

2014 KSP with Costa Rica

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Institutional Reform to Promote Innovation

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Knowledge
Sharing
Program



C o n t e n t s

- I. Introduction
- II. Analysis and assessment of institution for innovation in Costa Rica
- III. Analysis of institution for innovation in Korea
- IV. Institutional reform to promote innovation capacity in Costa Rica
- V. Conclusion and policy recommendations

Part I

Introduction

Introduction

A. Background and Objectives

▶ Background

- The 2013 KSP report emphasized the importance of a national innovation drive that includes institutional bodies and support policies.

▶ Main Goal of the Project

- Assessing the role and the capabilities of the main institutions for innovation
- Establishing a proposal of organizational and functional structure for the innovation
- Providing suggestions to promote innovation capacities: short term (1 year) and mid-term (3 years)

Introduction

B. Research Flow

- Theoretical framework
- Analysis and assessment of institution for innovation of Costa Rica
- Analysis of institution for innovation of Korea
- Institutional reform to promote innovation capacity of Costa Rica
- Conclusion & Policy Recommendations

C. Operational definition: Institutional reform for innovation

□ **Institutional reform for innovation:**

- Establishing an environment where innovation could be easily generated
- Three areas were covered for the institutional reform to promote innovation
 - Reinforcing organizations
 - Formulating policies
 - Building-up governance structure

Part II Analysis and Assessment of
Institution for Innovation
of Costa Rica

A. Organizations for innovation

- **Key organizations** for innovation in Costa Rica are: **PCCI** (policy guide) **MICITT** (formulator) and **CONICIT** (implementer)
- Related ministries are: Ministry of Agriculture, Ministry of Foreign Trade, Ministry of Economy, Industry and Commerce
- Other related agencies: PROCOMER, CICR(Chamber of Commerce and Industry)
- **General problems** of organizations for innovation are as follows;
 - **Lack of unified approach**: key ministries should work together with the presidential office to guarantee results
 - **Insufficient centralization in political decision making**
 - Important **technical stakeholders are excluded**

Analysis and assessment of institution for innovation in Costa Rica

■ Roles and functions of organizations for innovation in Costa Rica

Name of the organization		Role and function of organizations
Key organizations	PCCI	-Increasing economic development potential through the enhancement of country's human capital and capacity for innovation
	MICITT	-S&T policy formulation, implementation and coordination of innovation
	CONICIT	-Implementation of innovation policies established by MICITT
Related ministries	Ministry of Agriculture	-Innovation in agricultural production and exploring foreign market for agricultural products
	Ministry of Foreign Trade	-Organization responsible for trade and attraction of foreign investment
	MEIC	-Deregulation in production and marketing process and promotion of domestic SMEs
Other agencies	PROCOMER	-Acceleration of export and attraction of foreign investment
	CICR	-Supporting sustainable development in industry and business

B. Innovation policies and programs

- Two plans for innovation: 'Century XXI Strategy' and 'National Science, Technology, Innovation Plan 2015-2021'
- Six policies and programs for strengthening SMEs' capacity and fostering entrepreneurial capacities
- **Two innovation plans only innovation a few areas**, so missions and objectives of innovation in Costa Rica as a whole are only partially visible
- **Hierarchy or relationship between policies** and programs for innovation are weak
- Benefits of innovation are easily spread through the well prepared policies and programs for innovation, but policies and programs were made to solve demanding problems
- **Programs for FDI-local company linkage are weak**, and few policies or programs exist to enhance national competitiveness

