Pathways to Sustainable Development

on the Foundation of Knowledge

Knowledge Management for Development Cooperation

November 16, 2023 | Hyeyoung Woo

World's Leading Think Tank KDI

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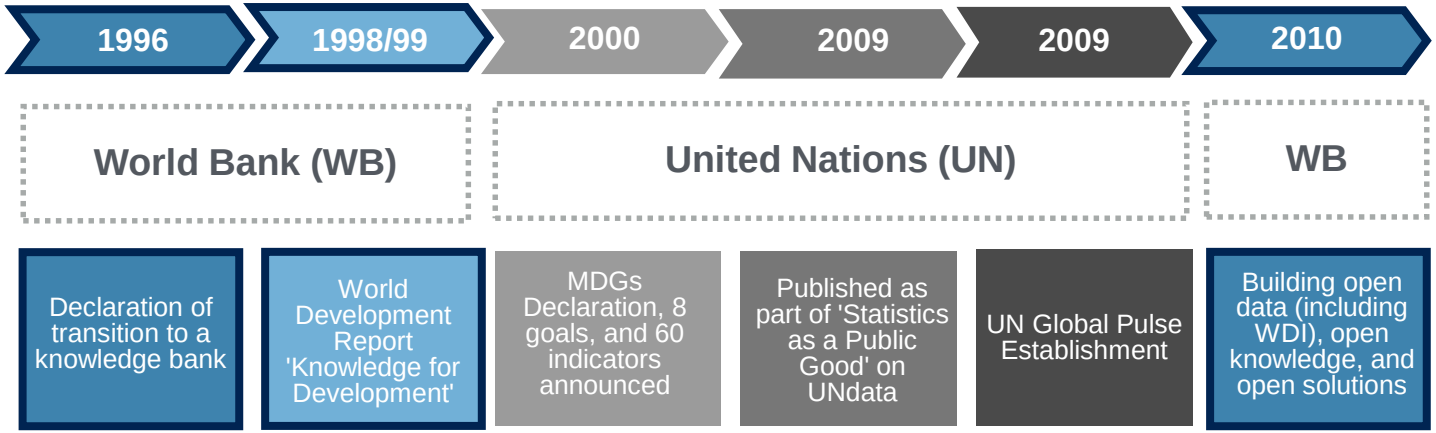
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Part-01 | Global Trends and Issues

Knowledge Management in Development Cooperation



- ## World Bank

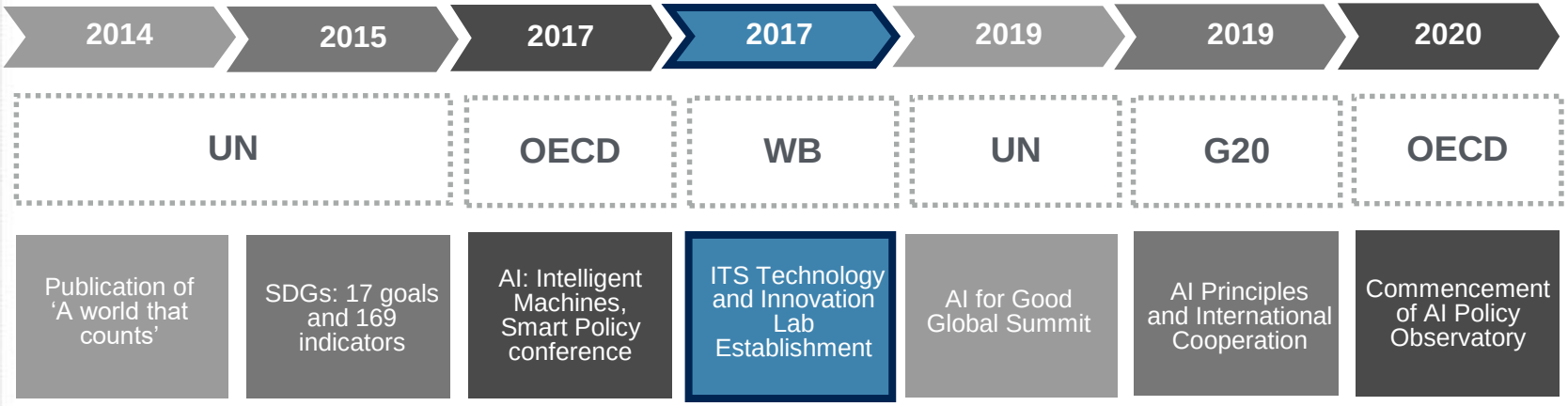
- James Wolfensohn, President from 1995 to 2005, oversaw the transition from the **World Bank to a knowledge bank**, emphasizing the importance of information sharing and ICT.
- As part of the **Open Data Initiative**, data was made available to the public, and Knowledge Platforms were launched. As part of this initiative, the World Development Indicators (WDI) were provided to the public for free in 2010.

- ## United Nations

- In the year 2000, **the Millennium Development Goals (MDGs)** were announced during the Millennium Summit, with the participation of 189 countries. To monitor progress towards achieving these goals, an Inter-Agency and Expert Group on MDG Indicators (IAEG) presented 60 indicators.
- Starting in 2005, as part of the "Statistics as a Public Good" initiative, **UNdata (http://data.un.org/)** was provided to support evidence-based policy decisions and enhance the capabilities of member countries' statistical agencies.
- In 2009, the **UN Global Pulse** established the New York research center (Pulse Lab) to promote sustainable development and humanitarian assistance through big data and analysis.

