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A Framework for the Analysis of Electronic Market Success

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Introduction

One major electronic commerce research issue is to identify the factors that affect electronic market (e-market) impact on the economy, individual industries, and specific electronic markets (or electronic sales channels). Why do some e-markets succeed while others fail? The purpose of our research study is to identify a framework for analyzing and predicting the impact of e-markets on each of these levels. Our study looks at these issues from the consumer perspective and assumes that e-markets each involve a number of competing sellers. We also assume that consumers have a sufficient income to purchase products. If they do not then they can not participate in e-markets or traditional markets.

Based on an analysis of e-markets in a wide range of industries, we identify factors that potentially determine success or failure using the Ability-Motivation-Opportunity framework (MacInnis, 1989). We hypothesize that factors that increase consumer's opportunity to use e-markets, their ability to do so, and their motivation to use a particular site, will determine the ultimate success of e-markets. We particularly focus on issues related to consumer motivation.

The following sections describe the findings of our study. We first identify factors that affect consumer opportunity, ability and motivation. We then combine this into an overall analysis framework and provide current examples of e-market successes and failures that support our findings. In the final section we discuss our conclusions and identify managerial implications resulting from our study.

Factors that Affect Consumer Opportunity to Use Electronic Markets

Increasing consumer opportunity to access e-markets affects the success of e-markets across the economy as a whole. Lack of opportunity for consumers to access e-markets makes the remaining issues moot. Opportunity is a necessary, but insufficient, condition for e-market success.

Factors that affect consumer opportunity include existence of information infrastructure such as the Internet and World Wide Web, consumer access to personal computers and modems that enable them to access the infrastructure from home or work, and interactive service providers (ISPs) that provide this access. An additional factor that affects consumer opportunity (and e-market success across the economy) is the amount of free time they have to gather product information on-line.

Factors that Affect Consumer Ability to Use Electronic Markets

Increasing consumer ability to use e-markets affects the success of e-markets in an individual industry involving a set of related products. Lack of consumer ability makes their motivation to use a particular e-market a moot point. Ability, as opportunity, is a necessary, but insufficient condition for e-market success.

A first factor is the consumer's level of computer literacy. Lack of computer literacy makes consumers unable to use an e-market. Other factors relate to consumer ability to gather product information in the e-market. Either the consumer must have personal knowledge of the industry's products, or description standards must exist for sufficiently describing the products through the on-line interface, or a broker must be available that can support consumer information gathering and purchase decision making.

Factors that Affect Consumer Motivation to Use Electronic Markets

Given consumer opportunity to access e-markets, and their ability to participate in them, the remaining issue is to motivate the consumer to use a particular e-market (or on-line sales channel) in a given industry. Consumer motivation is of primary concern to managers considering (or currently using) an on-line sales channel for selling their products and several factors affect the level of motivation for consumer's to use a given e-market.

Consumers can be motivated to use a site by reducing their purchase costs. Product prices (or transaction charges such as those for using a broker) can be reduced in the on-line channel to draw consumers to the site. For digitizable products it may also be possible to reduce distribution costs given the ability to electronically distribute the product instead of using traditional physical distribution. This is particularly possible for products such as computer software. Consumers can also be educated to see that in many instances it is more convenient to use e-markets than to use traditional markets (such as retail stores). The purchase type may also determine whether an e-market is used. E-markets are especially useful for analytical purchases, but are less useful for impulse purchases.

The final factor, and likely the most important, is reduction of risk as a consumer motivator to purchase in e-markets. A perceived lack of on-line security (potentially resulting in stolen credit card numbers, etc.) can result in e-market failure. Additionally, higher priced products that increase potential loss from unscrupulous sellers may reduce the likelihood of success for an e-market. There is also distribution risk in as far as potential damage to products that need to be physically shipped. Strategies to increase consumer motivation to use a particular electronic market (or on-line sales channel) are discussed in the managerial implications section.

Electronic Market Impact Analysis Framework

Our framework for evaluating the impact of e-markets combines each of the issue areas (opportunity, ability and motivation) and their related factors. One result is the decision tree shown in Figure 1.

