Institutional Evolution In Korea

- Science, Technology & Innovation -

‘The Purpose of Government Policy & Innovation’

Purpose of Government Policy	• Stimulate R&D activities • Promote innovation
How To Promote Innovation?	• Support the activity of innovative actors • Innovative actors: public institutes, universities, private firms
How to support innovative actors	• Administrative assistance (governance) • Legal assistance • Financial assistance

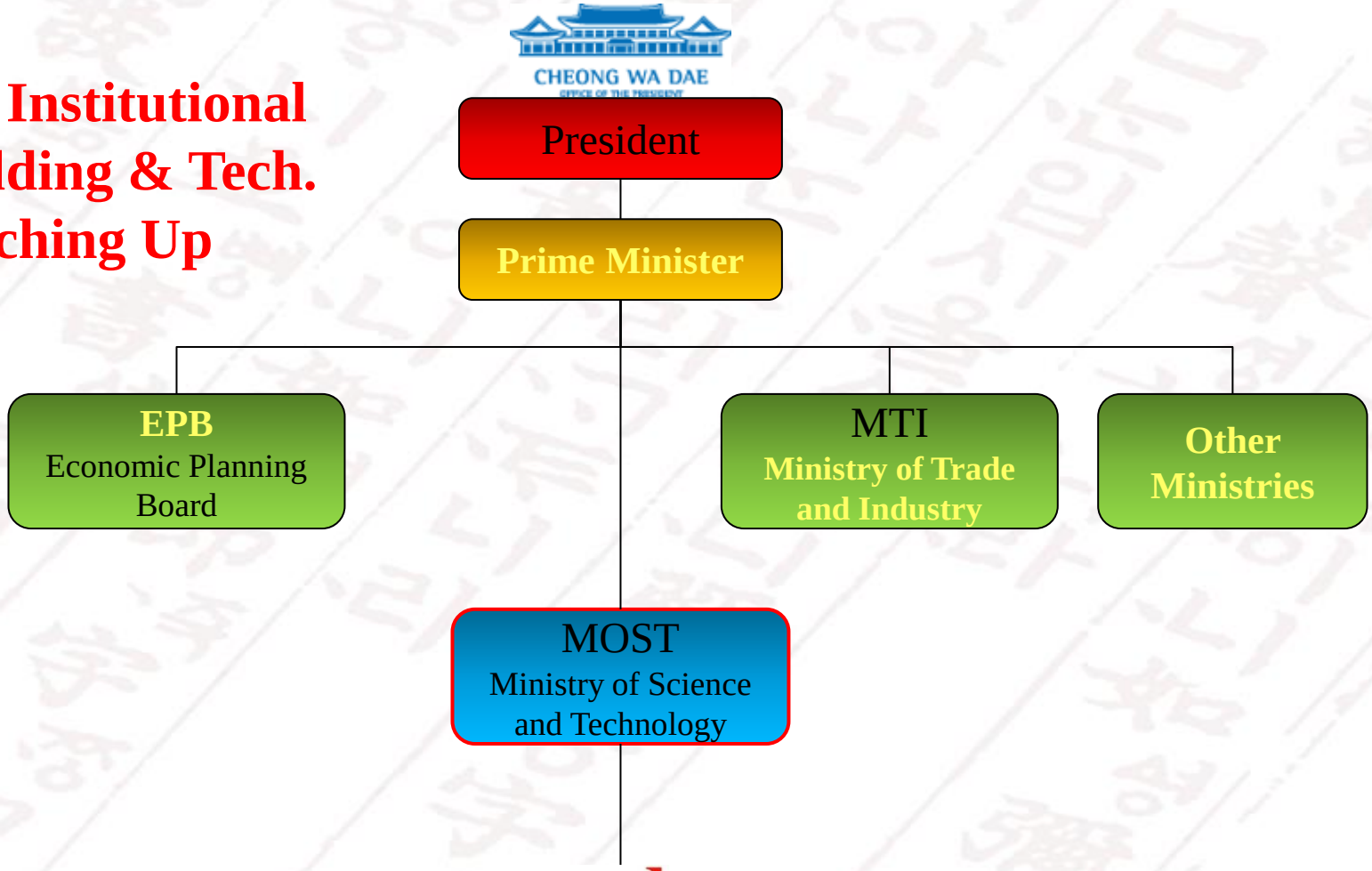
Evolution of Science and Technology Policies

