

The Direction of the Smart Signage Business Based on the Hedonic Model

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Abstract. Emerging as a new form of media, smart signage has been drawing attention as an attractive presentation technology, joining TV, internet and smart Phones. Combined with IT technology, it is expected to replace traditional advertising methods and lay a foundation for new trends. However, to appeal to both users and advertisers smart signage still faces various challenges which must be addressed, and as a result, new models are needed to provide desirable alternatives. This study is designed to set the direction for smart signage as a platform to provide smart technologies and services by presenting a hedonic model, platform configurations and business platforms based on key capability factors.

Keywords: Smart Signage, Hedonic Model

1 Introduction

This After experiencing the social changes brought about by new digital and IT technologies during the preceding decade, we now face yet another dramatic change. The keyword which has been most frequently used and will be used in the years to come to describe this change is "smart." Leading current trends, smartphones allow us to search and utilize information at any time and any place. Smart IT technologies provide convergence services, enabling us to continue personal and business activities even while on the move.

Very soon, we will live in smart homes, watch smart TVs, drive smart cars and live in smart cities. In this smart environment, we are exposed to smart signage every day, which will affect the forms of advertisements, the delivery of public service announcements, and commercial activities. Emerging as a new form of media, smart signage has been drawing attention as an attractive presentation technology joining TV, internet and smartphones. Combined with IT technology and based on the current trends of media convergence, smart signage is expected to replace traditional advertising methods and create new trends.

Although smart signage is not lacking in its role as a next generation media technology, there is still a need to identify challenges regarding whether the technology and services meet users' needs and to provide solutions through case studies. From that perspective, this study presents the concepts of smart signage, detailed examples and current issues; along with suggestions for a smart signage hedonic model where stakeholders participating in the business model can provide useful content through an integrated smart signage platform for users who can then make purchase decisions and payments. It also shows the structure of the smart signage hedonic model platform and key capability factors from a value chain perspective to make the platform successful by combining the four hedonic model factors (the 4 hedonic Ps: Provider, Player, Preview and Product) with the four marketing elements (the 4 marketing Ps: Product, Price, Place and Promotion), which are considered when establishing strategies.

2 The concepts of smart signage

The term "smart" can mean many things, such as intelligent, cool, neat, fashionable and quick. Recently, it has come to mean "computer controlled" to represent the current social changes. The concept of smart signage can be defined as upgraded and "smarter media capable of delivering information, messages and ads through a smart technology platform," differentiating it from existing digital technologies and products.

Smart signage is digital media which presents diverse information and advertising content through display panels, such as LCDs, PDPs and LEDs, in public and commercial areas. Unlike DID (Digital Information Display) which is centered on hardware functions, smart signage leverages various aspects of IT technology in combination, such as software, hardware, content and networks (Popsign, 2010). It differs from TV shows: it is advertisement, it is a signboard and it is art created with method-of-display in mind. Smart signage holistically embraces all such media (Nakamura Ichya and others, 2010). From a technical perspective, smart signs are devices that display digital images, comprehensively referring to a management platform and operating software to control the major functions related to the display.

Smart signage can be used in public facilities such as transportation, education, hospitals and banks; and commercial facilities such as shopping centers for the purposes of advertisements, promotions and the delivery of real-time information. This information may include commercial ads, product information, public service announcements and general information for using facilities such as businesses, schools and libraries. The primary advantages of smart signage are as follows:

First, HD ads and content, previously available for home TVs, can now be displayed in targeted public areas at targeted times to targeted audiences. Second, content is interactive, particularly with technologies such as touch screens, facial recognition and iris recognition, which enables customized information and advertisement (Changhoon Lee and others, 2010).

3 Challenges and issues facing smart signage

Even though smart signage has been a hit in the advertising media market, there is still a need to identify the challenges and issues from various angles through case studies. First, the biggest problem is that the concepts of smart signage are not well understood by the public. The public may be familiar with it in the restricted sense of store signboards. It can be expanded to include indoor and outdoor digital media panels that provide advertisements and information. Second, smart signage fails to keep up with the radical changes occurring in ways media is being used. Smart signage is certainly an advertising media which can easily approach customers.

