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In 2020, Seoul National University undertook the "SNU 10-10 project." The project aimed to provide focused support towards academic fields within the university with extensive potential and research competency for their development into world respected levels.

Various academic fields within SNU have applied, supporting their application with evidence of research competency and future development plans. The selection process was very competitive. To ensure a professional and fair selection process, academics with respected achievements and experiences, such as Nobel prize laureates and chancellors of world-renowned universities, consisted the selection panel. The panel, joined by former chancellors of domestic and international universities with esteemed reputation, comprised the final selection committee. The selection committee through a strict and thorough process, selected 20 final academic fields within SNU with the competency to develop into an internationally competitive level as an academic field.

The selected 20 fields will receive substantial evaluation and diagnosis from third party professionals and academics. Based on this information, each field will synthesize strategies to achieve improvements in their research quality and impact. Each academic field will then freely conduct various undertakings in order to achieve their set goals.

Through the SNU 10-10 initiative, Seoul National University intends to further extend their insight into which fields have the potential to be part of the forefront in world development. Furthermore, Seoul National University seeks to understand what is required to fulfill each fields potential not only to further the University into a world-competitive institution but instead a world-leading one.
01 Goals

- This project aims
  - to concentrate support on future-leading academic fields which may contribute to the advancement of global academia so that SNU will become the leading university
  - to guide SNU's development into a world leading organization with extensive research competence and to contribute to the advancement of global academics based on systematic and in-depth strategies and academic supremacy

02 Project Contents

- Recognizing the organizations current competence and establishing a development strategy in pursuit of growth as a world leading organization with excellent research competence to aid the advancement of our nation
- External and professional evaluation to recognize the current status to strategize for future development
- Establishing a strategy to contribute to the development of the university as a world-leading institution and further extend global prowess of SNU
- Providing bottom-up support to increase the impact and quality of research in the selected academic fields
- Pursuing a proactive development method through the encouragement of competition among the academic fields at SNU and guide academic preeminence of the corresponding academic fields in Korea
- Establishing a future-leading research ecosystem and promoting the long-term development of SNU

03 Promotion Plan

- Subject of support: Any unit that can represent an academic field, including departments (schools), research centers (institutes) and department-research center or department-department or research center-research center coalitions
- Amount of Support: 24 billion KRW for 6 years (within 300 million KRW per academic field each year)
- Period of support: Maximum 6 years [in two stages, 3+3]

04 Evaluation System

- Evaluation for selection: Comprehensive evaluation of basic competence, objectives, promotion strategy, accomplishment management, budget planning, etc.
- Annual report: Annual self-evaluation reports and project plans should be submitted
- Stage evaluation: An evaluation of achievement in comparison with project plans; Stage 1 project accomplishments; and Stage 2 project plan
- Final evaluation: A comprehensive evaluation of the project accomplishments and results
Project Missions
Growing as one of the world’s renowned leading groups with excellent research competence

SMART Core Values

S
Success Strategy
Establishment of success strategies to foresee and procure the IO major academic fields that will lead the world
- Establishing systematic core success strategies for each academic field to grow as a globally recognized institution with excellent research competence
- Establishing systematic and in-depth strategies aimed at the continuous elevation in global recognition of SNU
- Organizing a project promotion group and providing an operational plan (if a project promotion group should be organized)

M
Mission
Establishing objectives based on creativity and excellence to grow as one of the world’s renowned leading groups
- Establishing objectives to contribute to the world’s academic advancement based on academic merit
- Specifying objectives to increase in academic prowess competitiveness in a global prospective

A
Alignment
Implementation of detailed projects that are highly aligned with the goals and core values of the SNU IO-I0 Project
- Planning detailed projects according to the characteristics of individual academic fields, and preparing and promoting projects that are highly aligned with the goals and core values of the SNU IO-I0 Project
- Recognizing the current competence of each academic field through outsourced consulting and establishing development plans accordingly
- Establishing plans for increasing international competitiveness by activating peer review and international joint research

R
Result Feedback
Establishing a highly effective system for managing project accomplishments
- Establishing a project accomplishment management system to foster the academic fields to the world leading level
- Preparing reasonable performance indicators to achieve the set out objectives of each project and manage the accomplishments

T
Top Tier
Establishing specific mid-term and long-term academic leadership models for each stage
- Establishing specified academic leadership models for continuous advancement of the academic fields
Excellent academic fields

Linguistics
Public Policy & Administration
Mathematics & Computer Science
Earth & Environmental Sciences
Chemistry
Mechanical Engineering
Materials Science
Chemical & Biological Engineering
Convergence Degradation Medicine
Dentistry

Promising academic fields

Social Welfare & Sociology
Political Science & International Relations
Brain & Cognitive Sciences
Biological Sciences
Advanced Applied Physics Research (Quantum-nano Physics)
Computer Science & Engineering
Oncology (Cancer Translational Research)
Genomic Medicine

Potential academic fields

Art & Design
Physical Activity & Sport
Competency and Excellence
Improvements in research results and educational competency through reforms reflecting trends observed in academia globally.

The strength of the Department of Linguistics at SNU has long been in traditional, logic-/theory-oriented research. However, it faces serious challenges in maintaining its status as a leading research and educational institute due to recent, increasing emphasis on quantitative/empirical approaches in the field. The Department of Linguistics not only seeks to solve these problems, but also to reform and develop into an innovating institution in the data science approach to humanities research. Through these reforms, we intend to expand the scope and competency of research and education. The graduate program of the department of linguistics has also grown in both research and education, as is evident in the international activities of graduate students in particular. SNU’s Department of Linguistics is continuously observing and actively implementing the trends found in global academia to pioneering the way forward.

Objectives and Goals
World-leading research results and educational competency: Strengthen international competitiveness in experimental research and education and leap forward as a leading organization in data-centered humanities research.

The Department of Linguistics aims to strengthen the international competitiveness of SNU’s linguistics research and contribute to the promotion and development of humanities in Korea. We began to offer an interdepartmental undergraduate major in ‘Data Science for Humanities’ five years ago. By incorporating data science into existing research results, we plan to further develop this track and provide graduate-level international interdisciplinary programs in the field of linguistics and data science. This computational linguistics course, with an emphasis on ‘deep learning’, will become one of the essential pillars supporting data-driven humanities research.