Analysis and assessment of institution for innovation in Costa Rica

■ Plans and policies for innovation in Costa Rica

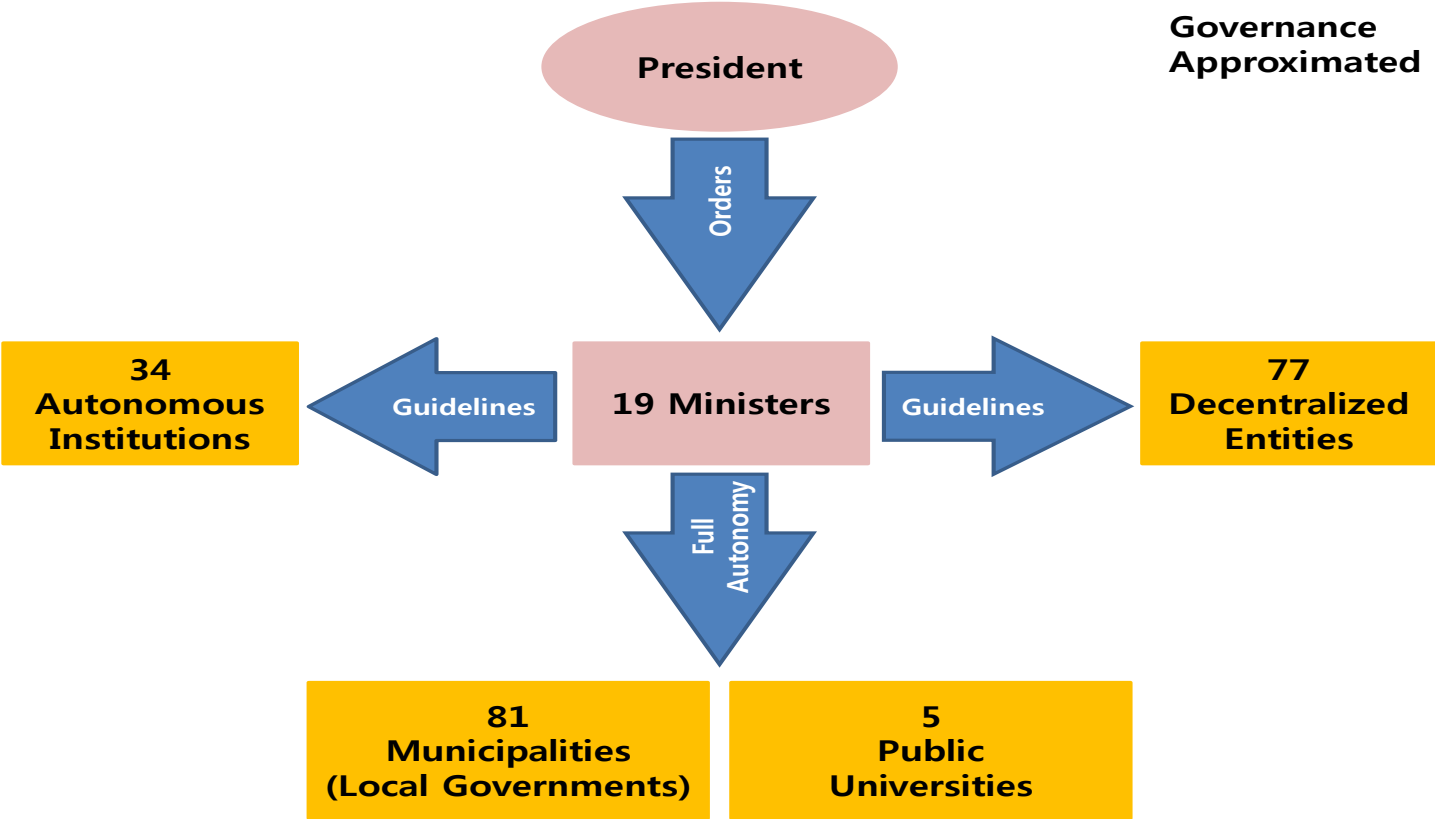
Plans and policies		Contents of plans and policies for innovation
Plans for innovation	Century XXI Strategy	-Improvement of knowledge and innovation levels of Costa Rica
	National, Technology and Innovation Plan 2015-2021	-Enhancement of innovation capacity in five fields such education, water resources and environment, energy, health and food and agriculture
Policies and programs for innovation	SMEs strengthening Program	-Program for the implementation of a Food Security System through the training and consulting program
	UNA-Entrepreneurs program	-Increasing the entrepreneurial capacities of students and Costa Rican society in order to foster the creation of small and medium enterprises
	Central America Innovates	-Regional project based in San Jose to support enterprises by introducing management, diagnostic, training and consulting in the innovating process
	AL INVEST	-Regional project in collaboration with the European Union to support the consolidation and internationalization of SMEs
	PROPYME	-Promotion of innovation in the private sector, particularly in SMEs
	CR Provee	-Increasing backward linkages between Costa Rican SMEs and multinational companies operating in Costa Rica

C. Innovation governance

- Three layer of governance structure is desirable for the effective implementation
- Innovation **governance exist in law**, but **significant amount of autonomy** makes **governance system not work** as intended
 - 19 ministries under the supervision of the president
 - 34 autonomous institutions and 77 decentralized entities got guidelines from ministries
 - government renders full autonomy to 81 municipalities and 5 public universities
- Key ministries are not designed for policy coordination**, so coordination is poor
- Ministries are not designed for implementation**, so rules do not allow incentives for performance and use of funds
- Current governance structure does not include private organizations and other implementing agencies, so **coordination among agencies is poor**

Analysis and assessment of institution for innovation in Costa Rica

Current innovation governance structure in Costa Rica



Part III Analysis of Institution for Innovation
in Korea

A. Organizations for innovation

- **Organizations** for innovation in Korea are composed of **three categories**
- **Organizations** for **policy formulation** in Korea: **2 committees, 3 ministries and 2 agencies**
- **Functions:** policy formulation, policy management, project operation
 - Advisory Council on Science & Technology, Regional Development Committee
 - Ministry of Science, ICT and Future Planning, Ministry of Education, Ministry of Trade, Industry and Energy
 - Small and Medium Business Administration and KIAT
- **Organizations** for **policy implementation** : innovation related offices and center for regulatory reform at local governments
- **Function:** policy implementation
- **Agencies for coordination:** **innovation platform**(Techno-Parks and Center for Creative Economy & Innovation)
- **Function:** coordination of innovation policies