However, the existing signage which has so far provided only non-interactive advertisements and information must evolve to the next level where smart signage can generate greater interest and provide entertainment through interactive touch tools and approaches; furthermore, users can make purchases and payments through the smart signage platform. Third, due to a lack of communication among stakeholders, such as advertisers, hardware manufacturers, content developers and service providers, it has been impossible to adopt proper solutions for displays, operational software, content, installation and service, resulting in repeated failures in terms of costs and business effectiveness.

Lastly, advertisers have been hesitant to allocate advertising budget due to a lack of confidence in the advertising effectiveness of smart signage. Along with the internet and mobile advertisements, which have replaced TV commercials, smart signage has been attracting growing interests. In line with current trends, advertisers have rapidly shifted their views on smart signage, and advertising agencies and system operators shifted their advertising focus from existing media to smart signage media.

4 The smart signage hedonic model

As an alternative to resolving issues arising from companies independently pursuing their own business interests in the early stages of the signage business, a standard model is required to create a successful business ecosystem. The structure of the smart signage business model should include "the system allowing stakeholders (corporations) to secure and use resources to provide more value to users, and accordingly, to earn profits (Heesang Lee, 2006)" and allow businesses to be competitive and out-perform their rivals in the long run.

A smart signage model should "consider the synergetic effect created by the resources of its own company and its potential rival companies in order to assess mutual profits between strategic partners (Dyer and Singh, 1998)." Moreover, the model should be further developed so that it can provide not only useful information and entertainment but also interactivity enable users to make purchases and payments. This platform is referred to as the signage hedonic model shown below in Figure 1.

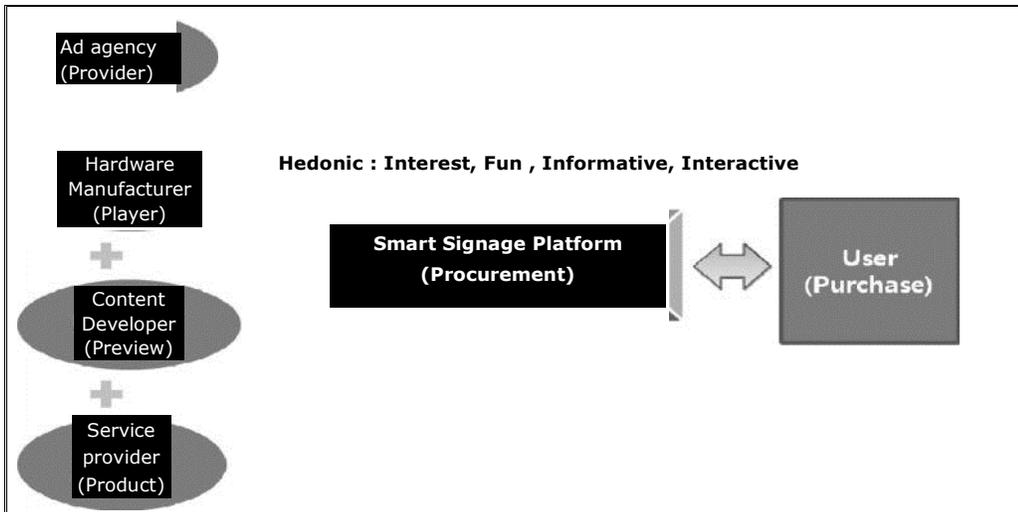
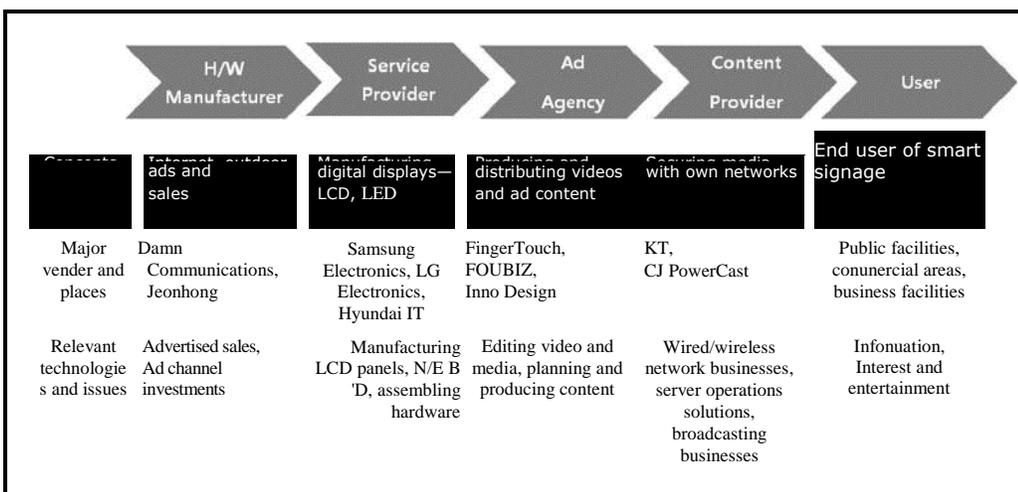