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Knowledge Management in Development Cooperation



- **World Bank**

- Ban Ki-moon, the UN Secretary-General, established the Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development (IEAG) for the Data Revolution. In 2014, the report "**A World that Counts**" was published.
- Following the recommendations of this report, the UN initiated data technology sharing and organized the United Nations World Data Forum for discussions on political agendas.

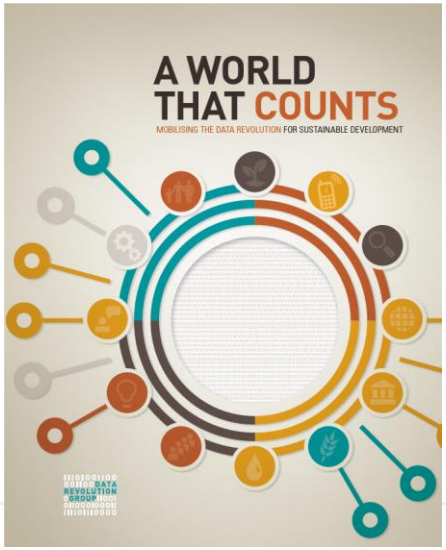
- **United Nations**

- In 2015, the United Nations adopted the SDGs 2030 Agenda during the UN Sustainable Development Summit. In 2017, the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) developed the SDGs indicator framework.
- The Addis Ababa Action Agenda (2015) proposed the mobilization of resources for high-quality disaggregated data production for SDGs monitoring and follow-up, capacity building for policymakers, and the strengthening of national statistical systems.

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Knowledge Management in Development Cooperation

Mobilising the data revolution for sustainable development Data are the lifeblood of decision-making and the raw material for accountability. Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible



United Nations WORLD DATA FORUM

HANGZHOU, CHINA
24-27 APRIL 2023

(TA2.18) GeoSpatial Data and Tools for Sustainable and Resilient Cities and Communities
(TA2.05) Using Machine Learning to Address Data Gaps: Perspectives from Climate Change, Agriculture, and Humanitarian Relief
(DEMOS.402.1) Empowering SDG policy makers with spatial data and analytics
(LEARN.314) My School Today: Crowdsourcing geospatial data for mapping school locations
(LEARN.317) Geospatial and digital data or SDG3 – achieving universal health coverage

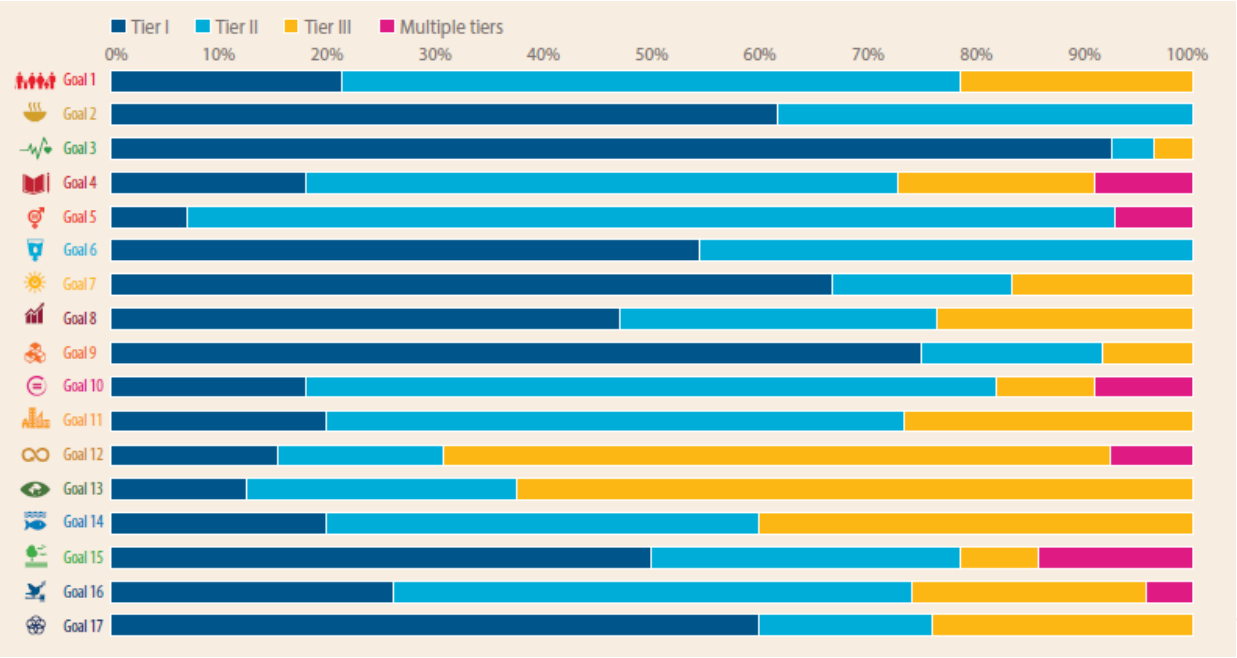
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Issue (1) Achieving SDGs and its Monitoring

- Well-defined indicators that can provide reliable and timely data at the national level (**Tier Ⅰ**); well-defined indicators that cannot be regularly collected at the national level (**Tier Ⅱ**); indicators with undefined methodologies and criteria (**Tier Ⅲ**).