< Science and Technology Strategy Roadmap >

	1960s	1970s	1980s	1990s	2000s	2010s
Government's Role	Scientific Institution Building • Establishment of Ministry of Science and Technology • S&T promotion Act • Human resource development	Scientific Infra-structure Setting • Establishment of government-funded research institutes • R&D promotion Act • Highly qualified personnel development	R&D and Private Research Lab Promotion • National R&D funds • Promotion of establishing private research labs • Promotion of industrial R&D	Leading Role in Strategic Area • Strategic program (highly advanced national project) • Enhancing university research capability • Linkage of university-industry-govern-ment research institutes	R&BD and Investment Promotion • Strategic program for technology business (R&BD, TBI, NTB) • Globalization of technology • Promotion of technology start-ups	Green Technology Promotion • Strategic increase of R&D investment in GT • Promoting GT transfer and commercialization • Strengthening incentive schemes for inducing private investment in GT
Innovative Capability of Private Sector						

Governance - Establishment of MOST (1967)

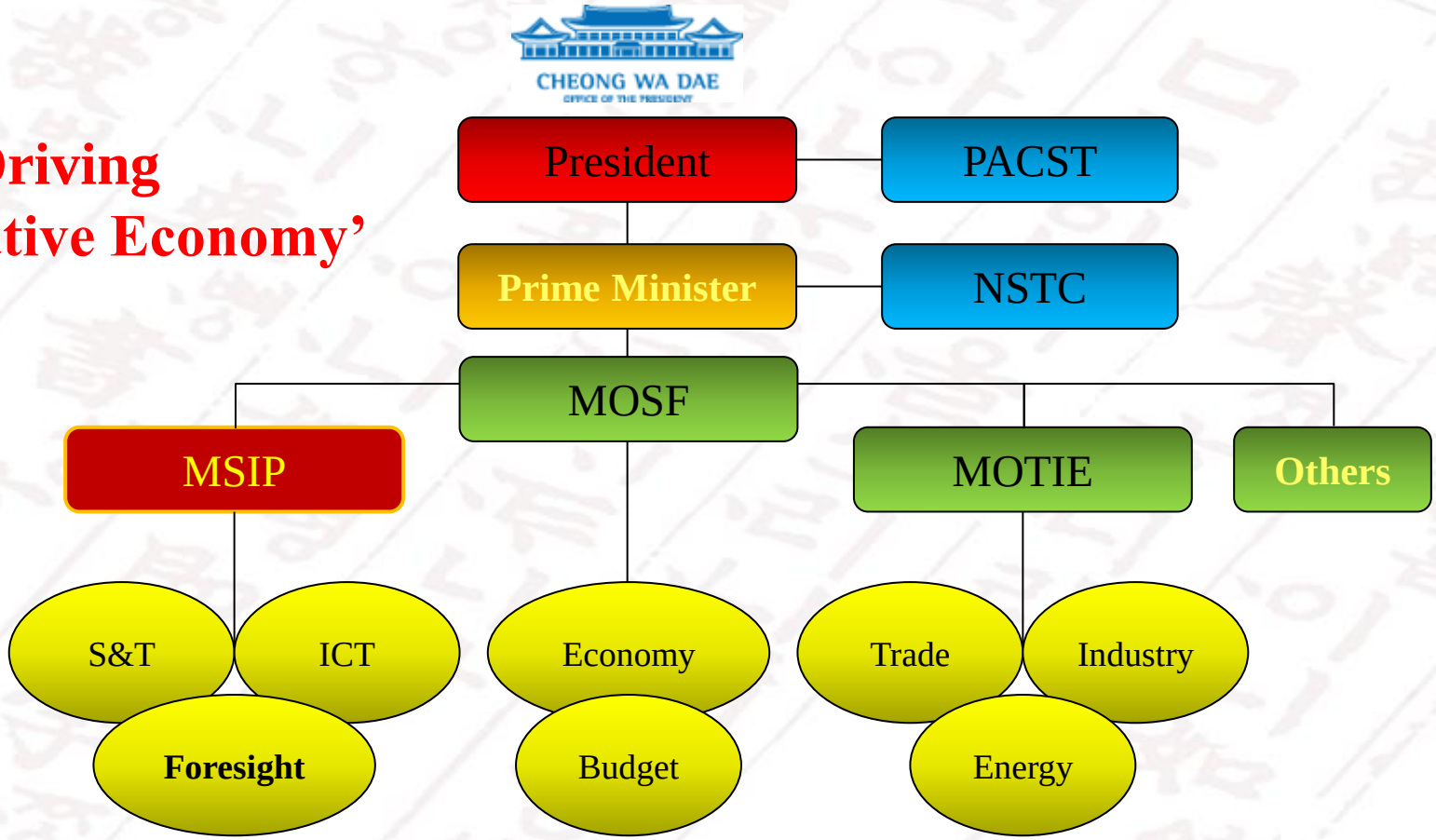
For Institutional Building & Tech. Catching Up



