Introduction of

Technology Assessment System

of Korea for national S&T

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Contents

1. Introduction

KISTEP

"What is R&D(Research & Development) ?"

- **The creative work undertaken on a systematic basis in order to increase the stock of knowledge and the use of this stock of knowledge**
- **The investment for the future**

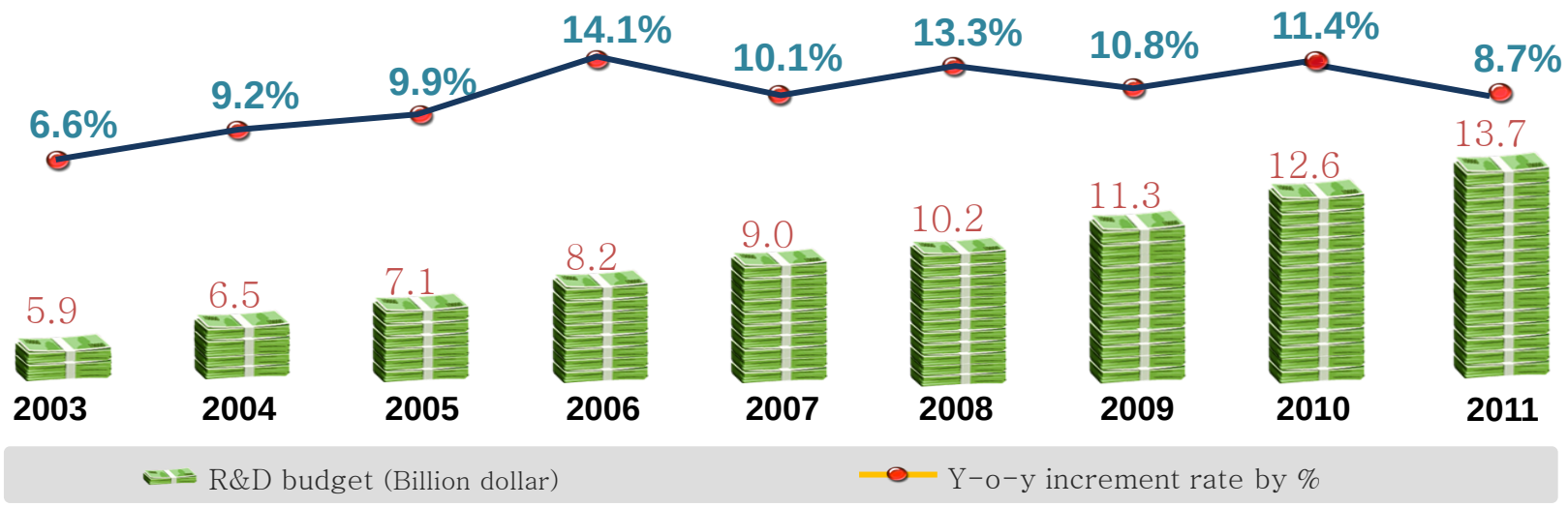
Frascati Manual (OECD, 2002)

Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge , including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

64. The term R&D covers three activities: basic research, applied research and experimental development; these are described in detail in Chapter 4. **Basic research** is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. **Applied research** is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective. **Experimental development** is systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produces or installed. R&D covers both formal R&D in R&D units and informal or occasional R&D in other units.

" How much does Korea Government invest on R&D field?"

- 40,000 R&D Projects and $ 13.7 billion R&D budget on 2011
- Korea Government's R&D investment shows sustain increase every year.



