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Provision of mobile banking services from an actor–network perspective: Implications for convergence and standardization

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ABSTRACT

Continuous advancements in mobile technology allow mobile carriers and banks to offer mobile banking services. Such convergence of previously unrelated industries raises many complex issues. This paper examines the dynamics of competition and collaboration among mobile carriers, banks and other related parties for mobile banking in Korea during the burgeoning period of mobile banking in the early to mid-2000s. This period is when the idea of mobile banking was realised in practice and a variety of the parties involved criss-crossed each other to form a network of service provision. It presents an opportunity to examine the complex dynamics of network formation for convergence services and standardization. Since convergence and standardization is a process of merging and integrating multiple players into a new network or system, it is realised through the process of interactions among the players involved. Actor–network theory (ANT) is used as an interpretive lens to analyse this process. ANT helps analyse how actors form alliances and enrol other actors, including non-human actors (i.e. technology), in order to secure their interests. By analysing three specific actor networks that emerged during a formative period in Korea's mobile banking sector, this paper shows the significance of the processes involved in developing actor networks, and especially the role of non-human actors. Given the contemporary context of the ongoing smart phone wars, which shares many of the features of convergence and standard competition, the paper serves as a timely reminder of the role played by key actors and the networks they create. The paper presents some implications for technology management in convergence- and standardisation-related areas.

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1. Introduction

Information and communication technologies (ICT) continuously create new types of markets and enable new patterns of industry dynamics. Industry dynamics refer to the way in which all the parties within an industry interact through competition and collaboration. This transformational power of ICT is not confined to an individual industry. Through

convergence, ICT drives companies from different industries, which have never been related to one another previously, to compete and collaborate.

For instance, convergence has created a new battleground for the so called 'smart phones' that offer more advanced computing and connectivity than regular mobile phones. Here, Google with its Android platform and Apple with its iPhone and iPad on its own iOS platform are now competing fiercely for market share after beating players such as Microsoft and its smart phone partner, Nokia. Mobile phone manufacturers such as Samsung are now aligning themselves with multiple partners to offer as wide a range of products as

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possible. Convergence also creates new revenue generation opportunities for telecommunication companies as they switch from mere provision of infrastructure for other industries to full provision of Internet service provider capabilities and other value added services [1].

This is particularly true of mobile operators who are increasingly faced with decreasing ARPU (Average Revenue Per User), forcing them to seek new sources of revenue through data services where the ARPU would significantly increase [2]. Mobile banking is one such convergence service that brings together hitherto unconnected industries – banking and mobile operators – to offer value added services to their respective customers.

At the same time, the banking sector also needed to add a new service channel to their existing channels, so as not to be left behind in the fierce competition, and to acquire and retain increasingly technology-savvy customers. Banks perceived mobile banking as the next frontier for their services after Internet banking. Thanks to the development of mobile technology that enables the delivery of banking services via mobile devices, mobile carriers and banks, which did not have a business relationship previously, have now become alliance partners and, at the same time, potential competitors as we will discuss later.

This paper examines the dynamics of competition and collaboration among mobile carriers, banks and other related parties for mobile banking in Korea during the burgeoning period of mobile banking in the early to mid-2000s. In particular it presents a snapshot of the evolving dynamics of competition and collaboration as the players interacted with each other to form a network of service provision. It presents an opportunity to examine the complex dynamics of network formation for convergence services and standardization since convergence and standardization is a process of merging and integrating multiple players into a new network. This paper revisits the formative period of mobile banking in Korea in the hope that exploring the past can teach us important lessons for the present and the future. Examining the dynamics of competition and collaboration in Korea's mobile banking sector in its early years helps us to better understand the complex dynamics at play in contemporary standards or platform wars in such technologies as smart phones and smart TVs.

To understand these dynamics, we needed to address several key questions. Who were the actors? How did they define competitors and collaborators? How did they actually form alliances and compete? Actor–network theory (ANT) is used in order for us to answer these questions. ANT is chosen because it helps analyse how actors form alliances and involve other actors, including non-human actors (i.e., technology), in order to strengthen such alliances and to secure their own interests. A deeper understanding of the convergence services can be gained by exploring the structure of the networks formed by the firms from different industries in order to provide a new type of service like mobile banking.

The remainder of the paper is organized as follows. The following section reviews studies of mobile banking and introduces ANT, with an emphasis on the two pivotal concepts of the theory: inscription and translation. The next section describes the development of mobile banking in Korea, in which the main actors are identified, and an analysis of the

dynamics of collaboration and competition among the actors through the four stages of translation is provided. A discussion follows of the theoretical and practical implications of the outcomes resulting from the analysis. Here we reflect on what implications we can draw for contemporary convergence and standards wars. The concluding section presents the contributions and limitations of the paper.

2. Literature review

2.1. Mobile banking

Mobile banking is an extension of banking and financial services onto mobile networks and devices. Characteristics such as time and location independence as well as secured transactions through the use of a personal mobile phone to identify the account owner and to confirm the transaction [3] led to a rapid growth in mobile banking.

A common approach to the study of mobile banking focuses on consumer behaviour. Studies using this approach examine the diffusion patterns and demographic characteristics of mobile banking adopters [4], drivers and inhibitors [5], the perceived risks of mobile banking [6], attitudes of consumers [7], and the behavioural intention to use the service [8]. Among them, Luarn and Lin [8] suggest that customers' trust or lack thereof in the mobile banking system will affect the adoption of the system. Customers may have concerns that the mobile banking system is vulnerable to hackers or system intruders.

Partly in response to these trust concerns, there are many studies that investigate the security risks of mobile banking, which forms another stream of research on mobile banking [9–12]. These studies of mobile banking seem to be based on the simplistic assumption that once the service providers are able to deliver secured, user-friendly (in terms of functionalities, e.g. user interface), and consumer-satisfying services (as indicated in the consumer-focused studies mentioned above), then the mobile banking will be adopted by consumers. But the reality is more problematic. The value chain of mobile commerce is very complex and composed of many players who have their own vested interests. One source of this complexity is the nature of the mobile Internet functioning as a closed network.¹ Whilst the Internet was an open network, the mobile Internet was a closed network before the advent of smart phones. Whilst content providers on the Internet (in this context, banks) were not reliant on the network providers (e.g. Internet service providers) for their service provision, the content providers (e.g. banks) using mobile Internet were dependent on mobile operators because they could not reach their customers without passing through the mobile operators'

¹ The term 'closed system' describes the way mobile Internet operated before the advent of smart phones. In feature phones which were used before smart phones, access to a service/content (here, mobile banking) was menu-based due to the limited usability like small screens and input methods (e.g. selecting a number from the menu provided by the carrier). In this system, the mobile carriers could control what is provided through their network and decide what is displayed up front (e.g. number one in the menu) and what goes further below. Likewise content providers' access to customers was severely restricted by mobile carriers. This is the reason why this closed system is also called a 'walled garden'. The smart phone changed business ecosystems of many mobile businesses. It also transformed the ecosystem of mobile banking by allowing banks to develop their own apps to reach customers. It is an open system rather than a closed one.

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