As part of our continued efforts to adapt to better suit the recent emphasis on experimental and data-driven methods in linguistics, our proposal aims to improve our research facilities accordingly. By setting these achievements as a goal, SNU’s Department of Linguistics is expected to become an internationally respected department in experimental research and education as well as a leading organization in data-centered humanities research.
Main Strategy

Initiative in experimental and data-driven linguistics

The Department of Linguistics is establishing and implementing a two-step strategy to achieve our set goals. The main strategy in the first phase of the project (2020-2022) is to integrate the program's theoretical competency with experimental resources in faculty and related facilities. The second phase, in 2023-2026, will focus on interdepartmental collaboration between data sciences and linguistics to provide new perspectives on humanities research. The details of the strategies currently being implemented as part of the first stage are as follows.

1. Revitalization of Academic Exchange for Research and Education in Experimental Linguistics
   - Undertake academic exchanges with overseas academic organizations for full-fledged experimental linguistics research and education (joint research projects, international exchange of research-education, expansion of international academic activities by professors and students).
   - Implementation of visiting research projects to innovate experimental research capabilities, holding international linguistics workshops, and promoting active international exchanges.
   - Carry out laboratory improvement projects for better linguistic experiments and basic work such as homepage system construction.
   - In recent years, in response to changes in research methodology in linguistics and other fields of humanities, the foundation for research will be established by establishing programs required to accept, analyze and utilize big data.

2. Strengthening of International Collaboration
   - In order to strengthen international academic exchange and research capabilities, an academic conference on major research topics in the field of linguistics will be held.
   - It will continue to encourage professors and graduate students to participate in overseas academic conferences and provide opportunities for future joint research.
   - Supporting graduate students to participate in international conferences will enhance the foundation for future research.
**Public Policy & Administration**

**SNU 10-10 PROJECT for Public Policy & Administration**

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**Competency and Excellence**

The international center for academic exchanges in the field of public policy & administration

The Graduate School of Public Administration at SNU promotes academic competitiveness by hosting and participating in international academic conferences. Through such events, the Graduate School of Public Administration markets its high-quality research to the world and provides a forum for discussion among various scholars from different countries. During the COVID-19 pandemic, we established an online academic conference infrastructure that allowed SNU to be leading in academic discussions.

With the aim of improving its academic capabilities, the Graduate School of Public Administration invites well-known domestic and foreign scholars to campus. We invite foreign scholars to deliver special lectures and seek to build long-term cooperative relationships with them through discussions about public policy and administration. In addition, we consult with renowned scholars locally and abroad regarding strategies to facilitate the publication of international academic papers by members of the school and to foster international academic research cooperation.

The Graduate School of Public Administration is also working to improve the international reputation of its academic journals and to internationalize graduate student studies. The SCOPUS listing for KJPS (Korean Journal of Policy Studies) has been updated, and a committee which ensures registration of SSCI-level academic journals has been established. We also offer special lectures for students on strategies to guide them to get published in international journals.

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**Objectives and Goals**

Leading front-line researchers at the global TOP 10 level

The Graduate School of Public Administration aims to establish a research hub for global public policy and administration and to further secure leading front-line researchers at the global TOP 10 level. Members of the school are engaged in developing theories and carrying out case studies in the field of Asian-based public policy and administration. Furthermore, the school body is actively coming up with innovative ideas in public policy and administration based on Korean experiences that can extend to contribute in resolving global policy and administrative challenges.
Serve as a research hub for global public policy and administration

Lead front-line researchers at the global TOP 10 level

Develop theories and undertake case studies in the field of Asian-based public policy and administration

Provide innovative ideas in public policy and administration for underdeveloped countries

Resolve global policy and administrative challenges

Main Strategy

Research hub for global public policy and administration

A key strategy the SNU 10-10 PROJECT for Public Policy and Administration has adopted in order to achieve this goal is to establish the Graduate School of Public Administration as a leader in the international academic network in the field of public policy and administration by strengthening its relationships with research and educational institutions overseas in both the domestic and foreign public sectors. In doing so, it will allow the dissemination of academic and practical knowledge produced by the school to the world, and further aid in the process of SNU becoming one of the world’s top ten public policy and administration education research institutes. For example, we are working to secure publications of public policy and administration research produced by members of the school in international journals and books.
Private AI

Competency and Excellence
Field-leading researchers with broad interests, extensive knowledge and cutting edge technology

Our team consists of leading researchers in various mathematical fields including cryptography, topological data analysis, probability and algebraic geometry, many of whom are recipients of awards of highest honor such as Posco TJ Park Prize, Young Scientist Award, and Scientist of the Month Award. Technology developed by our researchers have also been recognized in some of the toughest national competitions such as iDash Privacy & Security Workshop. Our homomorphic encryption scheme HEaaS has recently been selected as the ISO standard for homomorphic encryption.

Objectives and Goals
World’s top Private AI research center

We aim to make great academic advances in AI, cryptography, computer vision and data analysis. This will not only be theoretical, but also practical! The results of our academic research should provide powerful tools for analyzing & improving AI in both academic research and industrial application. We also aim to produce young researchers and workers of highest caliber in Private AI and related fields. We will actively assume the leader’s role in communicating with the world’s best researchers in Private AI, and become the main research hub in the world.

Main Strategy
Intense research at the highest level through international collaboration

Our project largely consists of three parts: (A) Cryptography (B) Data analysis (TDA/Deep learning) (C) Computational complexity & Computer vision. Each group will focus on fundamental problems of theoretical/practical nature, in their respective fields. At the same time, we will closely work together to apply the homomorphic encryption techniques developed by Team (A) to the AI/Data Analysis techniques developed by (B) & (C), thereby further developing techniques of (B) & (C) into Private AI. We plan to collaborate with the world’s best IT companies including Microsoft, IBM, Intel, Facebook, Google and Samsung, and hold regular international workshops and support short term small group research programs.

We offer the most competitive salary & research grant packages to our Gauss Postdocs. Participating graduate & undergraduate students will have opportunities to interact with world’s best researchers through special lecture series and to carry out cutting edge research with professors and postdocs.
Competency and Excellence
The leading institute in Korea addressing global Earth and environmental issues

We are consisted of highly-competitive members (including both faculty and young researchers) that cover diverse aspects of Earth sciences from geology, oceanography and atmospheric sciences.

