2022 BrainLink X-Lab Day
Business Plan

June 2022

KOFST
한국과학기술단체총연합회

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Ⅰ ｜ Business Outline

① Background & Necessity

□ State-led exchange meetings in science and technology fields (conferences, symposiums, etc.) are actively held for overcoming Korea's scientific and technological limitations, **creating an environment of joint research among countries with S&T prowess and organizing network of outstanding foreign scientists.**

ㅇ The ULTRA Program came into operation in 2006 also in Korea, but after decade-long operation, it was terminated in 2016.

□ **It is necessary to acquire science and technology trends, success stories, experiences and know-hows from advanced countries and seek practical cooperation measures** through technology exchanges by expanding the high-quality human network of science and technology at home and abroad.

ㅇ The Business seeks new types of technology exchange businesses suitable for the current science and technology environment.

□ **The Business forms international research networking and facilitates technology exchange** by organizing exchange meetings between renowned foreign scholars and domestic early career, junior and senior researchers in respective fields of core technologies.

ㅇ The Business takes preemptive actions to the changes in global scientific and technological landscape and catalyze integrated research through mutual exchanges and joint research built on in-depth discussions on key issues.

□ The Business will avoid a mere one-off event and **put emphasis on developing exchange meetings into a platform that enables sustainable research network at the global level.**

ㅇ In addition to establishing a research network, the Business is set to create an environment where S&T community can be formed by harnessing exchange meetings in such areas as 'attracting S&T manpower' and 'engaging in international cooperation businesses'.

Ⅱ Business Purpose

Vision

Embark on a new chapter as a global hub for S&T talent by enhancing and scaling up global human networks

Purpose

◈ **Accelerate the scale-up of technological exchanges through Brain Circulation network**

◈ **Promote in-depth discussions and human networks among eminent scholars and early career researchers from home and abroad**

Direction

1 **Step up support for international research exchange in science and technology**

2 **Provide talented young researchers with an opportunity for interdisciplinary academic exchanges in pursuit of developing their research capacity**

3 **Embrace the value of diversity in providing a venue for effective and sustainable technology exchanges**

4 **Extend collaboration in international research interchange by harnessing the Diaspora network**

① Key Direction

□ Step up support for international exchange in science and technology

o Gear towards the restoration and expansion of international cooperation and exchange which have been suspended in the wake of COVID-19 pandemic

o Leverage international cooperation in the field of S&T as a vehicle to address common challenges facing humanity and step up support for exchanges including networking, joint research, commercialization of research outcomes, etc.

□ Provide talented young researchers with an opportunity for interdisciplinary academic exchanges in pursuit of developing their research capacity

o Set up a two-way communication platform where domestic junior researchers can get access to the sharing of scientific knowledge and know-hows from domestic and foreign S&T scholars

o Raise pending academic and technological issues and dive deep into discussing possible solutions by organizing X-Lab Day.

□ Embrace the value of diversity in providing a venue for effective and sustainable technology exchanges

o (Diversity in Areas) Put emphasis on discussing and exchanging a broad range of cross-cutting S&T areas with a view to taking preemptive actions to the changes in global scientific and technological landscape

o (Diversity in Participants) Provide a venue for technology exchanges that incorporates lectures and dialogues led by renowned scholars and enables an entire generation to engage in S&T discussions

o (Diversity in Methods) Use exchange meetings as a venue for sharing mutual knowledge, information and experience related to global scientific and technological landscape among scholar-level scientists and engineers while establishing network that embraces early career and next-generation researchers

□ Extend collaboration in international research interchange by harnessing the Diaspora network

- ○ Scale up human networks by leveraging a wide variety of channels including the Overseas Korean Scientists and Engineers Associations, Overseas Professional Branch Associations and domestic academic societies in science and engineering fields
- ○ Pave the way for establishing long-term and sustainable relation that provides opportunities for continuous global research exchanges built on enlarged bilateral and multilateral networks

Diversity		
Area	10 Indispensable Strategic Technologies Convergence of S&T fields	Convergence(n) Technology Exchange(n1) Technology Exchange(n2) Technology Exchange(n3)
Partici pation	Generations : Scholar-level + Early-career + Next-generation Targets : · Scientists and engineers from home and abroad · Overseas Korean scientists · Post Doc., graduates, undergraduates	Individuals = Inviting speakers Individuals + Groups Groups + Groups
Opera tion	X-Lab Day (eminent scholars, senior researchers) + Seminars (Post Doc., graduates, undergraduates)	10 areas ↕ 14 times

System	
Selection	· 10 National Indispensable Strategic Technologies selected(2022) · In the following year, selection criteria for the areas of technology exchange will take shape, reflective of the advice and comments from experts and S&T community.

