Introduction to Innovation Policy for Developing countries

Module 02

Pragmatic Innovation Agenda and Challenges for Developing CountriesPolicy

World Bank Institute

Presentation Script

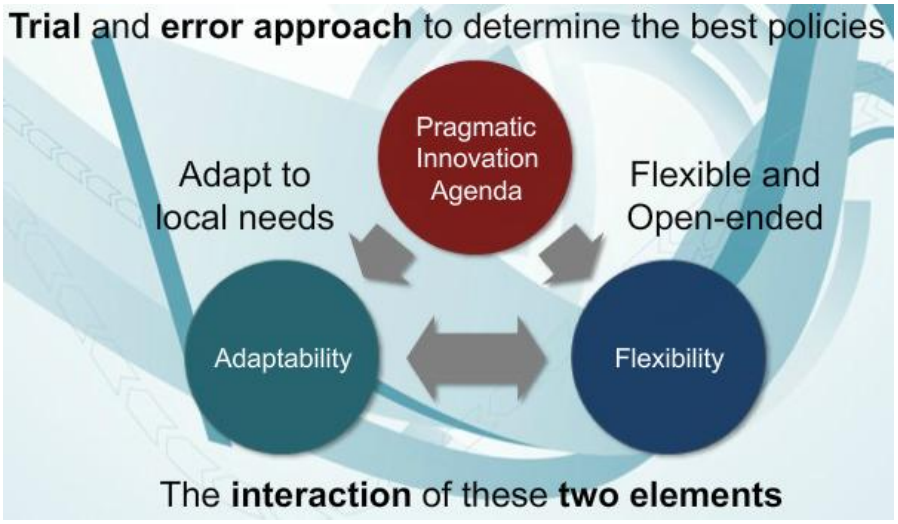
Introduction and Objectives

In this presentation, we will learn

1. What are the principles of a pragmatic innovation agenda?
2. What are the major institutional and policy components of a pragmatic innovation agenda?
3. How did Korea and other developing countries achieve pragmatic innovation agenda?
4. How can countries implement effective pragmatic innovation agendas?

Pragmatic Innovation Agenda - What is it?

Lets again begin our module with a question, what do you think constitutes a pragmatic way to approach innovation policies? Is it adopting previously successful models that were used in other countries? Or is it creating a long term blueprint for innovation that policy makers must strictly adhere to?



The answer is neither because pragmatic innovation is about flexibility and adoptability. In essence, innovation policies have to be flexible and open-ended so they can be adjusted to reflect the changes and needs of the economy. In addition, these policies need to adapt to local needs. Public and private players should embrace a trial and error approach through which the government and the private sector together determine the best policies to adopt.

Essentially, a pragmatic innovation agenda is the interaction of these two elements, where policies are constantly evaluated in order to meet local needs.

Pragmatic Innovation Agenda - Korea Case Reflected

Reflecting back to the Korean case, we see that the evolution of innovation policies in Korea reflects a large part of what constitutes pragmatic innovation agenda.

In examining Korea during the first three decades of its development, we constantly observe Korea adopting policies that address the needs of the country at the time, rather then importing the models that were previously successful in Japan or in the developed world. In addition, Korea, while maintaining a strong vision of its development and innovation goals, nonetheless kept its policies flexible and constantly adjusted them in order to reflect economic and political realities at the time.

Faced with capital shortages and lack of strong initiatives for growth at the beginning of the 1960s, Korea reformed its banking and economic planning system in order to push forward industrialization. When the adverse effects of 1960s policies became evident during the 1970s, Korea again set out to improve its policies and goals in order to resolve them. By the 1980s, Korea's economy was rapidly maturing, and the country embraced the incoming social changes with effective reforms that propelled the country into a developed economy.

Pragmatic Innovation Agenda - Key Policy Considerations

As discussed in Module 1, the role of the government in any innovation system is to function as the gardener who takes a holistic approach to innovation policies. To this extent, the tools that are key to pragmatic innovation also encompass many different sectors of the economy.

