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Evaluating the impact of B2B e-commerce: a contingent approach

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Abstract

Technological developments in e-commerce provide one of the most important challenges to B2B marketers currently. In this paper, we use a contingent approach to attempt to assess the likely impact of two forms of e-technology, Virtual Markets (VMs) and Interorganisational Systems (IOS), on two different ideal-type markets: competitive and relational. The contingency market model in each case comprises a basic market mechanism that is influenced and modified by the action of certain key contingencies such as product form, market structure, and market information. The impact of each e-technology in each market is assessed by reference to the way it affects one key contingency, market information. From this, the likely penetration of each e-technology in each market is qualitatively assessed. The key managerial implication is that managers need to understand the mechanisms and contingencies that affect their own particular situation, rather than expect to be able to apply general prescriptions.

Keywords: E-commerce; Industrial networks; Contingency; Virtual Markets; Interorganisational Systems

1. Introduction

One of the most important issues that face B2B marketers currently is the likely impact of e-commerce on their activities and those of the firms they sell to. They may have been concerned by forecasts such as the following:

> "For the year 2004, Forrester Research predicts US B2B revenues of $2.7 trillion, AMR Research believes B2B e-commerce will be $5.7 trillion, and Jupiter Communications sees B2B online trade reaching $9.7 trillion. Gartner Group expects that by 2005 more than 500,000 enterprises will participate in e-markets as buyers or sellers." (Anonymous, 2001).

But then they may have been partially reassured by the partial demise of dotcom companies and quotes such as:

> "...we have learned that only 8 percent of manufacturers, for example, have adopted e-commerce as a method of doing business." (Resch, 2001).

However, it is important not to overlook the fact that both B2B markets and e-technologies are diverse in nature. It is to be expected, therefore, that the relationship of one to the other will not be simple. The main argument presented here is that there are a variety of forms of B2B marketing and e-commerce and the occurrence of each combination; the penetration of a particular e-technology in a particular kind of market will depend upon particular sets of contingencies. The managerial implications are obvious. Marketing managers need to identify what contingencies apply to their particular situations, and why, so that they can make sensible decisions about how e-commerce technologies should be employed in their firms and in relationship to their customers.

In order to simplify the arguments used in the paper, two ideal-type forms of markets, "competitive" and "relational," and two main types of e-commerce technologies, Virtual Markets (VMs) and Interorganisational Systems (IOS), will be used.

Competitive markets are those that embody economists' vision of pure competition, where exchanges are largely transactional. Relational markets are recognised as those where day-to-day exchanges largely occur in the context of long-term buyer–seller relationships. The ideal market types could be seen as two ends of a continuum. This is a somewhat dangerous notion because it implies that they differ only in terms of a single dimension and that can hardly ever be the case.

Timmers (1999) describes e-business as "doing business electronically." Doing business is meant to include any kind of activity a firm might undertake, including internal processes. Electronically implies the movement and storage of

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data (defined widely) by electronic (and normally digital) means. E-commerce is a subset of e-business that confines itself to any form of *exchange* between actual and potential organisational suppliers and customers via an electronic medium.

VMs are basically marketplaces where buyers and sellers can seek each other out by electronic means. Such markets may perform one or more of three functions: identification, selection, and execution (Choudhury, Harzel, & Konsynski, 1998). Typically, they involve large numbers of both buying and selling firms working through one or more third-party electronic hubs. VMs differ in terms of the extent of the services they offer (from brokerage to complete exchange support systems), who controls them (buyers, sellers, or independents). and the scope of the participants (vertical, horizontal, or mixed forms).

IOS is a general term that describes means by which firms can carry out their (regular) dyadic interfirm interactions, broadly defined, by electronic means. Originally, these functions were performed by electronic data interchange (EDI) systems but these are slowly being replaced by web-based systems.

The limited question we seek to answer is, therefore, "How likely are these two e-commerce technologies to flourish in competitive and relational markets, and what are the managerial implications?" The answers depend upon a simple realist model of explanation (Easton, 2002). Events, such as the adoption of e-technology, occur as the result of certain mechanisms and certain contingencies. Mechanisms are the interactions of certain driving forces in particular situations (e.g., organisational markets). Contingencies are aspects of situations (e.g., product forms) that are relatively fixed aspects for any one situation, but which vary from situation to situation. It is also essential, we believe, to think in terms of a mutual relationship between e-technology and B2B market types, and not to subscribe to a form of naïve technological determinism (O'Mahony & Barley, 1999). Markets can change technologies, as well as technologies can change markets.

The structure of the paper follows our overall argument. For both competitive and relational markets, we describe the mechanisms and contingencies that we believe lead to their occurrence. Next we suggest how the penetration of the chosen e-commerce technologies might be facilitated or constrained by one of those market characteristics, market information. Finally, some tentative managerial implications of the "forecasts" are set out.

2. Competitive markets

2.1. The market mechanism

For both markets, we take the exchange as the main unit of analysis. Competitive markets are those beloved by economists. The basic market mechanism is for both buyers and sellers to maximise the utility of each exchange as it occurs, with no future prospects taken into consideration. Utility is relatively easily defined in this case. For the buyers, it is achieved by buying the amount of product that they require at a particular point in time at the lowest possible price. For the sellers, utility is maximised if they sell all they can produce at the highest possible price.

However, in such markets, sellers are price takers. They cannot do other than sell their products or services on the "open" market. Buyers may have different needs and wants, but given that there is only a standard product available, buyers also have to be price takers. However, another part of the market mechanism is that buyers seek to prevent price discrimination by continually searching the market for lower prices, thus keeping the market competitive. They may even shop around as a tactic to keep suppliers "honest." In such "efficient" markets, the consumer surplus remains with the consumer and suppliers survive on returns equal to the cost of capital (Grover & Ramalal, 1999).

2.2. Competitive market contingencies

There are a number of conditions that need to apply if a market is to operate "efficiently." The key contingencies for a perfectly competitive market are:

1. standardised product or service
2. absence of substitutes
3. many buyers and sellers of equal size
4. perfect costless information.

In this section, the arguments for the importance of each of these conditions are discussed and the possibility of their being achieved in practice is evaluated. In Section 2.3, certain psychological and social drivers outside the economic market mechanisms are also discussed.

2.2.1. Product form

The product or service offering must be identical from all sellers and in the eyes of all buyers. It must be a commodity. If it were not, then buyers would be able to discriminate among the products from different suppliers and therefore will be willing to pay different and, on average, higher prices—higher prices because the variety of products available would more accurately match the different needs of buyers. Alternatively, in a perfectly competitive market, buyers accept that there is only one product specification, but this is an acceptable tradeoff because it drives down the price to the minimum possible.

In practice, such standardisation is almost impossible to achieve. While the physical properties of the product may be equivalent, the service elements will be less easy to standardise. Service-based offerings such as consultancy or out-