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.

  • 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.

  • Joog 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

  • 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.

  • 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.

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

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<th>Duration</th>
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<td>Jaime Frias</td>
<td>10 minutes</td>
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<td>1. What is M&amp;E and why is it important?</td>
<td>Yehia Eldozdar</td>
<td>10 minutes</td>
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<td>2. Fundamentals and Practices in M&amp;E of Innovation Policy</td>
<td>Yanchao Li</td>
<td>15 minutes</td>
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<td>3. M&amp;E of Innovation Policy in Korea</td>
<td>Kyeyoung Shin</td>
<td>15 minutes</td>
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<td>4. Lessons and Takeaways for Emerging Economies</td>
<td>Yanchao Li, Jaime Frias</td>
<td>15 minutes</td>
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<td>Questions</td>
<td>Justin Hill</td>
<td>20 minutes</td>
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Introduction: What is innovation policy?

- Business innovation: A creative destruction process that drives economic growth and productivity.
- Beyond R&D?

\[
\text{New knowledge} + \text{Knowledge adoption} + \text{Capacity for innovation}
\]

- 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

- Inception, or Reformulation
- Existing M&E Data
- Benchmarking
- Evidence-Based Baseline Planning
- Ex Ante & Feasibility
- Design Decisions
- Intervention Logic
- Theory of Change
- Cost Accounting
- Establishing Monitoring and Data Systems
- Monitoring Processes
- Data Collection
- Course Correction
- Interim Evaluations
- Summative Evaluation
- Impact Evaluation (with time lag to allow impacts manifestation)
- Implementation
- Coordination & Management
- Monitoring Processes
- Data Collection
- Course Correction
- Interim Evaluations
- Closure and Final Reporting

Feedback Loop & Learning Process

Policy Process

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

Challenges Associated with **Technical Characteristics** of Innovation Policy

- Diversity and complexity of innovation policy interventions
- Long term uncertainty and maturity of innovation results
- Knowledge spillover vs unintended /indirect benefits
- Limited business population for statistical analysis
- Spillover effect and measuring actual impact
2. Fundamentals and Practices in M&E of Innovation Policy

Challenges Associated with the Broader System, Institutions and Capacity
2. Fundamentals and Practices in M&E of Innovation Policy

• 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.

• 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.

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

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

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

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>
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<tr>
<td>1. Purchase of turnkey factories and reverse engineering</td>
<td>Industrial (export) policy</td>
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<td>2. Technology transfer &amp; (Foreign) technology licensing</td>
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<td>3. Indigenous R&amp;D and technology development</td>
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<td>4. Advanced R&amp;D and technology development initiatives</td>
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<td>5. Technology diffusion and non R&amp;D based innovation</td>
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<td>6. FDI technology transfers</td>
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### Channels

1. **Purchase of turnkey factories and reverse engineering**
   - **Outward looking development orientation, nurturing local industries.**
   - Entry controls (tariffs, licensing and controls) – 60’s, 70’s
   - Concessional financing (inc. foreign loans facilitated by GoK)
   - FDI restrictions
   - National Investment Fund (industrial investment)

2. **Technology transfer & (Foreign) technology licensing**
   - **Policy of importation of Korean scientists, researchers and engineers living abroad** (1968)
   - **Daedeok Science Park (Industrial GRIs)** (1972)
   - Technology import incentives (exports, licensing (imports) – 70’s, 80’s - tax reliefs
   - **Contract research facility (KIST)**
   - Know-how contract (only)
   - Know-how + patent rights
   - Patent rights (only)

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)
   - Technology development funds: Investment loans (1976)
   - SME R&D centers (1979)
   - Public & private joint R&D
   - Standards for innovation
   - Foreign R&D outposts
   - Foreign & domestic R&D
   - SME R&D centers (1979)
   - Direct R&D for SMEs

4. **Advanced R&D and technology development initiatives**
   - **Public procurement**
   - R&D TI for SMEs
   - Concessional loans for technology
   - Credit guarantees for innovation

5. **Technology diffusion and non R&D based innovation**
   - **Concessional loans for technology**
   - **FDI technology transfers**
   - **SME investment fund**
   - **Fund of funds (equity)** (1994)
   - **Consortium for tech transfers**

### Technological Diffusion

- **Outward looking development orientation, nurturing local industries.**
- **Purchase of turnkey factories and reverse engineering**
- **Technology transfer & (Foreign) technology licensing**
- **Indigenous R&D and technology development**
- **Advanced R&D and technology development initiatives**
- **Technology diffusion and non R&D based innovation**
- **FDI technology transfers**

### Selected innovation policy initiatives

- **1960-2010**
  - **1960s**: Purchase of turnkey factories and reverse engineering
  - **1970s**: Technology transfer & (Foreign) technology licensing, Indigenous R&D and technology development, Advanced R&D and technology development initiatives
  - **1980s**: Technology diffusion and non R&D based innovation
  - **1990s**: FDI technology transfers
  - **2000s**: SME investment fund, Fund of funds (equity)
  - **2010s**: Consortium for tech 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
3. M&E of Innovation Policy in Korea: R&D Programs

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

<table>
<thead>
<tr>
<th>Feasibility Study</th>
<th>Self-evaluation</th>
<th>Post-project In-depth Evaluation</th>
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| • 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) | • Existing and new schemes.  
  • On:  
    • Clarity of policy goal  
    • Appropriateness of performance indicators and targets  
    • Target achievement rate  
    • Economic efficiency, inclusiveness, and non-distortionary and  
    • Complementary relations with other tax expenditure schemes and fiscal policies.  
  • Methodology:  
    • Review of effects with available data  
    • Checklists | • 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) |
3. M&E of Innovation Policy in Korea

Poll
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
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  • Adela Antic aantic@worldbank.org
ANNEX