2. Preliminary Evaluation System

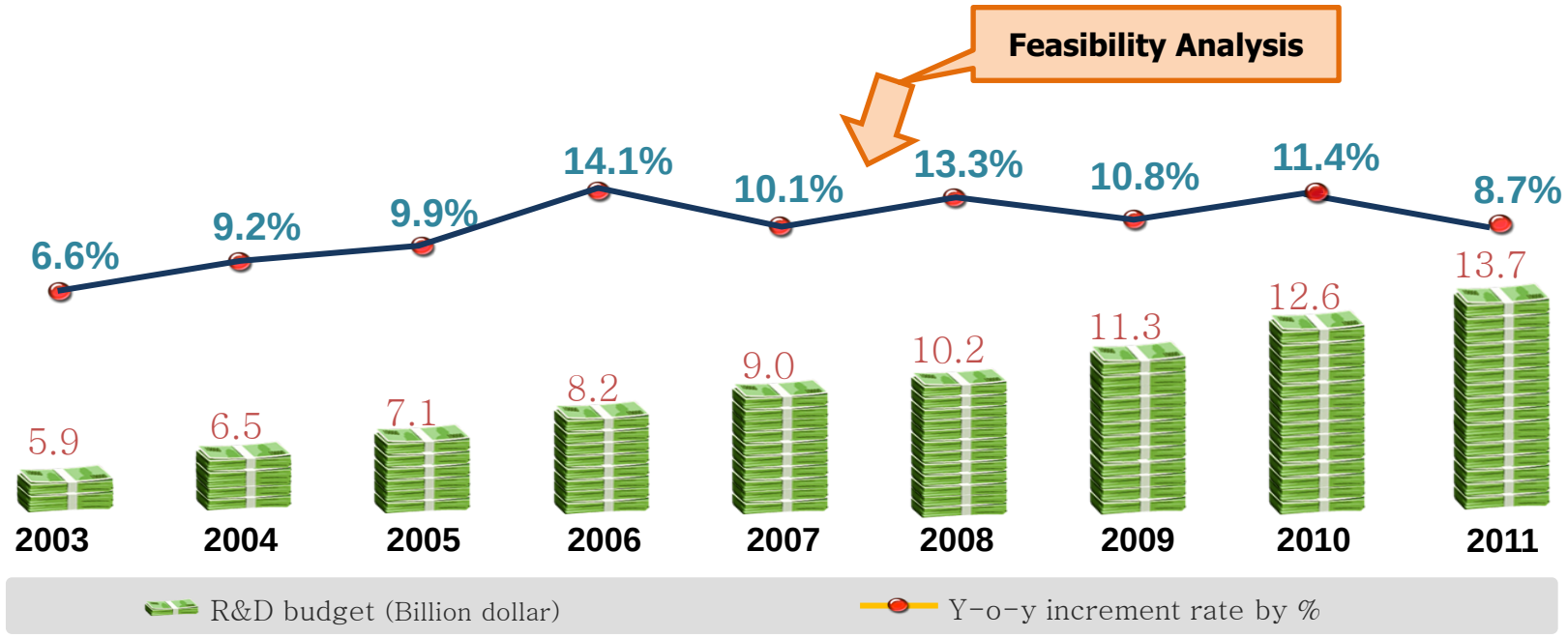
"Korea Government has become to need a preliminary evaluation system."

Weakness

- **Evaluation system focused on the outcome**
- **Poor R&D program planning**
- **R&D budget waste**

Need

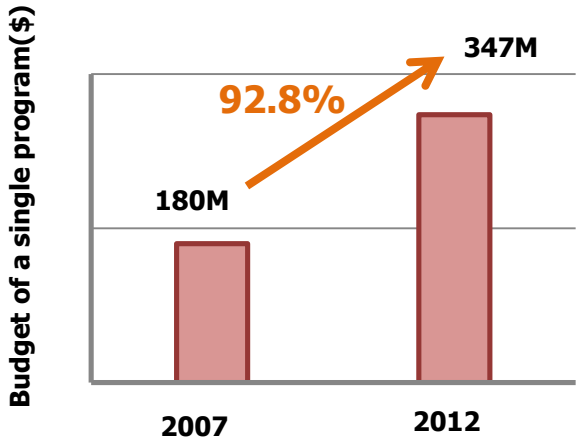
Preliminary evaluation



2. Preliminary Evaluation System

"But the government R&D programs become more massive, and we need diverse perspectives."

