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The effect of electronic commerce on small Australian enterprises

S. Mustaffa, N. Beaumont *

Department of Management, Monash University, P.O. Box 197, 3145 Caulfield East, VIC, Australia

Abstract

In Australia, although electronic commerce (e-commerce) has generated a plethora of media articles there has been comparatively little research into its effects on organisations. E-commerce comprises several different technologies (especially those associated with the internet); this paper investigates the frequency of use by and usefulness of these technologies in small Australian businesses. The technologies are differently associated with intermediate variables such as the attraction of new customers and the ability to participate in overseas markets. The statistical evidence that e-commerce is positively correlated with some intermediate variables is overwhelming. We consider the statistical relationships between intermediate variables and final variables (revenues, costs and competitive advantage). There are significant correlations between some sets of intermediate and some final variables; most of these correlations had plausible explanations. There are clear implications for small businesses, for example, the internet allows them to maintain a low-cost foreign presence but it allows foreign firms to compete (at marginal cost) in Australia.

Keywords: Electronic commerce; Small business; Australia

1. Introduction

1.1. Definitions

Electronic commerce (EC) is defined by Electronic Commerce (1995) (http://www-cec.buseco.monash.edu.au/links/ec—def.htm) as "the process of electronically conducting all forms of business between entities in order to achieve the organisation's objectives." EC includes technologies such as electronic data interchange (EDI), electronic funds transfer (EFT), electronic mail (e-mail), internet activities (such as web pages, frequently asked questions (FAQ) pages, online catalogues, on-line ordering, order tracking, tendering, on line interaction exemplified by booking and banking services and any other form of electronic data transmission.

The Australian Bureau of Statistics defines a small business as a construction and service businesses having less than 20 employees or a manufacturing business having less than 100 employees.

The internet or world-wide-web (WWW) is a network of networks of computers whereby messages and data can be interchanged. It has several well-known characteristics that have made its use increase exponentially.

1.2. Background

Much of EC takes place on the WWW. The characteristics of the Internet that make it so potent are user-friendliness and near universal availability. The necessary hardware (a PC and a phone line) and software are cheap to install and easy to use (in particular search engines make it easy to find wanted information). Software facilitating construction of web pages is cheap and user friendly.

The information, services and software available on the web are increasing. Available information includes news headlines, stock prices, train timetables, sports scores and weather forecasts. Services include booking travel, paying bills, banking and ordering goods. New software is creating new web applications such as cheap (web-based) phone calls, web TV and the ability to store, download and play music.

EC attracted much Australian media attention in 1999. Between 1 December 1999 and 10 January 2000, there were 103 articles in the Australian Financial Review (Australia's daily financial newspaper) that mentioned e-

* Corresponding author. Tel.: +61-3-9903-2371; fax: +61-3-9903-2718.

E-mail address: nicholas.Beaumont@buseco.monash.edu.au (N. Beaumont).

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commerce in their title or first paragraph. Two summary articles are by Carney (2000) and Van Wyngen (1999). Some of these articles described the stock market mania for shares in (usually profitless) companies intending to engage in EC. In Australia several new floats intend to use EC to enter markets for booking services, retailing (e.g. wine), the gay community, on-line gambling and pornography.

E-commerce is well established in the Australian financial sector. Share brokers abandoned the traditional trading floor two days after screen based trading was introduced and a growing proportion (perhaps 40%) of their clients place orders on-line; an increasing proportion of customers bank and pay bills on-line. There is considerable discussion of the effect of EC on ‘bricks and mortar’ based businesses and some Australian retailers have augmented basic services with internet services (‘clicks and mortar’). Supermarkets have implemented internet based order and delivery services. Many businesses now encourage orders (for goods, shares, theatre seats and newspaper advertisements) through web pages as well as over the phone.

There is some evidence that Australian consumers used the net to do significant Christmas 1999 shopping (Braue, 1999; Crowe, 2000). The threat of web-based competition from overseas suppliers such as Amazon.com is a powerful driver for Australian firms. Although reliable figures are elusive, it is estimated that, in 1998, \$1.6 trillion worth of electronic transactions were conducted in Australia; of which \$55 billion was from the business-to-consumer segment. Eleven percent of all businesses had a web presence and 35% of these claimed that the internet was significant to their business (Marzbani, 1998).

1.3. The impact of e-commerce businesses

E-commerce has myriad direct and indirect, internal and external effects on individuals and organisations. The effect of a new technology such as e-commerce on an individual organisation can be assessed by considering its effect on products, services and the ‘7-S’ (structure, systems strategy, style, staffing, skills, and superordinate goals) (Waterman et al., 1980).

1.3.1. Abolition of distance and time

The web can eliminate time and distance obstacles to business. A web page can take orders or answer questions originating at any time or place, search engines make it likely that a potential customer searching for a product or service will find an organisation’s well-indexed page. The costs of internet transactions are independent of distance. The advantages may be smaller for firms selling goods rather than services: delivery costs and times, exacerbated by having to deal with customs offices, may present insuperable difficulties, however, there is substantial trade in small tangible items with high intrinsic value such as books, CDs and software.

Prior to the internet, a major obstacle to Australia’s small and medium sized enterprises (SMEs) entering international markets was their lack of resources (Anonymous, 1997), isolation and the impracticability of maintaining an overseas or even interstate presence. Stories of unreliable agents and representatives are legion. A web page can provide a national and international presence (Clayton, 1998; Karakaya and Karakaya, 1998; McCollum, 1998).

1.3.2. Supply chain management

E-commerce can change relationships in the supply chain (Benjamin and Wigand, 1995; Ghosh, 1998). A mundane effect of information technology (IT) is reduction of costs across the whole supply chain (Flaherty, 1995; Chapter 4). The cost reduction is attributable to prompter and more accurate information (and hence forecasts) and optimisation of inventory levels, production plans and transport costs across the whole supply chain (in contrast to each participant locally optimising) (Benjamin and Wigand, 1995).

The internet can change relationships amongst supply chain partners in unforeseen ways (McCollum, 1998). The internet (and cheaper phone calls and faxes) facilitates sharing information between companies, suppliers and customers. It can link businesses and trading partners from disparate industries, allowing them to form (for some purposes) a single entity or consortium (Parfett, 1996) whose members share information previously treated as confidential. It allows firms of differing locations, sizes and technical expertise to collaborate (Robins, 1998), (Poon and Swatman, 1996), typically in the development of complex new products or services.

A tradition supply chain comprises raw material suppliers, manufacturers, wholesalers, retailers and customers. The internet can undermine this comfy linear arrangement. Manufacturers can disintermediate retailers by establishing web pages to sell directly to customers. Participants (notably General Electric which reduced the cost of supply contracts by between 10 and 50%) can use the internet to identify alternative suppliers or customers (Ghosh, 1998). The internet is a low-cost way of comparison-shopping, it is easy to search for alternative supplies on the internet, bypassing, or at least threatening, traditional suppliers. In electronic markets, competition is usually intensified because it is much easier to search for lower cost and higher quality supplies (Kwok, 1997; Malone, 1989; Sterrett and Shah, 1998).

By more closely coordinating activities, actors can better exploit techniques such as just in time (JIT) and TQM (quality problems may only be solvable through cooperation between supplier and customer). Two firms may thus move imperceptibly from an arms-length to a