

Chapter 13

Product Choice Strategy for Online Retailers

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ABSTRACT

An important strategic issue for managers planning to set up online stores is the choice of product categories to retail. While the “right” product category would depend on a number of factors, here we focus on the following two factors: compatibility of the product with the online channel, and the competition between the traditional brick and mortar channel and the online channel. This is to acknowledge two well-known facts: Certain products are more suitable for selling through the Web than through other channels; and an online retailer competes with not only other online retailers, but also traditional brick and mortar retailers. To determine the right product category, we develop a game theoretical model that allows for competition between the retailers. We study both Stackelberg and Bertrand competition models, as these two models capture the essence of different types of competition on the Web. Based on our results, we propose that, under all types of competition, the optimal product is one that is only moderately compatible with the Internet.

INTRODUCTION

There are a number of statistical reports, from the industry and the government, which show that commerce on the Internet is growing at a healthy rate. For instance, according to “The 2006 State of Retailing Online”, the ninth annual report

published by Shop.org and conducted by Forrester Research, online retail sales are expected to hit \$211.4 billion in 2006, a 20% gain over revenues of \$176.4 billion in 2005. Again according to the Department of Commerce, quarterly e-commerce sales in the third quarter of 2006 increased 20.4% from the third quarter of 2005. This growth in

commerce on the Internet has attracted the attention of business managers, who now accept the Internet as a viable channel to distribute products to consumers.

Managers who are planning to set up online stores need to make a number of strategic decisions, one of which is simply what product to sell. This can be a critical decision, because some products have a greater likelihood of succeeding on the Web. For instance, according to "The 2006 State of Retailing Online" report, the top-selling categories on the Internet are computer hardware and software (\$16.8 billion); autos and auto parts (\$15.9 billion); and apparel, accessories, and footwear (\$13.8 billion). Cosmetics and fragrances (\$800 million) and pet supplies (\$500 million) are expected to experience over 30% growth in 2006, more than any other categories. A business manager who studies these numbers may be tempted to choose a category, such as computer hardware, software, or auto parts, which sells in large quantities on the Web. But is this the right strategy?

An important question here would be, why do some categories do very well on the Web and some others do not. The reason is that some products have characteristics that have synergies with the characteristics of the Internet, making it advantageous for consumers to buy these products on the Internet. For instance, software does so well because the Internet allows consumers to download software from the Internet onto their computers. The digital nature of software is very compatible with the digital nature of the Internet. To capture this synergy issue, we introduce a new index, *Web-product compatibility*, which measures the extent of synergy between the characteristics of a product and the Internet. Its value varies from zero to one, where zero signifies no compatibility and one stands for complete compatibility. In a similar vein, Balasubramanian (1998) assumes that the fit with the direct channel varies across product categories. While business managers would be tempted to pick a product that has a

Web-product compatibility of one, it is not clear if this is the optimal strategy. This is the question that we attempt to answer in this article.

There would always be some products (e.g., music, airline tickets, etc.) where the online channel enjoys overwhelming advantage over the traditional channel, that is, *Web-product compatibility* is greater than one. Here the decision, whether to choose the category or not, is straightforward. Since the online stores would dominate the traditional brick and mortar stores and, over a period of time, the traditional stores would disappear and only the online stores would remain, the recommendation would be a clear "yes". For illustration, notice the demise of traditional music stores and travel agents. The question is much more complicated for those products where online stores have certain advantages and disadvantages as compared to brick and mortar stores. In such a scenario, neither of the two types of stores enjoys any clear advantage over the other. In this article, we consider only those products for which *Web-product compatibility* is less than one.

We develop a game theoretical model to study how *Web-product compatibility* impacts the profits of an online retailer that is in competition with a brick and mortar retailer. We consider two competitive market settings, the Stackelberg and Bertrand competition models. Based on the optimal profits, we argue that under all kinds of competitive settings, the optimum product to retail would be the one that has only moderate *Web-product compatibility*. This is a counterintuitive finding and the main contribution of this study.

The rest of our article is organized as follows. The second section provides a summary of the relevant literature. The third section presents our modeling framework. We assume that both the traditional and the brick and mortar retailer are horizontally integrated, and then we determine the optimal pricing policies and joint profits. The fourth section introduces *Web-product compatibility*, and studies its impact on the profits of online and traditional retailers under different

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