

Opportunities and Modalities for Mechanisms to Establish R&D Facilities

: Building Core Facilities for Digital Transformation

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$$[G + \text{IoT} + \text{AI}] \times P = \text{Future Value}$$

[Data & Platform]

- Important **R&D outputs** themselves
- **Innovative means** of linking and rationalizing the entire ecosystem
 - **Important sources** of future value

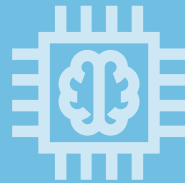
Genomics



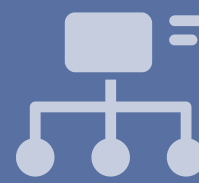
IoT



AI



Platform



Regulation



Key Characteristics of Bio R&D Innovation

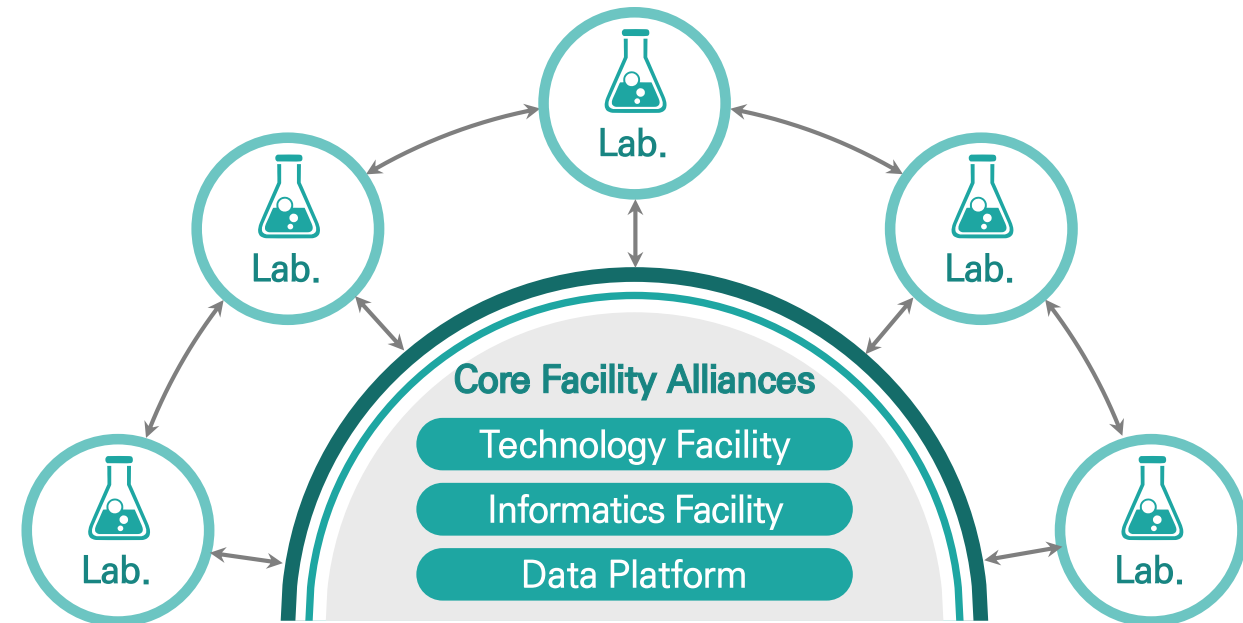
- Biotech innovation is increasingly dependent on expensive high-tech equipment.
 - * Single-cell omics, cryo-electron microscopy (cryo-EM), AI data analysis, etc.
- R&D equipment is becoming more complex, and the release cycle of new versions of equipment is also getting shorter.
- The role of Core Facility as a data platform for open science is being emphasized.

Core Facility

High	National User Facility (Synchrotron radiation etc.)	Core Facility (Facilities specialized by research topic or technology)	High
Required subsidy			Specialization requirement
Low	Joint Utilization Facility	Individual Labs	Low
	Focused on infra service	Focused on research topic	



- In the world's leading laboratories,
 - Open lab system is the norm.
 - Each lab delivers its own ideas while accessing various state-of-the-art technologies.
 - With changes in the research modes, various types of researchers such as staff scientists and research specialists have emerged.



2 Key Challenges for Advancement of Core Facilities



Promoting Interdisciplinary and Creative Research

(1) Building the “Core Facility Networks” to provide “one-stop solution”

- Teamwork between core facilities is required to combine technologies and applications into new cross-facility workflows.
- Building a system of joint planning and supporting of the entire research process.
 - ※ Example : “Core for Life”, another name for the Excellence Alliance of Life Science Core Facilities in Europe

(2) Supporting excellent core researchers

- Providing intensive support for research led by core researchers to cultivate them as excellent researcher groups

(3) An outpost for building a big data platform

- Playing a key role by leading the development of research data standards for labs and the use of research related big data
- Providing a comprehensive IT solution covering from research data storage to cloud visualization system and simulation
- Available through a linkage with the National Biodata Infrastructures

2 Key Challenges for Advancement of Core Facilities



Promoting Interdisciplinary and Creative Research

(4) Hub for open innovation and international cooperation

- A hub for open R&D and international R&D cooperation
- Research facilities to be clustered for building a world-class intellectual network and securing world-class S&T competitiveness
- A hub for international cooperation

(5) Supporting the local development of research equipment

- Providing various kinds of research equipment related services (e.g. basic support for manufacturing research equipment, providing cutting-edge research equipment through high precision machining service and researcher customized refurbishment service)
- Contributing to the internal development of research equipment through the collaboration with other research institutes specialized in other technology fields such as ICT, machinery and materials

감사합니다

Thank you



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