We are considered to rank among the top 20 world university in the field of Earth and environmental sciences by external reviewers.

We are working to adopt new Big Data and Artificial Intelligence techniques as part of ongoing research and education as well as day-to-day operation of the undergraduate computational sciences program.

We are pioneers in global open ocean research, using state-of-the-art research vessels in Western Pacific and Indian Ocean.

Main Strategy
Providing new opportunities in research and education through collaboration with industry and government labs

By combining our professional knowledge in Earth science (domain knowledge) with recent developments in ICT such as Artificial Intelligence, we intend to take on a new approach on questions within the earth sciences.

By utilizing various global databases, we hope to address important societal problems for the good of the public.

In addition to existing data, we shall develop new observational tools to measure environmental changes in remote parts of the globe.

Through collaboration with industries, we hope to create new jobs in the fields of Eco-friendlyness and energy and further promote and support young researchers in their establishment of start-up businesses.

Addressing important global issues beyond the national boundary with new innovative tools and approaches, we hope to raise next generation of scientists that will tackle future Earth environmental issues for the sustained existence and development of mankind.

Objectives and Goals
Combining traditional domain scientific knowledge with new tools to address vital global environmental issues

By investigating diverse aspects and systems of Earth sciences, from interior of the earth to ocean and atmosphere, our goal is to address important societal issues that we face in the present day and will face in the future. We intend to achieve this by combining our traditional knowledge with novel advancements in science and engineering as well as educating the next generation of problem solvers.

In particular, we strive to encourage students to address important sustainability and energy hurdle by data analytics and building new start-up companies as these efforts will not only add values but also promote industrial development and create new jobs.
Molecular Research as Central Science

Competency and Excellence

Establishing one of the world’s top 10 department in chemistry led by a strong division in biochemistry and energy-related chemical sciences

Over the last few years, our department has been steadily recognized as one of the excellent chemistry departments worldwide.

SNU Chemistry has its competitiveness in biochemistry, and is well-equipped to tackle emerging biological challenges including molecular genetics, directed evolution, structural biochemistry, neuroscience, drug delivery system, and computational biology.

SNU chemistry keeps growing in research expertise in spectroscopy, inorganic/organic synthesis, electrochemistry, and theoretical chemistry, which are key disciplines for conversion and storage of renewable energy.

Objectives and Goals

Investing in emerging fields of chemistry, establishing close academia-industry cooperation, and reinforcing international collaborations

We formulated a strategic plan according to results of our competency analysis based on our department strengths and weaknesses, which were thoroughly analyzed based on the QS World University Rankings, SciVal databases, and an external evaluation.

1) Aggressive recruitment of faculty engaging in new frontiers of chemical sciences
2) Joint-partnership between industry and SNU Chemistry towards fundamental research
3) Globalization of SNU Chemistry to boost international collaborations

We will invest in emerging fields of chemistry by recruiting accomplished prospective faculty and bright and young research fellows.

We will establish academia-industry cooperation for an open exchange of research information and industrial insights as well as funding for accelerated growth in fundamental research and future development.

We will reinforce international collaborations and expand our international community of graduate students, postdoctoral researchers, and faculty by various programs.
Main Strategy

SNU LinC, support program for pre-tenured faculty, and establishing a focused symposium with industry

SNU Leaders in Chemistry Colloquium (SNU LinC):
SNU LinC is a regular colloquium series during the semester. We will invite scholars with a high international standing, providing faculty and graduate students to acquire a more global perspective on chemical science and opportunities to exhibit their research accomplishments to peers.

International Travel Support Program for Pre-tenured Faculty:
We will provide support for pre-tenured faculty members by strategic investments allowing them to directly interact with international scholars in the field to evaluate research impact and enlarge the visibility of their research.

Molecular Science Forum:
We will establish a focused symposium with industry engineers to form close ties with domestic tech-giants through research collaborations. A working scheme will be drawn up, detailing the research objectives, planned projects and measures, nature of co-operation and an agreed management structure.

Phase 2: Harvesting

B. Joint-partnership between industry and SNU Chemistry
C. Globalization of SNU Chemistry

Phase 1: Seeding

A. Engaging in new frontiers in fundamental research
B. Joint-partnership between industry and SNU Chemistry
“TOP STAR” Project: Striving Towards a World-Class ME Department (Mechanical Engineering)

Competency and Excellence
Outstanding growth potential

Against the drastic changes in mechanical engineering during the last decade, Seoul National University Mechanical Engineering (SNU ME) Department has been striving to flexibly respond to the needs of industry and society. As a result, external research grants of the 31 tenure-track faculty members have increased from 0.8 to 1.17 million USD per person between 2010 and 2020. Also, SNU ME QS World University Ranking has reached 23rd in 2020.

Furthermore, SNU ME has international programs such as: 1) yearly faculty/student workshops with Stanford, Tokyo, Kyoto, and Tsinghua University. 2) joint PhD degree program with Georgia Tech. 3) joint global courses with Tokyo, Pennsylvania State, and Shanghai Jiaotong University. 4) global education and outreach activity in Tanzania, and so on. These international programs will be strong basis for the growth of SNU ME.

Objectives and Goals
Leap for 10th

The fundamental goal of this project is to raise the level of research and education so that the Department of Mechanical Engineering at SNU can be recognized as the most world renowned mechanical engineering department. For such achievement, we would like to focus on two categories (international academic reputation and research impact) that determine QS world rankings. Quantitatively, by focusing on enhancing academic reputation in the first stage, reaching 18th is the target. Then in the second stage, reaching 10th is the target through improvements based on comprehensive indicators.

Main Strategy
TOP STAR

Recognizing that our critical weakness is international academic reputation, our main strategy focuses on making our international collaborative research and education activities stronger and more effective.

Toward this end, we plan to establish and run TOP (Transboundary collaboration, Outreach, and Partnership) strategic programs. As TOP programs, we will begin or expand international faculty and student workshops, joint degree programs, research collaboration projects, global education, international outreach activities, international advisory program, sabbaticals at SNU and so on. In order to effectively operate these programs, we selected five promising areas in ME (1) Future transport, (2) Robotics, (3) Smart manufacturing, (4) Environment & Energy, (5) Biomedical) and intend to establish a STAR(STRategic Technology Area Research) center.
Our ultimate goal: Become a world-leading ME department by running TOP strategic programs within STAR centers.

