Innovation Policy
Learning from Korea: Introductory Seminar to M&E

February 2022
Introduction

• IPL Team (Speakers)

  • Justin Hill, Senior Private Sector Specialist in SME development, industry innovation and entrepreneurship, formally with the Australian Ministry of Industry, Innovation & Science
  • Task Team Leader (TTL) for the project, responsible for overall leadership & coordination.

  • Jaime Frias, Senior Economist, specialized in public expenditure analysis on Science, Technology and Innovation (STI), innovation policy and competitiveness.
  • Task Team Leader (TTL) for the project, responsible for overall leadership & coordination.

  • Yanchao Li, Private Sector Specialist, specialized in design and analysis of technology, innovation and entrepreneurship policy.
  • Responsible for the Case Study workstream, identifying, qualifying and documenting Korean innovation policy experience.

  • Yehia Eldozdar, M&E Specialist, providing technical assistance and capacity building to projects supporting private sector growth through SME development, innovation and entrepreneurship.
  • Supports providing expertise on M&E for documentation of case studies and knowledge sharing activities.

  • Jog Sueb Lee, Senior Economist, specialized in Policy Coordination, Innovation, and Structural Reform agenda. He worked as a director at the Korea Ministry of Economy and Finance.
  • Responsible for policy advices and engagements with Korea/client country partners.

  • Adela Antic, Consultant. Capacity building specialist focused on knowledge and learning initiatives related to Innovation and Entrepreneurship.
  • Providing support to the program with cross-cutting initiatives and knowledge exchange with external partners, practitioners and multi-sector stakeholders.

  • Kyeyoung Shin, Consultant, major in strategic management with research interests in innovation and entrepreneurship.
  • Supports research design, data collection and analysis for the Case Studies workstream.

  • Daein Kang, Consultant, major in international development with experience in organizing knowledge sharing activities and project management in climate science research.
  • Supports knowledge sharing activities and coordination with Korean partners and institutions.

  • Grace Morella, Consultant
  • Supports knowledge sharing activities and identification and organization of relevant stakeholders in the Philippines.
## Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introduction of speakers</td>
<td>Jaime Frias</td>
<td>10 minutes</td>
</tr>
<tr>
<td>1. What is M&amp;E and why is it important?</td>
<td>Yehia Eldozdar</td>
<td>10 minutes</td>
</tr>
<tr>
<td>2. Fundamentals and Practices in M&amp;E of Innovation Policy</td>
<td>Yanchao Li</td>
<td>15 minutes</td>
</tr>
<tr>
<td>3. M&amp;E of Innovation Policy in Korea</td>
<td>Kyeyoung Shin</td>
<td>15 minutes</td>
</tr>
<tr>
<td>4. Lessons and Takeaways for Emerging Economies</td>
<td>Yanchao Li, Jaime Frias</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Questions</td>
<td>Justin Hill</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>
Business innovation: A creative destruction process that drives economic growth and productivity.

Beyond R&D?

- New knowledge
- Knowledge adoption
- Capacity for innovation

Innovation *policy*:
- Designing and delivering an array of policy instruments to overcome systemic and market failures.
- A *policy-mix* to encourage various types of innovation.
- Influence firms’ behavior to invest in innovation activities increasing sales, employment, and productivity.
1. What is M&E and Why is it Important?

Poll

What's the first thing that comes to mind when you hear "Monitoring and Evaluation"?
1. What is M&E?

- What is Monitoring
- What is Evaluation
- The core elements of the M&E Journey/Process
  - Problem Identification
  - Logical framework
  - Indicators selection and definitions
  - Baseline and target setting
  - Data collection
  - Analysis, evaluation and learning
1. Why is M&E Important?

• Why is it important?
  • Review and report progress for accountability
  • Identify problems in planning, resource usage and/or implementation
  • Getting feedback from users and adjusting accordingly
  • Make adjustments to allow you achieve desired objectives
  • Document what worked and what did not for future interventions to consider
2. Fundamentals and Practices in M&E of Innovation Policy

Monitoring & Evaluation (M&E) Embedded in the Policy Process
2. Fundamentals and Practices in M&E of Innovation Policy

Challenges Associated with **Technical Characteristics** of Innovation Policy
2. Fundamentals and Practices in M&E of Innovation Policy

Challenges Associated with the **Broader System, Institutions and Capacity**
Determine the “feasibility” of an M&E system and sustained ability to install and operate M&E arrangements;

Often a combination of both internal and external factors;

E.g. staffing, budget, innovation system, linkages with academia and industry.

