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Korean deep tech study: Deep tech ecosystem growth for building an innovation-driven, resilient economy in a new global era

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As global innovation continues to accelerate, Korea risks falling behind. To stay competitive, it must foster a more decentralized and inclusive technology ecosystem.

Deep tech – emerging from university labs, SMEs, and public-private research collaborations – will be a driving force behind the next wave of global economic growth. For Korea to lead in this space, both technical and commercial ambitions must be high from the start. Korean deep tech ventures should strive to set global standards rather than follow them. This is key to creating a dynamic hub that draws top talent, visionary customers, and long-term investors from around the world.

A research team at Reddal, led by Hankyeol Lee and Per Stenius, examined Korea's deep tech ecosystem under the theme Innovative Korea: Deep tech ecosystem growth for building an innovation-driven, resilient economy in a new global era. This report presents a comprehensive analysis of Korea’s deep tech ecosystem, built on a proprietary database of 432 startups and enriched by interviews with local and international stakeholders – including 9 investors, 8 startup founders, and 1 foreign deep tech expert.

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Korea shows strong foundations in basic science and talent. However, the report highlights several structural barriers: an insular, domestically focused startup culture; limited exit opportunities; weak commercialization of scientific research; and poor integration with global

capital and markets.

A key finding is the critical need to lead in bleeding-edge technologies like quantum and nuclear – areas deeply rooted in basic science. Yet, the ecosystem lacks traction here, with only 4 quantum startups and no nuclear startups identified in Reddal's database. This signals systemic issues in Korea's research-commercialization pipeline, where public R&D remains disconnected from private sector innovation. The report stresses the need to build stronger bridges between research institutions and the market to spur business formation.

To evolve into a global deep tech hub, Korea must shed protectionist tendencies and foster an open, collaborative environment where foreign investors, international customers, and global talent can thrive. Rather than serving only domestic conglomerates, Korean startups should co-develop solutions for global markets. With world-class infrastructure and talent, Korea is well-positioned to act as a testbed and value creation platform for global deep tech ventures.

Key recommendations include:

1. Startups: Target global problems and markets, particularly in AI, quantum, next-generation nuclear, and system semiconductors.
2. Investors: Strengthen technical validation capabilities and portfolio diversity among local investors, while expanding collaboration with global investors and LPs.
3. Government: Relax regulatory constraints and build testbed infrastructure, while adopting long-term policy support. In particular, the government should introduce a negative listing regulatory framework, where all activities are allowed unless explicitly prohibited. This would strengthen data collection and global competitiveness in emerging fields such as blockchain and autonomous mobility.

International comparisons – such as Finland's deep tech approach via Tesi – offer valuable lessons. Finland's university spin-off systems, public-private investment structures, and openness to foreign capital provide benchmarks for Korea.

The report concludes with a forward-looking roadmap for sustainable ecosystem growth, calling for coordinated action among startups, investors, and the government. It also includes deep dives into sectoral investment trends, IPO trajectories, and behavioral patterns of founders and investors – offering a holistic view of Korea's current position and future potential in deep tech.