

Mobile Application Market: A Mobile Network Operators' Perspective^{*}

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Abstract. The mobile telecommunication market has recently been shaken by the arrival of new actors, such as Apple and Google. As a consequence, the relatively well-established mobile network operators (MNO) have to rethink their position in the market if they want to participate in the growth of mobile telecommunication revenues. Mobile applications and services are being seen as great opportunity of new revenue sources. However, with the current market structure, MNOs do not hold a privileged position compared to mobile platforms providers such as Apple with iTunes. In this paper, we assess whether or not there is still space in the mobile application market for MNOs. In order to do so, we examine different roles in the mobile application value chain and determine how MNOs can position themselves in this turbulent new market. Our analysis shows that MNOs will have to focus on their core business as network provider and establish alliances with platform providers.

Keywords: Mobile network operators, mobile application development.

1 Introduction

Despite their essential role in the mobile telecommunication market, mobile network operators (MNOs) are facing major challenges for their future positioning. They have heavily invested to build a reliable and fast mobile network infrastructure. Indeed, their investments have greatly enhanced mobile communication and data transmission. Since competition on voice and data transmission rate is fierce, MNOs have to find new ways to secure and increase revenues for the long term. As their revenues tend to erode year after year, it seems that diversification of activities is key for sustainability. MNOs have already started to find other business opportunities in their industry. As such, MNOs have set the objective to become service integrators, which would provide mobile value-added services to different segments of consumers. Their privileged relationship with end-users and mobile application providers seems to make MNOs suitable intermediaries. In line with this objective, they initiated the launches of mobile portals based on WAP technology (e.g. Vodaphone Live, Orange World). So far, their initiatives as service integrator have not been as successful as hoped.

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Recent developments in the mobile application market have strongly shaken incumbent MNOs. During many years, the development of mobile services was mostly controlled and managed by MNOs, phone manufacturers, and mobile application and content providers. Recently, this has changed with the arrival of new mobile phones and platforms such as the iPhone. More than ever, such devices can run rich stand-alone applications as well as distributed client-server applications that access information via web gateways. The constant improvement of hardware related to mobile computing (e.g., small chips with better computing power, larger wireless network bandwidth) enhances general capabilities of mobile devices. The evolution of devices opens new avenues for future mobile application and service development.

Traditionally, in the mobile application industry, there are several actors intervening along the value chain [1, 2, 3, 4, 5, 6, 7]. Each actor has its own importance and role. The current trends indicate that the market structure and value chain are evolving into value networks [5, 8]. Roles are changed, combined and exchanged. Some lost control on the device (i.e., MNOs), some got new revenues streams (i.e., portal providers), and some became more seamlessly integrated into the platforms (e.g., financial institutions, content providers).

For long, MNOs have locked down and controlled the market while slowly developing and securing their value proposition (i.e., walled garden strategy). In many cases, they usually took commission fees exceeding 50% on value-added services and applications sold through them. These high fees were not very encouraging for mobile application developers and thus somehow hindered the emergence of this market. With the arrival of more aggressive platform providers, MNOs were not able to keep their privileged position as they have been rather slow in adapting to the new rules of the market. After investing heavily in their UMTS infrastructure, MNOs have struggled in making money in the mobile application area. Therefore, end-users were mostly using 3G networks for basic services such as emails, limited web browsing, and multimedia messaging (MMS) [9].

The current mobile development market is dominated by five big platform providers, i.e., companies that offer an operating system (OS) and development tools to enable the creation of high level applications, namely: Nokia with its Symbian OS (52.4%, percentages represent worldwide smartphone sales by OS in 2008). RIM with its Blackberry OS (16.6%), Microsoft with its Windows CE OS family (11.8%), Apple with its iPhone OS (8.2%), and LiMo Foundation with its Linux Mobile operating system (8.1%) [10]. Furthermore, Google recently launched its Android operating system and is expected to rapidly become part of the big players in the industry.

In this paper, we examine the roles of MNOs in the current mobile application market in light of two different elements of the value network (i.e., network & financial infrastructure and mobile application portals). The objective is to clarify the market structure and help us to study the trends and the position of the different stakeholders in relation with MNOs. While we describe the market, we also assess the potential opportunities for MNOs to evolve. As each context is different, we focus our research effort on Western and developed countries in which platforms such as the iPhone and Android phones were launched. Our research does not apply to countries which have a different market structure (e.g., Japanese and South Korean markets).

2 Roles for MNOs

In the current practices, mobile applications are published on an application portal and can be downloaded unto the consumer's mobile device through a network infrastructure. The consumer will in turn pay the application using a financial network. This process involves several key actors playing different roles. First, mobile device manufacturers and operating system (OS) providers support mobile applications and provide tools to ease their development process, i.e., software development kits (SDKs). Second, developers create applications and services. Third, application portals act as application shopping centers for consumers. In order for consumers to make their purchase, a network operator is needed in order to allow data transfers between mobile devices and distant application portals or the Internet. Finally, a financial institution is needed to take care of the billing and payment processes.

Hereafter, we assess the position of MNOs when it comes to fill two roles on this value chain. First, we investigate the MNOs core business, which is providing network infrastructure with payment facilities. Second, we investigate how MNOs can compete on the application portal market.