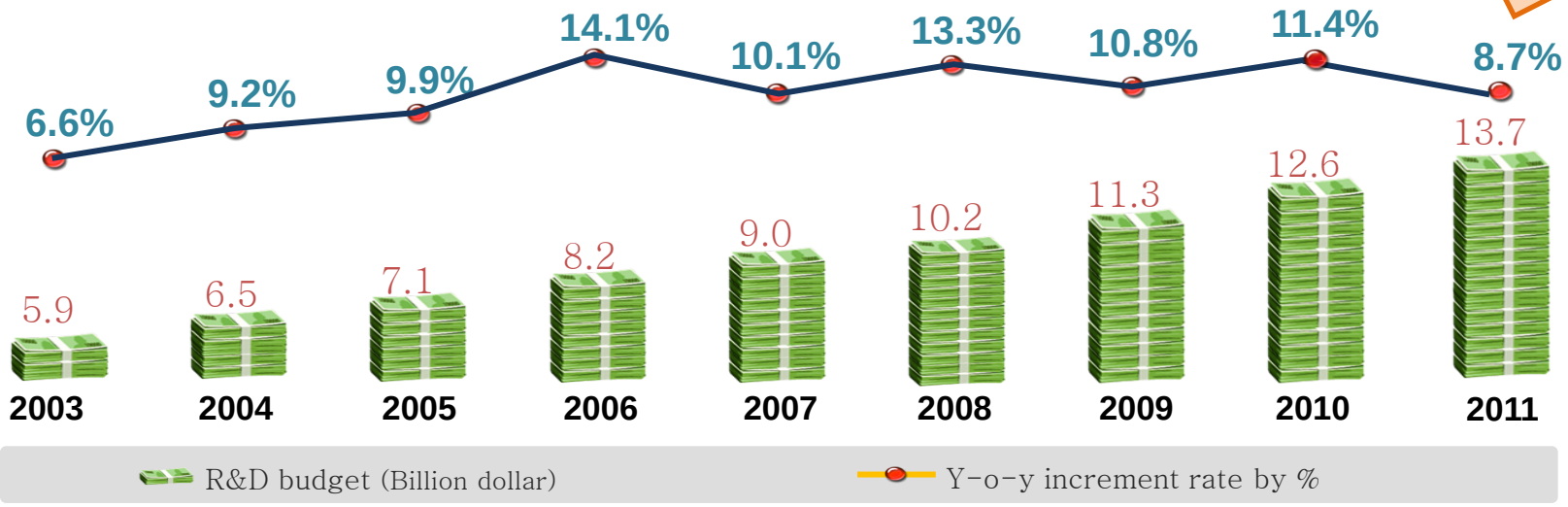
Massiveness of R&D programs



Need

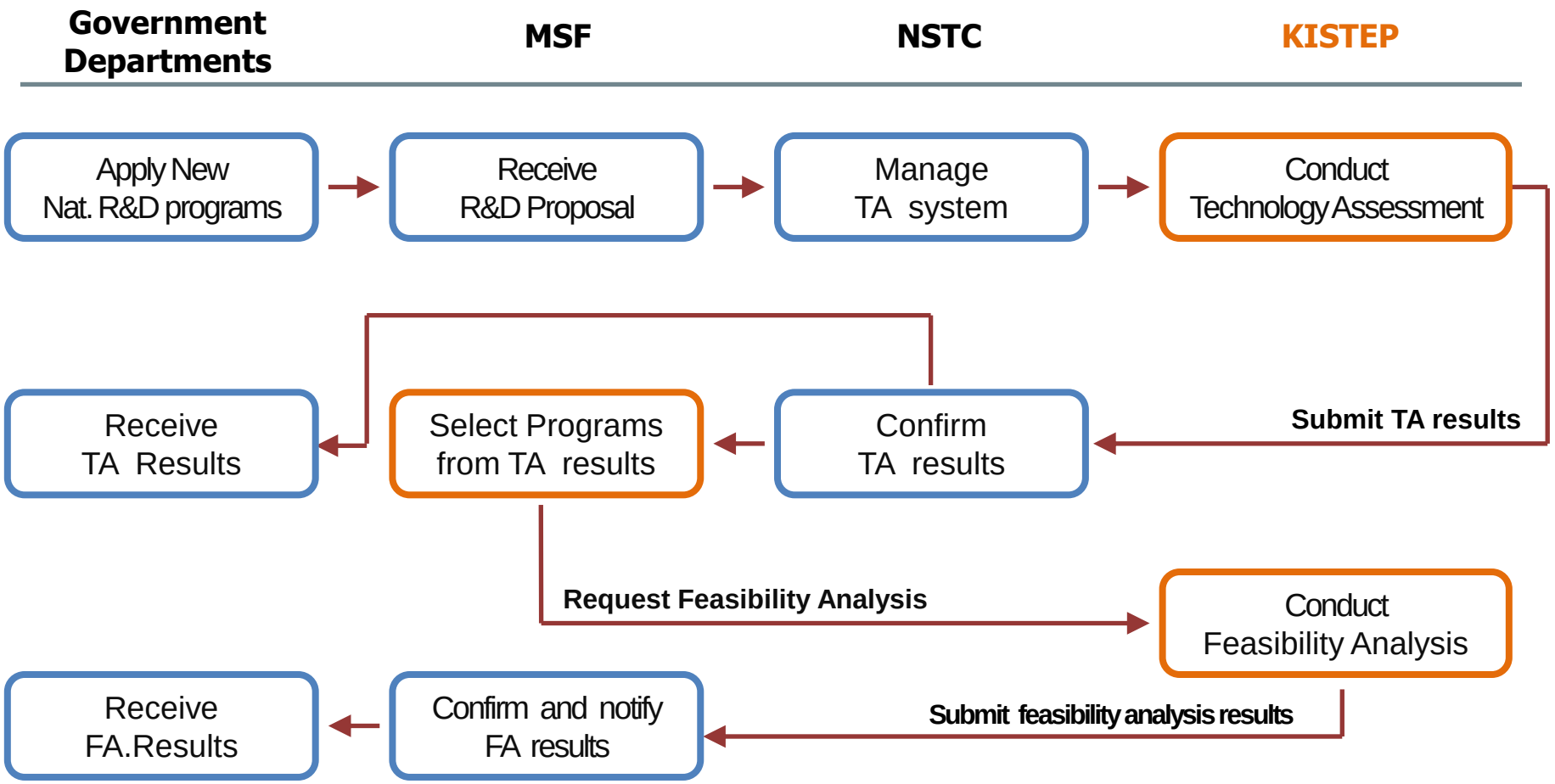
- **Macroscopic perspectives**
- **Multilateral perspectives**
- **Long-range viewpoints**

Technology Assessment



2. Preliminary Evaluation System

"Technology Assessment System is the first screening step as a preliminary evaluation process for national R&D program"



