Chapter 2
The Role of Business Model Innovation on the Disruptive Potential of PWLAN in the Western European Hotspot Markets

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ABSTRACT

In this chapter, the authors describe and analyze the impact of Wireless Local Area Network (WLAN) technologies on mobile data communications in the Western European hotspot markets. To do this, they use the disruptive innovation theory and the business model perspective as a basis. The main proposition to be analyzed is whether or not WLAN has developed disruptive potential for the incumbents in this market so far. The results imply that incumbents and new entrants have taken advantage of the opportunity provided by WLAN technologies and the public hotspot market in Western Europe. Although the market success of both types of players varies amongst the countries analyzed, in most Western European countries the incumbents dominate the public hotspot market. This result suggests a predominantly sustaining impact of public WLAN on the incumbents. However, the sustaining impact of public WLAN is weaker if alternative business models such as free or community network hotspots are taken into account. These findings support the view that incumbents frame new technological opportunities or threats in their established business model. In contrast, new entrants tend to use a more flexible approach and innovate the business model around the new technology as well. However, if the underlying technology lacks disruptiveness, the effect remains sustaining for the industry structure. After all, business model innovation is no panacea in disrupting the incumbents if the underlying technology lacks sufficient intrinsic disruptive potential and the established business model fits with the new technological opportunities or threats.

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INTRODUCTION

Clayton Christensen's work on disruptive technology and related theories has received extensive coverage and attention in business publications as well as management research and practice (Danneels, 2004; Hüsig *et al.*, 2005). Not many scholars have achieved similar success in popularizing their key concepts. All of Christensen's historical case studies analyze disruptive technologies that did succeed (Christensen, 1997; Christensen and Raynor, 2003). However, the real challenge to this theory, especially if it is to be useful managerially, is whether it performs predictively (Danneels, 2004). In other words, can the theory be used not only to analyze cases post hoc but also to predict the outcome of cases ex ante? For managerial purposes, Christensen's framework would be most useful if it allowed a manager to recognize which technology will succeed and which will become disruptive. Therefore, Danneels (2004) recommends predictive tests to rule out chance as an alternative explanation and to test those predictions ex post. This paper adds to this ongoing discussion, examining whether the disruptive technology framework is useful for ex ante predictions about (potentially) disruptive technologies by using the ex ante analysis of the disruptive potential of Wireless local area network (WLAN) technologies developed by scholars such as Christensen *et al.* (2004) and Hüsig *et al.* (2005), and compares them to an up-to-date ex post analysis of the disruptive impact of the forecasted potential disruptive technology. Moreover, it adds to the recent discussion on the role of business model innovation in the context of disruptive change (e.g. Johnson *et al*. (2008) or Markides (2006)) and tries to illuminate its role in forecasting the disruptive potential of WLAN.

WLAN technologies on the basis of 802.11 wireless Ethernet standards have been one of those technologically induced hypes in the wireless communication services field. Expectations and forecasts created a huge interest in WLAN technologies and related phenomena such as public hotspots in the telecommunications industry, business press, and academia (Christensen *et al.*, 2004; Hüsig *et al.*, 2005; Hüsig and Hipp, 2009; Madjdi and Hüsig, 2011). From the theoretical perspective of Christensen (1997) and Christensen and Raynor (2003), WLAN technologies could be seen as disruptive for incumbent MNOs' (mobile network operators) data services since they enable wireless Internet service providers (WISPs) to offer short distance, high speed data services in heavily trafficked areas known as hotspots. Typically, telecommunication incumbents such as MNOs foster integrated data and voice services via mobile networks and related mobile communication standards, whereas WLAN, or Wi-Fi, refers to the 802.11 wireless Ethernet standards that were designed to support wireless LANs (Lehr and McKnight, 2003). Various authors from business and academia have suggested that wireless local area network technologies have a disruptive potential for mobile network operators (Camponovo & Pigneur 2006; Christensen et al., 2004; Hüsig *et al.*, 2005; Martikainen, 2006; Wieland, 2007). Recent research by Gunasekaran and Harmantzis (2008) shows that the discussion on whether MNOs should view Wi-Fi as a complementary or as a competitive technology to cellular is still ongoing. Additionally, the threat caused by public WLAN hotspots could be amplified by the emergence of WiMAX (Worldwide Interoperability for Microwave Access) if it is integrated in the Wi-Fi ecosystem since WiMAX could be used as backhaul for Wi-Fi or to provide larger coverage for wireless metro area networks (MANs) (Gunasekaran & Harmantzis, 2008; Martikainen, 2006).

The emergence of public hotspots or public WLAN (PWLAN) has been interpreted as a new submarket in mobile data communications since a new sub-market is created when a new technology causes one group of customers within an existing market to behave similarly to one another and differently from other customers in that market