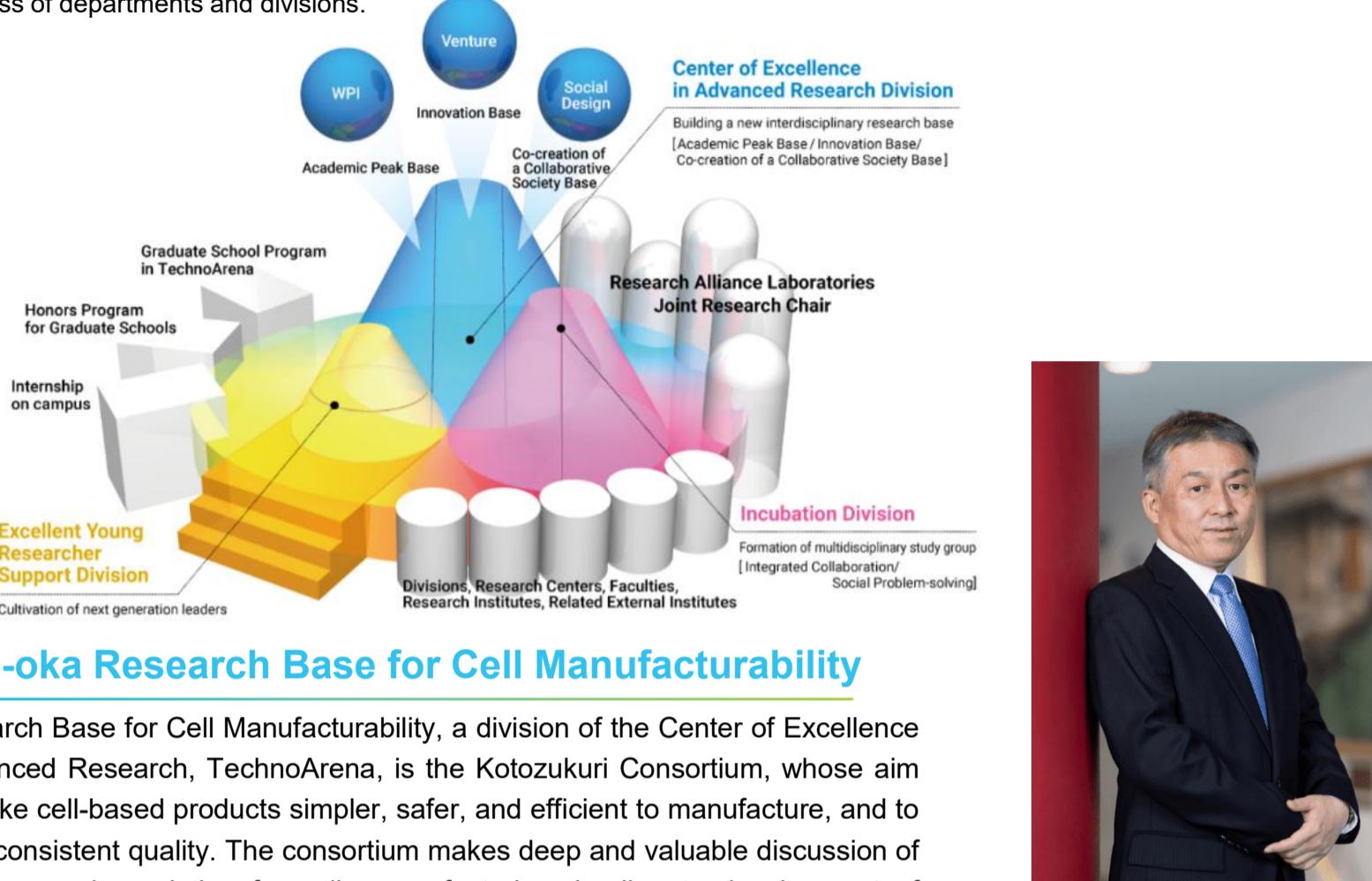


TechnoArena

The TechnoArena sets three divisions of the Center of Excellence in Advanced Research, Incubation, and Excellent Young Researcher Support according to the type of research and development. To develop new academic areas by immediately responding to social issues and needs, we adopt a multidisciplinary, flexible research and study system regardless of departments and divisions.