Organi zation	· Steering Committee
	  (Select technical members, evaluate & select X-Lab Day, report on the outcomes of the operation management, etc.)
	· Technology Advisory Committee
	  (Review the Organizer and proposals, etc.)
	· Organizer
	  (Select participants, develop program for X-Lab Day and organize X-Lab Day, etc.)
	· Secretariat
	  (Operate committees, host & operate x-Lab Day, etc.)

Manag ement	Ensure sustainability + Set up DB for X-Lab Day + Improve and reflect outcome reports

② Business Details

□ Business Period

- ○ April 1, 2022 ~ December 31, 2022 (9 months)

□ Venue

- ○ Choose 1 among Busan, Yeosu, Incheon and Pyeongchang

□ Areas

○ 10 Indispensable Strategic Technologies

Artificial Intelligence	5G·6G	Biotech	Semiconductor & Display	Secondary battery
Hydrogen	Quantum	Hi-tech robot & Manufacturing	Aviation & Aerospace	Cyber Security

* Core technology areas indispensable for enhancing national R&D capacity and global network can be taken into consideration.

□ Operation

○ Organize X-Lab Day 14 times (for 4 days per meeting) (Schedule can be adjusted)

- (Program) Develop a free-form program that meets the characteristics of the respective technology
- (Procedure) Avoid a mere lecture-style seminar, and instead share the latest trends and information on core technology areas as well as encourage in-depth discussions and idea-sharing on research outcomes

□ Intended Participants

○ Scientists and engineers from home and abroad, overseas Korean scientists, Post Doc., graduates and undergraduates

- (Domestic) : government-funded research institutes, national research institutes, universities, university-affiliated research institutes, academic societies in science and engineering fields, non-profit foundations, corporate-affiliated research institutes, etc.
- (Overseas) : Overseas Korean Scientists and Engineers Associations, Overseas Professional Branch Associations, etc.

□ Method

○ Application for public contests

- Proposal drafted/applied and Program developed/organized by two Organizers (one from Korean scientists, and the other from foreign or overseas Korean scientists)

□ Scale

○ Approx. 30 participants per meeting

- Two reputable Organizers (one from Korean scientists, and the other from foreign or overseas Korean scientists) entrusted with authority
- 5~6 speakers from home and abroad, approx. 10 domestic early career scientists, approx. 15 Post Doc., graduates and undergraduates
  * In case of multi-disciplinary convergence exchange, scale can be adjusted accordingly.

□ Covered Expenses

○ The whole expenses incurred during the stay for the purpose of participating in X-Lab Day (No registration fee)

- (Domestic participants) speakers honorarium, expenses incurred for accommodation, dining, etc.
- (Overseas participants) organizers & speakers round-trip airfare*, honorarium, expenses incurred for accommodation, dining, etc.
  * Business class for organizers & erudite scholars, Economy class for early career scientists

□ Application

○ Proposal developed and applied by an Organizer

- (Eligibility) : An Organizer is an outstanding S&T expert from home and abroad who can organize and preside over X-Lab Day with experience of years of R&D
- (Competence) : An Organizer is entrusted to develop a program and organize participants for X-Lab Day, contact liaison with potential co-Organizer (foreign or overseas Korean scientist), and select areas and topics for the exchange meetings
- (Responsibility) : An Organizer is obliged to proceed the X-Lab Day and come up with an outcome report of the meetings
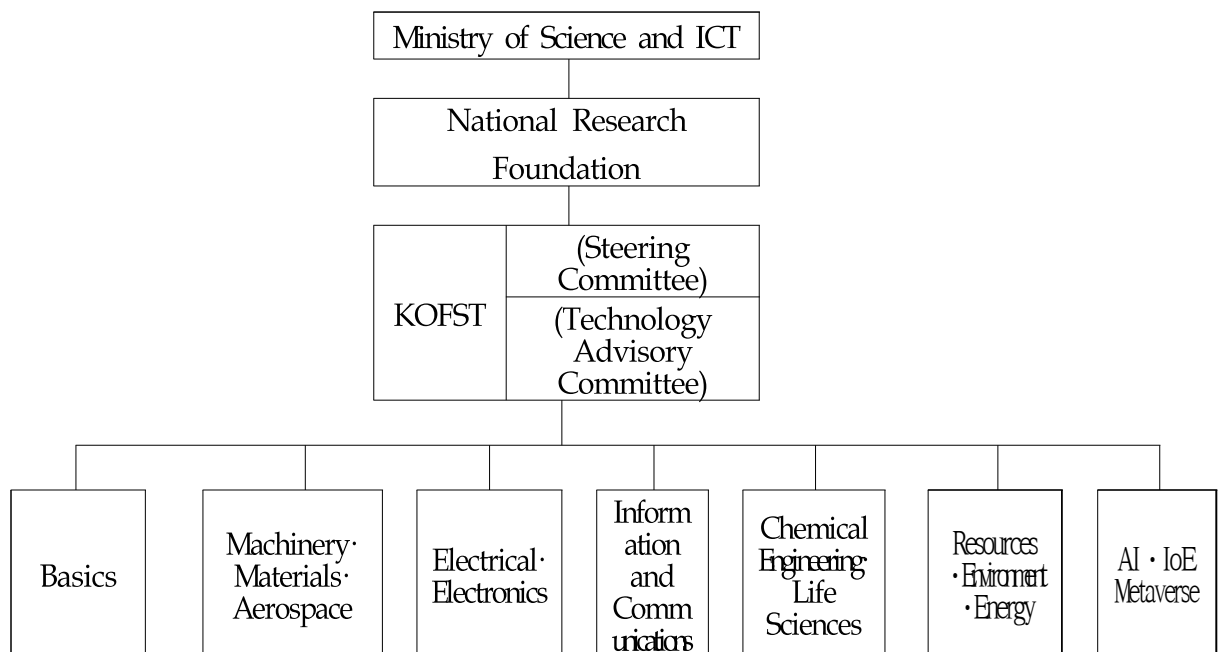
□ Anticipated Outcomes