- **MSF(Ministry of Strategy and Finance) / NSTC(National S&T Committee)**
- **KISTEP(Korea Institute of S&T Evaluation and Planning)**
- **TA (Technology Assessment) / FA(Feasibility Analysis)**

3. Overview of Technology Assessment System

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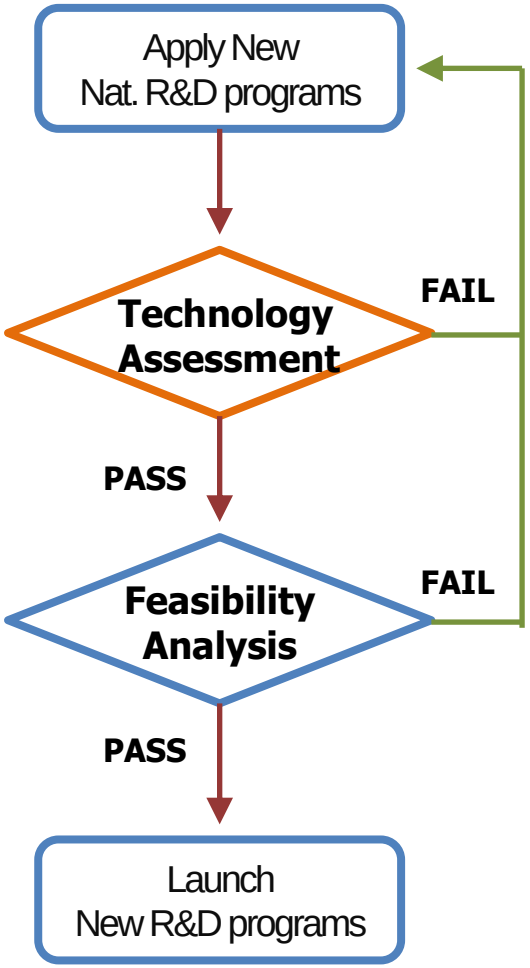
"Technology Assessment System is…"