Analysis of institution for innovation in Korea

▪ Roles and functions of organizations for innovation in Korea

Classification of organizations		Main functions	
Policy formulation	Committee	Advisory Council on Science & Technology	-Policy formulation for innovation of science and technology
		Regional Development Committee	-Policy formulation for balanced territorial development
	Ministry	Ministry of Science, ICT and Future Planning	-Establishment of start-up ecosystem and innovation centers
		Ministry of Education	-Management of four representative innovation programs
		Ministry of Trade, Industry and Energy	-Developing business model by supporting creative ideas
	Agency	Small and Medium Business Administration	-Operation of Inno-Biz project and conducting related projects
KIAT		-Operation of innovation projects from MTIE	
Policy implementation	Innovation related office	-Implementation of innovation policies for ministries from central government	
	Center for regulatory reform	-Implementation of policies for regulatory reform	
Coordination	Techno-Park	-Supporting new technology based start-ups, R&D, pilot production	
	Center for Creative Economy & Innovation	-Connecting and synthesizing related programs for SMEs	

B. Innovation policies

- 2 categories of policies for innovation and 1 category of related programs
 - **Policies for the enhancement of national competitiveness**
 - Policy for **new growth engine**: searching for new technologies for next generation
 - Policy for **science/ technology capacity building**: establishing KISTEP and designation of 4 R&D Special Zones
 - **Policies for the regional innovation capacity building**
 - Policy for **balanced regional development**: strengthening national and regional competitiveness by balanced development
 - Policy for **fostering locally specialized industries**: developing specialized products by using regionally located resources or distinguished regional brand
 - **Policies for the other innovation capacity building**
 - Policy for **fostering manpower**: LINK Project of Ministry of Education and BK21 project
 - Policy for **regulatory reform**: regulatory reform in environment, market failure, safety, etc

Analysis of institution for innovation in Korea

▪ Objectives and contents of innovation policies

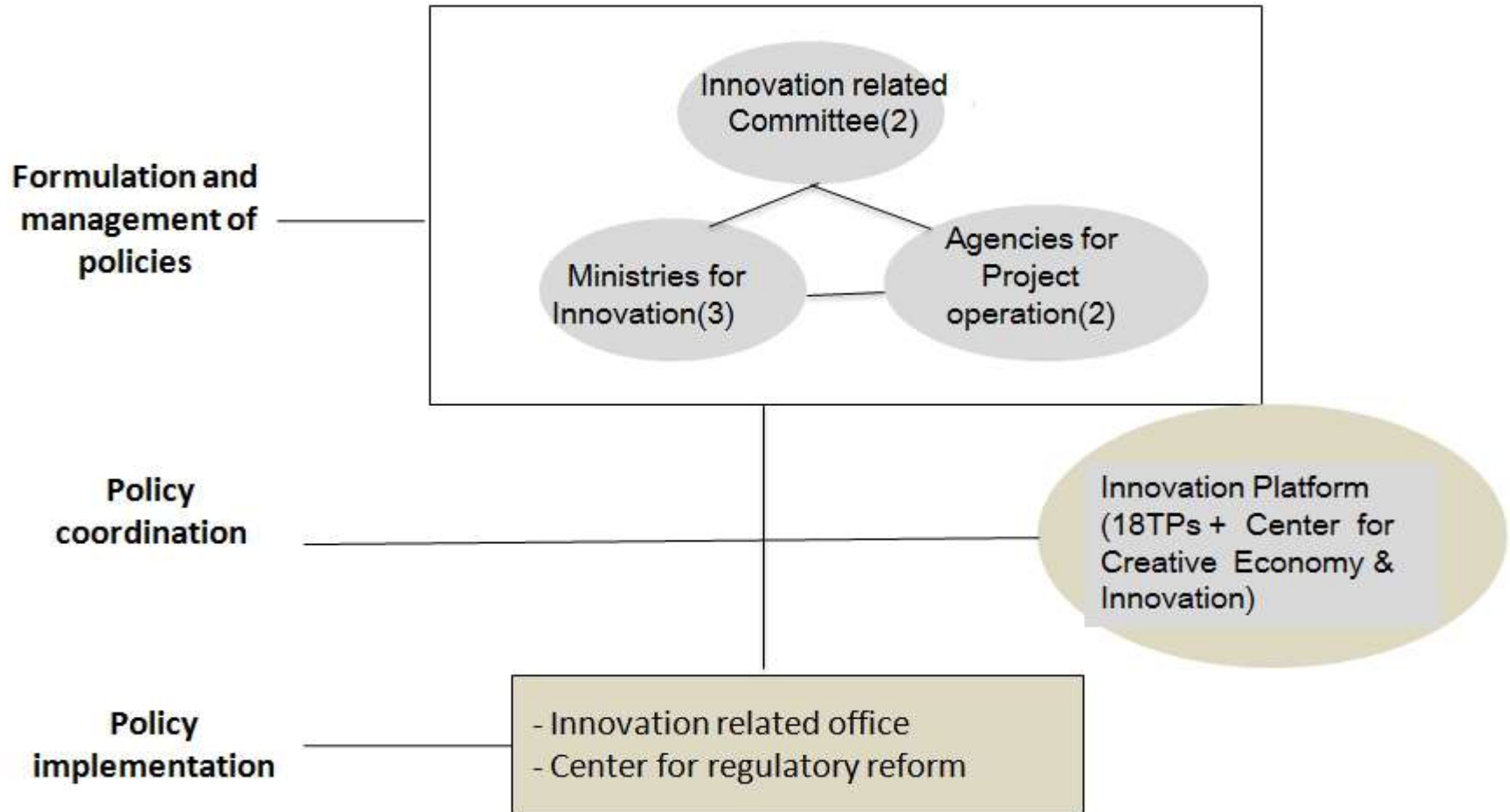
Category	Name of the policy	Objectives and contents of policy
Enhancement of national competitiveness	New growth engine	-Searching new technologies, new products and services which are expected to generate jobs and to become leading industries in the next generation
	Science/technology capacity building	-Building huge facilities such as IBS and Isol Separator as a representative facility for International Science Business Belt Project -Policy for enhancing technology competitiveness by the establishment of KISTEP and designation of 4 R&D Special Zones
Regional innovation capacity building	Balanced regional development	-Strengthening national and regional competitiveness by balanced development
	Fostering locally specialized industry	-Creation of value added through the development of specialized products by using regionally located resources or through the distinguished regional brand
Other innovation capacity building	Fostering manpower	-LINK Project of Ministry of Education and BK21 project(Korean Brain 21)
	Regulatory reform	-Regulatory reform in the field of environment, market failure, safety, etc.