First Korean GRI (1966)

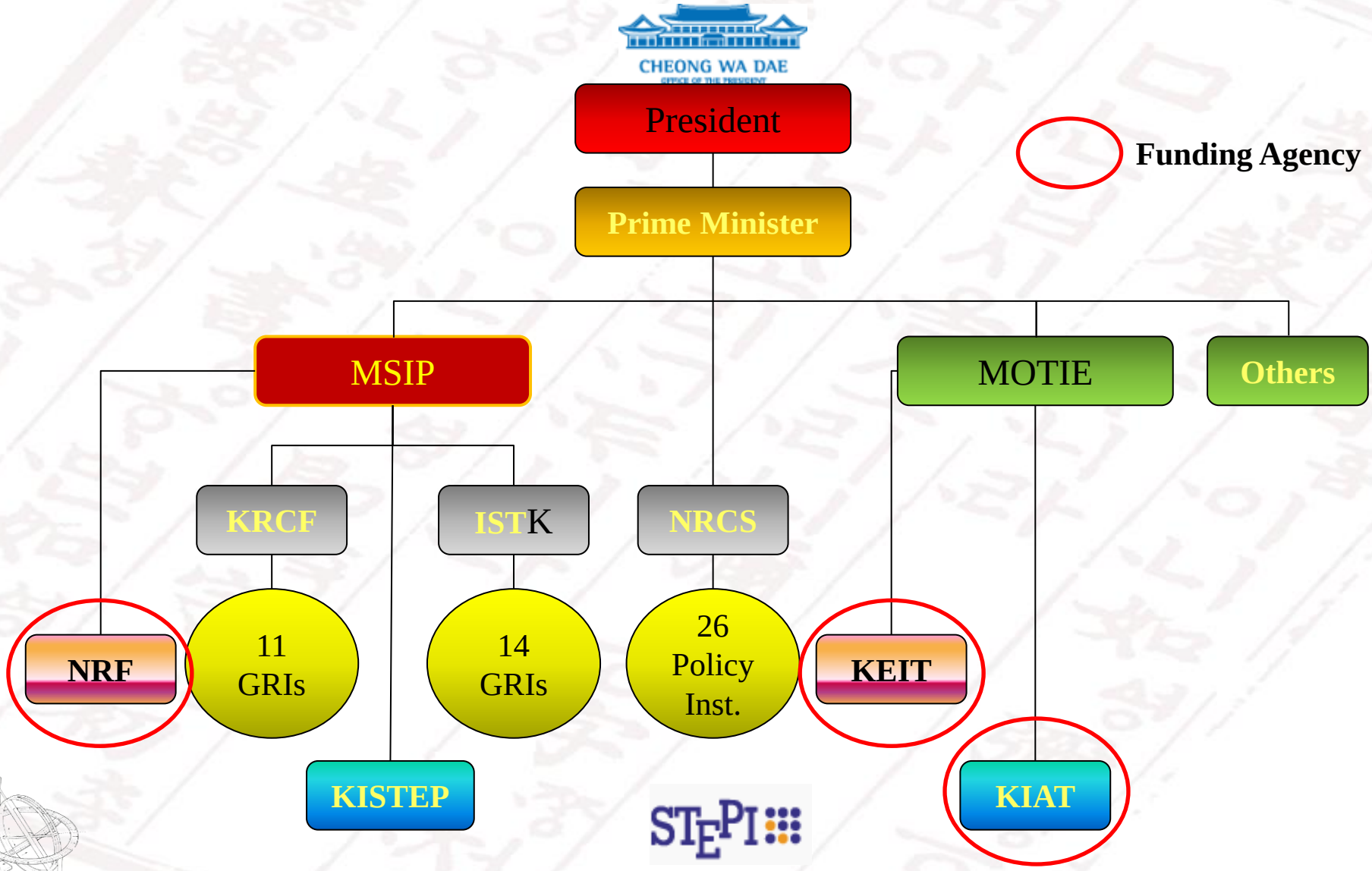
New Governance for the Creative Economy('13~)