	Technology Assessment System
Purpose	**To select practical programs from newly proposed R&D programs for Feasibility Analysis**
Supervise	**NSTC** (National S&T Commission)
Target	**Newly proposed national R&D program** ▪ Total budget ≥ $50M ▪ The budget portion of government ≥ $30M ▪ The budget ratio of construction and facility/ equipment installation ≤ 30%c
Evaluation Period	**About 2 months**
Method	**6 items and 14 indexes with Technology committee**



3. Overview of Technology Assessment System

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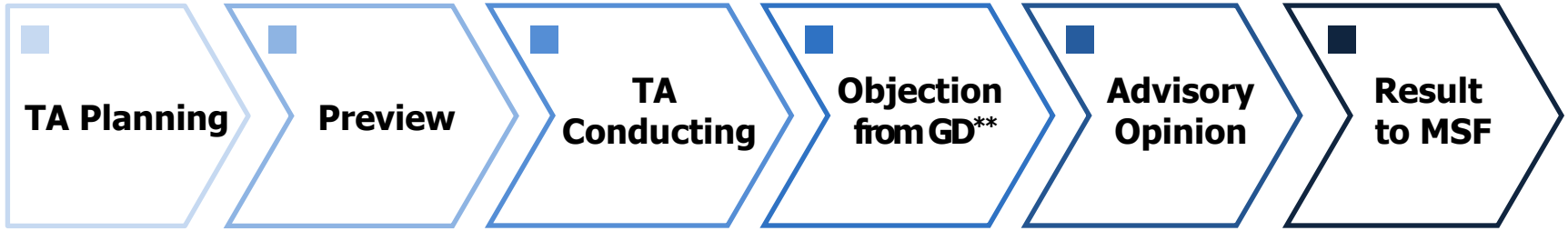
"Technology Assessment process consists of 6 steps"

- To accept newly proposed R&D programs
- To plan TA process

- To assess R&D programs based on assessment items and indexes
- To draft TA results

- To review TA results
- To advise about their properness



- To preview proposed R&D programs by check-lists
- To select proper R&D program for TA by preview

- To get the objection from Government Departments
- To reflect the objection & revise TA results

