Data Market-related Issues in the Medical Field: Accelerating Digital Healthcare

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The data market serves as a platform where data providers, who collect and process data from various fields, meet with consumers eager to utilize this data for purchase and sale transactions. Specifically, the medical data market focuses on data generated within the healthcare sector. Companies aiming to develop digital healthcare devices or services through this market can gain access to crucial medical data, lower barriers to entry in product development, and foster innovation within the digital healthcare industry. However, numerous challenges must be addressed to invigorate the medical data market. This market functions as an e-commerce platform trading data from the healthcare sector, with the platform itself acting as an intermediary. Suppliers in the medical data market may include medical institutions, digital healthcare companies, and others looking to profit from selling collected and processed health data. Consumers might be medical supply manufacturers, health insurance companies, research institutes like universities, pharmaceutical companies, etc., all seeking to derive various types of value by purchasing health data for research and development. Participants in the medical data market are not restricted to selling as suppliers or buying as consumers; they can also simultaneously act as both.

We reviewed the current status and demand of the medical data market, along with the challenges that need addressing to stimulate its growth. Despite an increase in data availability, many companies and organizations still report a scarcity of data. These entities often store data internally without the capability to distribute it to needy consumers or to utilize it effectively themselves. One solution is to energize the data market and establish a distribution system that enables data consumers to access and use the data efficiently. However, data from the National Assembly Research Service \(^1\) indicates that the rate of data acquisition through data trade in Korea is low compared to international figures, and the proportion of data collected directly with consent from data providers as internal data is high, making it inefficient in terms of revitalizing the data economy. Consequently, with the recent promotion of digital platform government policies, platforms in the medical data market have started to emerge, aiming to accelerate the development of digital healthcare across various industries, including the medical sector. Despite the emergence of these platforms, data trading remains inactive. According to a survey \(^2\) of domestic companies with experience in data trading, the main reasons for the lack of activity in data trading across various industry fields, not just medical data, include a shortage of usable
high-quality data, unreasonable data pricing, and issues with data distribution channels and retrieval. Under current Korean law, joint research can be conducted with medical institutions that hold medical data, but official transactions for the data alone are not permitted. Despite these challenges, the development of the medical data market continues to be a priority. If issues such as pseudonymization, anonymization, and legal concerns are resolved, companies developing medical devices for digital healthcare could not only acquire data through agreements with medical institutions but also enhance the potential for developing innovative medical devices by securing a diverse range of medical data and reducing accessibility barriers [3].

Summarizing the major issues related to revitalizing the medical data market, we can draw four key conclusions. First, there is a need to promote the concept of the data market. In Korea, awareness of the concept of buying and selling data is low, resulting in many people desiring quality data but not knowing where to obtain it. Therefore, promotional and awareness-raising activities are essential to encourage data trading and stimulate research at the government level. Second, securing the security of the medical data market is crucial. Data is often described as the crude oil of the 21st century and a high value-added resource. Unlike crude oil, which is a finite resource, data can be replicated, increases with use, and lacks various physical risk factors such as environmental pollution. To utilize data effectively as a high value-added resource, it is imperative to address issues such as data leakage, alteration, illegal copying, and the handling of personal and sensitive information, along with ethical concerns related to data usage. Collaborating with security experts to implement solutions like blockchain and homomorphic encryption is necessary. Third, a social consensus at the legal level is required regarding the use of sensitive information in medical data. Medical data inherently involves handling sensitive personal information, which may necessitate support from the legal system. Achieving societal agreement on the legal utilization of medical data is essential, and this will require collaboration with government officials to amend and improve relevant laws. Fourth, establishing a basis or reasonable pricing system for the distribution of medical data is necessary. Even with sufficient quantity and high quality of data, if the distribution price is too high, the data may remain undistributed and thus unusable. While the distribution price may depend on the desires of those supplying and selling the data, for the medical data market to thrive and foster the development of innovative medical devices, it is crucial to develop a method that appropriately values medical data. Various methods may be developed depending on the type of data, but the final distribution price must be perceived as reasonable by consumers in the market economy. In the UK, the government is promoting a market approach-based assessment of the value of medical data.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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