Governance

- Values and priorities that shape M&E activities, incl. normative and legal frameworks;
- Patterns of interaction among relevant actors resulting from norms and statutes;
- E.g. culture of transparency; explicit rules and authority; insider ownership; focus on learning as well as on accountability.

Data & Methods

- Technical dimensions, incl. methodological framework and data gathering schemes;
- More significant role of expertise rather than authority and legitimacy;
- E.g. M&E manuals; data infrastructure; advanced data solutions.

Capacity & Resources

- Determine the “feasibility” of an M&E system and sustained ability to install and operate M&E arrangements;
- Often a combination of both internal and external factors;
- E.g. staffing, budget, innovation system, linkages with academia and industry.
2. Fundamentals and Practices in M&E of Innovation Policy

The UK Example: Central Guidance, UKRI and ROAMEF

- Governance: Grounded in the national innovation system (NIS): M&E of Innovation Policy is led/coordinated by the innovation agency UKRI

- Data & Methods: Broad understanding of innovation; top-down guidance supported with bottom-up practices: the “Green Book”, i.e. The Central Government Guidance on Appraisal and Evaluation; the “Magenta Book” (Guidance for Evaluation)

- Capacity & Resources: Benefiting and benefitted from the innovation ecosystem actors; evaluators are largely external to the interventions; allocated budget for subject programs; competitive selection of evaluators

- E.g. SBRI program (Small Business Research Initiative)

2. Fundamentals and Practices in M&E of Innovation Policy

The USA Example: decentralized, agency and program-based

- Governance: no formal inno. agency or unified rules; vertical agency-based; occasional cong. reviews
- Data & Methods: more quants & experimental
- Capacity & Resources: within sectoral budget; M&E at discretion of agencies

Participating Agencies in Small Business Innovation Research (SBIR) Program

Source: https://www.sbir.gov/agencies-landing
The China Example: S&T focused; top-down planning; emerging pilots

- Governance: distinction between S&T or R&D focused versus broader initiatives (not necessarily recognized as “innovation policy”)
- Data & Methods: vary across programs, range from auditing to more advanced methods
- Capacity & Resources: self-evaluation complemented by selective external evaluations by subsidiaries and think tanks
- Pilots: in-depth assessments done for select initiatives such as those associated with Zhongguancun Innovation Zone

Source:

Science, Technology & Innovation

MOST led

S&T program specific M&E

M&E driven by higher-level plans & priorities

Broader agencies: NDRC, MOF, MIIT, local authorities.
Key Takeaways

Governance is fundamental, then come techniques
- Advanced data and methods are only one piece of the puzzle

No one-size-fits-all “best” practice
- Key is to build on synergy & compatibility with the innovation system

Diverse capacity & resources can be leveraged
- How to ensure integrity?
2. Fundamentals and Practices in M&E of Innovation Policy

Poll

Which of the following categories represents the biggest challenge faced by the Philippines in M&E of Innovation Policy in your view?

A. Governance issues
B. Data & Methods issues
C. Capacity & Resources issues
D. Other (please specify)
3. M&E of Innovation Policy in Korea

Selected innovation policy initiatives, organized by learning channels and relative emphasis over time (1960-2010)

<table>
<thead>
<tr>
<th>Channels</th>
<th>60's</th>
<th>70's</th>
<th>80's</th>
<th>90's</th>
<th>00’s</th>
<th>10’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of turnkey factories and reverse engineering</td>
<td>Outward looking development orientation, nurturing local industries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology transfer &amp; (Foreign) technology licensing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous R&amp;D and technology development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced R&amp;D and technology development initiatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology diffusion and non R&amp;D based innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDI technology transfers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selected innovation policy initiatives:

1. **Purchase of turnkey factories and reverse engineering**
   - Turn-key packages with factories and training (OEM in light manufacturing).