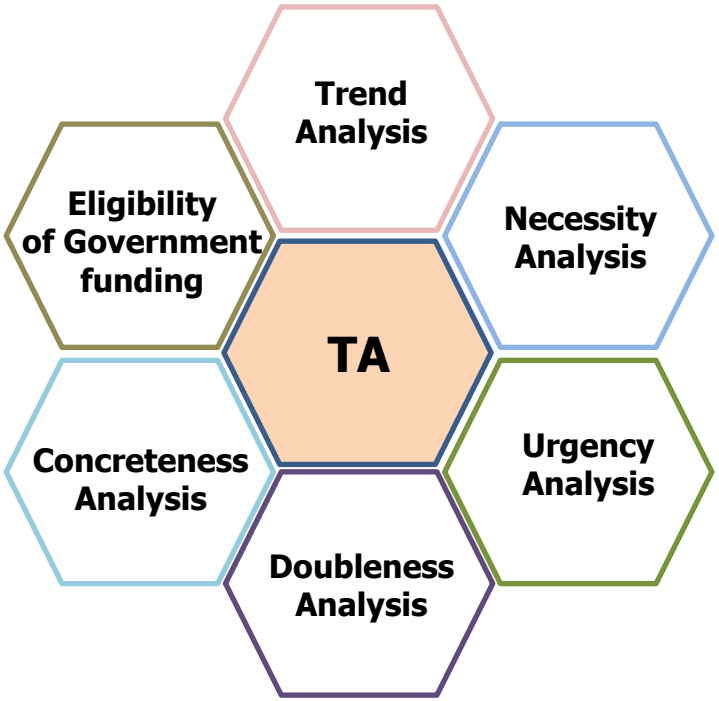
- To forward TA results to MSF & GD

NSTC — TA Advisory Committee — Technology Committee — KISTEP

4. Technology Assessment Methodology

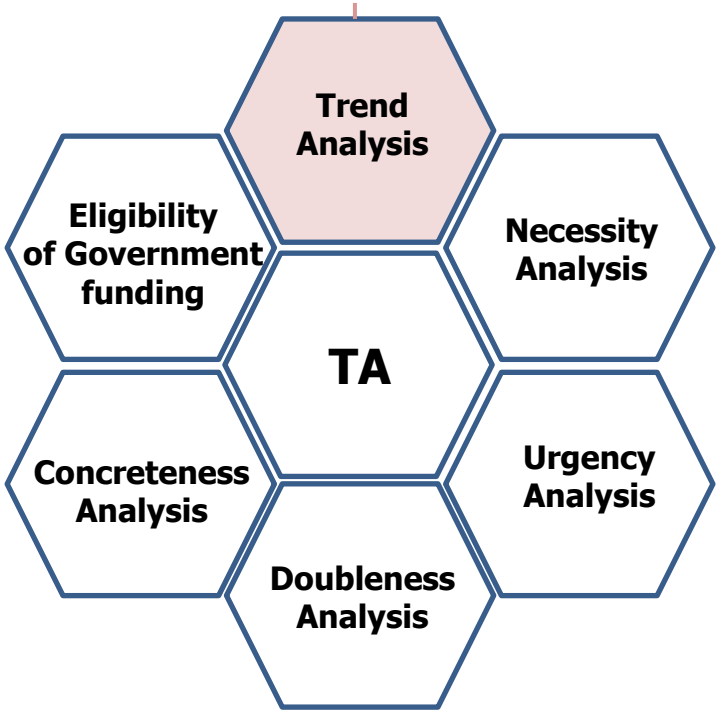
KISTEP

"Technology Assessment is performed with 6 items and 14 indexes"



- The properness of trend analysis
- The utilization plan of trend analysis result
- The correspondence with the national R&D plan
- The correspondence with The national R&D investment plan
- The timeliness of R&D program
- Environmental maturity for R&D program
- The difference in the goal, the target, the technology, and the strategy
- The connecting and cooperating plan with similar R&D programs
- The procedure for R&D program planning
- The properness of contents
- The validity of the plan for the budget, human resource, and the facility
- The validity of the management plan
- The innovativeness of R&D program
- The publicness of R&D program

"Trend analysis has 2 assessment indexes."

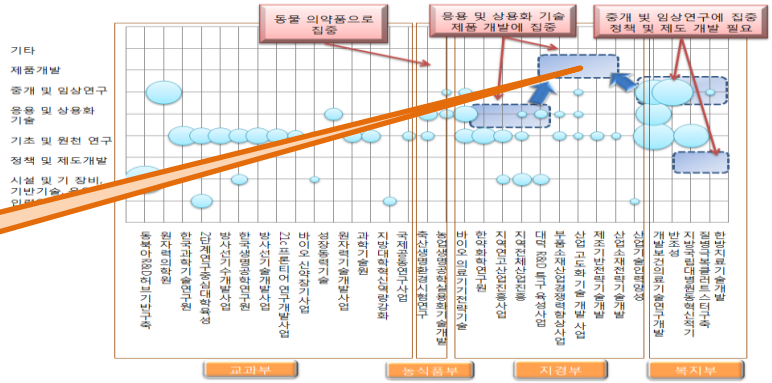


The properness of trend analysis

- To check the policy, market, industry, and technology trend related to R&D program
- To check the case study related to R&D program

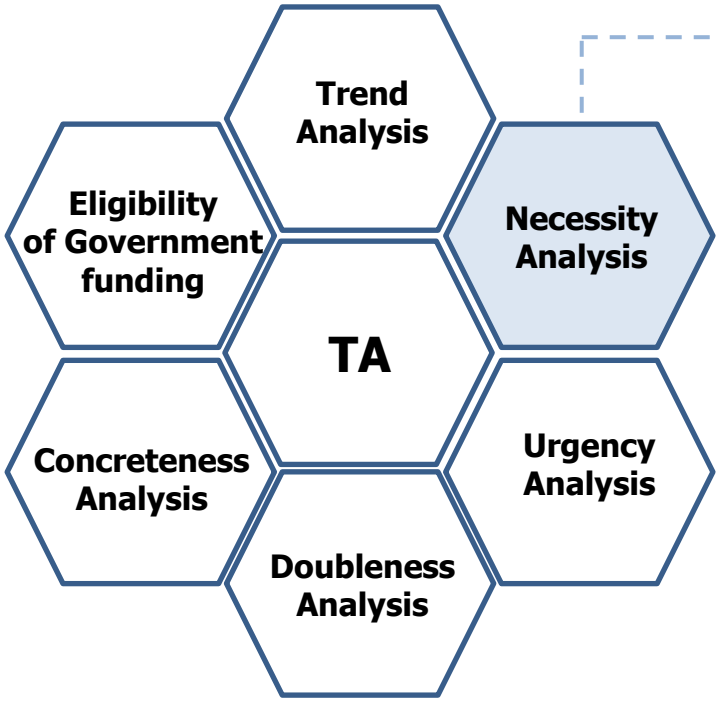
The utilization plan of trend analysis result