C. Innovation governance

- Innovation **governance** is composed of **three layer structure**
- **Organization for policy formulation** is composed **three categories**
 - **2 committee**: Advisory Council on Science & Technology and Regional Development Committee
 - **3 ministries**: Ministry of Science, ICT and Future Planning, Ministry of Education, Ministry of Trade, Industry and Energy
 - **2 agencies**: Small and Medium Business Administration and KIAT
- **Organization for policy implementation** is composed of **two categories**
 - **1 innovation related offices** and **1 center for regulatory reform** on the local government level
- **Agency for coordination** is composed of **1 category**
 - **Regional platform**(Techno-Parks and Center for Creative Economy & Innovation as Public private partnership)

Analysis of institution for innovation in Korea

Innovation governance structure in Korea



D. Comprehensive approach for the acceleration of innovation

Classification	Contents and aims of the entity
Exclusive innovation committee	- Highest level of committee dealing with negotiation and coordination for the innovation policies among related organizations (ex: Regional Development Committee).
Special law for supporting innovation	-Strengthening regional development capacity, fostering local industries, generating jobs and activating regional economy -(ex: Special Law for Regional Balanced Development).
Special account for supporting innovation	- Synthesizing and combining accounts for the implementation of innovation policies and promoting efficiency in using fund for the implementation of innovation policies from 2005 (ex: Special Account for National Balanced Development).
Mid and long term plans for innovation	- Introducing "Innovation oriented regional development model" for the sake of regional prosperity and quality oriented convergence model for the sake of capital region's prosperity (ex: 5 Year Plan of National Balanced Development).

Part IV **Institutional Reform to Promote Innovation
Capacity in Costa Rica**

A. Innovation Organizations

- **Reinforcement of role for key organizations** such as PCCI, MICITT and CONICIT is necessary
- **Creation and operation of one task-force team in PCCI** is desirable
 - MICITT and MEIC, MAG and COMEX participate in task-force team together for policy formulation
 - CONICIT and CNP, PROCOMER participate in task-force team together for policy implementation
- **Creation of office at local government is needed** and its participation in governance structure is required with two options
 - Option 1 : **participating in innovation platform**
 - Option 2 : **participating in task-force team in PCCI**
- **Agency for coordination is innovation platform** (option one is techno-park and planning board for strategic industry and option two is collaboration of industry with academy) and function of this agency is coordination of policies from various organizations