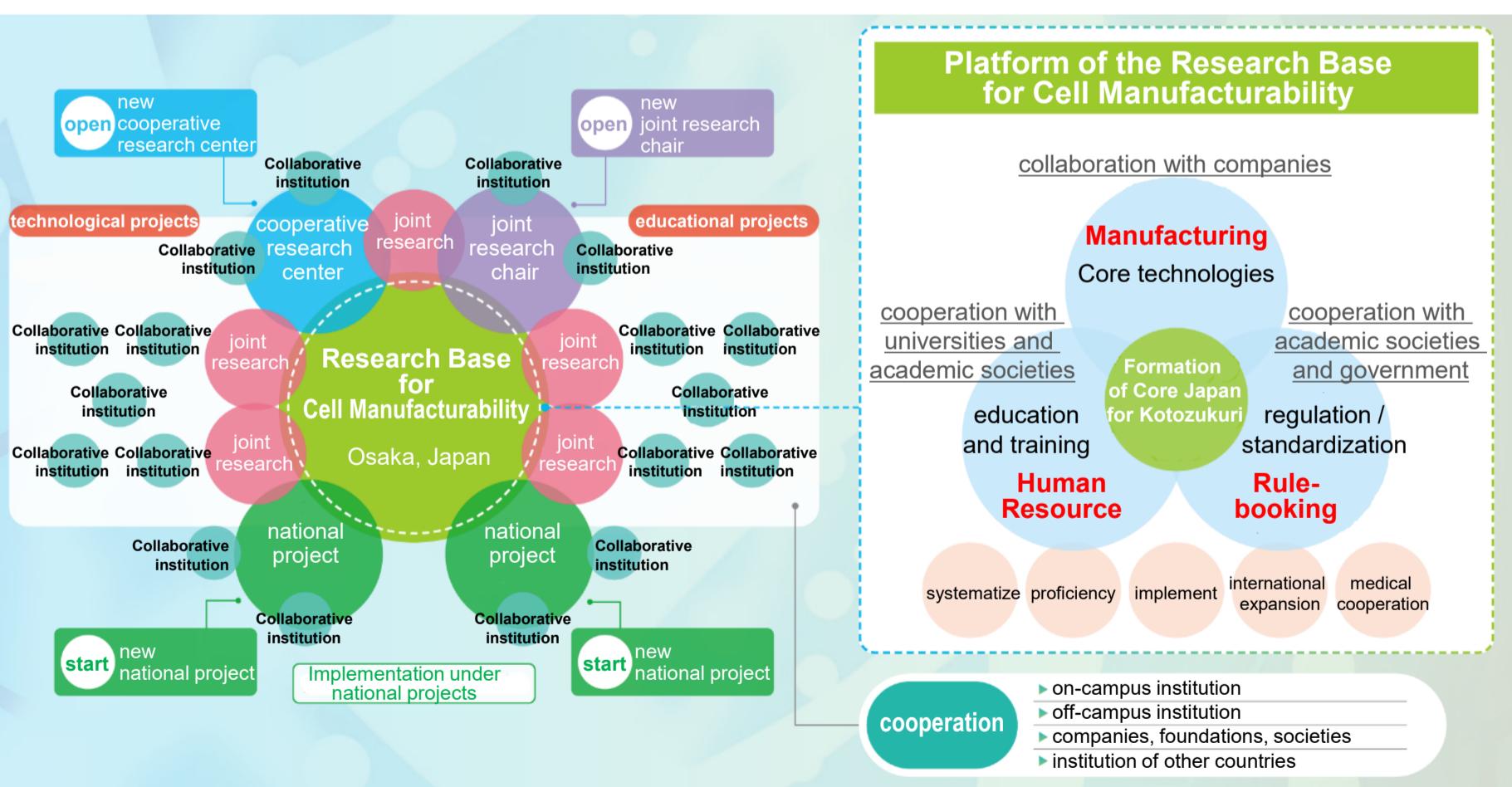


Kino-oka Research Base for Cell Manufacturability

Research Base for Cell Manufacturability, a division of the Center of Excellence in Advanced Research, TechnoArena, is the Kotozukuri Consortium, whose aim is to make cell-based products simpler, safer, and efficient to manufacture, and to ensure consistent quality. The consortium makes deep and valuable discussion of technology and regulation for cell manufacturing, leading to development of human resources with sophisticated sense.



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School/Graduate School of Engineering
The University of Osaka

Efforts of “Research Base for Cell Manufacturability” to construct ecosystem for future society

Our research base is a platform consisting of a cell manufacturing research center, a corporate center, and an education center to practice formation of a core group of brains (Core Japan), accomplishment of subjects, and pass on the knowledge to the next generation, in new technological and industrial fields that require the concept of cell manufacturability.

Formation and practice of Core Japan (think tank)

Human Resource

Develop human resources with the sense to build systems in new industrial fields.

As educational activities in academic fields for which textbooks do not exist, we create original contents, develop experts, and provide training and practical education in collaboration with companies.

