The Global Trend toward Open-Source Spatial Data and Its Implications:

A Software Technology Driver for the Fourth Industrial Revolution

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Summary

1. Global leaders, including Professor Klaus Schwab, have emphasized the importance of openness and participation to encourage innovation, intelligence, and connection, which are growth engines in this era of the fourth Industrial Revolution.

- An open source is a public source from which anyone can create value, while the rights of the software developers remain protected. Open-source technology is regarded as a means of ushering in the era of the fourth Industrial Revolution.

- Open-source technology is widely used in most industries, including data, software, and hardware.

  □ Examples include open data from the Korean government (www.data.go.kr) and NASA in the United States (www.open.nasa.gov), Linux (computer operating system), Android (smartphone operating system), and CubeSat (an open-source satellite).

2. Various open sources exist for spatial data, and demand for such sources is increasing in overseas public organizations, including the United Nations and the US Department of Defense.

- An international organization called the Open Source Geospatial Foundation provides various kinds of open-source spatial data software that is comparable with commercial spatial data software. This software meets global standards and is outstanding in terms of compatibility and scalability.

- Globally, an increasing number of organizations (the United Nations, the European Union, the US Department of Defense, etc.) provide support for the development and introduction of open-source spatial data.

- In Korea, a national R&D project to develop open-source technology began in 2014 with the aim of strengthening open-source technological capabilities.

Policy Implications

A policy to enhance Korea's technological competitiveness in the growing global open-source spatial data market is needed.

① Among the five elements (development, utilization, evaluation, technological support, and organization) required to strengthen open-source technological competitiveness, Korea's capabilities focus mainly on utilization. Thus a comprehensive open-source spatial data policy is needed to strengthen Korea's capabilities regarding all five elements in a balanced way.

② A national policy should be implemented to open and expand the use of the advanced technologies that have been developed through national R&D projects over the past 20 years but have not been used, so that anyone can create value based on those technologies.

③ An industrial policy is required to develop and support open-source business models (startups, multichannel business models, etc.) that can effectively meet challenges from growing domestic and overseas open-source markets.