Institutional reform to promote innovation capacity in Costa Rica

-Since Costa Rican government puts implementation as a key factor for institutional reform in innovation, the following four **principles** are recommended to enhance policy implementation effectiveness

- Four key **ministries got rotation of presidency** in productive development policy
- Equal **participation of government and non-government stakeholders**
- Equal **participation of stakeholders representing established firms and new firms**
- Power to **approve and remove programs** of support **at will**

Institutional reform to promote innovation capacity in Costa Rica

▪ Roles and functions of organizations for innovation in Costa Rica

Classification of organizations		Main functions
Policy formulation	Committee	PCCI -Building consensus around policy priorities and provide guidance in designing and implementing effective policies
	Ministry	MICITT -Policy formulation for S&T research, and coordination of innovation
		MEIC -Deregulation in production and promotion of domestic SMEs
		MAG -Policy for innovation in agricultural production
		COMEX -Formulating policy for foreign trade
	Agency	CONICIT -Implementation of innovation policies established by MICITT
		CNP -Implementation of agricultural policy
PROCOMER -Acceleration of export and attraction of foreign investment		
Policy implementation	Innovation related office	-Implementation of innovation policies for ministries from central government
Coordination	Innovation platform	Techno-Park -Supporting new technology based start-ups, R&D, pilot production
		PBSI -Connecting and synthesizing related programs for SMEs

B. Innovation policies

- Establishment of a **basic plan for innovation in Costa Rica is necessary**
- **Two options are available**
 - **Option 1: Re-planning of National Science, Technology & Innovation 2011-2015**
 - **Option 2: new plan** for innovation in Costa Rica
 - In this study, **Option 2** is highly **recommended**
- **Planning body of basic innovation plan is task-force team in PCCI and including following three categories of policies in the basic plan as key contents is recommended**

Institutional reform to promote innovation capacity in Costa Rica

-**First** category of policy is about **enhancing national competitiveness**

- Policy for acquisition of new growth engine, promotion of competitiveness in science and technology and fostering technology centered domestic SMEs in collaboration with MNCs

- **Second** category of policy is about **regional innovation capacity building**

- Policy for regional capacity building through fostering regional strategic industries and establishment of coordination link between industry, university and research institute

-**Third** category of policy is about **other innovation capacity building**

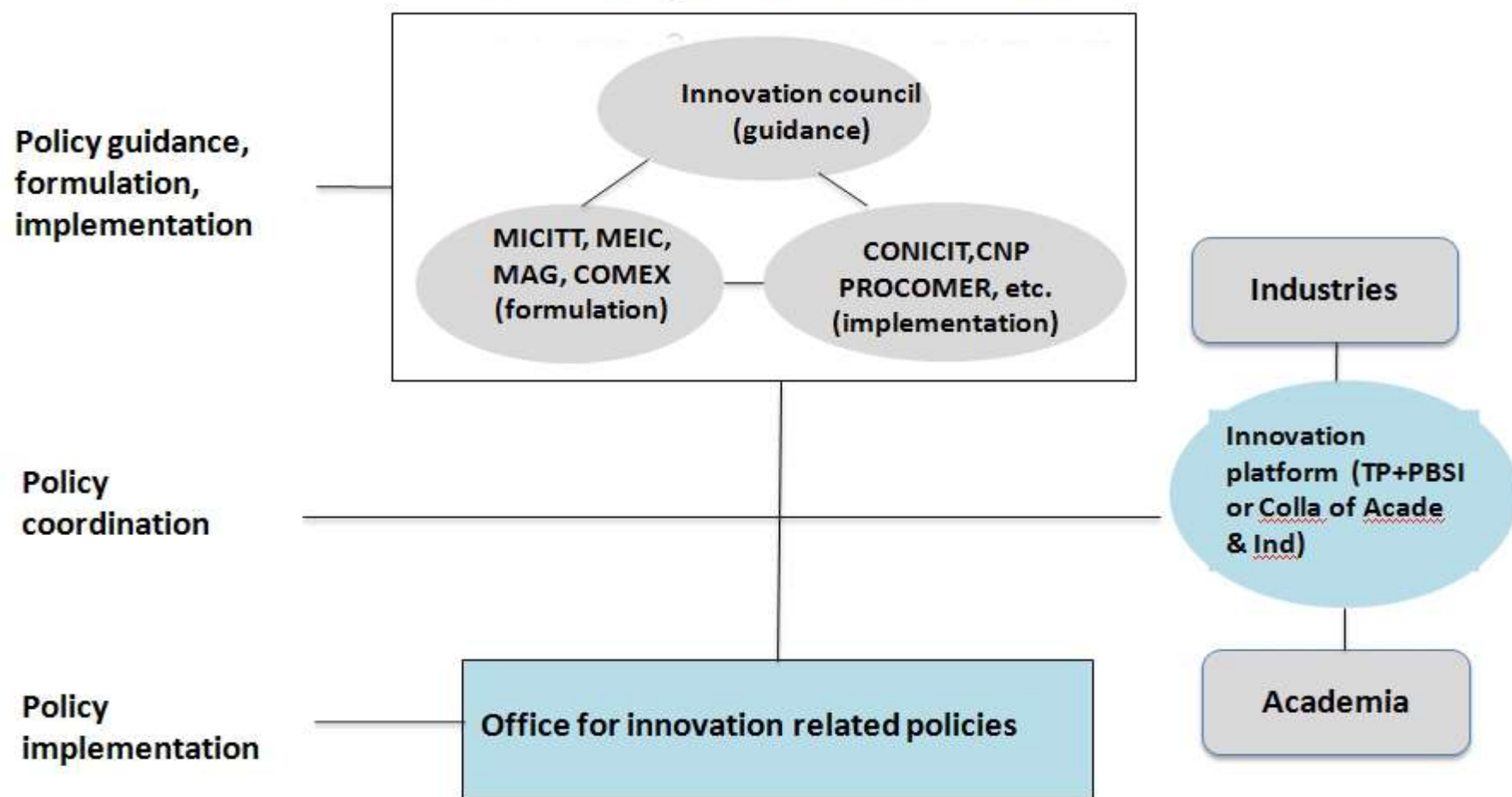
- Policy for fostering manpower and regulatory reform (regulatory reform is the most demanding item from private sectors, universities and research institutes)