**TOP**
- Transboundary collaboration programs
- International faculty/student workshops
- Joint (dual) degree programs
- International research collaboration projects

**O**
- Outreach programs
- Global education in developing countries
- International outreach activities

**P**
- Partnership programs
- International advisory program for self-evaluation and global feedback
- International referee program for best doctoral thesis award
- Hosting sabbaticals at SNU
SNU 10-10 Project of the Department of Materials Science and Engineering

Competency and Excellence
The top level of education/research department in the field of materials science throughout Korea and internationally

The Department of Materials Science and Engineering is a top-level educational institution throughout Korea and internationally that covers all three major material fields: metals, ceramics, and polymers.

- Balanced education of basics and applications through dualization of traditional core concepts and new concept material technologies
- Fostering outstanding research talents through the student-led «Advanced Research» course

Objectives and Goals
Positioned as the world’s best department in materials science

By providing world’s best education and research environment, the Department of Materials Science and Engineering intends to reach the top ten level QS Word University Ranking in the field of materials science and strives to strengthen the education / research / industrialization / internationalization capabilities of every member.

Furthermore, the Department of Materials Science and Engineering will establish itself as the world’s best department in the field of materials science and engineering by supporting the members’ growth as global talents and entry into industries, research, and academia of the materials science domestically as well as internationally.

- Provide opportunities for undergraduate and graduate students to participate in various lectures, networking opportunities, and international experiences
- Provide opportunities to network with fellow researchers with graduates of the Department of Materials Science and Engineering at SNU
- Provide research environment improvement, international exchange and networking opportunities for professors in the Department of Materials Science and Engineering

An excellent and balanced research environment is secured by establishing four research tracks (structure, electronics, energy/environment, bio/convergence) that covers everything from traditional materials to cutting-edge materials. Furthermore, through means of start-ups by members, dynamic exchange of personnel/material exchanges with domestic and international industries, we promoted the national growth of the materials/components industry.
Main Strategy

Reinforcement the competency of members by domestic and international academic/personnel resource exchanges and preemptive experiences

Enlarge global research profile

- The Department of Materials Science and Engineering at SNU conducts academic exchanges with the best domestic and foreign experts in the field of materials for internationally recognized research, and promotes excellent research results through various media platforms.

Global individual competitiveness development.

- The Department of Materials Science and Engineering plans an active human resource exchange program with excellent domestic and foreign organizations aimed at strengthening global industry-university-research cooperation as well as strengthening the level of members’ competence of materials science and engineering.

Experience-enhanced education

- Provides preemptive and experience-oriented education so that members graduating from the department can demonstrate their superior competency in practice.
## Vision 2025: Global Top 10 Chemical and Biological Engineering program

### Competency and Excellence

World-class research competency and faculty members

According to a 3rd party consulting report regarding our research accomplishments in the past five years, it is thought that our research competency has become world-class. Comparing to other schools within the top 20 of QS World University Rankings by Subject, our group H-Index is ranked 9th, and our average H-Index of individual faculty members is ranked 7th.

Also, Highly Cited Researchers annually announced by Clarivate, identifies 3-4 faculty members of our school every year. In 2020, SNU distinguished professor, Taeghwan Hyeon was selected as Nobel-class researcher for chemistry.

### Objectives and Goals

Recognition that we deserve

Unlike the objective research accomplishment evaluated internally or by 3rd parties, our QS ranking which used to be in the top 16-17 has kept going down since 2019, with the most recent QS ranking in the mid-20’s. Our goal is to get the recognition which we deserve, and eventually better our QS ranking by reducing the gap between our actual research capabilities and external perception.

### Main Strategy

Reinforcement of PR activities, 3rd party evaluation program and international cooperative network

Our school has focused most of our efforts towards achieving best research accomplishment so far, but now we are planning to launch various activities to improve our reputation in academia and industry through the SNU 10-10 Project. We will make our research capabilities and the achievements more recognizable, starting from basics such as an English website to more proactive efforts such as hosting academic events at conferences.

Also, to collect objective opinions on our school’s accomplishments and standing, we will expand the 3rd party evaluation and consulting program, and in turn will implement the results to our long term strategies.

Last but not the least, under the circumstances where international joint research is becoming more and more important, we will establish international cooperative networks and maintain it using various measures.
SNU 10-10 Project Goal of SNU CBE

Top 10 Universities

- Research Competitiveness: Project based on the world-class research competency
- Reinforcement of PR activities: To launch various activities to improve our reputation
- 3rd party evaluation program: Long term strategies reflecting objective opinions from 3rd party evaluation
- International cooperative network: To establish cooperative networks for international joint research
- To become one of top 10 universities from QS WUR
## Competency and Excellence

**Challenge to the unexplored research areas**

The Convergence Degradation Medicine Research Center (CDMC) aims to establish a new concept of ‘macrosopic degradation medicine’ at the levels of the cell and ultimately the human body. For this, we intend to pool the collective intellects from individual experts in degradation at the molecular level. Such an integrated R&D effort in the area has not yet been carried out either in Korea or in the world. Each participating investigator is a well-established expert in different cellular materials such as proteins, RNA, and others. Through a synergistic collaboration, the CDMC will function as a research hub not only for basic and translational science but also for drug development and industrialization based on the elucidation of holistic cellular degradation processes.

## Objectives and Goals

**Establishing the convergent degradation medicine field and its application to therapeutic intervention**

The goal of the CDMC is to identify the novel pathways and mechanisms underlying the complex degradation crosstalk among intracellular complexes and organelles, to elucidate their roles in various human diseases, and to develop the ‘degradation-based’ therapeutic tools to treat associated diseases. To accomplish this, we put three specific aims as follows: 1) to understand cellular degradative processes at the levels of molecules (proteins and RNAs) and their complexes as well as subcellular organelles, 2) to elucidate the functional relationship of cellular degradative processes with various disorders, and 3) to develop ‘degradation-based’ tools as a next generation platform to develop therapeutic drugs.

