



A study on the establishment of policies for the activation of a big data industry and prioritization of policies: Lessons from Korea [☆]



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ABSTRACT

With the recent formation of a smart ecosystem, the proposition of using data as a new value continues to be presented. Thus, to activate the big data industry, major developed countries are endeavoring to prepare diverse policies and measures, including boosting R&D investments and fostering related human resources, to keep pace with this global trend, South Korea also perceives big data as the core engine of the so-called “creative economy” and supports measures for fostering the big data industry, including public access to information. South Korea has pushed for policies and measures to activate the use of big data, but the big data industry has yet to be stimulated compared to other developed countries. Despite diverse forms of policy support, the big data industry has been inactive for several reasons, one of which is the inability to efficiently assemble and utilize limited resources. This study uses the ANP model in an attempt to quantitatively prioritize policies and identify the implications of going one step further. Korea’s experience will be an important lesson for countries that intend to establish policies to nurture big data as a new growth engine under the paradigm of a smart ecosystem environment.

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1. Introduction

With the recent formation of a smart ecosystem, the proposition of using big data as a new value continues to be presented. Specifically, with the advent of the big data environment, along with the formation of a smart ecosystem, such a proposition means that data will become more important as an industrial value.

Amid this development, major developed countries, including the US and UK, are preparing diverse policies and measures

that include bolstering R&D investments and fostering experts to activate the big data industry in a bid to become competitive in the smart ecosystem environment. Similarly, South Korea perceives big data as the core engine of the creative economy so it is pursuing comprehensive policies and measures to support the industry in terms of the availability of public information (November 2012), the creation of a master plan for big data by the economy-related government ministries (June 2013), and nurturing the Internet industry through the Ministry of Science, ICT, and Future Planning (MSIP; December 2013).

South Korea has initiated comprehensive measures for promoting the use of big data, including the internet and cloud computing, for several years, but it is criticized that its big data industry is still in an early stage compared to other developed countries. The country’s setback in this initiative is mainly attributed to the inability to focus its limited resources on the essential promotional policies.

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This study uses the Analytic Network Process (ANP) model to formulate promotional policies for the big data industry and to quantitatively prioritize these policies. Such prioritization of policies for activating the use of big data enables the government to use its limited finances efficiently; thus, contributing to the efficient development of the big data industry.

2. Theoretical background

2.1. Big data concept and policy

2.1.1. Big data concept and domestic policy

The concept of big data has yet to be defined uniformly; it is described in diverse ways, depending on the research (Gartner, 2012; McKinsey Global Institute, 2011; IDC, 2011). Note, however, that big data is a collection of such gigantic volumes of data that it could not be handled by the existing management and analysis systems, and it is generally perceived as a valuable asset of industrial information.

The creation of such big data can be confirmed by the mobile data traffic trends after the formation of a smart ecosystem. According to the Korea Information Society Development Institute (KISDI, 2014), South Korea's mobile data traffic has continued to increase rapidly since 2010, when smartphones were introduced in the market. Specifically, mobile data traffic stood at 29,748 terabytes in January 2012, but surged to 113,911 terabytes in July 2014 (Fig. 1).

Against such a backdrop, South Korea entered the information age, where information and knowledge are important assets, and realized that the key to national competitiveness lies in the ability to find a new context within large-scale data and subsequently extract creative information and knowledge.

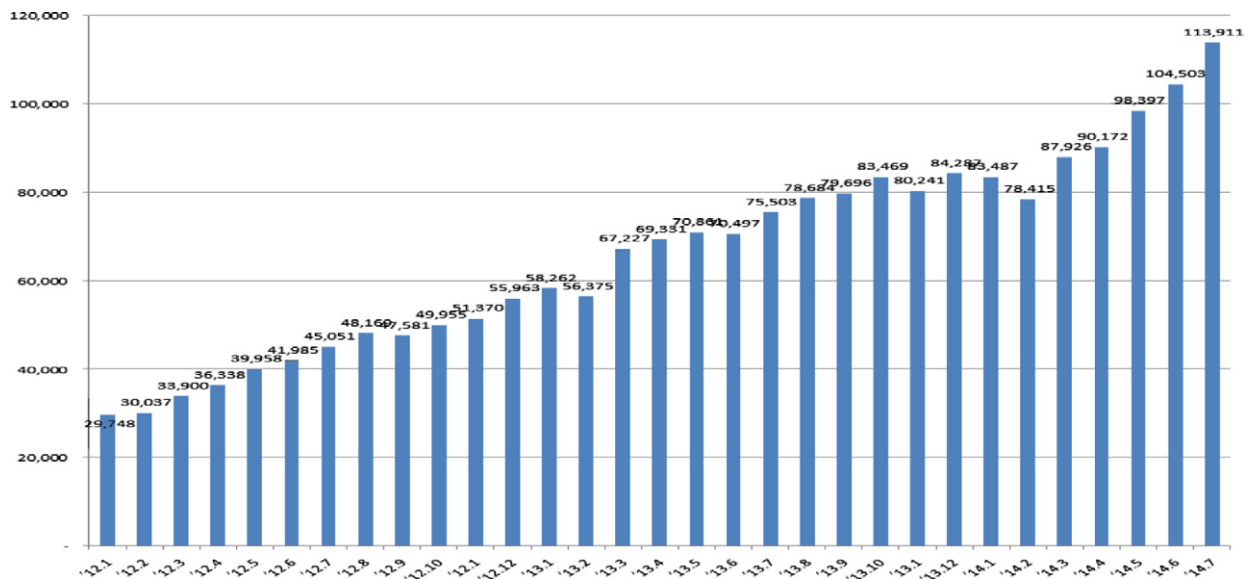
Thus, diverse policies have been proposed to foster big data as a key national industry. Specifically, five economy-related government ministries prepared a master plan for big data in November 2012. MSIP, a leading ministry for the creative economy, chose big data to be the nation's strategic industry by announcing measures for fostering the new industry of the internet in June 2013. Thus, in December 2013, the Korean government announced a development strategy for the big data industry to support the creative economy and the government 3.0, and established diverse action plans. The strategy included key measures for boosting the private sector's access and use of public data, and promoting the big data industry. In line with such government policy, corporations are using big data to enhance their business management activities and provide diverse innovative services, including customer-tailored mobile advertising and pre-notice services for traffic information.

Although both the government and industry are pursuing comprehensive measures for activating the use of big data, South Korea's big data industry continues to lag behind that of other developed countries (see Table 1). Such a setback is attributed mainly to the country's inability to effectively use its limited resources to promote policies with a higher priority (Korean Chamber of Commerce & Industry, 2014; Yong-jae et al., 2012; Hyeong-sang et al., 2014).

2.1.2. Big data policy of major developed countries

Major developed countries such as the US, EU, and Japan are implementing strategies to utilize big data in multifaceted ways (Table 2).

First, the US announced its "Big Data R&D Initiative" in March 2014 after acknowledging the potential power of big data as a source for solving imminent national tasks. This



Sources: KISDI(2014)

Fig. 1. South Korea's increasing mobile traffic trend.
Source: KISDI (2014).

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