C. Innovation governance

- Establishing **three layer innovation governance structure** is strongly recommended
- Top layer**(three categories) organizations with high inter-connectivity
- Establishing a innovation platform** through establishment of **TP with BPSI** or **collaboration of academia with private firm** is important
- Creation of office for innovation policy implementation at local government** is a task to be taken in long term perspective

Institutional reform to promote innovation capacity in Costa Rica

Innovation governance in Costa Rica

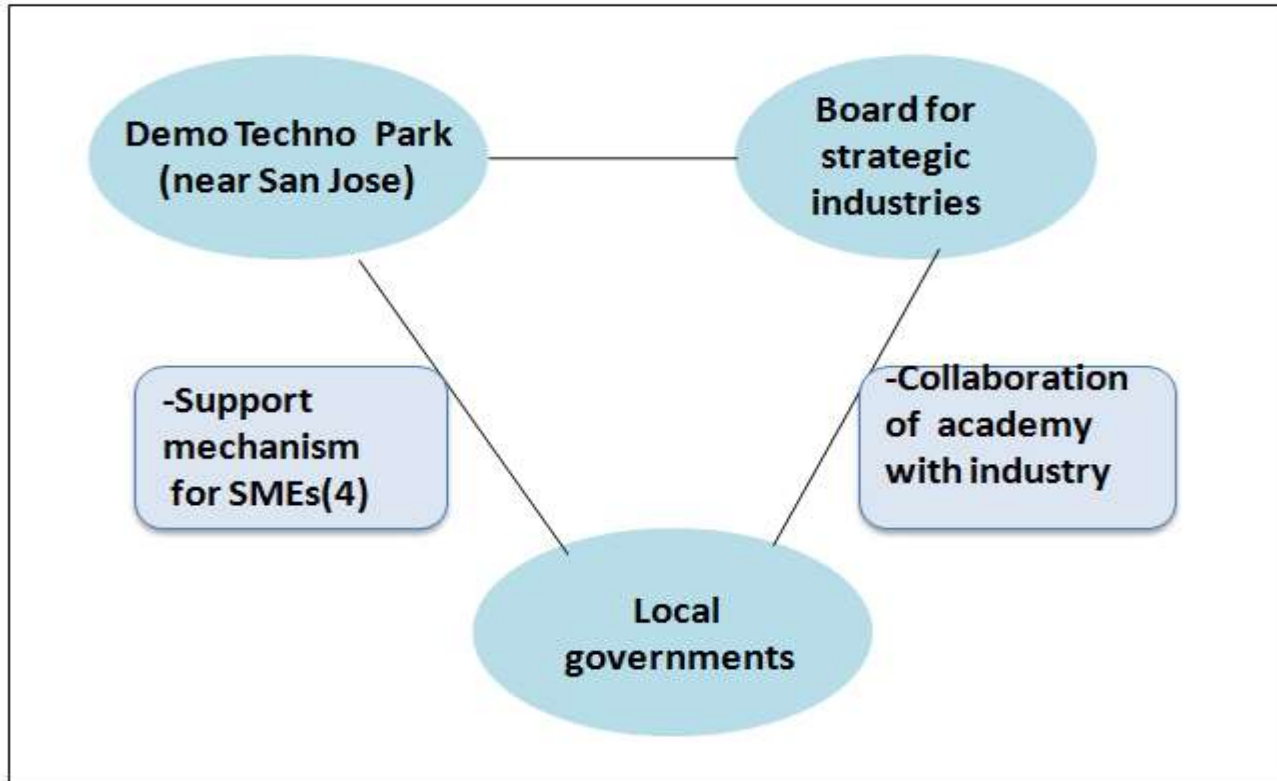


- **Innovation is initiated and managed by private sectors** over the many advanced countries
 - Building an innovation platform (Establishing TP with PBSI or establishing private industry with academy collaboration) is one of the options for private sector initiative innovation system
 - Four support mechanisms for SMEs in innovation platform are internalization of SMEs for integration into GVC, technology innovations, human resources development and acceleration of startups
- **Local governments** are the **frontline implementers** of innovation policies
 - Therefore, propelling innovation with cooperation between central and local government as a team is strongly recommended