In order to adopt a pragmatic innovation agenda, governments should focus on

Now let us examine each of the pillars in pragmatic innovation agenda

The Basic Foundation: Macroeconomics and Political Stability

Macroeconomic and political stability comes to the forefront initiating a pragmatic innovation agenda. Without a stable economic and political environment, there will be market failures that prevent private players from innovating. Hence, it is in the interest of policy makers to make stability as the core of designing policy frameworks

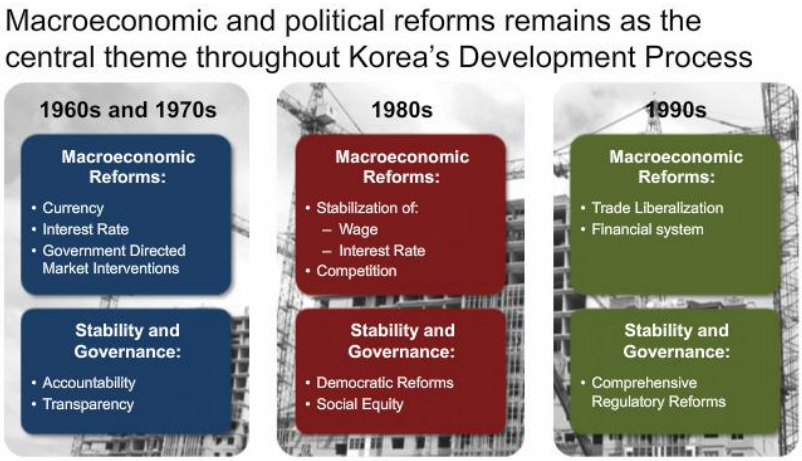
To foster such stability, countries need to examine a whole set of economic and political issues ranging from trade and currency on the economic front, to transparency and geopolitical risks on the politics front. What is key here is to create an stable environment where the market does not lose resources from unnecessary volatility. Instead the private sector can allocate these resources to seek new opportunities.

Political and economic stability should be treated as one, rather than separate components of a reform agenda. A country cannot achieve economic or political

stability without the other present. Hence policy tools targeting this area must put both aspects under consideration.

Macroeconomic and Political Stability in Korea

Maintaining a stable macroeconomic and political environment has consistently been on Korea's top priority throughout its economic development. From the 1960s to the crisis in 1997, Korea, during each era of its reforms, continued to readjust its political and macroeconomic policies in order to meet the demands of the time.



In the 1960s and 70s, Korea focused on providing the fundamentals to the society through interest rate, currency, and government accountability reforms that increased trust in Korea's ability to grow. As the economy began to mature during the 1980s, economic stabilization policies, market oriented reforms, and democratic and social equity reforms began to burgeon on Korea's policy agendas. By the 1990s, as the economy grew more mature, reforms became more oriented toward improving the regulatory environment, and embracing international economic norms through liberalization of trade and finances.

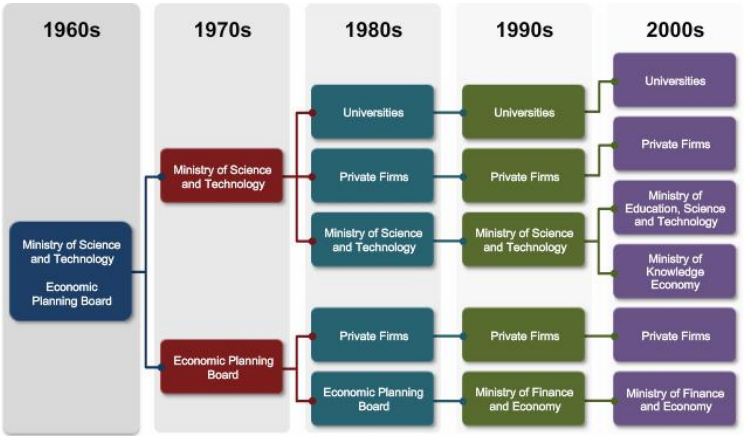
Major Stakeholder Involvement

Another key pillar to pragmatic innovation agenda is getting major stakeholders involved with both drafting and implementing innovation policies. This is highly crucial to the success of the pragmatic innovation agenda because, as we explained in the first module, innovation policy takes a whole of government approach to succeed.

