



Profiting from business model innovation: Evidence from Pay-As-You-Drive auto insurance

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ABSTRACT

The emergent business model literature, revolving mainly around the mechanisms through which new business models create and deliver value, has left the value capture challenge under-explored. This paper examines how an incumbent firm profits from business model innovation through the study of Pay-As-You-Drive auto insurance. Although business models do not warrant formal intellectual property (IP) protection, their constituent components (e.g. business methods and brands) often do. Drawing on the profiting-from-innovation framework, we find that formal and strategic IP protection methods play complementary roles. Initially, formal IP rights are used primarily as a defensive strategy, as vehicles for packaging and trading know-how, and most importantly as a means of “buying time” to build specialised complementary assets. Long-term competitiveness, however, depends on whether the innovator builds a strong position in specialised complementary assets and is capable of reconfiguring them over time in line with changes in the market environment. Thus, we explicate the complex mechanism and dynamic capability for capturing value from business model innovation.

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1. Introduction

The notion of business model is attracting increasing attention from academics and practitioners alike (Baden-Fuller et al., 2010; Govindarajan and Trimble, 2005; Rappa, 2004). Despite disagreement among scholars on what a business model is, there is some consensus that it describes the design of the value creation, delivery and capture mechanisms to be employed by the firm (Chesbrough, 2010; Chesbrough and Rosenbloom, 2002; Teece, 2010; Zott et al., 2011). The choice of an appropriate business model is increasingly seen as a crucial business decision due to the post-industrial rise of the knowledge economy and digital technology. As firms develop new products and services, they often require a new business model to realign their systems and processes to support the novel products or services (Chesbrough and Rosenbloom, 2002; Zott and Amit, 2010). More generally, a firm's business model is an important locus of innovation and a crucial source of value creation for the firm and its stakeholders (Amit and Zott, 2001; Chesbrough, 2011; Teece, 2006).

Although the emergent business model literature has elaborated on the mechanisms for value creation and delivery when new

business models are conceived and implemented, it has left the issue of value capture relatively under-explored. This is surprising given that the adoption of a novel business model has been acknowledged as an important element of a firm's intellectual property (Zott et al., 2011). The extant innovation literature has furthered our understanding of the means firms have at their disposal to protect innovative products or processes. In particular, a stream of work that has come to be known as the “profiting from innovation” (PFI) literature examines this central question for technological innovation (Teece, 1986, 2006; Chesbrough et al., 2006). This body of work suggests that both formal (patents, trademarks and copyrights) and strategic (e.g. secrecy, lead time advantages) means of IP protection exist, and that their relative effectiveness as means of value capture depends on the IP appropriability regime (i.e. the efficacy of legal protection and the inherent replicability of the innovation). However, no-one has yet examined systematically whether the strategies that are employed for profiting from technological innovation are also effective in the case of business model innovation.

Business model innovation has its own distinctive features (see Baden-Fuller et al., 2010). Most importantly, a new business model is itself unlikely to qualify for formal IP protection. However, specific business methods underlying it may be protectable by obtaining formal IP rights. This applies particularly to innovative business methods reflecting novel applications of Information and Communication Technology (ICT) (Gambardella and McGahan, 2010; Salter and Tether, 2006; Tether, 2005). In specific

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instances, an entire business model can be embedded in digital code (Ovans, 2000). More recently, what constitutes patentable subject matter has been extended to cover novel ways of doing business in the USA and some other countries (Blind et al., 2003; Hall and MacGarvie, 2006; Wagner, 2008). Thus, in these jurisdictions new business methods that underpin a business model are now patentable. This provides an apt institutional setting for addressing the question: how can incumbent firms profit from business model innovation with the availability of business method patenting?

This paper addresses this question through the study of the auto insurance industry, using the prominent case of Pay-As-You-Drive (PAYD) auto insurance, which was introduced by the American insurer Progressive Corporation (henceforth called Progressive) in the late 1990s. PAYD is a novel method of determining insurance premiums on the basis of when and how a car is driven. We compare the PAYD business model with the conventional auto insurance business model, study the evolutionary process of PAYD over a fifteen-year period, and compare the competitive dynamics in the US and the UK (without business method patenting). We utilise multiple research methods, involving archival analysis, company interviews, and analysis of Progressive's IP portfolio.

Our analysis of the PAYD case provides the following contributions to the emergent literature on how firms profit from business model innovation. First, Progressive sought formal IP protection for the novel business methods central to a new business model, initially, not as a means of capturing the resultant value, but as part of a pre-emptive strategy (so not to be inhibited by a competitor that obtained IP protection). We also find that different forms of formal IP protection complemented rather than substituted for one another since they protect different aspects of the firm's IP. These findings are in line with IP protection strategies related to technological and service innovation (Cohen et al., 2000; Tether and Massini, 2007). Our analysis comparing the UK and US markets shows that the strengthening of the IP appropriability regime in the US facilitated Progressive to slow down imitation and new entry, and maintain some control over the development of usage-based insurance.