- **Innovation is generated in the private sector and local governments more frequently**
 - Therefore, it is logical to **include private sector players in the governance structure** and **create a new office at local government** for implementation

Institutional reform to promote innovation capacity

in Costa Rica

-**Innovation Platform** carry out and **connect innovation policies** from ministries, and **local governments implement innovation policies**

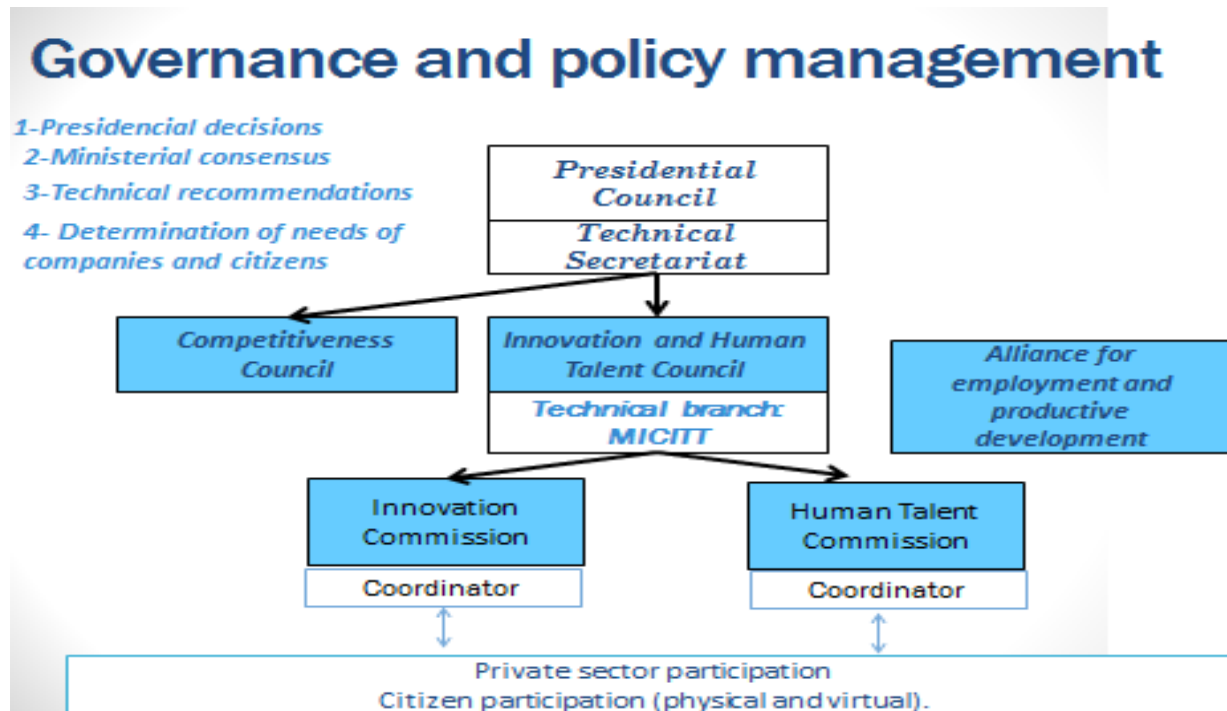


Desirable governance structure for middle and bottom level

D. Suggestions to promote innovation capacity for short and mid terms

1) Suggestions for short-term(3 suggestions)

-Strengthening the dynamics of the Presidential council for innovation



-Using existing ministerial funds to pilot programs

- Program for technology innovation for SMEs
- Program for integrating SMEs into Global Value Chain
- Program for the activation of start-ups
- Program for fostering high quality human power

-Establishing a basic plan for innovation

Vision

- Establishment of an innovation platform to promote R&BD and support sustainable SME's growth by facilitating cooperation among research centers, universities, industries and governments