## Main Strategy

**Collaborative and innovative efforts**

The CDMC will function as a unique platform, which connect conventional biomedical research with clinical research at the SNU College of Medicine and SNU Hospital. The CDMC will provide supports in recruiting innovative researchers in the form of scholarships and grants and share resources for synergistic development of macrosopic degradation medicine. Our research center will take initiatives in organizing international symposiums and conferences to promote international collaboration and to expand the new convergent degradation medicine. Based on the productive outcomes, we envision that the CDMC will grow into a global leading research institute.
Dentistry

SNU Dentistry Portal Hub with Next Generation Leader Cultivation

Competency and Excellence

Great human resources and research competitiveness

The SNU School of Dentistry is a place where the world's best dentistry students enroll, has excellent human resources and facilities, and produces excellent research outcomes in laboratories led by professors with expertise in various research fields.

Main Strategy

Establishment of knowledge share platform and innovating dental education

The field of dentistry is carrying out three important strategies to achieve the goals of this project. First, as a non-English-speaking country, we decided that a platform where researchers around the world could join and share thoughts was needed. With the aim to unite the global researchers, we are currently developing a portal specific to SNU dentistry named 'Diision'. We believe this portal will help provide the next-generation with a firm base for further development. Second, we conduct the International Conference for Future Dentistry regularly and the 4th conference was held this year. This conference, as a flagship conference unique to SNU School of Dentistry, strengthens the international competitiveness of our school. Also, we aim to benchmark systems from the world's leading dental education institutions or develop cooperative programs with institutions where actual research cooperation is applicable. Finally, we are implementing a dental education innovation strategy to discover and preemptively support outstanding next-generation academics promptly and as part of that, we are trying to improve the graduate school major curriculum.

Objectives and Goals

Improving global status and next generation leader cultivation

The goal is to enhance the academic reputation and international status that are somewhat undervalued due to methodological issues of global university evaluation institutions. We will demonstrate the actual international competitiveness of our institution and foster outstanding academics who will lead the future dentistry through reform of the educational research system and preemptive support for the next-generation academics.
1
SNU Dentistry Portal - Decision
Integrated Platform for future dentistry

2
International Competitiveness
- ICFD (International Conference for Future Dentistry)
- W-Prestigious Scholar Lecture Series
- International Collaboration Program

3
Next Generation Leader Cultivation
- Enhanced Curricula for Next Generation Leader
- 3 Step Systemized Cultivation Approach for Graduate Students

Keywords
Dentistry
Dental Science
Dentistry Portal

Next Generation Leader
Innovation of Dental Education
Demographic Transition and Strategies for Future Society

Competency and Excellence
Research competitiveness in the field of population derived from academic tradition, interdisciplinary synergy, and geopolitical position

The SNU 10-10 project team of Department of Social Welfare and Department of Sociology at SNU, has sufficient capacity to solve new issues with demographic dynamics based on strict academic reputation, various global partnerships, and the long tradition of cutting-edge research. Synergy between the two departments is optimized for dealing with complex and interrelated social issues.

In particular, along with the increase in demand for policy alternatives due to rapid population changes in Korea, the unique historical and geopolitical location connecting Asia and the West will create sophisticated policy-based research and provide opportunities for active communication and network in the global community.

Objectives and Goals
Asia’s research hub that spreads innovative research results in the population field and suggests social policies

The ultimate goal of our project is to promote the results of innovative research conducted by the faculty of the two departments to the international audience and to enhance its academic status as an Asian hub that presents population-related policy directions. The goal is to improve research capabilities through regularization of international academic exchange projects, establishment of online platforms in English, the sharing of archived data in the Asian population sector, and draw policy suggestions and strategies to become a world-leading university.

Key objectives of the project:
- Theoretical development and data construction related to population dynamics
- Social policy suggestions in response to rapid population dynamics based on scientific knowledge
- Creating research demand by enhancing research capabilities in the population field and expanding international networks
Main Strategy

Strengthening academic capabilities and spreading research results through a systematic international exchange system

First, we will expand cooperative relationships with population research institutions around the world. We will expand and regularize international and multidisciplinary academic exchanges under the theme of ‘Population Dynamics and Social Policy’, (e.g. entering into MOUs) for mid- to long-term joint research between the institutions. Second, we will establish a comparative research database to promote research performance and contribute to the international society. In particular, since there is a lack of data dealing with rapid population dynamics and social policies in Asia, we aim to establish an international comparative research database connecting the West and Asia in line with research demand. Third, we will continue to promote and distribute the research conducted by the team members internationally. Promoting research and reputation of our team is essential for us to become a leading population research institution. For this reason, our team will continue to publish newsletters for the researchers at population research centers around the world, promote our events and lectures to introduce our team and research that we have done on the official website of the SNU Population Research Center.
Enhancing Seoul National University’s International Research visibility in Political Science and International Relations

Competency and Excellence
From Asia’s hub to global hub

Faculty members, researchers and graduate students are producing outstanding research outcomes in various fields such as Korean Politics, Comparative Politics, International Relations and Political Philosophy. Such efforts have received attention internationally, and according to QS World University Ranking for Politics, SNU PSIR Department has been ranked around 30th in the world (29th in 2018, 31st in 2019 and 2020), solidifying the department’s reputation as a research hub of Asia. If we could connect this research capability with the global academic community more effectively through SNU IO-IO Project, PSIR Department will make a leap towards becoming a global hub.

Objectives and Goals
Cutting-edge research, broad based networking and raising Next Generation Scholars

PSIR SNU IO-IO Project has three following goals. First, producing cutting-edge academic outcomes in Political Science and International Relations research by collecting data on global political issues. Secondly, establishing the Department’s status as a global research hub through international experience and network building. Lastly, publicizing research results in line with international standards and strengthening support on Next Generation Scholars.
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<td>Global Political Issues</td>
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Main Strategy

GRIDS strategy

We support the Faculty’s international research collaboration and its publication process. This is done mainly through supporting primary data collection via field research, contracts with professional data collection companies, as well as purchases of other necessary datasets. Publishing research outcomes in international journals of high reputation is regarded as an important part of sharing research outcomes garnered through the project. In addition, enhancing research capacity via networking and collaboration with foreign scholars is actively promoted as well.