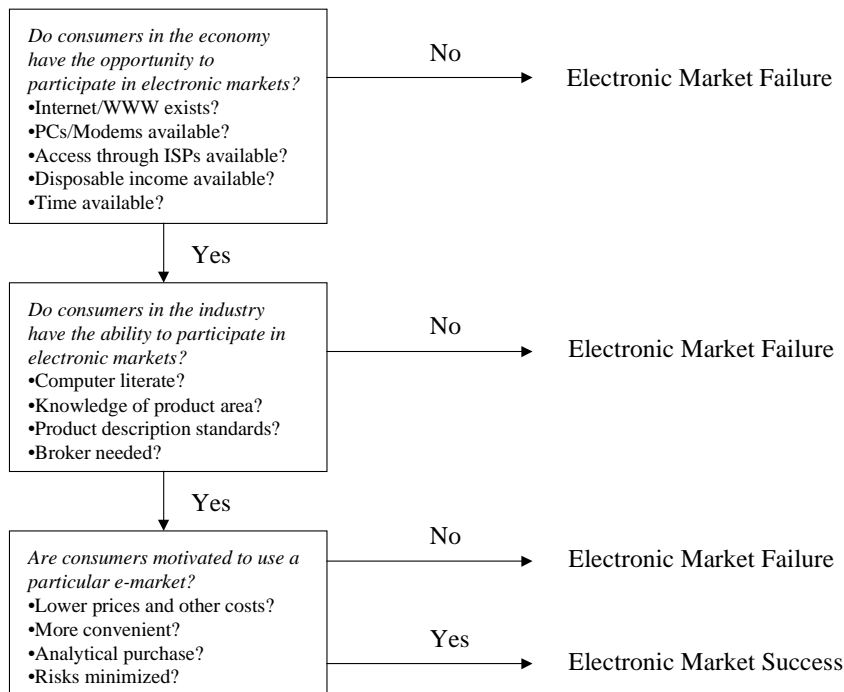


Figure 1. Decision Tree for Predicting Electronic Market Success/Failure

The decision tree illustrates how the individual factors can be combined into an analysis framework. If consumers do not have the ability to participate in e-markets then e-markets are likely to fail. If they have the opportunity, then if consumers do not have the ability to participate, e-markets are likely to fail. Finally, if consumers have the opportunity and ability to participate, then if they do not have the motivation to use a particular e-market that e-market is likely to fail. E-market successes are associated with situations where consumer opportunity, ability and motivation each exist. This is supported by examples of e-market successes seen in the past few years. For each of the examples we assume opportunity and focus on factors that affect ability and motivation. The examples we discuss illustrate several successful e-markets that exist in a range of industries. Specifically we look at flowers, automobiles, music, books, and airline tickets.

Flowers. Calyx & Corolla have used e-commerce to radically alter the way new cut-flowers are moved from the growers to the consumers. Traditionally, the value chain that supplied cut-flowers involved a grower, jobber to transport to a wholesaler, and finally a florist. From a survey of Boston florists in July 1995, the price, including delivery charge and tax, for an example arrangement of flowers was \$60. Calyx & Corolla are able to provide an electronic market to customers to buy directly from growers with the flowers being shipped using Federal Express. Their delivered price is \$54 (Applegate, 1996).

Much of this is due to the elimination of some of the intermediaries between the growers and the customers. This e-market is successful for several reasons. The customer can easily get information about the product either through personal knowledge or through the market interface, prices and other transaction costs are lower than traditional markets, it is convenient, Calyx & Corolla have achieved a reputation as a trusted seller, and they use Federal Express to minimize distribution risk.

Automobiles. Thanks to the World Wide Web, new car shoppers have more options, including access to valuable information, such as what a car really does cost a dealer. As a result, consumers are increasingly locking in better deals online. What's more, the trend has attracted the attention of some of the biggest car dealers, financial institutions and insurance companies. Electronic markets now exist that enable consumers to shop for and buy a new car, insure it and take delivery

without ever setting foot in a dealership (Calem, 1996). A search of the directory of automobile dealers on Yahoo in October 1996 showed that 79 different dealers or locator services were listed. Web-based automobile e-markets are successful because the consumer can easily gather information for their analytical purchase, allowing them to negotiate lower prices, and it is convenient.

