

December 1999

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## Recommended Citation

Zhuang, Youlong, "Electronic Commerce: A Resource-Based View" (1999). *AMCIS 1999 Proceedings*. 357.  
<http://aisel.aisnet.org/amcis1999/357>

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# Electronic Commerce: A Resource-Based View

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## Abstract

Management needs to know the benefits that electronic commerce can provide and the resources needed to make its e-commerce applications successful. A resource-based view can help it do so. Human resources, business resources, and information technology resources will serve as independent variables in this study of the application of the resource-based view to e-commerce. Firm performance will serve as dependent variable. Support for the view can help managers make decisions about the resources needed in their organizations for the successful application of e-commerce.

## Introduction

Electronic commerce is changing the way business is conducted. Few organizations, if any, are debating whether or not to participate in e-commerce. Instead they are concerned about how and to what extent to do so.

In order to decide, management needs two important pieces of information. First, what benefits can e-commerce provide? Second, what resources are required to make its e-commerce applications successful? The research proposed here will apply a resource-based view of the firm (Wernerfelt, 1984; Barney, 1991, Powell and Dent-Micallef, 1997) to answer these questions.

## Electronic Commerce

E-commerce has been broadly defined as "any form of economic activity conducted via electronic connections (Wigand et al., 1997, p.260)." It includes electronic data interchange (EDI) as well as the Web presentation of a firm with the possibility of transactions added in the future.

## A Resource-Based View of the Firm

According to the resource-based view, a firm's performance is based on its unique capabilities and its competitors' difficulty in imitating them. In other words, certain resources of a firm with certain characteristics will lead to sustainable competitive advantage. The capabilities here are broadly defined. They can be tangible or intangible resources (Wernerfelt, 1984; Barney, 1991). Powell and Dent-Micallef (1997) used three resources in their study of retailing, namely, business resources,

human resources, and information technology resources. According to the resource-based view, those three resources should predict firm performance.

One purpose of studying resource-based theory is to help managers identify the firm's resources and capabilities that can be used to gain competitive advantage so they can build on the current resource base. Another purpose is to help them identify the resources needed for the firm's future resource base.

## Independent Variables

The independent variable in the current research will be the resources necessary to participate in e-commerce. This research will make minor modifications to the business and human resources in Powell and Dent-Micallef (1997)'s instrument. In particular, new items will be added to the authors' single item sub-dimensions to improve reliability. The information technology resources of the instrument, however, will need major modification to fit the current study.

Powell and Dent-Micallef's (1997) human resources had six sub-dimensions based on a literature review about the relationship of each sub-dimension and IT. The six sub-dimensions were: 1) open organizations, 2) open communications, 3) consensus, 4) CEO commitment to IT, 5) flexibility, and 6) IT/strategy information.

The business resources of Powell and Dent-Micallef's (1997) instrument included seven sub-dimensions. They were: 1) supplier relationships, 2) supplier-driven IT, 3) IT training, 4) process redesign, 5) teams, 6) benchmarking, and 7) IT planning.

Some technological characteristics of the Internet and the Web can represent valuable e-commerce resources for firms. They can be used to measure the e-commerce technology resources in this study.

One such characteristic is connectivity (Dutta et al., 1997). It includes communication between customers and firms, between firms, within a firm, and among customers (Dutta et al., 1997). Prior to the business use of the Internet, no easy way existed for a firm to connect to its customers, suppliers, and partners. The other characteristic is interactivity (Dutta et al., 1997). Interactivity is two-way real-time interaction between a firm and its customers, suppliers, and partners. It leads customers toward more communication with the company,

and allows the customers to be active recipients of information. Thus, it is more than simply being connected. Items will be generated to represent these dimensions.

Dutta et al. (1997) suggested using four dimensions to evaluate the technological sophistication of Web sites. These dimensions may also serve as potential measures of e-commerce technology resources in this research. They were the information content of the sites, the ease of navigation, the visual appeal of the site, and the speed of loading a site. Items will be generated to represent these dimensions.

A third potential measure of e-commerce technology resources is related to the interface with the user. The benefits of e-commerce and online shopping depend greatly on that interface and how users interact with sites (Lohse and Spiller, 1998). Menus, navigation, and the easy of comparing multiple products on the same screen affect the success of a Web site. Items will be generated to represent these dimensions.

### **Dependent Variable**

Firm performance resulting from e-commerce can be measured by the benefits it gains from such application. Many firms have Web sites these days, but not all of them meet their objectives. The bottom-line impacts of e-commerce are reducing costs, improving productivity, attracting new revenue, and helping the firm to gain competitive advantage. These benefits can be achieved by developing new markets or improving customer relationships. How to measure the success of e-commerce is critical to our study of the competitive advantage it provides for the firm.

Harden et al. (1997) suggested evaluating a commercial Web site from six aspects. First, e-commerce can increase consumer awareness of products. Second, e-commerce can save the cost of direct marketing. Third, e-commerce can increase the sales of products both online and off line. Fourth, e-commerce can facilitate customer support. Fifth, e-commerce can enable firms to collect more information about the market. Sixth, e-commerce can provide the means of publishing advertisements. A search of both academic and trade journals will be conducted to elucidate these benefits. Items will be generated to represent them.

### **Hypotheses**

This research proposes three hypotheses. First, despite debates on whether e-commerce technology will help a firm gain competitive advantage, some firms appear to have been able to use the technology for that purpose. Rapid changes in new technology provide a first mover advantage. Technology resources are critical for

businesses and retailers so they can gain this advantage from e-commerce (Lohse and Spiller, 1998). Thus, we have the following hypothesis:

H1: E-commerce resources explain significant performance variance among firms.

On the other hand, Frank (1997) argued that neither technology nor computer applications are the most important solution in e-commerce. They are changing too fast and are available to every organization. "It is impossible to derive competitive advantage from [them] (Frank, 1997, p.35)." Instead, the author believed that the real value of e-commerce is from the creation and management of the proper business process.

Clearly, for any technology to be successful, people play an important role. Similar to Powell and Dent-Micallef's (1997) findings, we have the second hypothesis:

H2: Human resources complementary to e-commerce create advantages that explain significant performance variance among firms.

E-commerce is more than a new technology. It changes the way business is conducted both inside and outside the firm. The fit between the business process and electronic commerce is important for its success. Hence, we have the third hypothesis:

H3: Business resources complementary to e-commerce create advantages that explain significant performance variance among firms.

### **Methodology**

This research will focus on the retail industry. The retail industry has been an early participant in e-commerce with substantial, potential benefits from it. Due to the Internet's surging popularity and increased consumer confidence in the security of the Internet, business-to-consumer e-commerce in the retail industry has become more attractive.

The study will focus on managers responsible for their organization's e-commerce. We will search the Web via major portals such as yahoo.com, exite.com, miningco.com, msn.com, and netscape netcenter to find online retail stores. We may focus on the Web pages of physical retail stores, such as Wal-mart, or virtual stores such as amazon.com, or both. From their Web sites, we will investigate the companies and find their postal mail

addresses and managers' names. After a pilot study, a survey will be mailed to these managers.

### **Expected Contributions**

The findings from this research will offer both practical and theoretical contributions. From the practical perspective, if all three resources predict performance, managers will be encouraged to strengthen all three in their organizations. However, if one or more do not predict performance, then perhaps managers should not invest as much in improving them. From the theoretical perspective, confirmation of the expected findings will extend the resource-based view to a new domain.

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