

Technology advancement strategy on patronage decisions: the role of switching costs in high-technology markets

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Abstract

Among the many factors that encourage return patronage of incumbent technologies, one that has received scholarly attention in other contexts is switching costs. The existing literature, however, has yet to provide a detailed explication of the underlying processes involved to link switching costs and technology patronage. Furthermore, no examination has been conducted of the degree to which the factor plays a role in the success or failure of corporate technology advancement strategies designed to encourage technology patronage. In this context, we propose a systematic framework to explore the nature of the links between technology advancement strategies and consumer technology patronage via switching costs. Based on consumer survey data from South Korea, we find empirical support for the link between technology advancement strategies and consumers' technology commitment and patronage. Specifically, switching costs are found to be positively associated with technology commitment and patronage. Further, compatibility strategy is associated with the costs involved in switching away from incumbent technology because of an abundant or varied supply of complementary goods. The results also show that preannouncement is a key communication strategy to achieve favorable expectations and to retain the commitment and patronage of current technology users.

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1. Introduction

The complex nature and volatility of high-technology markets also create uncertainty and competition on the supply side [1]. In the fast-changing and competitive technology market, every firm tries to provide the most advanced version of whatever product they offer. Especially in the computer software market, companies regularly update and upgrade

their products in order to encourage return patronage—the repeat purchase or usage of a particular technology, whether the original version or an upgraded version—of current users, as well as to entice new users. Alternatively, the complexity that consumers face when making decisions about which technology to use stems to a large degree from the rapid pace of technology advancement and the variety of technology alternatives [2–4].

Among the many factors that encourage return patronage, one that has received scholarly attention in other contexts is switching costs. 'Switching costs' are the psychological, physical, and economic costs that consumers face in switching between technologies [5]. Consumers in this market

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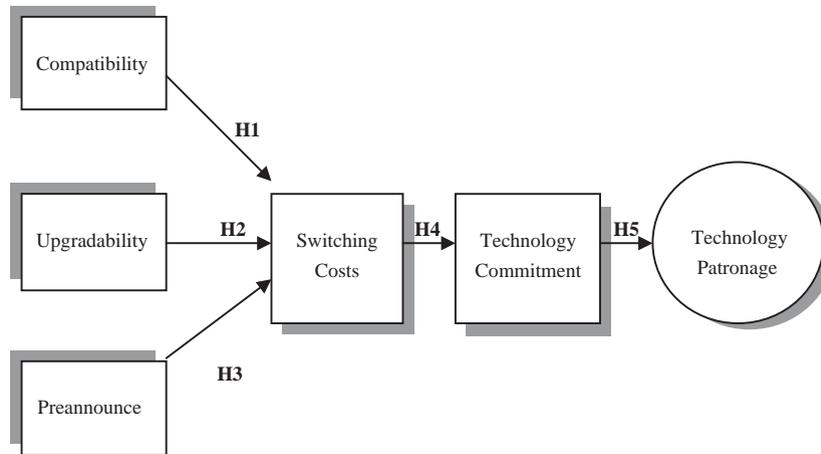


Fig. 1. Consumer patronage on incumbent technology: the case of high-technology markets.

often face switching costs resulting from the fact that they have made commitments to a certain technology. Consumers commonly have strong incentives to commit to the existing or upgraded versions of a particular technology. As a consequence, they frequently not only remain loyal to a particular technology and its upgrades but also purchase complementary products based on compatibility with the technology they patronize—what we may call their ‘incumbent’ technologies.

The role in encouraging commitment to the incumbent technology and return patronage as a consequence has been posited [1], but not subjected to rigorous empirical testing. Furthermore, no examination has been conducted of the degree to which these factors play a role in the success or failure of particular corporate strategies designed to encourage return patronage.

The goals of this article are twofold. First, we attempt to establish the importance of switching costs in encouraging technology commitment which derives return patronage. Second, we attempt to demonstrate the importance of switching costs in the success of three corporate technology advancement strategies—promotion of compatible complementary technology, technology upgradability, and technology preannouncement—in securing technology commitment and patronage. These strategies fall into quite different areas of corporate planning; the first two involve decisions about what to make, while the third is a communication strategy decision. We argue, however, that the success of these seemingly disparate strategies actually depends to a significant degree on the same underlying factor, i.e., switching costs. In so doing, we hope to provide an empirically rigorous integrative framework for understanding at least some of the mechanisms by which technology advancement strategies affect patronage decisions. The suggested framework is provided in Fig. 1.

2. Conceptual model and research hypotheses

2.1. Complementary technology compatibility

The value of products and services depends on the number of, or the variety of, the compatible complementary goods or services [6]. Some examples are ATM machines and ATM cards, CD players and CDs, and computer hardware and software. All these have one thing in common, namely coexistence: they need each other. Consumers are more likely to make purchases that are either compatible with their existing equipment or likely to be compatible with future products in the same category. When consumers purchase products in the form of components that must be put together, technological compatibility between components becomes a factor in the evaluation of the end product.

The more people use a particular product, the more incentives there are for others who need to interact with them to adopt that product. This is all the more the case when a product involves a high number of component parts [7]. These effects imply that a firm has incentives to disperse its technology to the producers of associated products, so as to maintain and increase its market share in the end product market [8]. One example is that the dearth of software for the Macintosh computer upon its introduction, coupled with the subsequent slow expansion in the number of compatible software programs available, nearly prevented the establishment of the Macintosh as a viable platform [9]. It is consequently in the interest of a firm to transfer its technology to other firms, thereby encouraging technology commitment and patronage.

Alternatively, technology compatibility is associated with the cost to consumers of switching technologies. Complementary goods provide system benefits: the added value to users of the full system. The incremental benefits provided

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