For Driving 'Creative Economy'



* MOSF: Deputy Prime Minister and Ministry of Strategy and Finance
* MSIP: Ministry of Science, ICT and Future Planning
* MOTIE: Ministry of Trade, Industry and Energy

New Governance for the Creative Economy('13~)



Government-Funded Research Institute (GRIs)

1960s	Establishment of KIST (1966)
1973	Assistant Act for Specific Research Institutes enacted to support new GRIs
1980	The government reduced the number of GRIs from 16 to 9
1999	• The Act on the Establishment, Management and Promotion of Government-funded Research Institutes (GRIs) enacted to manage GRIs • The system of three research councils was established to be affiliated with Prime Minister 1) Korea Research Council of Fundamental Science & Technology (KRCF) 2) Korea Research Council of Public Science & Technology 3) Korea Research Council of Industrial Science & Technology (ISTK)
2008	Dual Research Council System - 13 GRIs affiliated to KRCF (Ministry of Education, Science and Technology) - 14 GRIs affiliated to ISTK (Ministry of Knowledge Economy)
2013~ Present	Dual Research Council System + IBS (Institute for Basic Science) - 11 GRIs affiliated to KRCF (Ministry of Science, ICT and Future Planning) - 14 GRIs affiliated to ISTK (Ministry of Science, ICT and Future Planning)

GRIs – Daedeok Innopolis (1973 ~ Present)

R&D Cluster in Korea

To build a world-class city of "brains"

To make research activities more effective through collaborative R&D projects

To facilitate human exchanges and joint research

1970~1980s

Constructed research institutes within the cluster

1999s

Created national expertise in R&D

2000s

Transformed into a mature innovation cluster

Nurturing S&T Manpower

Korea Advanced Institute of Science and Technology (KAIST)

Mission (1971)

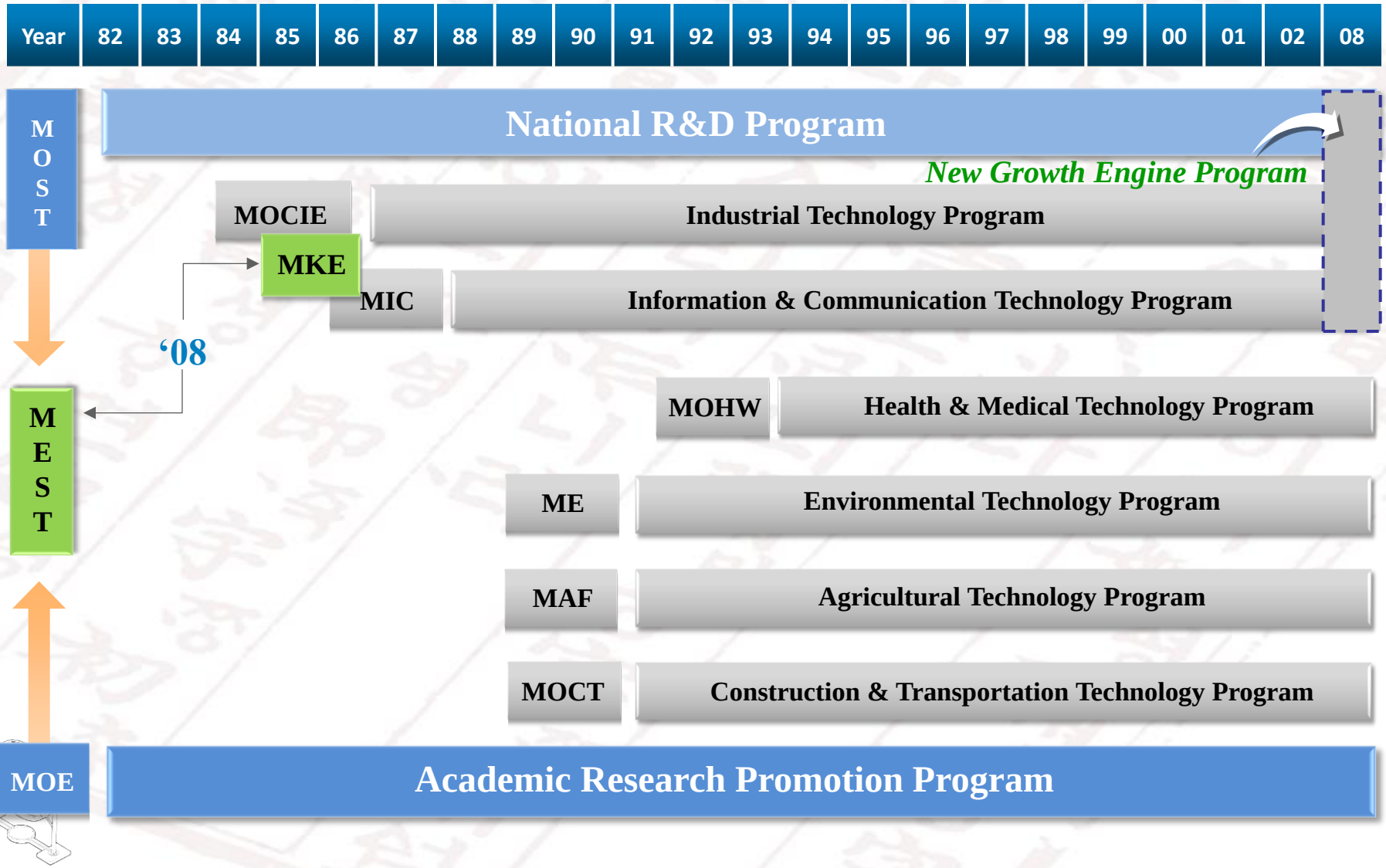
- Education of highly qualified scientists and engineers equipped with theoretical and practical expertise.
- Participation in government research projects and basic and applied research for Korea's competitiveness in S&T.
- Provision of research platforms to other research institutes and enterprises.

