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Models for investment in electronic commerce—financial perspectives with empirical evidence

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Abstract

Electronic Commerce ("eCommerce") is a concept for trade based upon products and services that are being marketed, contracted, and paid for over the Internet. Consequently, electronic commerce demands for the investment in computer systems, marketing, logistics and payments.

This paper will develop conditions for profitable investments in eCommerce with a special focus on outlays for information technology systems and sales management. If the services are made more standardized, if they do not change that often, or if they are well known to the customers so that there is little need for supplementary information, then the less costly will the information technology system become. The investment in marketing depends on how well known the brand name is to the customer. eCommerce firms "Born on the Net" have to spend substantially more resources on marketing than firms that "Move to the Net".

These investments may be seen as parts of a process, which aims to generate larger revenues to the firm, better services to the customers, a more efficient logistic system, and lower payment costs. A financial perspective is taken, where investment outlays for web services and marketing are balanced to cost savings when serving existing customers and net revenues from the generation of new customers. This financial approach is applied to five case studies from the sectors of capital goods, financial services, food, ornamental horticulture, and books and stationeries, where the given background from practice and conditions for success are developed in terms of a customer-base, margins, and sales growth. It is demonstrated that an existing customer base offline reduces the need for a marketing that is costly. It is also shown that a combination of services online and offline improves customer services and increases the extension of repeat purchases.
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1. Background and purpose

Electronic Commerce is an activity that makes use of a computer network (the Internet) in order (a) to exchange information about products and services including price offers, and (b) to buy and sell products, services, and information online. It stands for a radical structural change concerning computer systems, marketing principles and logistics. Objectives have been "to develop low-cost customer-prospecting methods, establish close relationships with customers, and develop customer loyalty" [1, p. 9]. The main profitability of eCommerce is supposed to come from transactions business-to-business (B2B). In the case of business-to-consumer (B2C) only a limited number of cases seem to have become a success. For an overview sector by sector see e.g. [2, pp. 34–41].

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Until today substantial resources have been invested in eCommerce. They have been directed towards two main tasks:

1. To develop an *information technology system* (a Web system) to be connected to the Internet. Such a system should let the potential customer to obtain accurate information on product availability, product quality, service conditions, and payment facilities in order to execute a purchase.
2. To establish and to maintain a *customer-base* (a register over earlier customers, present customers, and potential customers in combination with detailed sales records). Such a customer-base may be obtained by advertising in medias such as the Web, newspapers, television, telemarketing, etc. It may be maintained in terms of running a "Customer Club", in which a customer obtains benefits from repeated purchases.

An investment in eCommerce may be compared to an investment in research and development, in patents, and in new technologies. Such an investment has the following characteristics:

- It is essential to find an optimal date of investment. A delay in investment gives an opportunity to obtain a more developed information technology system as well as more information about market conditions. "Nothing can compensate for the disaster of a massive launch when a site isn' t working" [3, p. 90]. On the other hand, a delay may result in a loss of cash flows to competitors.
- The expected stream of net profits has a substantial degree of uncertainty. Certain customers may not be well trained in using the Internet and they may consider on-line payment systems as being risky. Consequently, substantial amounts of resources may have to be spent on marketing, on consumer service, and on interactive systems.

The uncertainty about market conditions will result in a need for special financial programs including guarantees, risk-sharing systems, and the supply of venture capital.

The demand for successful deployment of eCommerce investments causes the need for empirical studies in the following three problems:

a. The design of the web system has to be tailor-made for each specific company in order to suit its configuration of products and services. Furthermore, such a design has to be upgraded from time to time dependent on the development of new and more modern systems as well as on the changes in customer demand.
b. The degree of success in online sales will depend on the marketing approach. A company with an existing stock of customers seems to have a lead over any new enterprise, which has to spend substantial resources on attracting customers.
c. Online sales implies that the distribution of products and services have to be performed without a major involvement of the customer. Consequently, each eCommerce firm has to design low-cost but highly efficient systems for dispatching their products at a time and date suitable to each single customer.

The purpose of this paper is to develop *conditions for profitable investments in eCommerce*. A financial approach is taken, where investments are treated as activities that initially spend fixed outlays on information technology and marketing in order to obtain a time series of net benefits to the firm and to its customers. The paper starts (in Section 2) with the investment in eCommerce seen as a process. The focus is on the principles for an economic evaluation based upon the costs and the benefits of investment and operation of eCommerce. These analytical principles are then used in five case studies, each of them representing one specific economic sector (Section 3). The experiences from these case studies form a basis for an analysis of the conditions for profitability (Section 4). Finally, conclusions are drawn (Section 5).

2. Electronic commerce seen as an investment opportunity

2.1. Principles of investment evaluation

Until today there have been a number of studies concerning the advantages of eCommerce based upon special theories like transaction costs, marketing, diffusion, and networking (see e.g. [45, pp. 107–9, 130–2]. However, there have been very few studies on the conditions under which an investment in eCommerce is profitable (see [678]). There is evidently a need to develop principles for investment in eCommerce with a special emphasis on profitability analysis and financial considerations.

There are many reasons for a firm to *invest in online distribution*, i.e., to inform, to sell, and to charge its customers over the net.[1] In this way the firm will *serve an existing customer-base* by providing them with an alternative that is more comfortable and less time consuming. One reason is to reduce operating cost for sales, for distribution, for holding

[1] Elliot and Briers [9] have performed an interesting overview of the "drivers" companies have for demanding financial services online. Companies find that these services will reduce transaction costs because being "better captured electronically than on paper". They also find that "as in every other industry being revolutionised by e-commerce, customer retention, up-sell and cross-sell represent the real business battleground for the future". Finally, they stress that "mature products and services that can be standardised and commoditised will be first affected by e-business".

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