- As of 2019, out of the 232 indicators**, Tier Ⅰ included 104 indicators**, **Tier Ⅱ included 88 indicators**, and **Tier Ⅲ included 34 indicators**, while the remaining 6 indicators could belong to various groups depending on specific criteria.

- Goals 5 (Gender Equality), 12 (Responsible Consumption and Production), and 13 (Climate Action) were classified into Tier Ⅰ the least, and **Goals 1 (No Poverty), 4 (Quality Education), 10 (Reduced Inequalities), 11 (Sustainable Cities), 14 (Life Below Water), and 16 (Peace, Justice, and Strong Institutions) also had relatively fewer indicators in Tier Ⅰ.**

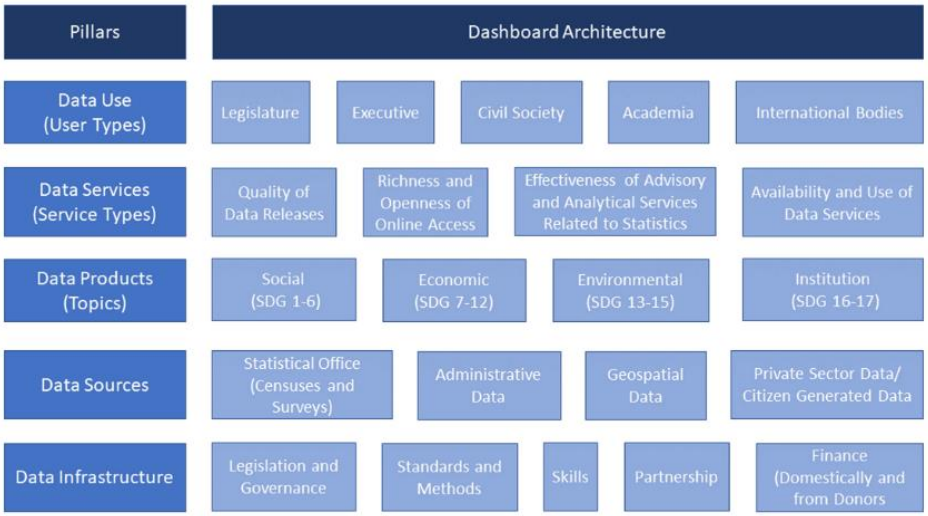


Source: United Nations(UN), *The Sustainable Development Goals Report*, 2020.

Issue (2) Data Ecosystem and Digital Literacy

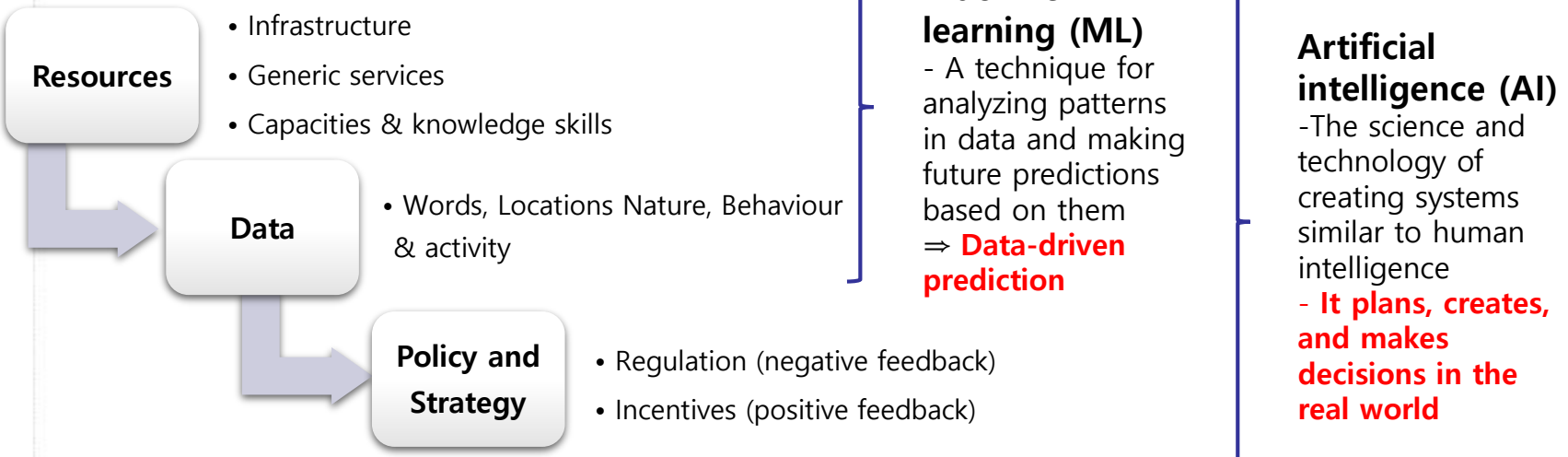
- To generate and utilize data, there is a need for strengthening national-level capabilities and system improvements. With the recent rapid growth in both quantity and quality of new types of big data due to the data revolution, there is a **requirement for strategies to harmoniously integrate these new data types with existing data systems.**

- The development of Statistical Performance Indicators (SPI), building upon the World Bank's Statistical Capacity Index (SCI), is structured around five elements: data utilization, services, themes, sources. and infrastructure.