Fig 1. Smart signage hedonic model

According to this model, it is critical to build a business ecosystem based on close cooperation and trust between stakeholders, instead of companies independently pursuing their individual business interests. What matters, after all, is to collaborate with each other in creating mutually beneficial markets.

In order to successfully operate a smart signage business, stakeholders should mutually complement each other to manage the value chain within the relationship. This model is based on the Supply Chain Operation Reference (SCOR) which was developed in 1996, and since then, has been used as a tool to diagnose, benchmark and enhance fairness for supply chains employed by manufacturers and service providers across the world.

The value chain platform of the smart signage business can be drawn as shown below



in Figure 2.

Fig 2. Configuration of smart signage platform

In order for the smart signage market to grow continuously into the future, it is crucial to understand the role of each stakeholder and to develop key capabilities. It is also important for companies to examine their own environments as well as those of others. It is expected that the smart signage industry will undergo transformations due to the advent of the smartphone. In the near future, the introduction of smart and cloud systems, the arrival of transparent LCDs and the possibility of flexible displays will cause dramatic changes.

To ensure the success of the smart signage business model, the 4 Ps of the smart signage hedonic model - Provider, Player, Preview, Product, and Purchase — from the perspective of participants are combined with the marketing 4 Ps — Product, Price, Place and Promotion — which ad agencies, hardware manufacturers, content developers and service providers must consider when establishing strategies for the smart signage platform. In this way, the key capability factors are introduced as shown in Table 1.

There is a continuous need to create an environment where it is possible to provide users with useful information and entertainment and to design interactive touch tools and approach or program in which users can participate through the successful platform suggested by the smart signage hedonic model.

Table 1. Key capability factors of smart signage hedonic model

Category		Ad Agency Provider	Hardware Manufacturer Player	Content Developer Preview	Service Provider Product	User Purchase
4P	Product	Secure signage which is highly exposed	Reserve a diverse display line-up	Reserve HD content and video sources	Have the experiences of investments and total signage	Accessibility, usability and interactivity
	Price	Reserve sites with high unit prices for ads	Provide competitive prices by reducing raw material costs	Produce content and provide supply costs	Reserve sites with high unit prices for ads	-
	Place	Secure capabilities to win ad contracts Select	Secure specialty stores with experience	Secure vendors with project experience	Select recognized service vendors	-
	Promotion	Have the experience of consortium partners	Strengthen consortium partners relationship	Have the experience of consortium partners	Have the experience of consortium partners	-

5 Conclusions and directions for future research

Smart signage began as simple displays. However, it has gained attention as the fourth media, following TV, PCs and mobile phones in the advertisement market. In order to ensure the success of the smart signage business, it is important to understand what roles must be played by the participating stakeholders with a view towards building cooperation. In addition, smart signage must be further developed so that it can provide useful information and entertainment for users through the smart signage hedonic model. Ultimately users can make purchase decisions and payments through interactions on the platform. Plus, stakeholders of the smart signage business must secure their own key capability factors from the perspective of a hedonic platform, while maintaining a cooperative relationship based on the trust required for survival in an industrial ecosystem.

In the years to come, smart signage is expected to be recognized as a new form of media, dramatically making its debut in the Korean and global markets. It will continue to evolve to the next level where it can integrate diverse sensors for iris and facial recognition, as well as providing realistic information and tailored advertisements by combining with 3D and 4D technologies. Thus, it is high time to consider ways of invigorating the smart signage industry at the levels of relevant industries, governments and nations and to promote mutual collaboration to establish international standards. Although this study is intended to present a smart signage model from a market perspective, additional research is required for smart signage in the N-screen and multi-screen environment from the perspectives of users, technologies and policies.

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