

# Solving the startup problem in Western mobile Internet markets

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## Abstract

This paper describes the evolution of the mobile Internet in terms of three concepts: the startup problem, standard setting, and mental models. Products in which there is little or no value to the first users due to the existence of strong direct (e.g., telephone) or indirect (complementary products) network effects face a large startup problem. This paper divides the startup problem for the mobile Internet into two stages. Japanese and later other service providers solved the first startup problem with entertainment content that was supported by a micro-payment system (service providers collect and pass on content fees to content providers) and custom phones that displayed this content in a consistent manner.

Western service providers were slow to introduce micro-payment systems and entertainment content due to their initial focus on business users, which reflected their mental models. Mental models, which can also be thought of as shared beliefs or values, are typically based on historical experience as opposed to current knowledge of the environment and often prevent the development of new business models or new perceptions of foreign markets. Western service providers were slow to obtain phones that display content in a consistent manner because manufacturers were unable to agree on content and other standards in the wireless application protocol (WAP) Forum and subsequently have been slow to provide service providers with custom phones.

Japanese service providers are the only ones to have solved the second startup problem with Internet mail that is modified for the small screens, slow speeds, and low processing power of phones (called “push-based Internet mail”) and non-entertainment sites that are formatted for the small screen of the phone and easily accessed via universal resource locators (URLs), which can get embedded in this mail. Push-based Internet mail is similar to short message services (SMS) except that it is perfectly compatible with the Internet. Like SMS, it is automatically “pushed” to phones after it arrives on a service provider’s servers and it is restricted in size. The mail’s arrival on the phone causes the phone to beep and display an icon on the screen. Users merely click on the icon to access the mail and it is not necessary for them to open their mail clients or browsers as most people do when they access mail on their personal computer (PC). Western service providers are now moving slowly to introduce “push-based Internet mail” and promote site access via URLs in order to avoid cannibalizing their SMS revenues; this also reflects their mental models.

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*Keywords:* Startup problems; Mobile Internet

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## 1. Introduction

The variety of applications for the mobile Internet has grown and continues to grow at a much faster pace in Japan than in the rest of the world. While mail/messaging and to a lesser extent entertainment has experienced rapid growth in almost every country in the world, it is only in Japan where there has been substantial growth in more advanced applications. As shown in [Tables 1–3](#), mail/messaging, which is often called short message services (SMS) is a global phenomenon and the fact that the Japanese market represented less than 25% of the global market for ringing tones and games in 2004 suggests that entertainment content has become a global phenomenon.<sup>1</sup>

Japan is the only country that has experienced substantial growth in advanced applications such as the sale of physical products and services (see [Tables 2 and 4](#)), mobile marketing, and enterprise applications in the mobile Internet. This is partly because Japanese service providers modified Internet mail for the small screens and low processing power of phones making it possible for anyone in Japan to send mail from a personal computer (PC) to a phone for free (recipients pay less than \$0.01) since 1999 using what this paper calls “push-based Internet mail”. Push-based Internet mail is similar to SMS except that it is perfectly compatible with the Internet. Like SMS, it is automatically “pushed” to phones after it arrives on a service provider’s servers and it is restricted in size. The mail’s arrival on the phone causes the phone to beep and display an icon on the screen. Users merely click on the icon to access the mail and it is not necessary for them to open their mail clients or browsers as most people do when they access mail on their PC. Anyone can send this mail from a PC to a phone and the use of embedded universal resource locators (URLs) in this mail has helped create a critical mass of non-entertainment content that is formatted for the small screen of the mobile phone.

This mail enables Japanese firms to develop closer relations with their customers and improve communication with employees who do not spend much time in the office. For example, it is estimated that about 33% and 15% of Japanese firms have introduced systems that enable employees to access their PC mail and corporate data on their phone (without a laptop or PDA), respectively<sup>2</sup> while few employees do either of these on their phones outside of Japan. Just as the PC Internet has had a tremendous impact on a vast number of industries that goes well beyond the telecommunication industry, the mobile Internet is already having a similar impact in Japan and it is this impact that should be of the greatest concern to Western academics and policy makers.

This paper describes the evolution of the mobile Internet in terms of three concepts: the startup problem, standard setting, and mental models. Products in which there is little or no value to the first users due to the existence of strong direct (e.g., telephone) or indirect (complementary products) network effects face a large startup problem ([Economides & Himmelberg, 1995](#)). This paper divides the startup problem for the mobile Internet into two stages. Japanese and Korean service providers solved the first startup problem with entertainment content (e.g., ringing tones, screen savers) that was supported by both micro-payment systems and custom phones where the latter enables the consistent display of content across phones. In the micro-payment system, service providers collect content revenues from users via phone bills (after the users have purchased the content on the phone) and the service providers pass on about 90% of the revenues to content providers. The Japanese and Korean service providers were able to obtain phones that display content in a consistent manner because unlike Western service providers, they have always dictated phone specifications to the phone manufacturers (i.e., differences in standard setting) as part of having phones customized for their services ([Funk, 2003, 2006; Taplin, 2006](#)).

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<sup>1</sup>The global data is from [Informa \(2005\)](#) and the Japanese data is from [ECOM \(2005\)](#).

<sup>2</sup>Data is from 135 responses to an unpublished survey on mobile Intranet applications.

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