Source: SPI Homepage(https://www.worldbank.org/en/programs/statistical-performance-indicators/Framework, Access date: 2021. 9. 27).

Machine Learning (ML) and Artificial Intelligence (AI)

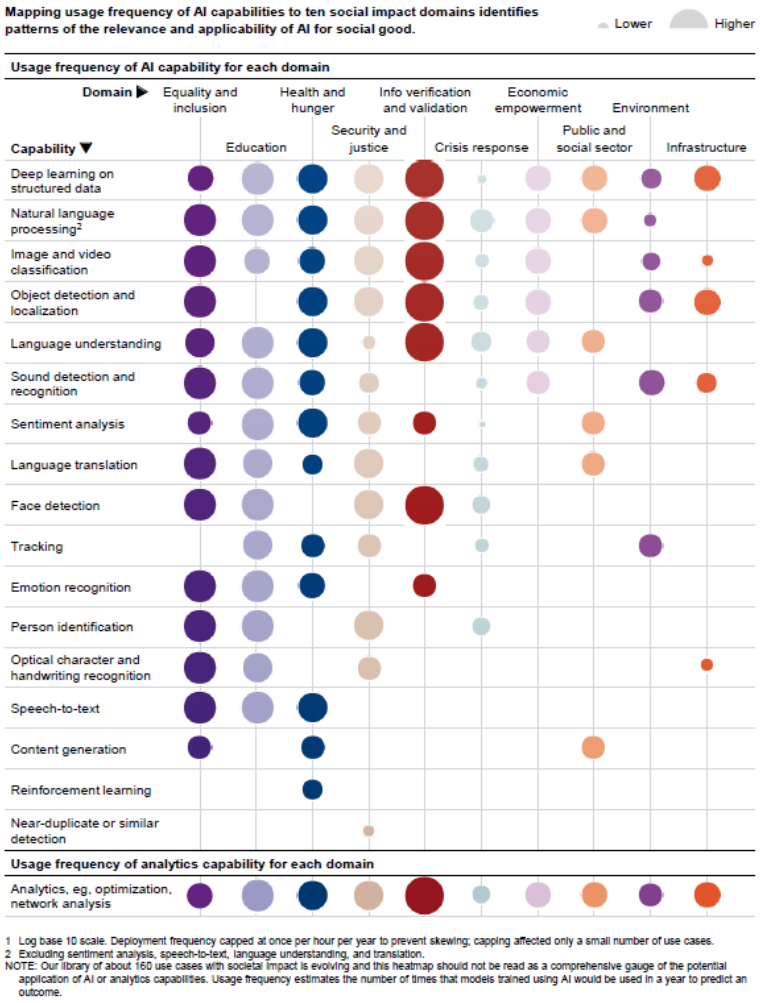


Source: Author's reinterpretation of references;

USAID. (2018). *Reflecting the Past, Shaping the Future: Making AI Work for International Development.*
Hilbert, M. (2016). Big data for development: A review of promises and challenges. *Development Policy Review*, 34(1), 135-174.

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AI for Social Good



- The McKinsey Global Institute conducted research on over 160 cases of AI utilization for the societal benefit and classified and mapped them into SDGs categories.
- The use of Deep Learning with unstructured data such as images, videos, and text indicates the potential to address large-scale social issues.
- It is particularly being applied in the areas of Health and Hunger, Education, Security and Justice, and Equality and Inclusion.
- Efforts are needed to overcome obstacles to AI utilization, such as data accessibility and technology

McKinsey Global Institute. (2018). *Notes from the AI Frontier: Applying AI for Social Good*

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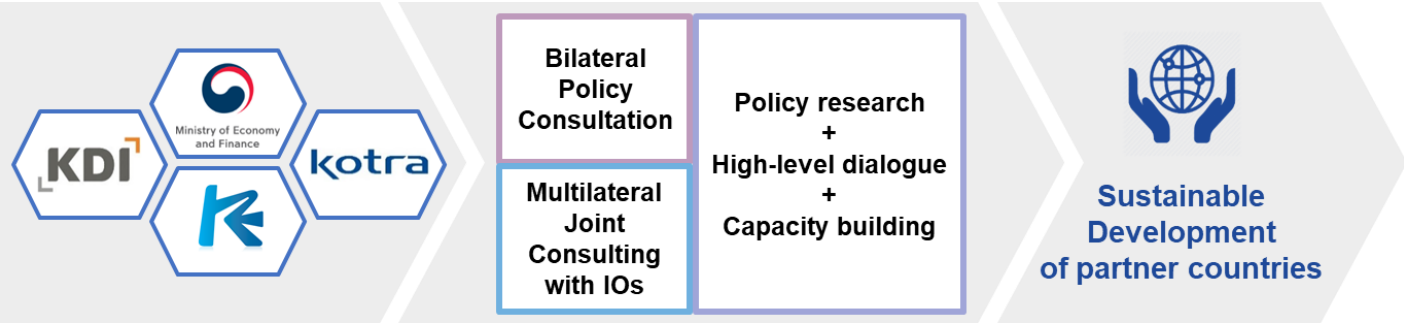
Part-02