Music. Jason and Matthew Olim founded CDnow Inc. from the basement of their Ambler, Pennsylvania home. Jason Olim, a jazz fan frustrated by skimpy selections in music shops, came up with the idea of a cyberstore that could offer every jazz album made in the U.S. and 20,000 imports. Shoppers place their orders with CDnow (cdnow.com), which, in turn, contacts distributors. Most disks are delivered to the customer's door in 24 hours. Add in advertising revenues, and CDnow expects to hit \$6 million in sales in 1996, triple the previous year's revenue, with 18% operating margins (Rebello, 1996). This e-market is successful because it is easy to describe the product being offered (artist and title), it is convenient and product selection is high, and CDNow has achieved a reputation as a trusted seller.

Books. Books are another product that consumers purchase on-line. One bookseller on the Web is Amazon.com Books. Their site advertises a spotlight book, book of the day, titles in the news, featured books, and books that are hot this week. Some of their books are discounted as much as 30%. By clicking on book titles, and some authors, more detailed information can be accessed (Amazon, 1998). It is no longer necessary to either go to a bookstore to buy a book or to find mail order bookstores through a print advertisement. Web advertising is likely to be more current than print ads. Amazon's Web presence is successful for the same reasons as Amazon books.

Airline Tickets. Discount airfares you won't find anywhere else are popping up on the Internet. American Airlines and Cathay Pacific Airways are using their Web sites to reduce the thousands of seats that are unsold on flights every day. American began selling fares on 20 routes as much as 70% below the lowest fares consumers would be quoted through a travel agent or American's 800 number. Besides filling empty seats, airlines want to cut distribution costs by selling directly on the Internet instead of through travel agents (Rosato, 1996). This last e-market example is successful because it enables customers to conveniently gather ticket information allowing them to find a low price. The airlines are willingly to participate because nearly any price is better than letting a seat go unsold.

Conclusion and Managerial Implications

The overall conclusion of our study is that e-market success, or failure, is primarily affected by consumer's opportunity, ability, and motivation to participate in e-markets. In this study we identified specific factors that affect each of these issue areas. The managerial implications that arise from our study are associated with strategies that can be employed to increase consumer motivation. Opportunity and ability are often outside the scope of managerial control. If increasing the number of potential on-line consumers is a goal, then various strategies can be employed.

Increasing Opportunity. It may be difficult for an individual company to increase their customer's opportunity to purchase on-line, but the increase in family PC ownership, and use of the Internet through interactive service providers, may increase opportunity across the economy as a whole. This has positive repercussions for firms that want to move toward an on-line sales channel.

Increasing Ability. Increasing customer ability may also prove difficult for companies, but, as younger people who have used personal computers throughout their education become adults, the proportion of consumers who have the ability to participate in electronic commerce will increase. Companies may also use traditional marketing methods to educate their customers about the new on-line channel. Getting customers to use the e-market will give them experience with it and increase their confidence in their ability to participate. Finally, industries that do not have common product description standards should develop them so customers can be confident that they know exactly what they are buying. These description standards should use text and graphics for now, but may use other multimedia (commonly available on the Web) in the future.

Increasing Motivation. Companies have the most direct effect on their customer's motivation to purchase on-line. They can offer lower product prices in the e-market, or they can reduce transaction charges. They can also educate their customers about the convenience of the using the e-market. But, the most important issue for companies to address is to minimize their customer's risk related to e-market transactions. Offering a secure site where customers are confident that they will receive the product that they purchased quickly and in the right condition is vital. While being the low cost provider in an e-market is a good short term strategy, being a trusted seller in an e-market is a better long-term strategy. Being a trusted early entrant in an e-market can result in long term success and a large number of loyal customers. We have seen this with Amazon books and CDNow.

References

References available upon request from first author (tstrader@iastate.edu).