Policy makers should first seek to identify and involve key actors who are important to the overall innovation agenda. For example, if the innovation policy includes macroeconomic reforms, then the ministry of finance, and the central bank should be involved. Then, a shared vision for the goals of the innovation agendas must be established so that every actor understands what is at stake and what must be done. This is followed by coordinated efforts from different actors to improve efficiency of the reform agendas and reduce resource wastes due to overlap in activities. Lastly, the government needs to constantly reevaluate the needs of the system in order to involve additional relevant actors and replace those that are no longer contribute to the overall innovation agenda.

Korea and its Major Stakeholders

At the start of the economic reform, Korea lacked clear organized agencies responsible for economic growth. In order to jumpstart growth, hence, the government created the Ministry of Science and Technology, and the Economic Planning Board during the early 1960s to oversee and promote economic and technological development. These two organizations persisted through the 1970s as Korea continued its “catch-up” efforts but during the 1980s, as the economy matured, more actors came into the playing field.



As Korea began to rapidly internationalize and as the private sector took on increasingly important roles in economic affairs, the government started to involve universities and private firms in their policy making process. And as Korea entered into the high income category during the 1990s and 2000s, the Economic Planning Board, and the Ministry of Science and Technology were replaced by their more modern and comprehensive counterparts so that they could better manage Korea's economic transition and support Korea in developing its knowledge based economy.

Internationalization and Finding Comparative Advantages

A large part of innovation is taking knowledge that is already available and applying it to solve current problems. Internationalization plays an important role in this process by allowing poorer countries to access global knowledge through trade, investment and human capital movements. In essence, by allowing a country to access international markets, the economy can absorb knowledge imbedded in the goods imported(heavy machineries and equipments), or in the foreign direct investments made in the form of management skills and worker trainings.

A country should first define and utilize its comparative advantage in order to improve industrial and technological capabilities. From here, reforms should be geared toward a “big-push” aimed to improve overall knowledge, institutional, infrastructure and industrial capabilities of the country through supporting trade and investments. Afterwards, the flow of products and knowledge across boarders will allow a country to tap into the global knowledge pool and improve existing process, management and product know-hows. As a result, domestic industries will be able to gain more advanced technology, allowing for industrial deepening both in terms of firm size as well as firm’s technical capabilities .

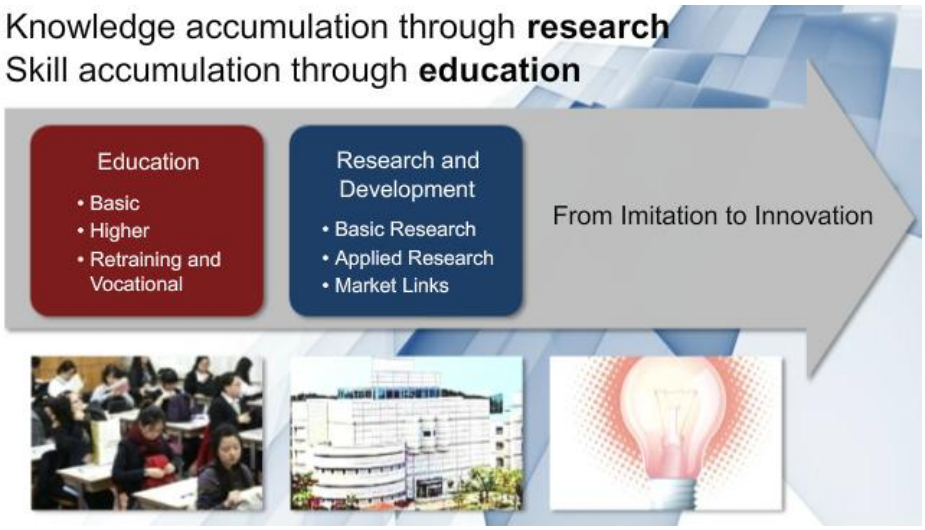
Korea's Internationalization and Industrialization

Korea’s rise as a modern industrial power was highly dependent on its export oriented growth. Rather than adopting a pure autarkic import-substitution approach, Korea embraced export promotion early on to encourage industrialization. While the industry in focus changed throughout each phase of economic development, the desire to promote growth through scaling up and export remained.