Digitalization of Development Cooperation Program

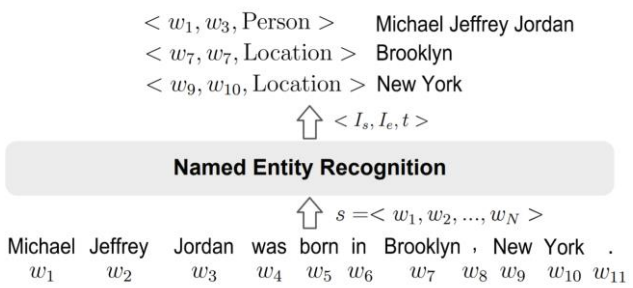
Knowledge Sharing Program (KSP)

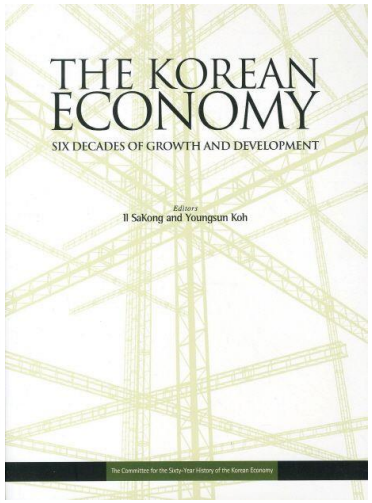
- Overseen by the Ministry of Economy and Finance, the **Knowledge Sharing Program (KSP)** is a knowledge-intensive development and economic cooperation program, which **applies Korea's experiences to find solutions for development challenges that partner countries face.**

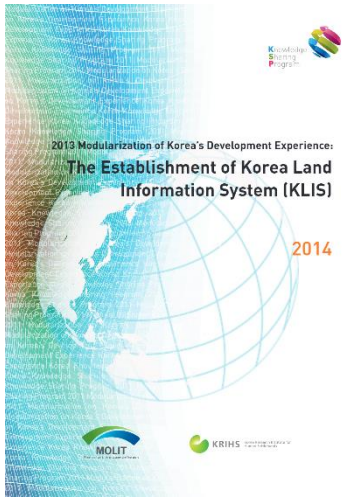
- The KSP offers policy research, high-level dialogue and capacity building through Bilateral Policy Consultation and Multilateral Joint Consulting with international organizations (IOs).



Knowledge Graph : Named Entity Recognition (NER)





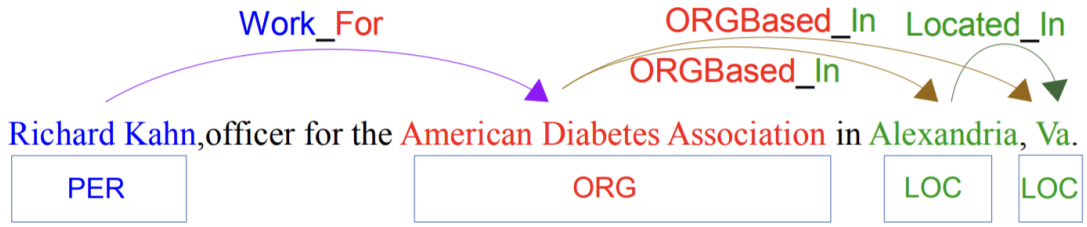


Source: The Korean Economy (2011), KSP Modularization papers (137 copies, 2010-2016)

Entity Type	Definition	No.
Policy	Policy programs, project names, and legislative titles.	727
Organization	Institution, organization, government department names, presidential names (government representatives), etc.	1,139
Infrastructure	Artificial structures, meaning facilities or spaces that have been artificially created, constructed.	359
Terminology	Terms and concepts commonly used in specific policy areas or economics.	1,905
Event	An event that is difficult to attribute to the government's choices and establish a direct cause-and-effect relationship, but influences policy decisions.	928
Location	Country names, cities, administrative region names, rivers, continents.	347
Year	Year, period (i.e. 1970s, 1980s)	5,405

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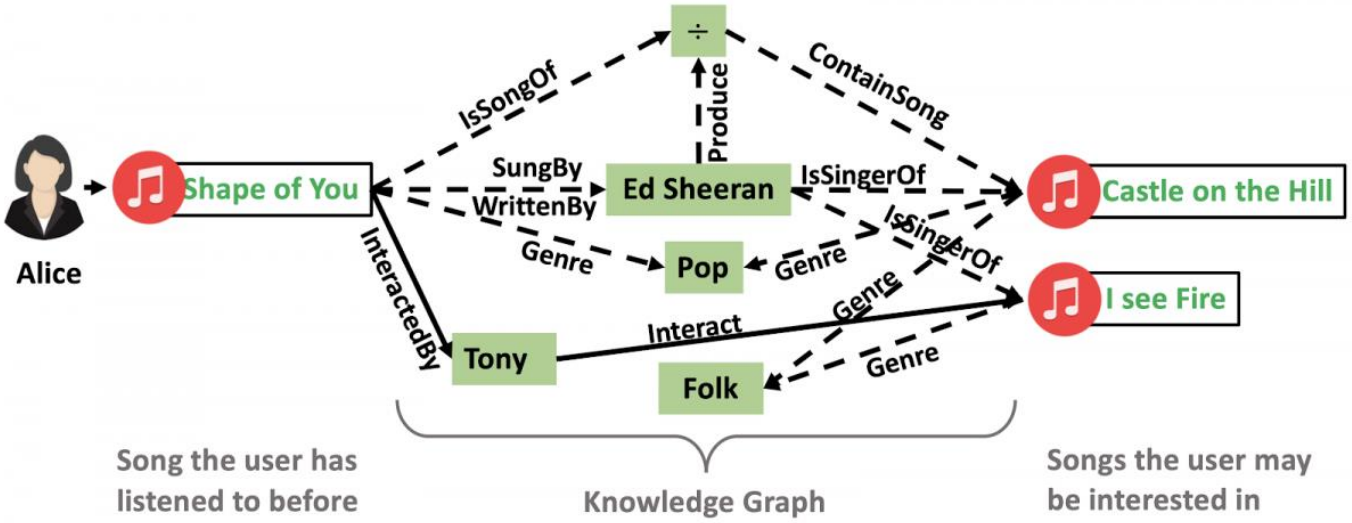
Knowledge Graph : Relation Extraction (RE)