Building a Reputation in Science

- The U.S higher science education assessment board, ABET, put KAIST graduate course within 10% of top U.S. college level in 1992
- No. 1 Asian college in science and technology (Asiaweek, in 1999 and 2000)
- 37th in the world in technology field and 82nd in the science field (The Times Higher Education report, in 2006)

National R&D Program

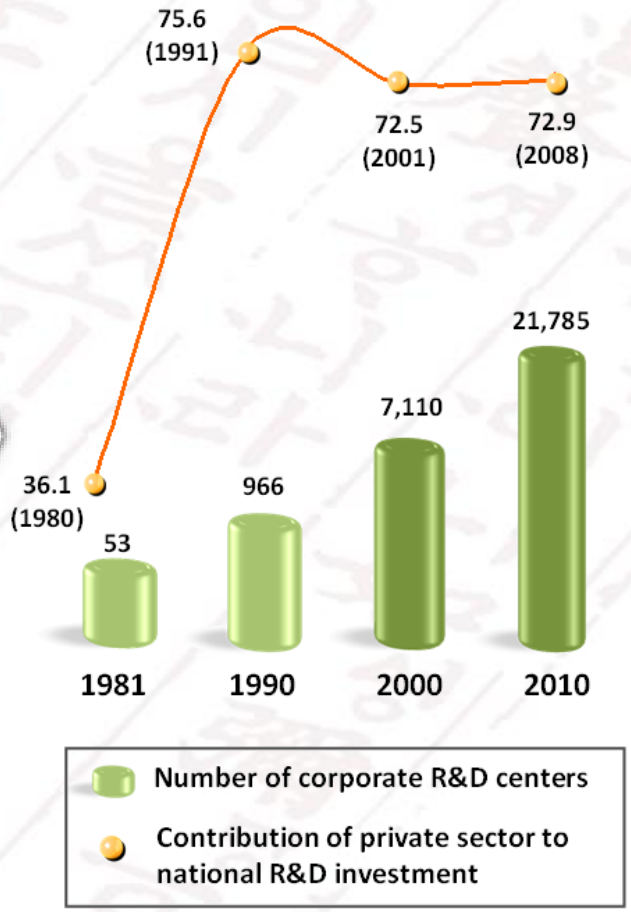
Expansion of National R&D Programs



Encouraging R&D in Private Sector (1)