Second, we find that patents in licensing agreements serve as vehicles for the packaging and trading of not only codified but also tacit knowledge by facilitating an active collaboration between the participants (Arora et al., 2001). We suggest that this function of patents is particularly important for the transfer of new business models because business model imitation is subject to causal ambiguity and depends on obtaining control over a system of interdependent assets and activities (Henderson and Clark, 1990; Hughes and Scott Morton, 2006; Zott and Amit, 2010). Third, we find that the complementary assets that are required for the implementation of a new business model do not necessarily exist *ex ante* but are built and configured as the innovation process unfolds. In the PAYD case, formal IP rights contributed to the initial phase of experimentation and exploration, which are inherent in business model development (Govindarajan and Trimble, 2005; McGrath, 2010; Sosna et al., 2010; Teece, 2010), and bought Progressive time to build the specialised complementary assets. Thus, we argue that the requisite specialised complementary assets may be enhanced by the possession of formal IP rights. Finally, we find that the specialised complementary assets that contribute to the success of a particular business model change as the market environment evolves with the emergence of new competitors, suppliers, and complementors (Demil and Lecocq, 2010; Jacobides et al., 2006; McGrath, 2010). Hence, the longer-term competitive position of innovators depends on their dynamic capability to reconfigure their complementary asset base in line with changes in the market environment.

2. Theoretical framework

Notwithstanding significant disagreements on what a business model is (Zott et al., 2011), this study adopts a well-formulated definition that sees a business model as a description of a company's logic of value creation, delivery and capture (Amit and Zott, 2001; Chesbrough, 2010; Ghaziani and Ventresca, 2005; Teece, 2010). Specifically, a business model articulates the value proposition of the firm; identifies a market segment and specifies the revenue generation mechanism; defines the structure of the value chain required to create and distribute the offering and the complementary assets needed; details the revenue mechanism by which the firm will be paid for the offering; estimates the cost structure and profit potential; describes the position of the firm within the value network linking suppliers, customers and complementors; and formulates the competitive strategy by which the innovating firm will gain and retain advantage over rivals (Chesbrough, 2010).

The early extant literature emphasised the importance of coupling technological innovation with the development of an appropriate business model (Chesbrough and Rosenbloom, 2002; Johnson et al., 2008). More recently, new business models are considered central in their own right for both product and service firms to ensure business growth (Chesbrough, 2011). Either way, committing resources to business model innovation is a complex investment decision, particularly for established firms (Govindarajan and Trimble, 2005; Sosna et al., 2010). This is because the total opportunity cost that is involved in the adoption of a novel business model includes not only the development or acquisition of new assets, but also, for incumbents, the possible cannibalisation of a firm's existing businesses and the obsolescence of its core competencies (Chesbrough, 2010; Christensen, 1997; Leonard-Barton, 1992). Other barriers to business model innovation are cognitive and organisational inertia, and internal resistance (Sosna et al., 2010; Teece, 1980; Zott et al., 2011). But ultimately, a major determinant of such an important investment decision is the firm's ability to profit from the new business model by protecting it from imitation.

The PFI literature offers a useful theoretical framework to analyse the issue of how pioneering firms profit from being first to innovate (Teece, 1986, 2006). The PFI framework identifies two mechanisms for protecting the innovating firm's core knowledge. The first consists of formal means of intellectual property protection, such as patents, trademarks and copyrights. However, in some cases, as in business model innovation, firms may not possess IP rights or, even when they do, the appropriability regime may be weak. This is the case when the core knowledge involved cannot be easily codified, IP rights are not easily enforceable, imitation is easy, scale is not important, or the switching costs between technologies are low. Then, a second protection line, namely specialised complementary assets, becomes vital for successful appropriability. These firm-specific assets complement the innovation throughout the firm's value chain, and include production capabilities, distribution networks, brand names, and after-sale services which are needed for the commercialisation of the innovative idea. What distinguishes these assets from generic complementary assets is that they are not available in competitive supply and they are subject to unilateral or bilateral dependence with the core innovation. These assets can be seen as a special case of strategic means of IP protection, which also include secrecy and lead time advantages (Cohen et al., 2000; Levin et al., 1987).²

² The relative importance of formal and strategic IP protection methods also depends on the evolution stage of the product or service market. At the pre-paradigmatic phase – where multiple product designs are competing for market dominance – innovation in product characteristics and the possession of formal IP

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