Relationship	X	Y	Definition
Instrument - Agency	Policy	Organization	Y proposed, amended X
Cause – Effect	Event (Policy)	Policy (Event)	Y (or X) caused by X (or Y)
	Event (Org)	Org (Event)	Y (or X) caused by X (or Y)
	Event (Infra)	Infra (Event)	Y (or X) caused by X (or Y)
Entity – Organization	Policy	Place	X that occurred in the Y region
	Policy	Year	X introduced or amended in the year Y
	Organization	Place	X established in the Y region
	Organization	Year	X founded in the year Y
	Infrastructure	Place	X established in the Y region
	Infrastructure	Year	X founded in the year Y
	Event	Place	X originating from the Y region
	Event	Year	X occurring in the year Y
Product – Producer	Org (Infra)	Infra (Org)	X (or Y) established by X (or Y) as the entity

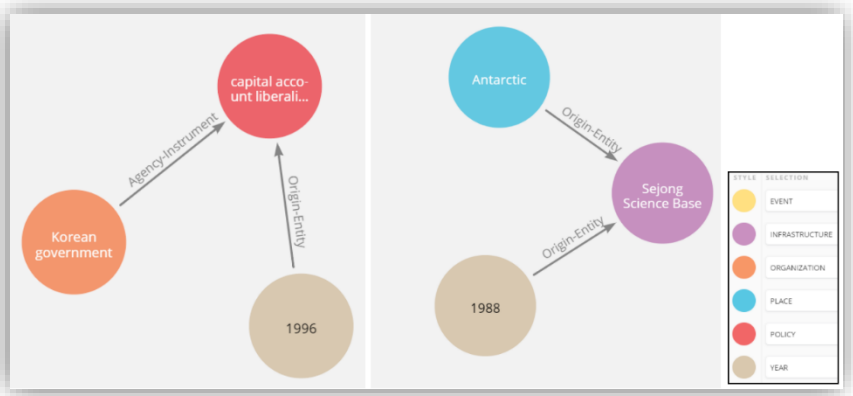
Knowledge Graph for Korea's Experience

Knowledge Graph

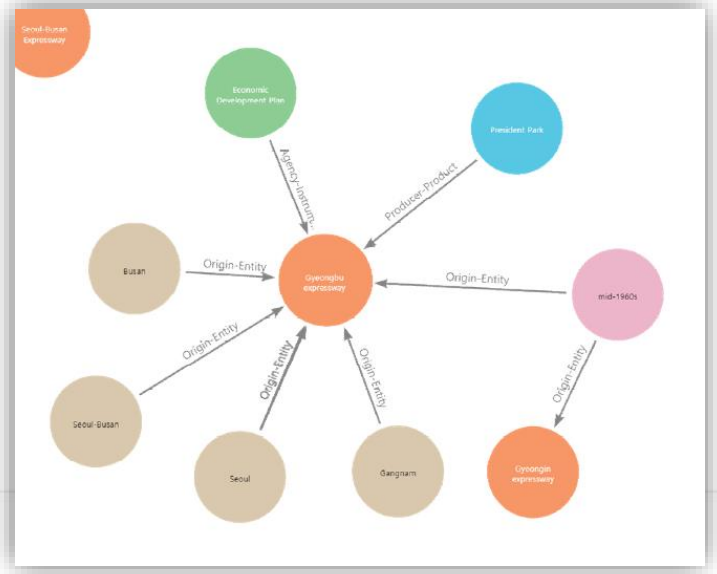


Knowledge Graph for Korea's Experience

Knowledge extraction from a single entity-centric perspective: i.e. Capital Account Liberalization