We also seek to publicize our research performance towards the global audience to promote the Department’s global reputation. Hosting international symposiums and distinguished scholars seminars, integrating department websites, publishing newsletters, developing political issues database are the main instruments toward that end.

In order to make a sustainable research hub, supporting Next Generation Scholars in the field of Political Science and International Relations is a vital part of our strategy. We fund field research projects of the Department’s Ph.D Candidates who are at the stage of writing their thesis and also foreign visiting scholars who are in the early stage of their academic careers.
Brain and Cognitive Sciences for Adaptive Intelligence

**Competency and Excellence**

Brain and cognitive science as an essential multidisciplinary science for the future

Brain and cognitive sciences (BCS) study the biological basis of how our mind works. By studying how the brain functions at multiple levels, BCS also seeks to develop new ways to treat various neurological and psychiatric disorders as well as to enhance our cognitive abilities. The BCS department at SNU is the only graduate school department in Korea dedicated to the study of BCS. The BCS department consists of world-class faculty members with multidisciplinary research specialties and students from various backgrounds (from biology to engineering). Collectively, we work together to understand how the brain works and find solutions to the societal and industrial problems such as treating mental problems and developing brain-like artificial intelligence.

**Objectives and Goals**

Interdisciplinary research on brain and cognitive science for adaptive behavior

Our brain adapts to the ever-changing environment through our memories of experiences and learning. Such adaptive capacity is one of the key areas where current machine learning-based AI falls short of, compared to the biological brains, and malfunctioning cognition may result in various mental disorders and cognitive-behavioral deficits. The goal of our SNU 10-40 project ‘BCS for adaptive intelligence’ is to scientifically study the neural mechanisms underlying adaptive behavior and find creative solutions to various types of maladaptive behavior. To achieve this goal, we are developing several key research topics together with related fields of study at SNU (including engineering, mathematics, statistics, psychology, etc.) to promote synergistic interdisciplinary collaborations. By discovering and focusing on such core topics, our long-term goal is to establish multidisciplinary clusters of world-class BCS research on adaptive intelligence.

**Main Strategy**

Educating world-class brain and cognitive scientists through student-led interdisciplinary research synergy

To spur interdisciplinary creativity and synergy, it is essential to cultivate research topics in a bottom-up fashion, providing graduate students who actually carry out the research projects with a chance to develop their own scientific ideas. Our department has been inviting graduate students from different disciplines at SNU to take part in proposing collaborative research projects under our project’s broad theme of ‘adaptive intelligence and behavior.’ Proposals are funded based on their potential to become unique core research topics that could produce results that define our BCS department’s interdisciplinary scientific specialty and international recognition. To provide the skills and knowledge necessary for our students to develop into a new generation of transdisciplinary researchers, we are continually creating new educational opportunities for them, such as interdisciplinary courses, collaborative workshops, and international exchange.
Competency and Excellence

Educational excellence, innovative research and leaderships

In the last several years, the School of Biological Sciences (SBS) has made lots of efforts to establish the basic infrastructure for research environments, including new labs, buildings, and cutting-edge research equipment.

In addition, the SBS strategically puts its priority on the invitation of excellent faculty members, and makes a young and vibrant research environment by inviting 14 professors. Further, 8 professors will be newly recruited in the coming 3 years to form a world-class level in the field of biological sciences.

The SBS has been very productive and successful in not only education but also research. The SBS has been very productive and successful in not only education but also research. As a leading program in Korea, the SBS is now internationally well recognized.

Main Strategy

Radical innovation: Crossing knowledge boundaries with interdisciplinary SNU biosciences

In order to achieve our goals, we will intensively improve the following areas in the long-term. We will establish BBS as the hub for interdisciplinary research programs and postgraduate life at the SNU. This will enable the SNU to promote interdisciplinary joint studies and complete a virtuous cycle from the bench to bedside and vice versa. The BBS will focus on the field of biomedicine where the BBS promises global competitiveness, form an innovative interdisciplinary joint study platform to increase the research excellence, and attract competent graduate students and post-doc researchers from around the world and foster them to be the next-generation biomedical leaders by further supporting them and strengthening the education and career development programs. We will strengthen TA/RA programs and post-doc researcher support systems, establish a foundation of post-doctoral fellow research environment, and provide a convergence-based research education and career diversity education. Furthermore, to enhance support for faculty, we will secure excellent new professors and offer them augmented support.

Objectives and Goals

Revitalizing translational research through interdisciplinary collaboration

The mission of the Biological & Biomedical Science Program (BBS) is to make breakthrough discoveries and advance knowledge for human health with a global impact, to provide multi- and interdisciplinary collaborative and integrative research environment for the SBS as well as 870 bioscience-associated professors across the SNU campus, to attract the best global minds and nurture the next generation of science leaders, and to be an international world leading research group in biological and biomedical science. In the year about 2030, the BBS aspires to be one of the world’s top 10 to 15 research groups.
Radial innovation: Crossing knowledge boundaries with interdisciplinary BioResearch

The BBS aims to be a BioScience Platform to foster interdisciplinary collaborative research among 870 bioscience faculty across the campus.
Competency and Excellence
Low-temperature quantum experiments and high magnetic field and high-pressure techniques

Our facility has constructed core infrastructures for low-temperature research by operating the He recovery and liquefaction facility. Based on this infrastructure, we have intensely investigated quantum physical properties, including quantum magnetism and transport under low temperature and high magnetic fields. Furthermore, we have supplied liquid He to several facilities in the department and provided magnetism measurement service to numerous corporations and institutes. We have been recognized for this competitiveness and were selected for the 'Core-Facility for physical property measurement under extreme condition' project, funded by the Ministry of Education in 2021. We are currently expanding our research capability toward measurement under high magnetic field up to 15 T, in-situ high-pressure synthesis, and high-pressure measurement.

