

# Chapter 4.33

## Structural Effects of Platform Certification on a Complementary Product Market: The Case of Mobile Applications

**Ankur Tarnacha**

*Pennsylvania State University, USA*

**Carleen Maitland**

*Pennsylvania State University, USA*

### ABSTRACT

*This article examines the structural effects of platform certification on the supply of complementary products. Drawing on the exploratory case of mobile application markets, the article highlights the broader market effects of competing platforms and their certifications on a platform-based complementary product market. The case suggests that platform certifications influence market intermediation, entry barriers, and deployment fragmentation. We present these market effects in a conceptual model that can be applied to understand similar complementary product markets. As such, the article contributes*

*to the literature on compatibility standards by emphasizing some of the complementary product market effects of employing certification in enhancing compatibility.*

### INTRODUCTION

One of the challenges resulting from complex, specialized information technology systems has been maintaining vertical compatibility, typically through compliance to a standard, while ensuring the development of a vibrant market of complementary goods. One tool used to foster compatibility is that of platforms, which are

technology architectures composed of subsystems and interfaces between those subsystems and the external environment (Greenstein, 1998; Meyer & Seliger, 1998; West & Dedrick, 2000). The interfaces provide access to platform subsystem functionality that can be used to design complementary products. Standardized platform interfaces in that sense facilitate vertical compatibility between the product implementing the platform and the complementary product (Schmidt & Werle, 1998). However, without consistent interface implementation, compatibility can suffer (Egyedi & Dahanayake, 2003; Egyedi & Hudson, 2005). As vertical incompatibilities reduce complementary network externalities for the platform (Gandal, 1995; West & Dedrick, 2000), it is in the best interest of platform promulgators (firms or industry alliances that develop, promote, or support a particular platform) to ensure its “correct” implementation and use.

Extant literature has discussed various strategies to ensure compatibility, including standards certification, wherein products are assessed for conformance to a developed standard (see, for instance, Egyedi and van Wendel de Joode, 2003). Research has primarily investigated the strategic implications of compatibility certification for the standard promulgators and organizations directly involved in the implementation (Egyedi, 2001b; Rada, 1996), with little emphasis on how certification influences the market of *complementary products*. As complementary products contribute to the value of the platform and are often more closely aligned with end users, understanding these effects will have broad implications not only for suppliers of technology but for end users as well.

In this article, we explore the structural effects of platform certification (the conformance of a platform’s complementary product to the platform-sponsor-defined best practices in platform interface usage). In particular, we seek to answer the question: What are the structural effects of platform certification on a platform’s

complementary product market? We examine these market effects using an exploratory case (Yin, 1994) of the mobile applications market, where multiple mobile computing platforms competing for dominance offer mobile application certification programs. The data for the case were gathered from 18 open-ended interviews with the top-management of mobile application vendors in the United States in the fall of 2005. These data were supplemented by several on-site interviews with the top-management team and certification program managers at a leading global certification intermediary in the summer of 2006. Further, the case is supported by secondary sources such as trade press articles and news released by various platform promulgators. Our analysis is exploratory in nature, and as such, the goal is to identify relationships in the case of mobile applications market, which can be more systematically investigated in the future.

The article is structured as follows. We first review the extant literature on compatibility standards, platforms, and certification. Subsequently, we present the case of mobile applications markets, wherein we first provide an overview of the market highlighting the prevalence of computing platforms, their implementations, and certifications. We then present some of the observed market effects of platform certification on the mobile applications market. The case is followed by the discussion of these effects, grounding them in the standards and information technology literature. Finally, we conclude with recommendations for future research.

## **LITERATURE REVIEW**

### **Compatibility Standards and Platforms**

While standards exist in various forms (David & Greenstein, 1990; David & Steinmueller,

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/structural-effects-platform-certification-complementary/26620](http://www.igi-global.com/chapter/structural-effects-platform-certification-complementary/26620)

## Related Content

---

### Dynamic Function Alternation to Realize Robust Wireless Sensor Network

Toshiaki Miyazaki (2012). *International Journal of Handheld Computing Research* (pp. 17-34).

[www.irma-international.org/article/dynamic-function-alternation-realize-robust/69799](http://www.irma-international.org/article/dynamic-function-alternation-realize-robust/69799)

### Trace- and Social-Based Modeling of Human Mobility Patterns

Ali Diaband Andreas Mitschele-Thiel (2016). *Self-Organized Mobile Communication Technologies and Techniques for Network Optimization* (pp. 318-354).

[www.irma-international.org/chapter/trace--and-social-based-modeling-of-human-mobility-patterns/151146](http://www.irma-international.org/chapter/trace--and-social-based-modeling-of-human-mobility-patterns/151146)

### Smart Healthcare Administration Over Cloud

Govinda K.and S. Ramasubbareddy (2018). *Contemporary Applications of Mobile Computing in Healthcare Settings* (pp. 34-50).

[www.irma-international.org/chapter/smart-healthcare-administration-over-cloud/204690](http://www.irma-international.org/chapter/smart-healthcare-administration-over-cloud/204690)

### The Accuracy of Location Prediction Algorithms Based on Markovian Mobility Models

Péter Fülöp, Sándor Imre, Sándor Szabóand Tamás Szálka (2009). *International Journal of Mobile Computing and Multimedia Communications* (pp. 1-21).

[www.irma-international.org/article/accuracy-location-prediction-algorithms-based/4066](http://www.irma-international.org/article/accuracy-location-prediction-algorithms-based/4066)

### Intelligent Big Data Analytics: Adaptive E-Commerce Website Ranking Using Apriori Hadoop – BDAS-Based Cloud Framework

Dheeraj Malhotra, Neha Verma, Om Prakash Rishiand Jatinder Singh (2018). *Mobile Commerce: Concepts, Methodologies, Tools, and Applications* (pp. 259-276).

[www.irma-international.org/chapter/intelligent-big-data-analytics/183290](http://www.irma-international.org/chapter/intelligent-big-data-analytics/183290)