The initial undistinguished focus on export promotion, both through cheap domestic financing and export subsidies, yielded to more selective industrial policies in the 1970s that targeted heavy and chemical products. By the 1980s, electronics and other high tech exports gained ground as competition for lower value added products intensified. When the Korean economy matured in the 1990s and 2000s, focus again promoted exports of indigenous products at the technological frontier ranging from robotics to biomedical products. Investments, in particular foreign direct investments, were also of key focus throughout the 1970s and 80s.

Skill and Knowledge Accumulation

Targeted human resources and research strategies have always been a key component of a pragmatic innovation agenda. Knowledge accumulation through research, and skill accumulation through education are the building blocks of any modern economy.



In terms of education policies, a country needs to focus on both basic and higher education. Only a comprehensive policy targeting both higher and basic education will be able to create adequate and well balanced human resources for development. In addition, retraining, vocational, and skill development programs are also crucial to maintaining skilled workers in the economy.

In terms of research and development, countries should focus on basic and applied research with special attention to market linkages between the two in order to deliver effective results that are applicable to the needs of the country. Failure to do so will create imbalances in the system such that basic research are either not sufficient for the needs of the private sector, or are not applicable to market needs

Korea and Knowledge Development

Korea tackled basic education early on in its reform process. While the nation was still a very poor country, it already embarked on reforms to universalize basic education for all its citizens which greatly increased literacy rate and consolidated the basic human resources needed for later development. When reforms started in the 1960s, vocational education and skill training became the key focus as the country sought to improve applicable skills among its citizens.

Throughout the reforms of the 1960s till the 1980s, Korea gradually shifted its focus from basic education to higher education, as well as the absorption of foreign technology through trade and FDI as the demand for more skilled labors and technology increased due to increasing technological sophistication of the Korean economy. During the 1980s and 1990s, the focus shifted to focus on developing indigenous research and development capabilities to meet the demands from the private sector. After the financial crisis, the focus shifted into knowledge deepening through improving the quality of both research institutions and universities.

Political Commitment

Political commitment to innovation and reform plays an important role in increasing the effectiveness of innovation policies.

A nation's economy is largely driven by the expectations of its participants are. These participants, in turn, are directly influenced by the government. Hence, in order to make key actors in the innovation system contribute, and for the innovation policies to be successful, the government must demonstrate that it is willing to lead, and make the changes necessary for innovation to prosper.

While there are many ways with which a government can demonstrate its commitment to reform and innovation, some key elements include consistency and clarity of reform policies in order to reduce the volatility and risk private sectors face due to these reforms. In addition, the willingness to change and alter reforms as needed will also be a key consideration for policy makers.

Korea and Political Commitments

Korea demonstrated its political commitments to reform in that the government has continued its reform agenda throughout each phase of the reform, and has consistently committed large amount of resources towards building an effective innovation system. While the list above is not exhaustive, it offers a good view of how Korea's commitment towards reform worked throughout its development process.