2. **Technology transfer & (Foreign) technology licensing**
   - Technology import incentives: Licensing (imports) – 70’s, 80’s - tax reliefs
   - Industrial GRIs to facilitate technology adaptation (and also R&D)

3. **Indigenous R&D and technology development**
   - R&D tax incentives for R&D
   - Reserve for technological development: grants, and tax incentives (1972)
   - New technology commercialization fund (1978) (5)
   - Technology development fund: Investment loans (1976)

4. **Advanced R&D and technology development initiatives**
   - Public & private joint R&D
   - Standards for innovation
   - Foreign & domestic R&D

5. **Technology diffusion and non R&D based innovation**
   - SME R&D centers (1979)
   - Foreign R&D outposts
   - Direct R&D for SMEs

6. **FDI technology transfers**
   - SME investment fund
   - Fund of funds (equity)
   - Consortium for tech transfers

**Policy of importation of Korean scientists, researchers and engineers living abroad (1968)**
- Daedeok Science Park (Industrial GRIs)
- Technology import incentives: Licensing (imports) – 70’s, 80’s - tax reliefs

**Technology takeover (M&A)**
- Technology development fund (1976)
- New technology commercialization fund (1978) (5)

**Outward looking development orientation, nurturing local industries.**
- Entry controls (tariffs, licensing and controls) – 60’s, 70’s
- Concessional financing (incl. foreign loans facilitated by GoK)

**FDI restrictions**
- National Investment Fund (industrial investment)
- Vocational high school funding

**Channels**

1. Industrial (export) policy
2. Research excellence
3. Tech transfer
4. R&D based innovation
5. Non-R&D based innovation & technology diffusion
6. FDI technology transfers
3. M&E of Innovation Policy in Korea

Gross Domestic Spending on R&D (total, % of GDP)

Source: OECD, available at: https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm
3. M&E of Innovation Policy in Korea

- Korea's M&E system is performance-based, with the goal of increasing public resource efficiency.
- The M&E system can be classified into (1) M&E of budgetary R&D policies and (2) M&E of budgetary non-R&D policies. The separation follows the distinctive management structures and separate legal bases.
- M&E of tax incentive schemes for R&D is separately managed.
Since 2005, the Science, Technology and Innovation (STI) Office within the Ministry of Science and ICT (MSIT) supervises and provides guidelines for M&E of R&D policies. STI Office's supervisory power is supported by a legal framework.

Line ministries plan and implement M&E of R&D programs based on guidelines from the STI Office.

Once line ministries submit their Self-evaluations, the STI Office conducts high-level evaluations to ensure the submitted Self-evaluations were properly completed.
3. M&E of Innovation Policy in Korea: R&D Programs

Setting performance indicators and targets

- Ministry of Science and ICT
  - Selection of eligible programs and distribution of guidelines
  - April-May
- Line Ministries
  - Establishment of performance targets and indicators
  - May-June
- Line Ministries
  - Self-review of performance targets and indicators
  - July-September
- Ministry of Science and ICT
  - High-level review
  - October-December

Line ministries’ self-evaluation

- Line Ministries
  - Self-evaluation conducted
- Line Ministries
  - Confirmation of self-evaluation results
- Line Ministries -> Ministry of Science and ICT
  - Submission of self-evaluation results
In principle, R&D programs are evaluated every 3 years. New programs are not evaluated until their third year to allow materialization of results.

- The STI Office is supported by the Korea Institute of Science and Technology Evaluation and Planning (KISTEP), an MSIT-affiliated research institute.

- Line ministries can also propose their own performance indicators and targets.

- Self-evaluation Committees are established with mandatory balanced distribution of members with requisite experience, with conflict of interest rules in place.

- The high-level evaluation by the STI Office is composed of two stages. If an R&D program self-evaluation fails in the first stage, it is subject to an additional, more stringent inspection.

- Only the achievements specifically listed in the self-evaluation reports are acknowledged by the STI Office.