○ Take preemptive actions to the changes in global scientific and technological landscape

○ Attract foreign and overseas Korean, outstanding S&T talent to Korea and strengthen global research network

ㅇ Accelerate the scale-up of domestic and overseas human networks and reinforce global research exchanges

ㅇ Expand the potential for conducting subsequent joint research by facilitating networks among erudite scholars, middle-grade and early career researchers from home and abroad

ㅇ Enhance the profile and research competitiveness of the Korean researchers in the international joint research ecosystem

③ Operation Scheme
□ Operating System
ㅇ (Ministry in charge, Ministry of Science and ICT) : Business implementation planning and oversight of the business in general

ㅇ (Expert organization, National Research Foundation) : Business planning and management

ㅇ (Host organization, Korean Federation of Science and Technology Societies) : Detailed plannning and implementation of the business

| Ministry of Science and ICT |
| National Research Foundation |

| KOFST | (Steering Committee) |
| | (Technology Advisory Committee) |

| Basics | Machinery· Materials· Aerospace | Electrical· Electronics | Inform ation and Comm unications | Chemical Engineering· Life Sciences | Resources ·Environment ·Energy | AI · IoE Metaverse |

□ Steering Committee

- (Composition) Comprised of approx. 15 members including the Chair and the commissioned members representing industrial, academic and research sectors respectively

  ※ Ex Officio Member : Director General of the Future HR Policy Bureau, Ministry of Science and ICT, KOFST Secretary General, Heads of the technical advisory members representing 7 Areas respectively

- (Term in Office) 2 years, may serve consecutive terms
- (Designated Role) Establish and revise operating standards, Deliberate on the annual business plan and the operation scheme, Conduct proposal review and report on the outcomes of the business operation, Deliberate on matters which the Steering Committee may deem necessary to discuss, etc.

□ Technology Advisory Committee

- (Composition) Comprised of approx. 10 experts of each area, representing industrial, academic and research sectors respectively
- (Term in Office) 1 year, may serve consecutive terms
- (Designated Role) Review and select a proposal submitted by the Organizer and send the results of Steering Committee, Deliberate on matters which the Technology Advisory Committee may deem necessary to discuss

※ 7 Areas(Composition)

Areas	Areas Breakdown
① Basics	Mathematics, Physics, Chemistry, Biology, Geoscience, Metrology, Standard, Astronomy, **Quantum,** etc.
② Machinery·Materials·Aerospace	Machinery, Marine Transport, **Aviation, Space,** Materials, **Hi-tech Robot, Manufacturing**, etc.
③ Electrical·Electronics	Electrical, Power, Electronics, **Semiconductor, Display,** Applied Physics, etc.
④ Information and Communications	Computer, Communication, Optical Technology, **Cyber Security, 5G·6G,** etc.
⑤ Chemical Engineering· Life Sciences	Applied Chemistry, Chemical Engineering, Biotechnology, Agriculture & Fisheries, Health, **Biotech,** etc.
⑥ Resources·Environment· Construction·Energy	Resources, Marine, Environmental Construction, Hydrogen, Nuclear, **Secondary Battery,** etc.
⑦ AI·Metaverse	**AI, Metaverse, IoE,** etc.