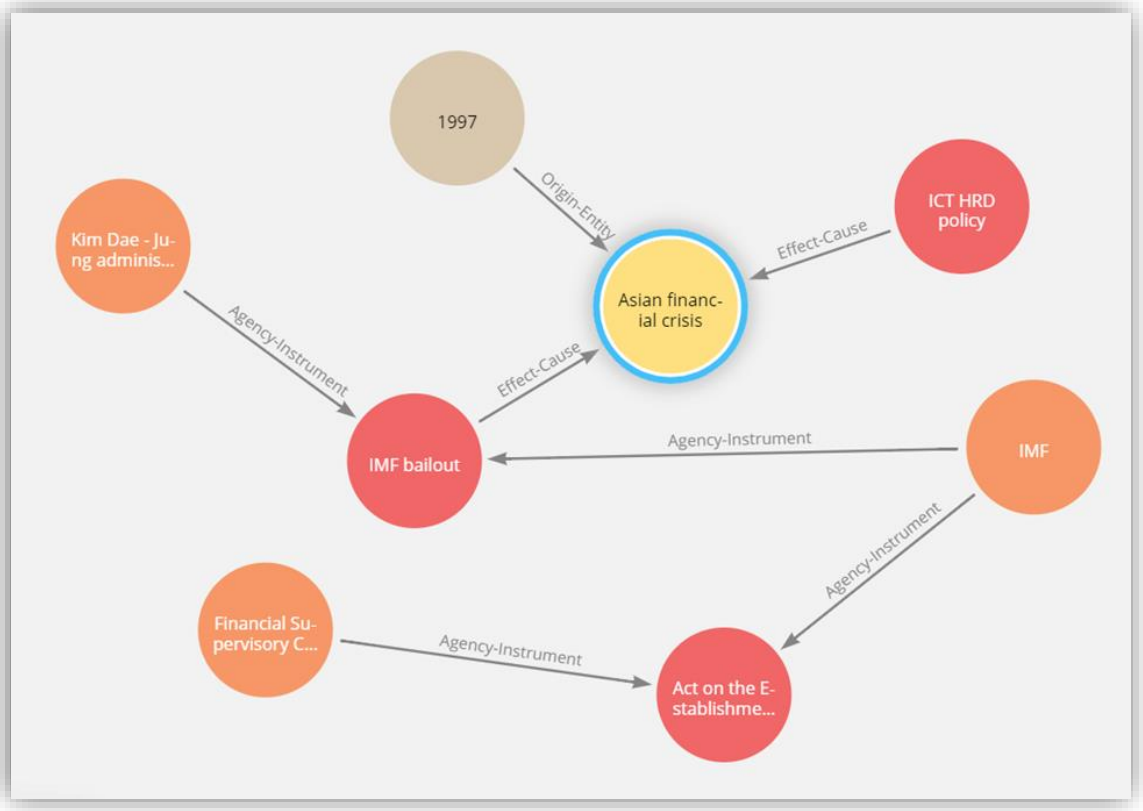


Knowledge expansion utilizing edge connection relationships between entities: i.e. Gyeongbu Expressway



Knowledge Graph for Korea's Experience

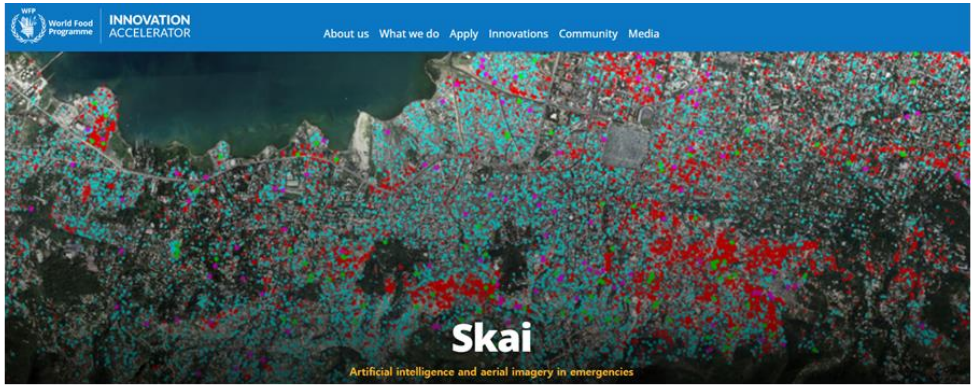
Extraction of latent knowledge using multiple connection relationships between entities
i.e. Asian Financial Crisis



Part-03 | Policy Implications

Implications

- The use of big data and AI technologies is expected to be particularly effective in the fields of **smart cities, land development, and regional development.**