Objectives and Goals
Global-leading facility in quantum applied physics

Based on experiences accumulated for more than 10 years, we are planning to further develop the measurement system and technique for the physical property measurement under extreme conditions such as high pressure, high magnetic field, and low temperature. Through this effort, we expect to become the global-leading facility in quantum applied physics research. On the other hand, we intend to lead physical measurements under extreme conditions domestically and hope to promote relevant research by improving extreme physical measurement systems, developing next-generation measurement techniques, and investigating globally competitive research. Especially, we will make our center be a base for domestic research and conduct extreme physics research to produce remarkable scientific results. Furthermore, we expect that the center will play an important role as an accelerator for high pressure and magnetic field-induced research.
Main Strategy
Establish infrastructure and network for quantum-nano physics

On the basis of the quantum physical property measurement infrastructure of an organized system, we have set three goals to become a leading research facility in quantum-nano physics. First, the measurement platform, including the physical property measurement system under extreme conditions and low-noise equipment, will be provided. Second, based on domestic and international cooperative research and technology transfer experiences on various measurement techniques, such as pulsed magnetic-field generation apparatus and pressure cells, a big network for international cooperation will be established. Third, we will invite experts from various fields and hold seminars to cultivate next-generation researchers and provide opportunities for various academic exchange.
Competency and Excellence

Core department for the 4th industrial revolution

As the core technique of the 4th industrial revolution, the computer science and engineering is currently the most competitive field in the world, and the number of faculty members of our department is 34, which is small compared to competing universities around the world. Accordingly, we focus on the field of computer systems required by industries with global competitiveness, such as Samsung and Hynix, and the field of artificial intelligence, which has a great influence on national competitiveness. Efforts have been made to expand the faculty and enhance research capabilities in these areas, and the ranking has recently been rising with regards to various indicators. In the case of QS World University Ranking, it rose 7 places from 48th in 2020 to 41st in 2021. According to the “CSRanking” index, which is selected based on the publication of papers over the past two years, the computer structure field is ranked 4th in the world, and the computer vision field is ranked 22nd in the world. As 10 new faculty members will be hired over the next five years, the average research capacity will continue to improve in the future. In addition, since the best students in Korea are admitted as undergraduates to SNU, and more and more students are studying computers according to the school’s multi-major promotion policy, it is expected that more excellent graduate students will be secured in the future.

Objectives and Goals

Leading department in the world

With this project, the Department of Computer Science and Engineering at SNU aims to propel our department into a leading department in computer science and engineering globally. We plan to strengthen our research excellence with the focus on artificial intelligence (AI) and computer systems.

Main Strategy

World-class competency

Our strategy consists of 5 action plans. First, we will improve the research environment and visibility of our department through teaching load reduction comparable to that of top global institutions and support for international activities of our faculty. Second, we foster collaboration with the industry by establishing a center for industry collaboration. Third, we will organize an annual AI Summer Camp to promote exchange of recent advances in AI research and foster networking and personal interaction. Fourth, we will recruit outstanding new faculty members and postdocs by actively approaching potential candidates and inviting them to a rising star workshop. Finally, we aim to attract high quality graduate students from Asian countries and other regions through active promotion and advertisements of our department. To this end, an English promotional brochure will be made to introduce our department to the best universities in Asian countries and actively recruit excellent students.
Our goal: leading department in Computer Science and Engineering
A Comprehensive Revitalized Model for Innovated Cancer Research and Human Resource Cultivation

Competency and Excellence
Sufficient infrastructure for cancer research

Over 1,000 fresh archival cancer biospecimens were collected for multi-omics and translational studies. In addition, with the cooperation with national life research resource infrastructure based on the Korean Cell Line Bank (KCLB), more than 1,700 cancer cell lines and 700 normal and cancer organoids are currently established and cryopreserved and are ready for implementation into cancer research. Based on these sufficient infrastructures, SNU ranked first and fourteenth domestically and internationally respectively for cancer research publications that were derived from Elsevier Statistics.

Objectives and Goals
Path to conquer cancer

Our final goal is to conquer cancer through open innovative sciences and human resource cultivation. Stepwise goals include establishment of a living bio-bank for patient-derived tumors, discovery of therapeutic targets and carcinogenesis based on patient-derived tumor models, establishment of a research hub for translational science, and human resource cultivation and education.

Main Strategy
Strengthening the capabilities of cancer research

- In-depth exploration of carcinogenesis and investigation of tumor microenvironments.
- Generation of patient-derived cancer models and deciphering therapeutic resistances using these models to develop next-generation cancer therapy.
- Maximal utilization of collaborative network for cancer research
Competency and Excellence

The best genome institute of Korea

SNU-GMI (Genomic Medicine Institute) is widely known as one of the best genome research institutes in Korea which published the first whole genome sequencing data of one Korean individual in Nature in 2009. Furthermore, SNU-GMI have extended Asian genome research utilizing cutting-edge technologies. We are leading not only in basic research, but also clinical applications of genomic medicine. We have produced a large number of human resources who have lead genome research in academia and industry, providing the foundation of venture companies such as Macrogen and Genome & Company. The competitiveness of SNU-GMI is that it has the highest level of research manpower, experience, data, and acquired samples in the field of Asian genome research.

Objectives and Goals

World leading institute of Asian genome research

The ultimate goal of SNU-GMI is to become a world-class research institute leading in the field of Asian genome research. To this end, we are aiming to secure sufficient genome information from Asian populations, establish cutting-edge technologies, promote clinical application, commercialize genomic data and technology, nurture experts in the field, and establish SNU-GMI as the major hub of Asian genome research.

Main Strategy

Enriched genomic research with active cooperation with the hospitals and companies

With a strong connection with SNU College of Medicine and the SNU Hospital, which can provide the best human resources and infra-structure in Korea, we will enrich our genomic database of samples from patients with various diseases with associated clinical information and bio-specimen. Based on these resources, we will carry out a wide range of projects ranging from basic research to clinical applications. To this end, collaborations with domestic and overseas research institutions, hospitals, bio-ventures and pharmaceutical companies will be expanded. Furthermore, we plan to actively promote commercialization of research results and encourage our researchers to start new businesses, which can further serve as the basis for new collaborations.
Establishment of Emerging Media-Based Art & Design Visual Arts & Formative Creation System and Creative Knowledge Platform

Competency and Excellence
Excellence in culture and arts competency

In the era of the 4th industrial revolution, the importance of Arts & Design based on sensibility and creativity is being highlighted. In 2012, with the future in mind, we announced Art Vision 2020 and has consistently developed the creativity, research capability, education, social contribution, and global capacity. In 2016, Department of Design was selected for the global leading department development project at SNU and increased its competitiveness through new experimentations in Art & Design. In order to strengthen Employer Reputation with excellent QS detailed index score and to compensate for weak Academic Reputation, we will expand the entire competency of the College of Art from the Department of Design and create a creative foundation that will allow the growth of the Art & Design field into one of the world’s top 10 academic fields through the SNU 10-10 Project.