Government established support systems for facilitating technology development in the private sector (1980s)

- Tax support system for technology development
  - tariff reduction for supplies for R&D, exemption of tax on samples for research
- Financial incentive to stimulate R&D investments
- Private sector's R&D investment increased by 8.4 times since 1982
  - $2.7 billion (1982) → $22.8 billion (2008)



Encouraging R&D in Private Sector (2)

Achievements Led by the Private Sector

Display

’90s	early ’00s	present
Joint R&D - Industry-academy-gov	Investment of private sector - World level producing system	World’s No.1 - Market share of 46%(’09)

Ship Building

’70s	’80s~’90s	’00s
Government-led intensive development	Continued private R&D investment - Extension of private research institutes	World’s No.2 - Market share of 40.1%(’09)

DRAM

’80s	’90s	’00s
Government-led intensive development - 4M/16M DRAM	Private initiatiated R&D - 64M/256M DRAM	World’s No.1 - Market share of 55%(’09)

Mobile Phone

Early ’90s	Mid ’90s	’00s
Government-led R&D - CDMA technology	Market Extension - Support for market creation & extension	World’s No. 2 - Market share of 30%(’09)

KEIT – Agency Supporting Industrial Tech.

Mission

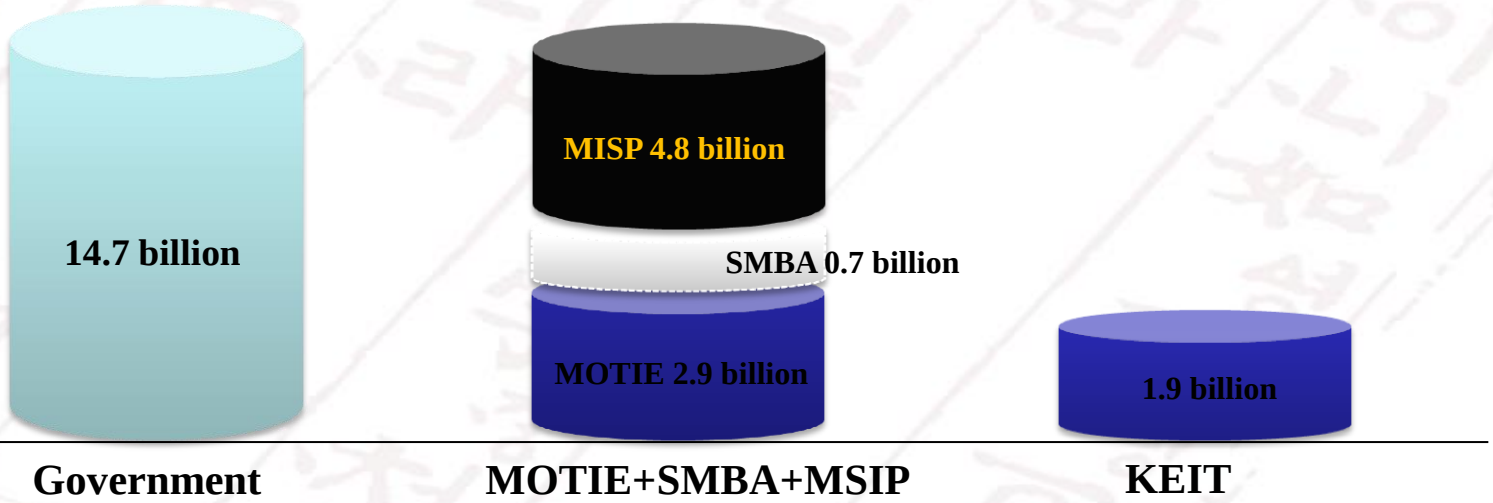
Strengthening national competitiveness in industrial technology with professional planning, evaluation, and management of industrial technology

Vision

Global leader in R&D management and evaluation by leading the industry innovation

KEIT's execution budget is approximately $1.9 billion [MOTIE+MSIP+SMBA]