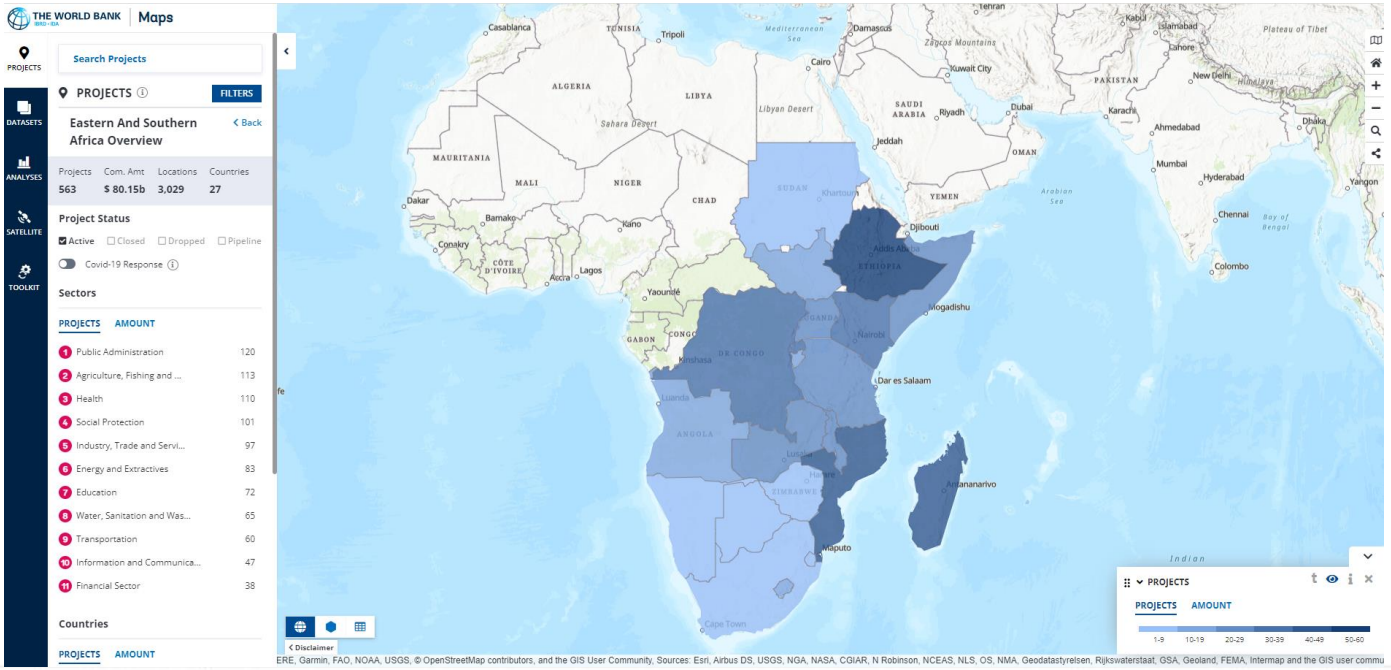




Using satellite imagery and AI for faster response in humanitarian emergencies For example, when a tropical cyclone hits a low-lying coastal region—quick assessment of everything from structural damage, to transportation networks, in addition to basic information on the lay of the land, is paramount when preparing for action.

Implications

(World Bank) Overlaying indicators on poverty, education and health with geographic locations of World Bank financed projects, the **Mapping for Results (M4R) platform** helps policy makers and civil society groups visualize the distribution of projects, identify beneficiaries and monitor results on development outcomes. Building upon the initial foundation laid in October 2010, the new M4R platform expands the number of countries mapped from 79 to 144, including more than 30,000 locations related to active World Bank-financed projects.



Implications

- (Hunger live map) Collecting and visualizing data related to famine, including information on conflicts, hazards, population, food security, people with insufficient food consumption, and undernourishment, and making it available to the public can be crucial for raising awareness and addressing this critical issue.

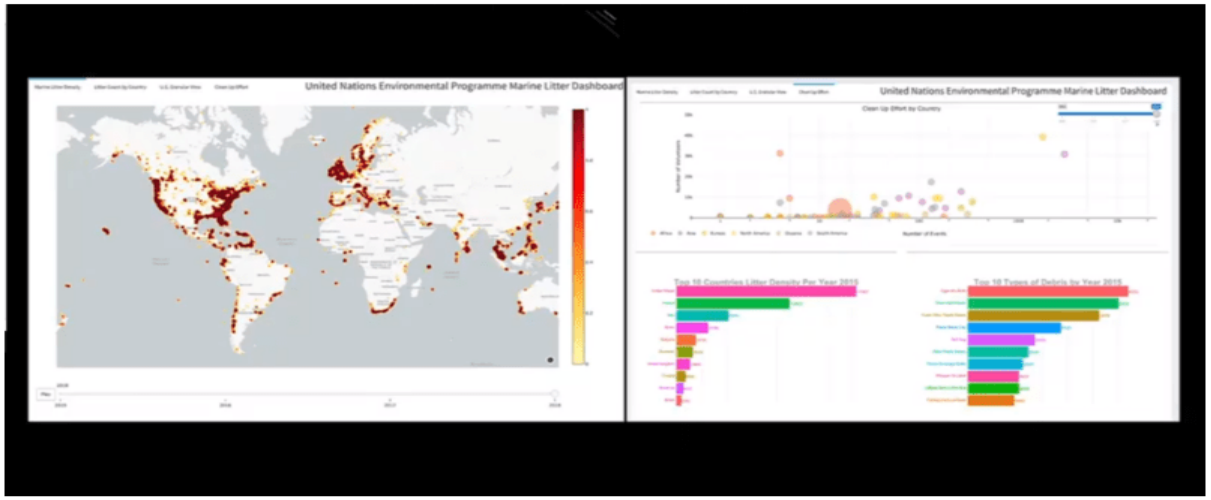


Implications

- UNEP, in collaboration with IBM, has established a Marine Litter Digital Platform to enable real-time monitoring of geographically dispersed marine litter. This platform integrates marine litter-related data, including geographic information data, and visualizes the results to create a big data portal that can be effectively utilized by stakeholders.

UNEP-IBM pilot first marine litter digital platform

BIG DATA, NEWS



Implications

- Enhancing **statistical capabilities** and utilizing **emerging technologies** such as AI are necessary for achieving and monitoring the goal of international development cooperation, which is the SDGs.

- There is a need to **digitally transform knowledge**, such as the experience in Korean development, for effective utilization in the **implementation** of international development cooperation practices.

- The expectation is that through **a real-time information exchange platform** for urban development, international development cooperation can be executed more effectively.

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