Governance of Social Problem-solving R&I in Korea

CTSH Webinar
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Introduction of KISTEP

• Established in 1999

• An institute affiliated to Korean Ministry of Sci. and Tech.

• Its main functions correspond to the life-cycle of Korean STI policy

⇒ This presentation is based on expertise I’ve gained at KISTEP
Content of this presentation

1. Long-lasting technology-centric innovation and growth policy of Korea

2. **A wind of change**: social problem-solving innovation policy
   - Its development process
   - The main content of the current policy

3. My research questions for CTSH
Introduction

• The Korean government has placed great importance on technological innovation.
  • “Growth Engine Policy”
    • Every Administration has selected about 10 to 20 technological fields and concentrate national resources on their R&D.

< Table 1. Korea’s “Growth Engine Polices” >

<table>
<thead>
<tr>
<th>Period</th>
<th>Policy name</th>
<th>Policy goals</th>
<th>Num. of techs or products selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2013</td>
<td>New GE</td>
<td>Green growth, service industries promotion</td>
<td>17 (green transport, renewable energy, …)</td>
</tr>
<tr>
<td>2014-2017</td>
<td>Future GE</td>
<td>Convergence of ST and ICT</td>
<td>19 (IoT, intelligent robots, …)</td>
</tr>
<tr>
<td>2018-</td>
<td>Innovative GE</td>
<td>Realization of the 4th industrial revolution</td>
<td>13 (autonomous vehicles, AR/VR, …)</td>
</tr>
</tbody>
</table>

• These techno-centric policies do not pay much attention to social dynamics or society.
An example of Korea’s techno-centric innovation policy: autonomous vehicle policy (Ki, 2020, FFJ DP)

- **Keyword frequency comparison** between Korea and France in the document of national AV development strategy
  - *Normalized* frequency ( # of the keyword of interest / # of term “autonomous” OR “automated”)

<Table 2. Equivalent national AV strategy between Korea and France>

<table>
<thead>
<tr>
<th>Country</th>
<th>Korea</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Type</td>
<td>National Strategy</td>
<td>National Strategy</td>
</tr>
<tr>
<td>Pub. Year</td>
<td>May 2018</td>
<td>May 2018</td>
</tr>
<tr>
<td># Pages</td>
<td>19 (pp. 85-103)</td>
<td>96</td>
</tr>
<tr>
<td>Total word count</td>
<td>3,138 (in Korean)</td>
<td>31,993 (in English translation)</td>
</tr>
</tbody>
</table>
Normalized term frequencies comparison

Keywords on technology
(“technology,” “technologies,” “technological”)

Keywords on social acceptability
(“social,” “societal,” “acceptability,” “acceptance”)

Source: adapted from Ki (2020)
An emerging approach reconnecting tech. and society

• Toward social problem-solving R&I policy
  • Firm legal foundation is created (2014)
    • Relevant article is newly inserted in the highest law in sci. and tech., FRAMEWORK ACT ON SCIENCE AND TECHNOLOGY

 Article 16-6 (Solving social problems by Utilizing Science and Technology)
  (1) The Government shall formulate and implement policies necessary for improving the quality of life and resolving economic and social problems, global problems, etc. based on the use of science and technology.

• Five-year master plans are formulated (2014, 2018)
  • Now Ministry of ST and KISTEP are formulating the 3rd one for 2023~2027.
Content of the Five-year master plan
(by the ENFORCEMENT DECREE OF THE FRAMEWORK ACT ON SCI. AND TECH.)

1. To facilitate R&D projects to solve social problems
2. To disseminate the outcomes of R&D projects to solve social problems
   • Establishing service delivery channels
   • Creating new markets for these R&D outcomes
3. To improve systems or regulations for solving social problems
4. To raise awareness of people, researchers, etc. for solving social problems
Vision and Goals of the 2nd Comprehensive Plan (2018~2022)

**Vision**
To realizing the happiness of the people through solving social problems with S&T

**Goals**
1. To understand social problems through S&T
2. To solve problems with innovative solutions
3. To establish social problem-solving business model and enjoy achievements

3 strategies (under which there are 10 tasks (omitted))
1. Establishment of a cooperative system between ministries and agencies
2. Building an ecosystem for social problem solving
3. Strengthening the social value of S&T

### 10 sectors and 40 Target social problems in the 1st and 2nd Plans

#### Source: 2nd Comprehensive Plan for Social Problem Solving Based on Sci. and Tech.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Target social problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>만성질환, 화귀난청성 질환, 중독, 정신질환-지적장애</td>
</tr>
<tr>
<td>Environ.</td>
<td>생활 폐기물, 실내 공기오염, 수질 오염, 산업폐기물, 미세먼지</td>
</tr>
<tr>
<td>Leisure</td>
<td>환경 보호된, 문화음악교류, 문화-여가공간 미비</td>
</tr>
<tr>
<td>Public safety</td>
<td>성범죄, 뇌리 안전, 사이버 범죄, 화이트칼라 범죄, 사생활 침해, 가성증표(동화) 부적용</td>
</tr>
<tr>
<td>재난재해</td>
<td>기상재해, 화학 사고, 감염병</td>
</tr>
<tr>
<td>에너지</td>
<td>전력수급, 에너지 빈곤</td>
</tr>
<tr>
<td>주거교통</td>
<td>불량/노후 주택, 교통혼잡, 교통안전</td>
</tr>
<tr>
<td>가족</td>
<td>노인 소외자, 가정폭력, 저출산</td>
</tr>
<tr>
<td>교육</td>
<td>교육격차, 학교폭력</td>
</tr>
<tr>
<td>사회통합</td>
<td>의료격차, 정보격차, 노동의 차별</td>
</tr>
</tbody>
</table>

- Chronic diseases
- Rare and intractable diseases
- Addiction
- Degenerative brain disease and nerve disorder
- Mental illness
Further details on the governance of Social Problem-solving R&I in Korea

• An actor: Presidential Advisory Council on S&T  
  • Role: Deliberate and resolve the Comprehensive Plans

• Action plans: yearly action plans for the Comprehensive Plan

• Policy instruments: on-going social problem-solving R&D programs  
  • Including living labs as a research methodology

• A practical-level guideline: the *Standard Guidelines for R&D Project Evaluation*  
  • Revised in 2021 to include evaluation guidelines for social problem-solving R&D projects
My research questions for CTSH project

1. Policy assessment of the 2\textsuperscript{nd} Comprehensive Plan (2018~2022)
   • Its achievements and limitations, focusing on the health sector
   • Chronic diseases
   • Rare and intractable diseases
   • Addiction, etc.

2. Policy analysis of the 3\textsuperscript{rd} Comprehensive Plan (2023~2027)
   • Analytic description of the implementation system of the Plan
   • Comparison with similar policies in France and Japan (Society 5.0?)

Welcome your suggestions!
Thank you!

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