☐ Organizer

- (Composition) 2 Organizers (One from Korean scientists, and the other from foreign or overseas Korean scientists)
- (Designated Role) Organize X-Lab Day, Organize program and participants, Develop and submit business proposal, Submit an outcome report, Contact liaison with potential co-Organizer, Organize communities or clubs by each area for participants to promote continuous networking among them after a X-Lab Day is held

☐ Secretariat

- (Composition) Comprised of up to 4 staff fully dedicated to the overall working-level tasks
- (Designated Role) Conduct overall management of the X-Lab Day, Organize and operate Steering Committee & Technology Advisory Committee, Organize performance-sharing workshop and manage subsequent research outcomes and related Database, Manage business budget and report on business expenses incurred, Submit reports on related outcomes including performance management, etc.

④ Selection Review & Outcome Assessment

☐ Selection Review

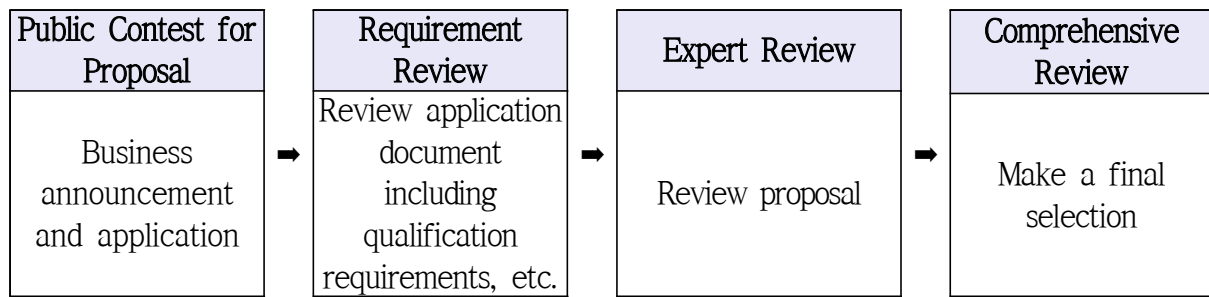○ Requirement Review [KOFST Secretariat]

- Evaluate eligibility including qualification and proposal requirements

○ Expert Review [Technology Advisory Committee]

- Evaluate relevance of goals and topics, necessity of business, implementation plan and scheme, relevance of participants composition as well as anticipated outcome and measures to spread outcomes, and send the selected deliverable up into the Steering Committee

○ Comprehensive Review [Steering Committee]

- Review evaluation results by the technology advisory committee of each area and make final selection for the X-Lab Day

Public Contest for Proposal		Requirement Review		Expert Review		Comprehensive Review
Business announcement and application	➡	Review application document including qualification requirements, etc.	➡	Review proposal	➡	Make a final selection

☐ Outcome Assessment

  ○ Submission Period : No later than 1 month after a X-Lab Day is held

  ○ Submission Method : Complete and submit the prescribed form online

  ○ Submitted Document : Outcome Report (including satisfaction survey)

⑤ Outcome & Performance Management

☐ Performance is assessed and analyzed by evaluation metrics, reflective of the business objectives

  ○ Indicator defining network established during X-Lab Day

  ○ Indicator defining subsequent network exchanges made as a consequence of X-Lab Day

  ○ Research outcome index on joint research conducted as a consequence of X-Lab Day

☐ Performance Management of Research Outcomes

  ○ Manage database on the number of interactions made among participants by organizing communities or clubs in the wake of X-Lab Day

  ○ Manage subsequent outcomes (joint research, technical advice, recruitment of talent, conclusion of MOU, etc.) and the scale-up of global research network as a result of X-Lab Day

Ⅲ Business Timelines for Year 2022

Category	Key Actions	Schedule	Role
Business Announcement	Put out a call for proposals on 2022 BrainLink X-Lab Day business	Jun 24	KOFST
⇩			
Submission of Business Proposal	Develop & submit a proposal after organizing program, participants, etc.	Jun 24 ~ Jul 27	Organizer
⇩			
Receipt of proposals and Requirements review	Review proposal including qualification requirements, etc.	Jun ~ Jul	KOFST
⇩			
Review by area (Primary)	Review business proposal by each area	Jul	Technology Advisory Committee
⇩			
Comprehensive Review (Secondary)	Final deliberation and selection of business proposal	Aug	Steering Committee
⇩			
X-Lab Day	Conclude a definitive agreement and organize the X-Lab Day	Sep~Dec	KOFST, Organizer
⇩			
Submission of Outcome Report	Submit an outcome report	Sep~Dec	Organizer
⇩			
Performance-sharing Workshop	Discuss the way forward for the X-Lab Day and scale up Best Practice	Dec	KOFST, Organizer
⇩			
Steering Committee	Report a business outcome of '22, review a tentative business implementation plan, etc.	Jan, 2023	Steering Committee