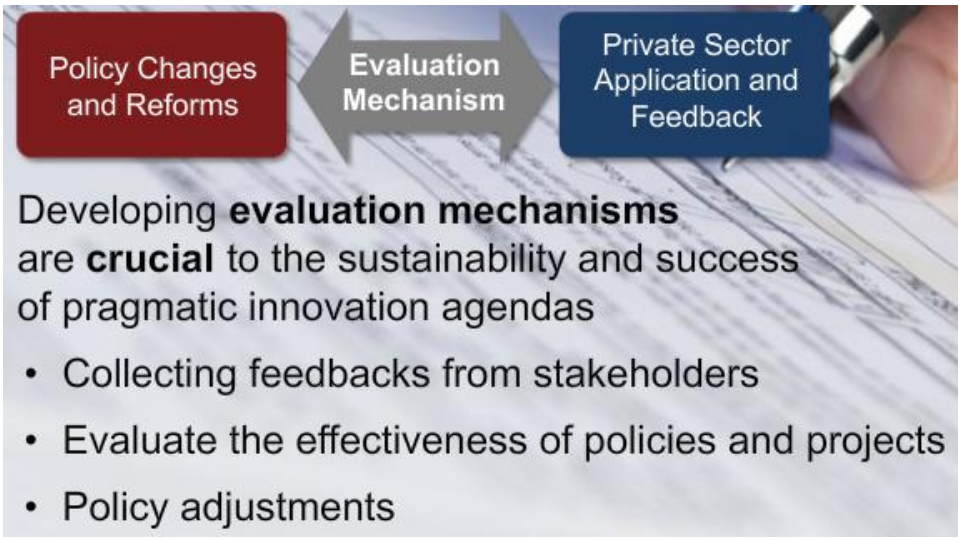
The beginning of the 1960s saw Korea's first 5 year plans. These plans clearly defined Korea's development goals and allowed the private and public participants in the reforms to anticipate the changes that came. Following the 1960s, industrial policies, and the government's strong, persistent hand, again revealed Korea's commitment to a more technologically advanced export sector.

When Korea's began to mature in the 1980s and 1990s, commitments shifted gradually toward establishing solid frameworks for a knowledge economy. Reforms started from research and development in the 80s, moved to institutional reforms after the crisis of the 90s, and finally arrived at a stage of promoting knowledge based economy in the 2000s. Even in the most recent economy down turn, the government demonstrated its commitments to reform by upholding many of its growth priorities in science and technology, such as green technology, through stimulus funding.

Evaluation Mechanism

The last component of a pragmatic innovation agenda is for governments to establish evaluation mechanisms for existing policies and projects.

As we have discussed before, the key to pragmatic innovation agenda is adaptability and flexibility. The constantly changing social and economic conditions of developing nations require policy makers to frequently alter and readjust policies in order to meet newly generated demands. In addition, governments who conduct pilot reforms and projects need to understand the strength and weakness of these projects in order to improve policy decisions going forward. Hence, having effective evaluation mechanisms to assess the progress of these projects will play an important role in deciding the future steps governments should take in developing pragmatic innovation agendas.



The key to creating effective evaluation mechanisms involves utilizing the stakeholder linkages we have discussed before, and collect relevant, and up-to-date information on the performance and feedbacks these stakeholders provide. With these data, the government should then evaluate, using neutral, unbiased criteria, the strength and weakness of projects and policies. Lastly, and perhaps the most relevant for pragmatic innovation agenda, governments need to take the results collected and adjust policies accordingly.

Implementing Pragmatic Innovation Agenda - The Three Basic "Os"

Now, we should all have a basic understanding of the basic components of a pragmatic innovation agenda. However, how do we effectively deliver a pragmatic innovation agenda?

The basic success of pragmatic innovation agenda relies on countries being able to promote the three “Os” of pragmatic innovation, including openness to new ideas, openness to competition, and openness to accept failures and readjust policies accordingly.

From a practitioners point of view, openness to new ideas and competition forms the basic of promoting effective innovation policies. In essence the willingness to tap existing knowledge and the drive to innovate as a result of competition will allow countries to implement necessary components of the pragmatic innovation agenda. At the same time, however, willingness to accept failure and reform is also important since not all policies and initiatives will be successful, and governments should learn from these failures in order to formulate more suitable policies in the future. Willingness to accept failure is also important during the initial stage of implementing pragmatic innovation agenda since many pilot programs are likely to fail. At the same time, however, it is important for governments to be able to move beyond these failures and take those ones which succeeded to scale.

