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An Empirical Study of the Adoption and Diffusion of Electronic Commerce in the Car Industry in Western Australia

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Abstract

This paper reports on qualitative case study research into the effects and impacts, and hence the adoption and diffusion of e-commerce in the car industry in Western Australia. To date, car dealers are typically not particularly internet savvy, and thus the advent of internet-based business is offering opportunities to them, but is also causing some anxiety. Aggregators who, by pooling dealer content onto one web site, offer a relatively simple, relatively low cost way of getting onto the internet are helping many of the car dealers to develop an active presence on the web. But generally speaking, internal business processes are not being changed to accommodate the new way of doing business, and there is great uncertainty as to how significant the impact of the internet will be on their business into the future. Few dealers were willing not to be involved on the internet because of their fear of being left behind. However, at present, relatively few are seeing an appreciable impact on their business because of their web presence.

Introduction

A number of publications have speculated on the changes that will be brought about in the contemporary world by the application of electronic commerce technologies and the changes in business practices that will be associated with these innovations (Tapscott et al., 1998; Mougayar, 1998). These changes range from fundamental changes in the economies of nations, to changes in the way industries function, right through to changes in organisational practices and processes (Applegate, 1996). However, these are relatively early days in the history of electronic commerce, particularly in countries outside of the USA. This paper seeks to provide an input to the building of an empirical basis for responsible and well-grounded theorizing regarding the nature and future trends of electronic commerce. The study reports a qualitative, exploratory study of the impacts of electronic commerce technologies in the car retailing industry in Western Australia. The study also focused on the forces affecting the adoption and diffusion of electronic commerce technologies in Western Australia.

The Impacts of Electronic Commerce

While electronic commerce has been subjected to a wide range of definitions in its comparatively short history, for the purposes of this paper it will be regarded as involving the buying and selling of goods over the Internet, and the associated and related information provision and gathering (Whiteley, 1999; von Versen, 1999). Thus defined, electronic commerce would include business-to-business, and business-to-end consumer transactions and information provision over the Internet. Electronic commerce technologies are taken to be the technologies that enable electronic commerce. These are, in the main, the Internet and associated information and communication technologies.

Electronic commerce technologies offer a new channel for the ordering and payment of goods and services. From this new Internet-based activity flow many potential changes, with the future scenarios of such changes ranging from a small percentage of goods and services being ordered over the Internet, to the spectre of all goods being ordered over the Internet together with the demise of High Street shopping as we know it, as well as significant changes to business-to-business commerce (Maruca, 1999; Hoffman et al., 1999). Just where the future lies regarding the scale and nature of all the associated or attended effects of this is, despite all speculation, somewhat unknown. However the effects, potentially, are obviously very significant.

The Impacts of Electronic Commerce on the Car Retailing Industry

As there is to date no known published information on the effects of electronic commerce on car retailing in Australia, discussion at this stage must be limited to a consideration of trends and forecasts in the USA. However, car buying in the USA has already been permanently altered by the coming of the Internet. While car purchasers can use the Internet to directly research and access a particular car manufacturer and/or a particular dealer, and are doing so on an ever-increasing basis (McQuivey, 1999), the advent of the Internet has seen the

emergence of a new intermediary role in the industry supply chain. On-line buying services like Autobyte.com, Autoweb.com and cars.com have thousands of dealers signed up with them and display large inventories of cars on their web sites. An electronic marketplace of sorts has been created by these players, known as aggregators (Lief, 1999). These aggregators or on-line buying services essentially pool dealer content to create a searchable one-stop shopping mall for customers of the dealers. In one quick on-line session, potential customers can search on various parameters, such as car type, price range, geographic location, and so on, in order to locate a smaller cohort of potentially suitable cars within reach of their homes or offices to facilitate further personal inquiry. In total, it is estimated that more than four million used cars were listed on these on-line buying services in 1999, some 10% of the used cars that were purchased that year. These aggregators or intermediaries offer car dealers a substantial number of referrals each month: the larger and more successful sites in the USA may be referring more the 100,000 clients to dealers each month (McQuivey, 1999).

Largely through the efforts of the on-line buying services, more than 5 million new vehicle buyers will use the Internet this year to gather information to help them decide what vehicles to purchase (J. D. Power, 1999). The percentage of new vehicle shoppers who use the Internet to help them shop for a vehicle increased from 25% in 1998, to 40% during the first quarter of 1999 and is projected to be more than 65 percent by the end of the year 2000. The J. D. Power study also revealed that the average Internet shopper visits six automotive web sites and spends more than four hours looking up automotive information on-line, thus indicating that new vehicle shoppers are relying more and more on Internet research to determine what automotive make and model to purchase. In terms of used car buyers, the study found that 26 percent of US car consumers that purchased models in the 1994 to 1999 range, use the Internet when making a decision. This compares to roughly 14 percent of this consumer group in 1998 (J. D. Power, 1999).