Main Strategy
Education quality improvement and internationalization

In order to become a global leader (top ten) in the art and design field, we have formulated strategies to convert weaknesses (W), which include the lack of a global basis for creative work, and threats (T), which include the fact that education evaluation system focused on short-term and quantitative performance and the weak infrastructure for stable creative work, into strengths (S) and opportunities (O).

Objectives and Goals
Establishment of foundation for Art & Design research and creation

The 4th Industrial Revolution's newly appearing materials and media create a place of experimentation and a foray into the future for SNU’s Art & Design Department. Within this context, the project aims to establish emerging media-based art and design visual arts through a formative creation system and creative knowledge platform by achieving three goals:

- Contextual analysis of emerging media due to changes in the creative environment
- System development of visual arts research (bachelor’s, master’s, and doctorate tracks)
- Platform development of creative knowledge research

Improvement strategies for SNU Art & Design Weakness
- Improve QS Academic Reputation index score by promoting consensus on SNU’s Art & Design Department’s excellence and discussing new experimental directions by inviting renowned creators from home and abroad to events such as SNU ART & DESIGN WEEK and graduation exhibitions.

Improvement strategies for SNU Art & Design Threats
- Establish a Korean-style Education Quality Insurance Program to improve the education program alongside other core global Art & Design education improvement, evaluation and certification organizations.
- Provide a foundation for art and design creation in line with the evolving media environment and the diversification of expression technologies
Establishment of Emerging Media-Based Art & Design Visual Arts & Formative Creation System and Creative Knowledge Platform

**Art Vision 2040**

**Project 1: Creation Foundation Program on Emerging Media**
- Algorithm based Art & Design
- Metaverse Art & Design Workshop
- Data/Al Driven Art & Design
- UX Design for Data/Al
- Designing for Machine Learning

**Project 2: Graduation Exhibition / Publication**
- SNU ART WEEK in collaboration with galleries
  - Painting
  - Oriental Painting
  - Sculpture
- SNU DESIGN WEEK in collaboration with industries
  - Crafts
  - Design

**Establishing Online Exhibit & Knowledge Archive Platform**
Research on how to systematize creative knowledge using data generated in visual & formative research and creation process

**SNU Art & Design Creative Knowledge Platform**
- SNU Art & Design System Development of Visual Arts Research
  - (Bachelor’s, Master’s, and Doctorate tracks)

**Emerging media due to changes in creative environment**
- Material: Diversifying creative materials including organic materials
- Manufacturing: Increase in the freedom of manufacturing of visual arts due to 3D printers
- ICBM, ABCD: Diversification of creative activities using Cloud, Data, and artificial intelligence
Physical Activity & Sport

Toward Transdisciplinary Research in Physical Activity and Sport

Competency and Excellence

Strengths and Opportunities of the Department of Physical Activity & Sport

The Department of Physical Education has essential competencies on which to build the top academic program in the world. We are very excited to shape our future and grow into a world-class academic program of sport-related subjects. Our strengths are 1) future-oriented research areas and expertise of the faculty, 2) readiness and fit for purpose of SNU IO-IO initiative, 3) extensive experience and capability for large grant projects, 4) well-published, young, and growing, core group of faculty members, 5) transdisciplinary structure of the department, 6) global research network and collaboration, and the 7) tight-knit and supportive relationship between the academic communities of faculty and students. Our Opportunities are 1) future necessity and relevance in the world of increasing scarcity of bodily experience and physical interaction, 2) strategic blue ocean for SNU, 3) increasing societal need for sense of community and belonging, 4) paradigm shift in the meaning of human health and wellbeing, 5) imperative for reducing exercise and health inequalities.

Objectives and Goals

World Leading Academic Program in Physical Activity and Sport

Established with an identity in sports education, training, and pedagogy. SNU's Department of Physical Education is now focused on a new phase in its historical and scientific evolution. In order to further build upon the interdisciplinary research landscape of its research community, and to channel its scientific productivity and excellence into a more globally integrated theatre of operations, the Department of Physical Education aims to become a leading hub for sport and related fields of scientific activity. We strive to further our capacity and establish a large presence and character of the department as the world reading academic program in the field of physical activity and sport. Our goals are to 1) improve the value and impact of faculty scholarship, 2) build a strong and unique global research character, 3) enhance and enable access to world-class infrastructure and resources, 4) strengthen the quality of the graduate program and enhance research-training, 5) develop a world-class research culture.
Main Strategy
Project for Transdisciplinary and Innovative Research & Building Strong Global Character

This SNU 10-10 project will focus on two major areas of initiatives and actions. 1) Project for transdisciplinary and innovative research. The department has strategically identified research projects that represent the areas of the department’s existing strengths and emerging opportunities. The proposed research projects are innovative and cutting-edge, but more importantly demonstrate the transdisciplinary focus of the department. Successful completion of the selected research projects will help us realize the potential, and achieve the goals, of the department and SNU. Moreover, it will promote more people to enjoy sports activities, leading to healthier and happier lives and increasing prosperity in society as a whole. 2) Projects for building strong global character. Build online and offline platforms to be home for transdisciplinary research in physical activity and sport by hosting and leading major collaborative events, professional networks, workshops and seminars. Project Leadership Committee (PLC) will systematically monitor and manage the progress of the proposed project.

Mission
The Department of Physical Education creates, advances and shares knowledge about physical activity and sport to promote fitter, healthier and happier life for all.

Vision
We envision to be the global academic platform and the leader in the area of physical activity and sport, through providing the best research and education for the public good.

Goals
We strive to build capacity and brand of the department as the world leading academic program in the area of physical activity and sport.

1. To improve the value and impact of faculty scholarship
2. To build a strong global research brand
3. To enhance and enable access to world-class infrastructure and resources
4. To strengthen the quality of graduate program and enhance research-training
5. To develop world-class research culture
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