Implementing Pragmatic Innovation Agenda - Key Challenges

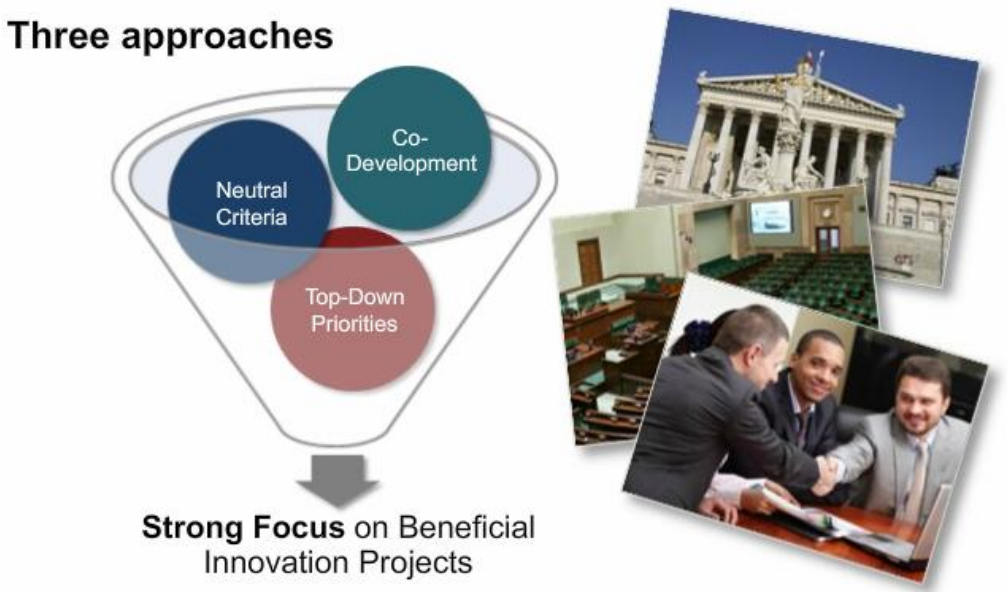
Now, as we understand the basics of implementing pragmatic innovation agenda, it is also important to understand the challenges in a pragmatic innovation agenda.

Given limited financial resources for rolling out a pragmatic innovation agenda, the government needs to be selective in its focus and target areas that are most relevant considering the country's stage of development. In addition, coordinating interactions between major players and stakeholders for cooperation, and be able to move beyond the pilots and scale up, are also important challenges facing the pragmatic innovation agenda.

Implementing Pragmatic Innovation Agenda - Focus and Selectivity

The first challenge that government must tackle is selectivity and focus with regard to pragmatic innovation agendas. There are three approaches government can take in order to improve selectivity and focus of national pragmatic innovation programs.

First, is instituting top-down priorities, or industrial policy directives from the central government where the government actively identifies and support industries/policies that have demonstrated records of success. This is largely a government led directive where significant resources and commitments will be needed. Such prioritizing can support businesses in need, and reduce volatility for companies by making government policies inline with business interests.



The second approach is using clear and transparent criteria in deciding industry and policy targets. This is important because it will keep the government's targets clear and rational, and create clear signals for participants. In addition, having clear and defined criteria will also make government policies more consistent and less prone to changes due to corruption and outside influences.

Lastly, governments should make efforts to foster international cooperation among domestic and international stakeholders. This international feedback will allow governments to receive third party reviews of performance, and reevaluate whether its policies are effective at fostering internationally oriented and competitive industries.

Implementing Pragmatic Innovation Agenda – Coordination

The second challenge for the pragmatic innovation agenda is coordination. And as we have discussed before, coordination comes to play in fostering linkages among all stakeholders that will allow the government to implement policies and allocate resources more efficiently.

To bring about effective coordination efforts. Governments should place innovation policies as the center of the coordination efforts, and should target all areas relevant to innovation policies, much like the gardener approach we have discussed in module one.