- Evaluation results impact budget allocation and future R&D programs.
3. M&E of Innovation Policy in Korea: Example

Indirect government support through R&D tax incentives as % of GDP, 2018

- R&D Tax Incentives (RDTIs) have been deployed to promote firms’ R&D activities since the 1960s in Korea.
- Three largest RDTIs in Korea
  - Tax credits for research and human resources development expenses
  - Tax credits for investment in facilities for research and human research and human resources development
  - Income tax reductions for foreign engineers
- A separate M&E system exists for RDTIs: Feasibility study + Self-evaluation + Post-project In-depth Evaluations
- Implementation of evaluations is supported by government-funded research institutes (KIPF and KDI).

Source: Authors, based on data from OECD
3. M&E of Innovation Policy in Korea: Example

### Feasibility Study
- KRW 30 billion (USD $25m) or more.
- On:
  - Necessity
  - Timelines
  - Expected outcomes
  - Anticipated challenges
- According to:
  - Conformity with public interest
  - Economic feasibility
  - Fairness
- Methodology:
  - Quantitative and qualitative
  - Cost/benefit analysis
  - Analytic hierarchy process (AHP)

### Self-evaluation
- Existing and new schemes.
- On:
  - Clarity of policy goal
  - Appropriateness of performance indicators and targets
  - Target achievement rate
  - Economic efficiency, inclusiveness, and non-distortionary
  - Complementary relations with other tax expenditure schemes and fiscal policies.
- Methodology:
  - Review of effects with available data
  - Checklists

### Post-project In-depth Evaluation
- KRW 30 billion (USD $25m) or more; schemes nearing end of cycle; or as deemed necessary.
- On:
  - Effectiveness (target achievement, economic effects, income redistribution effects)
  - Validity
  - Areas for improvement (impediments)
4. Lessons and Takeaways for Emerging Economies

• Governance
  • Korea’s well-articulated M&E frameworks can be instructive for client countries. Its legal mandates promote accountability and autonomy. The 5-year master plans ensure holistic and long-term approach to M&E.
  • Through its separation of R&D and non-R&D innovation policy, Korea provides an alternative option to the integrated M&E approach seen in countries such as UK.
  • M&E and innovation policy benefited from strong political drive and major investments.
4. Lessons and Takeaways for Emerging Economies

• Data and Methods
  • **Knowledge management and information sharing systems** should be established and/or strengthened for effective M&E, especially such as an integrated, digital database.
  • Data also has to remain **accessible under proper classifications** to be helpful. This is particularly important since innovation policy involves several government entities.
  • Korea’s **National Science & Technology Information Service (NTIS)** is a good example of a database.
  • **Specialized research institutions on M&E** support the government M&E functions.
4. Lessons and Takeaways for Emerging Economies

• Capacity and Resources
  • Lack of systemic coordination such as basic data sharing can strain learning opportunities and can weaken accountability.
  • The Korean government operates mandatory and optional training programs on M&E for government officials and policymakers.
  • Legally mandated coordination (timeline, stakeholder consultation etc.) aids M&E efforts.
  • The responsible ministries (MSIT, MOEF) are empowered with budget allocation rights, allowing them to reflect the results of the M&E on future programs.
Course Objectives

• Learning objectives:
  • Understand why monitoring and evaluation (M&E) is important for the successful implementation and evolution of innovation policies;
  • Examine international best practices in M&E for innovation support programs;
  • Deep dive into cases of M&E in innovation policy from Korea, with practical and transferable lessons.
Course Outline

• February 9, Session 1:
  1.1 Introduction to M&E
  1.2 Challenges
  1.3 Introduction to Innovation Policy
  1.4 Office Hour

• February 16, Session 2:
  2.1 International Practices
  2.2 M&E in Innovation Policy
  2.3 Office Hour

• February 23, Session 3:
  3.1 Korea Deep Dives
  3.2 Group exercise and further discussion on Korea case
  3.3 Office Hour

• March 2, Session 4:
  4.1 Deep dive Korea based on participants’ interests
  4.2 Group Project
  4.3 Wrap up and Q&A with experts
  4.4 Office Hour
Q&A
Closing Remarks

• Registration
• Contact point
  • Grace Morella gmorella@worldbank.org
  • Adela Antic aantic@worldbank.org