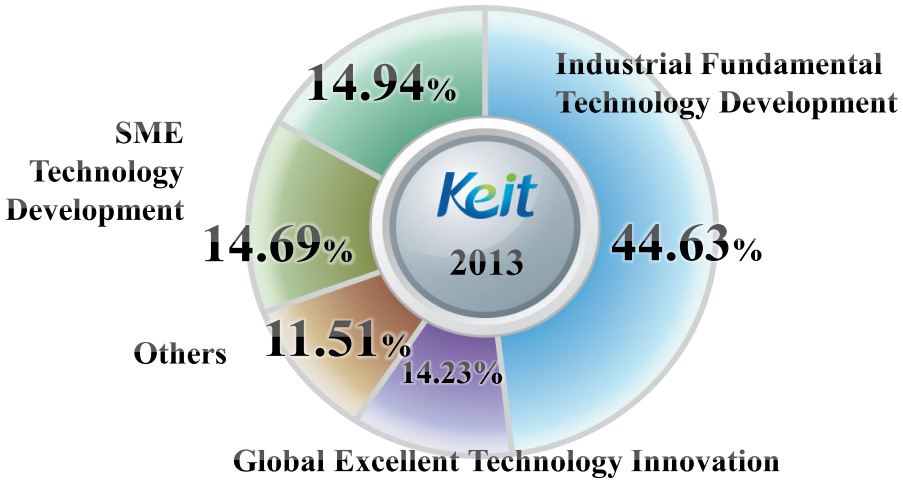
National R&D budget for FY2013($)



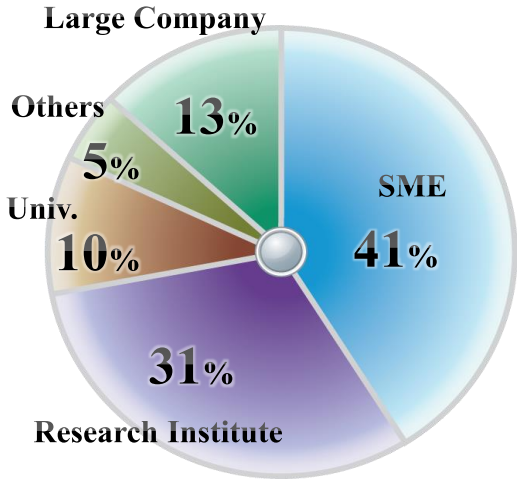
KEIT's R&D Programs and Program budget

Program	Summary	Amount(Mil Dollars)	%
Industrial Fundamental Technology Development	Promote future industries and strengthen industrial competitiveness of strategic technology fields	872	**44.63**
Materials & Components Technology Development	Develop core technology for key components and materials	292	**14.94**
Global Excellent Technology Innovation	Boost Global Competitiveness of SMEs	278	**14.23**
SME Technology Development	Assist SMEs in developing new technologies and products	287	**14.69**
Others	Develop technology to dominate future market in advance and replace for imports	225	**11.51**
Total		1,954	**100.0**

Support for R&D by Program



Support for R&D by Performer



STEPI – Role & Function

STEPI investigates domestic and international science technology, and innovation

- ★ Conduct research and analyze issues pertaining to STI
- ★ Provide government agencies with policy ideas and suggestions for the promotion of innovation
- ★ Identify policy issues to effectively deal with future challenges
- ★ Suggest strategic options in technology development for the government as well industry
- ★ Create and disseminate S&T policy materials, data and information

STEPI – International Activities

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Technology and Policy (TAP) Training Program

Annual program in collaboration with
the Korea International Cooperation Agency (KOICA) since 1999.

APEC Research and Technology (ART) Program

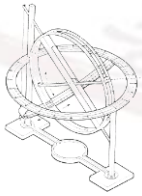
Sponsored by the Ministry of Science, ICT and Future Planning
For delegates from APEC Member Countries

STIP (Science, Technology, Innovation and Policy) Training Program

KOICA's country specific program
- Tunisia & Columbia

STEPI-UNESCO STI Policy Workshop

Organized by UNESCO Headquarter & Korea National Commission for UNESCO
Operated by STEPI



Implication from Korean Experiences

Institutional evolution went along with industrialization & economic growth
Institutional evolution contributed to the economic development

Mission

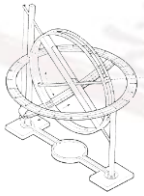
- Clear and present mission given to each entities
- Ministries, GRIs, agencies, universities & private enterprises

Policy

- Strong & consistent support from the government with long-term perspectives
- Financial as well as non-financial incentive schemes

Manpower

- Attract the best scientists and engineers in early stage of institutional evolution
- Emphasis on higher education, brain-circulation and global talents



Share our Experiences for Co-prosperity