Thus in the USA today we find that a new mode of and process for consumer purchase of motor vehicles is arising, with a new player (the on-line buying service) in the supply chain. We also find that a large proportion of vehicle purchasers research their purchase on the Internet and choose the car and dealer of their choice on the Internet. The evidence is that other aspects of the deal, such as finalising price and car, choosing financing, insurance and warranty, and closing the deal are done much less on-line. Apart from a small percentage of people that purchase new cars from on-line buying services, most people interrupt the on-line buying experience to go and look at and/or test drive the car, and

possibly this leads to other aspects like financing being done off-line.

It could be argued that the US experience with electronic commerce seems some years in advance of Australia with respect to its acceptance and adoption of on-line retailing, and given reasonable similarities in business trends and culture between the USA and Australia, it could provide a useful model for local businesses in Australia to consider in order that they can prepare for the future. However, it could also be asserted that there are important differences in the Australian business environment, thus rendering the data and trends from the USA unreliable as predictors of trends in Australia.

The Research Project

The research project was designed to consist of a series of qualitative, semi-structured, research interviews with senior executives (managers and/or owners) of a variety of car dealerships in the capital city of Western Australia. Each interview was based on a set of interview questions, based on the trends in electronic commerce in the retailing sector, and specifically, in the car industry, and also on the authors' knowledge of electronic commerce trends in Australia. A particular interest was to discover what forces "drove" a car dealer to adopt electronic commerce, and to consider the inhibiting and facilitating factors when examining the impacts of electronic commerce on the business. Some flexibility in approach was adopted to accommodate and be responsive to the varied responses received from interviewees. The interviews conducted lasted between 1.5 and 3 hours, and were crafted to encourage the senior executives interviewed to describe their understandings of electronic commerce, and to articulate their beliefs about the impacts of electronic commerce and the Internet on their business activities and practices in the future. The interest of the researchers was thus to arrive at an understanding of the impacts of electronic commerce from the CEOs'/owners' perspectives and to reveal their feelings and beliefs about electronic commerce, indicating that the qualitative research interview was an appropriate vehicle for the conduct of this research (Kvale, 1996).

Each of the interviews was transcribed and subject to qualitative content analysis. The specific approach used is detailed elsewhere (see McKay, 2000), but involved categorization of responses into certain themes, some of which were inherent in the interview questions, and some of which emerged through the interviewees' responses to questions posed. Some nine interviews have been conducted to date.

Findings of the Research

A number of issues with respect to the adoption, diffusion and impacts of electronic commerce have emerged as a result of the research conducted to date. A selection of these will be briefly described and discussed below. However, generally speaking, it seems fair to say that the Internet is causing both interest and uncertainty amongst the car dealers. Already, there are some impacts of electronic commerce being felt, such as the reengineering of the industry supply chain (discussed below) and the emergence of a very important intermediary or aggregator which seems to be a significant factor in the adoption of electronic commerce by the car dealerships. However, few of the car dealers feel certain as to how large the impacts of electronic commerce might ultimately be, and few of the businesses seem to be adopting quite deliberate and explicit strategies with respect to electronic commerce. There was generally little evidence of internal changes being made in response to opportunities offered by the electronic commerce initiatives, thus leading us to the conclusion that the diffusion of electronic commerce into everyday business activity and behaviour is to date somewhat limited.

Adoption of Electronic Commerce Technologies

As has been the case in the USA, the advent and growth of the Internet supported the entrance of a new player in the car industry supply chain in Western Australia. This entrant (ABC.com) developed a web site (carsales.com.au) to act as an electronic marketplace for new and used car sales. Its aim was to list as many vehicles (and hence dealers) as possible, thus enabling excellent search possibilities and information to prospective buyers. The owners/CEOs of the car dealerships were in the main, very personable and affable people who were well versed in the business of selling cars. Their knowledge of and experience with information technology was very low, and generally speaking they had little interest in technology. However, when ABC.com talked to them about being represented on the carsales.com web site, where their cars would be advertised for sale, they were most interested. Here was a way to make sure that they were part of the "electronic commerce revolution". Their car dealerships would be represented on the Internet, along with their competitors. The technology would be looked after for them, totally if they wished, including uploading photographs and details of cars for sale and all web site maintenance issues. The entry price was about \$2000 for the service, and the ongoing costs were in the order of \$300 to \$400 per month. For small businesses, worried about a technology-enabled business innovation like e-commerce that might give a competitive edge to those dealerships that were

involved, a place on the ABC.com web site was an appealing solution at what appeared to be a reasonable price.