2.1 MNOs as Network and Financial Infrastructure

Providing network and financial infrastructure in order to bill network traffic is the core business of MNOs. However, their position has been shaken over the last few years with the introduction of new technology and fierce competitors.

In the early 21st century, MNOs in Europe used to enjoy a comfortable role as sole communication providers between mobile devices and mobile portals and Internet in general via GPRS or UMTS technology. Even though the market for telecommunication had been opened up for competition, prices did not drop radically. Furthermore, MNOs also enjoyed a unique relationship with consumer through their monthly bills. This relationship was used for billing early mobile services. For example by sending a premium text message, one would receive simple information (e.g., train schedule, sports results, traffic alerts) through a text message reply. Early mobile payment experiments also relied on the relationship with MNOs. A consumer could purchase items from a vending machine by sending a text message and get charged on the monthly bill. This privileged position allowed MNOs to charge large fees on transferred data and payments. Unfortunately, these initiatives did not really drive much innovation nor enhanced user's adoption of data-intensive services.

In the current market, network and financial infrastructures have become much more competitive with the introduction of the mobile internet using telecommunication networks or WiFi. Direct access to the Internet allows bypassing the MNOs' controls to access mobile services. Furthermore, the emergence of online accounts such as the ones from the iTunes store (i.e., storage of the credit card information), allowed merchants to directly charge their consumers without having to pay fees to MNOs. As a result, the position of MNOs to bill consumers for value-added services has been weakened.

2.2 MNOs as Application Portal Providers

In order to facilitate the distribution of applications from developers to consumers, an application portal can be created. These revenues of these portals come from taking a fee on every application sold. Currently, this fee represents 30% in portals such as the Apple AppStore, Google Android Market and Nokia OVI. Portals are two-sided structures which need to leverage on two parties (i.e., developers and consumers) to increase their revenues [11, 12, 13]. In other words, if they offer enough attractive applications, they will attract more consumers, which in turn will stimulate the development of more applications, and so forth. This positive feedback loop increases the number of transactions and therefore increases the portal's revenue.

Prior to the introduction of Apple AppStore and more recently Google Android Market, mobile applications for a given device or operating system were not located on a main central portal. Developers would usually distribute their applications through several third-party portals in addition to their own website. One downside of such a decentralized distribution strategy is that the great variety of portals does not provide a comprehensive overview of existing applications. Therefore, it does not facilitate access to the applications. In the past, mobile services or digital content such as ringtones and news could be obtained through MNOs or other content providers via a premium text message.

Unfortunately, MNOs are not in a very comfortable position to compete as portal providers. Furthermore, the current market tends towards portal centralization in order to attract and regroup more developers and more consumers and thus leverage on positive network effects, which are essential in two-sided markets. Chances are that this trend will put MNOs in an even worse position as bystanders.

3 Discussion and Future Work

The emergence of newcomers in the mobile application industry has increased the pressure on voice and data prices, which remain a major revenue stream for MNOs. Furthermore, MNOs tend to lose their privileged relationship with end-users as platforms providers control most of the mobile application purchase process. As their long reign in the walled-garden model as middlemen is coming to an end, other revenue streams should be considered. This loss of control on the value network should be taken into account with the indirect consequences of portal centralization and increased pressure on prices.

The emergence of more sophisticated mobile phones and usage of advanced mobile services increases consumers' need to subscribe to more expensive data plans. In the short term, the ARPU will increase. However, MNOs cannot hope that this situation last long without a battle on data plan prices. Their long term revenues will drop if they do not find another way to sustain or create additional revenue streams.

A risk is that MNOs become transmission pipes that do not capture any value of transactions made using their infrastructure. They would be in the same position as most Internet Service Providers (ISP). On their side, ISP tried to counter-attack by becoming content providers while providing triple-play services (i.e., phone, TV, internet).

However the trend towards portal centralization combined with the pressure on price could actually be an opportunity for MNOs. Until recently, it took expert users to download and install third-party applications. It usually involved an internet search, a credit card payment, and the use a personal computer to transfer a file via Bluetooth to the mobile phone. Now it has become a “one-click” operation directly executable on the mobile device. MNOs can benefit from this purchase facilitation as their users will naturally increase their demand for advanced mobile services. This will also create opportunities for MNOs to supply some application through the platform integrators. Furthermore, the trend towards cheaper data communication encourages consumers to consume more advanced mobile services, such as downloading applications, browsing the Internet, emailing photos, watching TV and sharing videos. MNOs could create more sophisticated pricing for data plans in order to satisfy their consumers to avoid high churn.

This is a major opportunity for MNOs to continue to provide network infrastructure and services and closely work with other actors in order to enhance user experiences by providing more integrated and consistent services and applications (e.g., visual voice mail, teleconference).

Future research will try to identify the exact reasons of the late success of mobile applications, which had been announced as potentially successful many years ago. The nature of these reasons could support a better understanding of how MNOs could take advantage of future developments in the mobile application industry. As the topic is quite new and evolving in a day-to-day basis, we hope that our research will open new paths of research in the mobile application market and motivate other researchers to investigate further the evolution of this market.

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