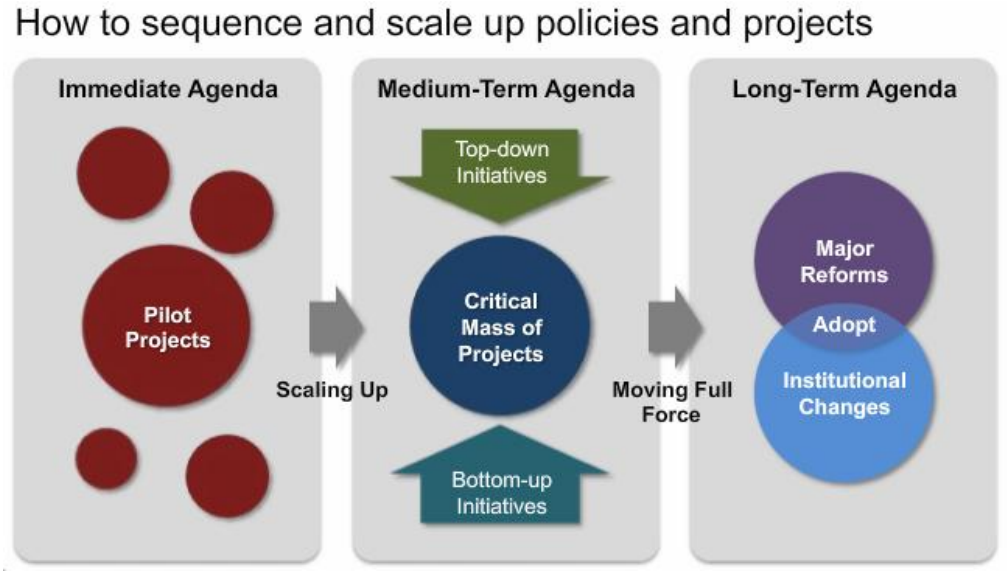
To facilitate coordination seek to establish three main linkages, top-down among government organizations, bottom-up among private stakeholders who benefit from government programs and the government, and horizontal, peer to peer networks that involve international players, private sector players, and governments. The first two approaches take the government centered approach, where government takes the center stage of coordinating resources and drive innovation. The third approach, however, takes a broader view of coordination, in that it facilitates communication among all the actors, domestically and internationally. This last approach can help all players arrive at a shared global vision for the directions with which innovation and technology are heading. In addition, policy networks within countries and with other countries can help nations mold their policies more effectively. As a result, creating horizontal networks will be just as important to policy makers as the government centered approach.

Implementing Pragmatic Innovation Agenda - Sequencing and Scaling Up

A pivotal of implementing pragmatic innovation is how to sequence and scale up policies and projects. To make effective policies regarding sequencing, policies should have a short, medium, and long term focus plan.

Immediate focus of the government should be on developing several pilot projects in order to evaluate and observe which approach is more appropriate for the country's situation. It is important to note that during the short term, countries should seek to establish not only one, but multiple pilot projects and policies so that it has sufficient

pool of results to evaluate its policy positions. In addition, as we have discussed before, this stage should see countries willing to accept more risk and failures in order to encourage the private sector to overcome initial risk and funding bottlenecks.



Moving beyond the starting stage, governments need to identify successful pilot projects and attempt to scale them up. The main goal here is to let these innovation clusters gain sufficient economies of scale to be self-sustainable. Here, critical mass for projects are important, and the clustering of projects becomes relevant. To promote the development of critical mass and clustering, governments need to actively give financial incentives and policy support in order to reverse the negative externalities for innovators who take on more risk. At the same time, policies should also encourage collaboration among players in the private sector, fostering bottom-up initiatives that allow private players to support each other, and facilitate knowledge transition among firms.

Lastly, as the innovation clusters gain the size and scale needed to survive, governments should then seek to identify key elements of the overall institutional environment in order to make reforms and changes necessary to maintain the cluster's viability.

Final Thoughts - Summary of the Module

In this presentation, we have learned:

- The principles of pragmatic innovation agenda
- The major institutional and policy components of a pragmatic innovation agenda
- The development of Korea's pragmatic innovation agenda
- Ways with which countries can implement the pragmatic innovation agenda