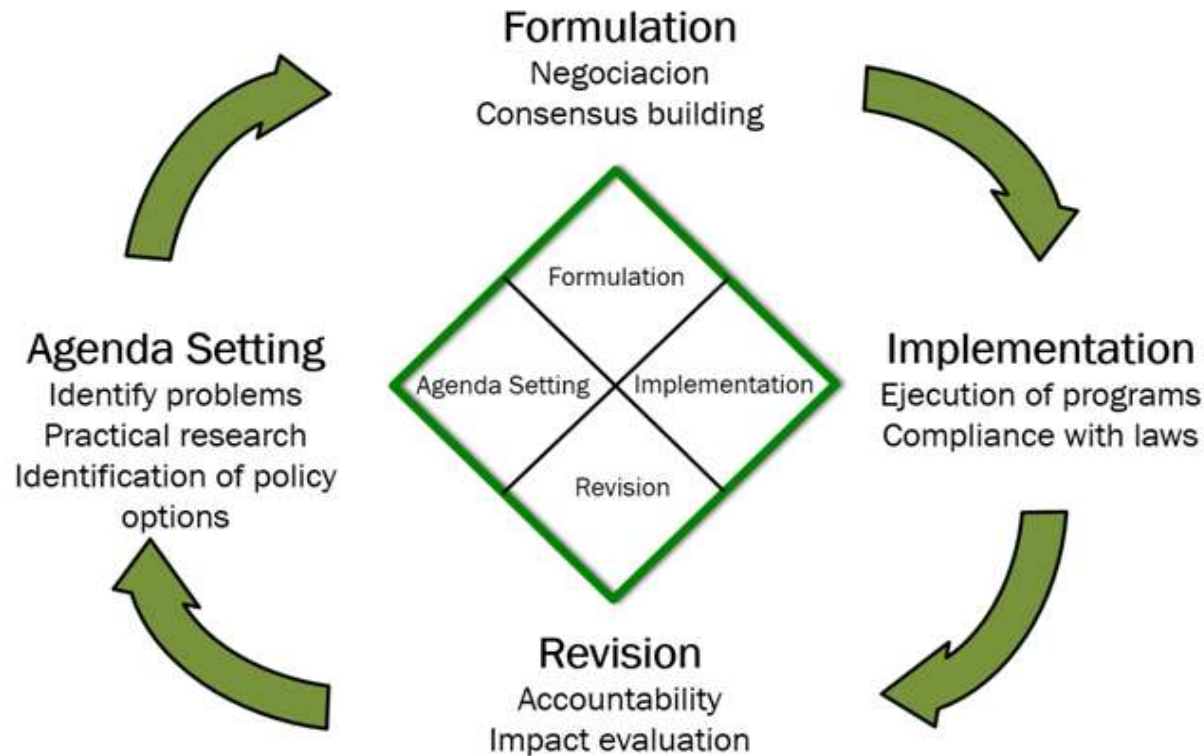
Mission

- Technology-based economic growth through the creation and support of knowledge-based enterprises from Costa Rica and abroad
- Sustainable development of high-tech intensive SME's
- Settlement of regional innovation platform in Costa Rica (and in Latin America)

Institutional reform to promote innovation capacity in Costa Rica

2) Suggestions for mid-term(3 suggestions)

-Creation of National Agency for Productivity and Innovation



Institutional reform to promote innovation capacity in Costa Rica

-Redefinition of laws that map the institution for innovation

- Law for supporting university-industry collaboration, deregulation, fostering technology centered SMEs and supporting acceleration of start-ups

-Interministerial effort to create innovation policy for development

- Formulation of policy for building linkage between SMEs and MNCs, establishing a demo techno-park near San Jose, building business incubators at universities in collaboration with private firms and accelerating start-ups by teamwork from 4 ministries and 3 agencies

Part V Conclusion and Policy
Recommendations

Conclusion and Policy Recommendations

1) Reinforcement of organizations for innovation

- Creation of one task-force team under PCCI is recommended
- MICITT is the key organization, so it is desirable to **give more budget, staff members, and legal support to MICITT**

2) Formulation of innovation policies

- Establishment of a **basic plan for innovation** in Costa Rica is necessary
- Such plan should be include in the **National Science, Technology and Innovation 2015-2021**
- Second alternative seems better and **task-force team** is in charge of establishing new plan

3) Building-up governance structure

- Establishing **three layer innovation governance structure** such as central level, innovation platform level and local level is necessary
- One of the fundamental issues of current institution for innovation is **very few private sectors** are included in **governance structure**
- Including many **private firms, universities and research institutes** in **governance structure** is strongly recommended for effective innovation institution

4) Recommendation of following Costa Rica KSP Project

-Establishment of a innovation platform

-There are two alternatives for this

- First alternative is **Building Techno-Parks with Board of Planning Strategic Industries**
- Second alternative is **Making collaboration of academia with industries**

Thank you

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