well we're flat out, so that would come into it'. Case B adds that he has "[A] lack of time to get into it". Case B did not rate time as important since he was unsure of how much time commitment would be involved if adopting Internet technologies.

Firm characteristics

Firm characteristics were less consistently mentioned as inhibitors to adoption by owner/managers. Within this category, the greatest inhibitors to adoption are: (Lack of) organisational benefits, (Lack of) customer/supplier dependency, and (Low level of) structural sophistication of the firm.

Adopters. Cases E and F felt very positive about their adoption of entry-level Internet technologies and saw no inhibitors emanating from the firm characteristic factors. However case D felt strongly about the lack of organisational benefits claiming that these technologies "…are threatening, and will overtake and close down businesses". This owner/manager, although having adopted the technologies, felt that his firm would not benefit in the long term and was resisting further diffusion. Case D had been trading for the least amount of time (14 years) compared to cases E and F (33 years and 36 years), and this may point to 'years of trading' as impacting on the adoption status of a firm. However, given the high number of employees in this firm, it is not conclusive that size is an important inhibitor.

Non-adopters**.** The most important firm characteristics identified by owner/managers as inhibiting adoption were (perceived lack of) customer/supplier dependency and the low level of structural sophistication of the firm. In terms of *customer/supplier dependency*, case A states: "I just don't picture probably any more than a couple of percent of our customers would be seriously going through the Internet". Similarly case B states "Customers would not look for us on the Internet". Although the owner/manager of case B does concede pressure from some suppliers, he posits that "We have resisted this so far". Case C also concedes pressure but claimed: "It's just another intrusion on our industry", and hence does not feel the need to adopt.

Structural sophistication of the firm impacts on the non-adopters' attitudes to Internet technologies. Case A claims that "Everything is pretty much done manually", but does concede that they will have to develop more sophisticated information systems at a later date. Case C stated that "Business processes are not managed or supported by computerised systems" and sees the jump to entry-level e-commerce technologies as a possibility "for the future, but not now". Case B also has very little in the way of technology, preferring to handle most processes manually. For all non-adopters, the low level of information systems within their firms, and the lack of structural sophistication appears to impact on their attitude and/or ability to adopt Internet technologies. The non-adopters did not see *organisational benefits* in a positive way for the present time. Case A states "It's just as easy to pick up the phone as it is to use Internet technologies]" and case C "for a small operator, [the Internet] just doesn't fit into what we need to do at this stage". Case B saw no benefits to adopting claiming that they are simply too small. Cases A and C do concede however, that adopting these technologies in the future may help but not at the present time.

Although cases A and B believe *information intensity* is "high and complex", neither felt that entry-level e-commerce technologies would help them deal with the work. Case C did not perceive information intensity as high and therefore did not feel that adopting these technologies as useful for his firm. *Size* of the firm could be considered an inhibitor to adoption as demographic data collected indicates that the smaller size of non-adopting firms compared to adopters, the less likely adoption would take place. This could also be linked to

information intensity, as a smaller firm with fewer staff and lower levels of sales would have to deal with less information than the larger organisations.

Although there was a general consensus that *external pressure to adopt* entry-level Internet technologies was present, all three non-adopters had so far resisted this pressure. However, all non-adopters believe that the pressure will force them on-line eventually, so this factor could not be considered an inhibitor. Case A states "REVS (Registry of Encumbant Vehicles Service) is sort of encouraging people…by offering a pretty hefty discount. The transport department is going that way as well". Case B also recognised pressure from industry bodies claiming "REVS wants on-line communication".

Return on Investment

Lack of perceived return on investment was seen as an inhibitor to adoption, particularly by non-adopters. Without exception, cases A, B, and C (non-adopters) did not see adopting the Internet as providing a worthwhile return on investment and therefore this factor can be considered an important inhibitor to adoption for this sub-set. In relation to the adopters (cases D, E, and F) case D felt that there was no profit from adopting the technologies, and saw further adoption as unlikely.

Concluding comments

Findings from this case research suggest that firm characteristics are significant *facilitators* of e-commerce adoption in the small business sector. Specific factors in the firm characteristics category that appear to encourage and facilitate the adoption of entry-level e-commerce technologies are external pressure to adopt, organisational benefits, information intensity within the firm, and customer/supplier dependency.

Case research findings indicate that owner/manager characteristics and return on investment are significant *inhibitors* of e-commerce adoption in the small business sector. Specific factors in the owner/manager characteristics category that appear to have the most influence in inhibiting adoption are: computer literacy of the owner/manager, mistrust of the IT industry, lack of time and lack of perceived control. Although size of the firm is not rated as an important factor by owner/managers, data collected in this research indicates that this factor is also an important inhibitor.

An issue for IT professionals emanating from this study is the importance placed on 'mistrust of the IT industry' by many of the participants as an inhibitor to adoption or further diffusion of Internet technologies. Criticism centered mainly on the attitude of IT professionals who, according to participants, carry an 'air of superiority' that owner/managers find difficult to deal with. In addition, interpreting the 'computer speak' of IT professionals was difficult and led to further confusion and general mistrust by owner/managers. Finally, the cost of the technologies, in particular, on-going support and maintenance, was seen by most participants as unaffordable.

By extending the research to larger firms as well as SMEs for comparison of adoption rates and issues would provide a more generalisable model of adoption issues and possible strategies. Also, a study on mistrust of the IT industry and the impact of this on the adoption of IT in general and Internet and ecommerce technologies in particular, could provide valuable insights on the role of IT professionals on the adoption status of SMEs. This is particularly relevant for SME owner/managers as they may be more reliant on the expertise provided by IT professionals than larger firms.

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