The ABC.com solution answered what the dealers saw as the main problems in adopting electronic commerce technologies. Firstly, the ABC.com solution overcame the majority of what Nambisan and Wang call the web technology adoption and knowledge barriers (Nambisan and Wang, 1999). In their terms, the ABC.com solution overcame both the technology-related knowledge barrier and the project-related knowledge barrier. That is, the technical and project-related issues of setting up a maintaining a web site were completely handled by outsourcing web site construction, operation and maintenance to ABC.com. However the ABC.com solution did not completely overcome the application-related knowledge barrier mentioned by Nambisan and Wang which deals with the problem of integrating the web application with the rest of business, and that is an issue for the future for the car dealerships (Nambisan and Wang, 1999).

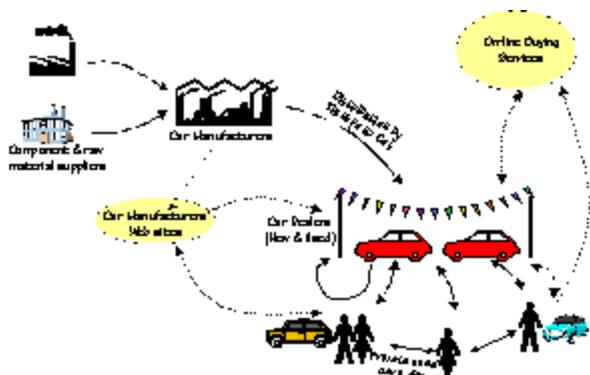
Secondly, the ABC.com solution to the adoption of Web technologies answered the needs of owners/CEOs as it offered clear business benefits from the outset. If revenues did not quickly follow from the carsales.com web site, and many were dubious that they would, at least the car dealership was in there in the world of electronic commerce with the competition. A reasonable defensive strategy regarding electronic commerce was thus being purchased and pursued. Almost all the owners/CEOs of the car dealerships in the sample were either established on the carsales.com site or considering such a move, with the larger car dealerships being the earlier movers in this. Issues regarding knowledge and capability with the technology and the need to see clear business benefits were by far the major issues for the car dealerships in terms of adopting web technology. Other issues such as the educational level or other personal characteristics of the owner/CEO seem to us to be minor issues compared to these. Further studies are needed into the web technology adoption process across a number of industries, but we suspect that researchers will find the provision of electronic malls by aggregators or intermediaries like ABC.com an important feature of in this process.

Impacts of Electronic Commerce on the Car Industry Supply Chain

Proponents of electronic commerce might argue that, amongst other things, the advent of the Internet in the car industry supply chain may result in disintermediation (Laudon and Laudon, 1999; Choi et al., 1998). Long term this may occur, with new car buyers specifying requirements and purchasing direct from manufacturers.

However, current industry activity with respect to electronic commerce does not indicate that this is occurring to any great extent as yet in Western Australia. Rather, Figure 1 portrays the changes occurring in the industry.

Figure 1: The Effects of Electronic Commerce in the Car Industry



As previously discussed, electronic commerce has seen the advent of on-line listing and buying services, acting as a conduit of information, referrals and expressions of interest between end consumers and new and used car dealers. Car manufacturers are also developing a presence on the Web, whereby interested end users are directed towards a preferred dealer located close-by. While the CEOs interviewed did not envisage the disappearance of the car dealerships as consumers purchased direct from manufacturers, they did concede that they could not be complacent about their role given the influence of the Internet and changes already occurring in the industry supply chain. Of interest was the fact that some of the car dealers felt pressured by the car manufacturers to establish a web site with links to other sites.

Awareness and Attitudes to Electronic Commerce

The situation regarding the Internet and car retailing in Australia seemed to be one of great uncertainty and some anxiety on the part of the car dealerships. Typically, senior executives are informed through their reading of the popular press and through television reports, but none of those interviewed to date have undertaken serious research into electronic commerce. Very few persons in the car retailing industry in Australia are willing to forecast the future role and importance of the Internet in car retailing in Australia, although they generally suspect that it will be significant.

However most of the larger car dealerships, particularly those with annual revenues of greater than

\$10 million per year, have an Internet presence now or plan to have one in the near future. The smaller players in the industry are also either established on the Web, or are planning to become so in the foreseeable future.

Despite the reliance on the new intermediary in the supply chain, overall there is a moderate amount of skepticism about the Internet and its importance in new and used car retailing in Western Australia. Little has happened yet, and there is some feeling that despite some journalistic stories and government reports heralding great changes, little will happen, at least in the short term future.

But there is great uncertainty also. Interviewees generally acknowledged that electronic commerce and the Internet could become enormously important to their businesses, although they were uncertain as to exactly what impacts it might have, how dramatic these impacts would be, and on how these changes might be realised in their specific businesses. Despite the skepticism, none of the interviewees were willing to completely ignore electronic commerce at the moment: there was always the concern that it might suddenly become very significant, and they did not want to risk being 'left behind'.