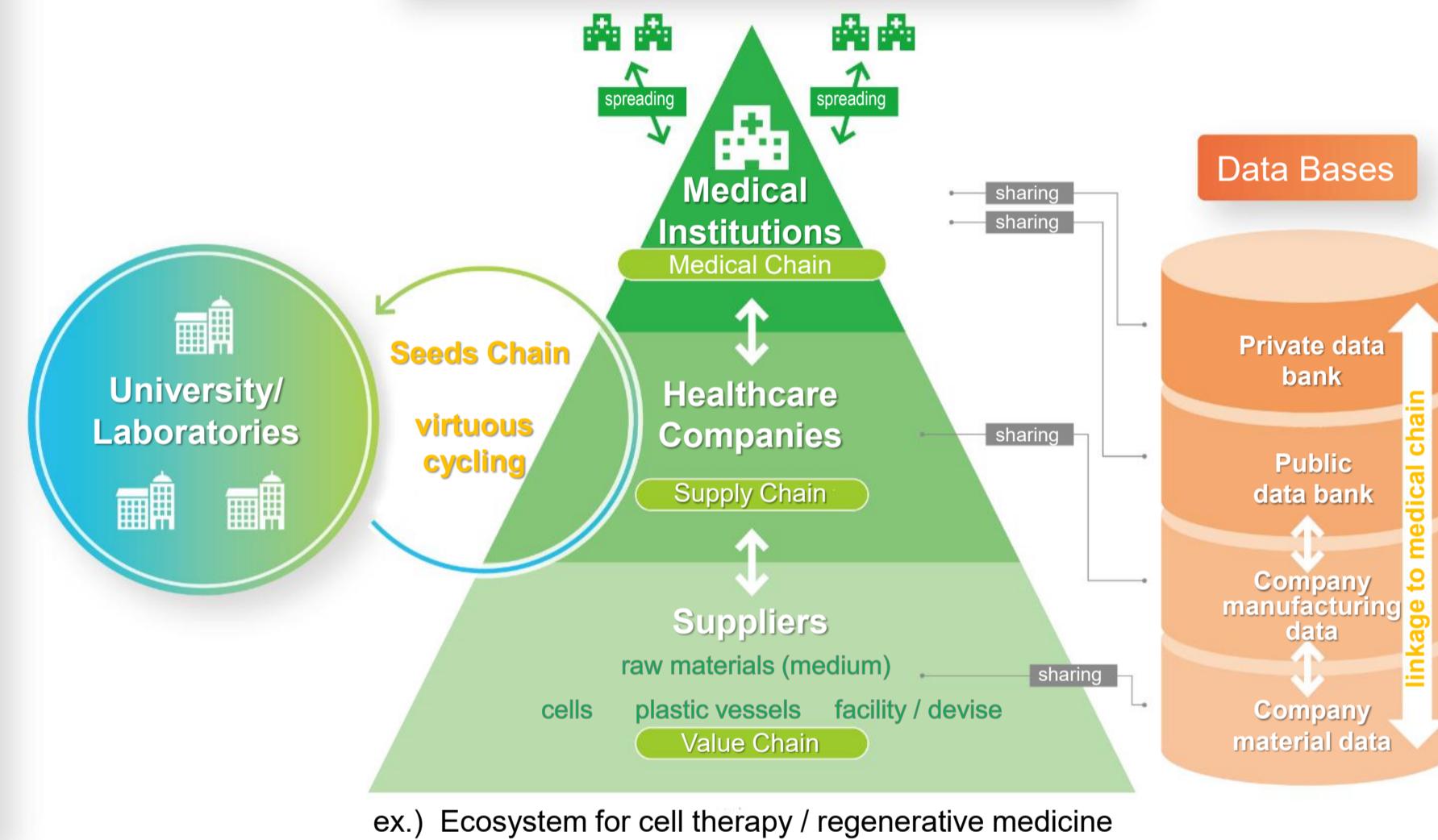
In particular, in new technological and industrial fields that require the novel concept of cell manufacturability, we bring together companies that facilitate industrialization activities, conduct education that contributes to social implementation (academic understanding, development and research methods, and regulations), and produce human resources.

Educational course for cell manufacturability:

- cell processing design course
- cell manufacturing design course



System construction based on technology/human/product



Rule-booking

Build on the concept of regulatory compliance and standardization to promote industrialization.

In the construction of systems for social implementation in new industrial fields, we will create a debate platform that connects multiple companies, government, and academia to discuss regulatory compliance and standardization, which are difficult for individual companies to handle, and work with participating organizations to create guidance, guidelines, and educational content that will contribute to the social implementation of technology.

Working groups will be set up for each issue, and companies and research institutions that wish to participate will draft texts, with verification as necessary, and work together with academic societies, governments, and related business organizations to complete the documents.

The findings will be incorporated into educational content and utilized for human resource development.

Working group:

- aseptic environment
- cell processing design course
- cell manufacturing design course

Utilizing consortium:

- plastic fluid
- outer-stream (Logistics)
- hemagglutinin

Manufacturing

Technical requirements:

- scale up
- process stability
- cost reduction

with considering cell manufacturability.

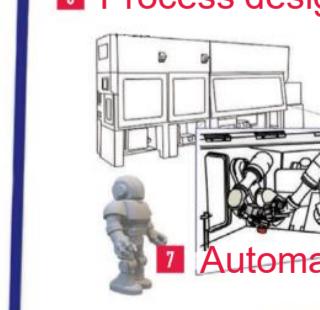
Establishment of developmental principle for cell manufacturing

1 Formation of the platform (group of brain)

- Quality of cells
- Evaluation method



- Process development
- Process design



- Scale up system



- Scale out



- Technologies of next-generation

Technical development toward social implementation

Core members in companies' laboratories

- RORZE Lifescience Inc.
- ZACROS Corporation
- Hitachi, Ltd.

- SHIBUYA Corporation
- Iwatani Corporation
- Cell Exosome Therapeutics Inc.



Joint research

Academic consultation