It could hardly be asserted that the car dealerships had articulated a clear vision of electronic commerce for their organisation, which they were now pursuing through appropriate strategies. Rather, the articulated strategy was 'We have to be on the Web, because otherwise we might miss out'.

Effect on Business

All of those interviewed said that there was little effect of the Internet on sales to date and they felt that this would remain the case for the short-term future.

The Internet, they felt, would not be a medium over which actual sales would take place, but might be a medium which would influence buyers in terms of which car dealerships that they approached. The actual selling of cars, or at least the end sub-process of selling cars, would thus remain in the hands of the car dealerships' sales persons, but the flow of customers to car dealerships might well in the future be affected by the Internet. Their sentiments very much echoed the trends that were discussed earlier in this paper with respect to the impact of electronic commerce on the American car industry.

However, a particular point which moderates the comments above needs to be made at this juncture. None of the car yards involved in the interviews to date appeared to have any mechanism to detect whether a customer walking in did so as a result of newspaper advertising, Internet on-line buying services, referral by a satisfied

appeared that none of these businesses had made any effort to find out whether their customers had conducted an initial search over the Web, and whose approach to the company was thus motivated by information obtained over the Internet.

Impact on Business Processes

Despite each of the car dealerships having web sites, the business processes of each dealership were not well integrated with the web site. It was not always clear in each dealership just how Internet based enquiries were to be dealt with nor exactly who would deal with them. All the car yards had well-established mechanisms for handling new 'walk/phone-in' customer enquiries, but they were somewhat concerned about how equitably, efficiently and effectively to deal with e-mails generated from on-line buying services. It is one thing to enable e-mail links to the organization: it is quite another to design internal business processes to ensure the e-mail is responded to appropriately. Neither did it appear the dealerships were geared up to keep good commercial records of web activity, nor ready to measure important statistics such as look-to-buy ratios. Generally speaking, they had not carefully thought out appropriate business processes to handle Internet enquiries.

Drivers and Inhibitors of Electronic Commerce

By far the major driver of developing a presence of some sort on the Internet was the fear of being left behind by competitors when (and if) 'something happened'. These business people seemed very concerned not to miss out on a business opportunity should one present itself!

By contrast, some dealers expressed suspicion of the concept of on-line buying and Internet-influenced sales, particularly given the fact that the electronic malls or marketplaces that were being establishing were such that each dealer was there as one among a crowd, his/her cars part of a larger pool to be searched by customers. The car dealers interviewed were clearly accustomed to regarding fellow dealers as competitors, and many seemed decidedly uncomfortable at participating in the same on-line buying service as their major rivals. However, they also had enough business acumen to realise that from a customer's perspective, such on-line buying services facilitating cross-dealer searches were an attractive proposition.

The other major inhibitor to electronic commerce seemed to stem from the difficulty that the senior executives interviewed seemed to be experiencing in evaluating their investment in electronic commerce. Most of these executives were looking for some sort of cost / benefit with respect to their Web and associated

investments. However, at this stage, they generally felt that there were few tangible benefits to speak of other than comparatively low-cost advertising, and typically, they struggled to appreciate the 'worth' of so-called intangible benefits. Nevertheless, none of the dealers interviewed was prepared not to remain totally uninvolved until someone else (one of their competitors!) demonstrated the value of electronic commerce investments by deriving considerable business benefits from the Internet.

Conclusion

The car industry in Western Australia remains only superficially affected by the technology and presence of the Internet. One of the major influences in terms of adoption has been the initiative of ABC.com, who through the establishment of an electronic mall have effectively offered a technologically simple, convenient route by which most of these car dealers can get themselves established on the Internet without having to acquire the required technological expertise, and so on. However, the car dealers' Internet sites, and their occasional links directly to their manufacturer's sites, detached from the energetic, everyday business of selling cars and making money, is the beginning and end of Internet-based commerce for the car dealerships. Cars are not selling over the Internet, and apparently in the eyes of the car dealers, people's buying behaviour is not being overly influenced by the Internet.

Thus, after a small burst of activity in establishing a web site so as to be prepared for electronic commerce, all has gone quiet. CEOs and senior managers are back to the main job of selling cars as usual. To date, there is comparatively little evidence that electronic commerce has become widely diffused into everyday business behaviour and activity in these car yards. However, if the US experience is a guide as to what will happen in Australia, then it would seem timely to plan and enact the reengineering of business processes such that the Internet and associated internal systems are well integrated with the selling processes of the business. Included in this will be careful monitoring of web site activity and the establishment of procedures to measure Internet-based referrals and Internet-influenced sales.

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