- To check if the plan of R&D program reflects the technological level, the white-space technology, the opportunity and the risk of the program based on the trend analysis result



The area of white-space technology

"Necessity Analysis has 2 assessment indexes."



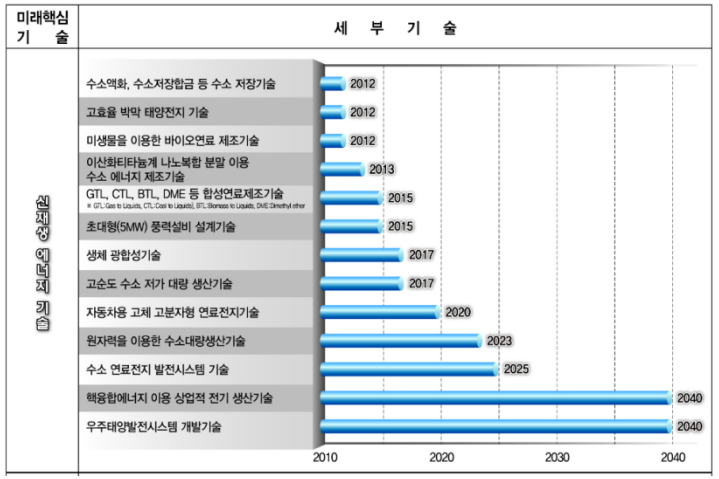
The correspondence with the national R&D plan

- To check if the purpose of the R&D program corresponds to the national R&D plan

The correspondence with the national R&D investment plan

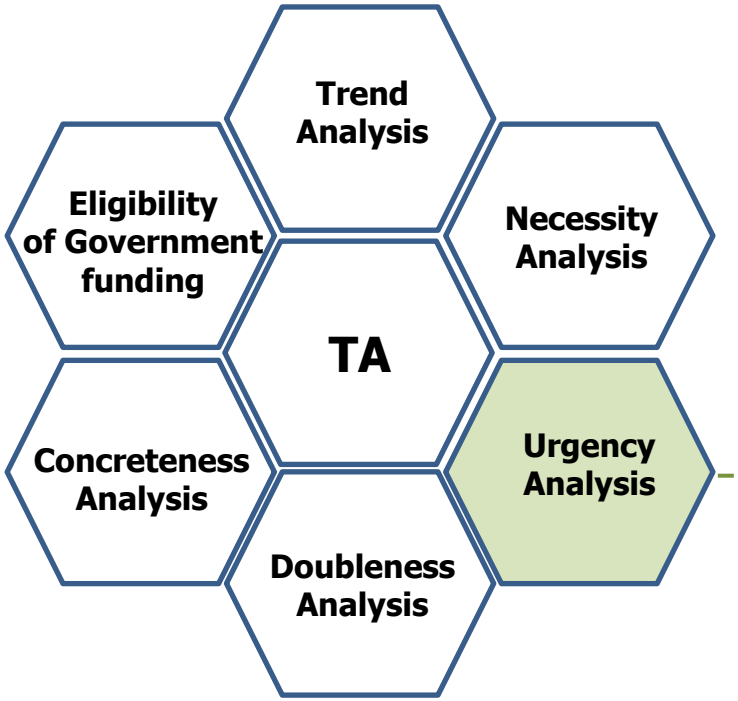
- To check if the direction and contents of R&D program are included in the national R&D investment plan

The national R&D Plan



4. Technology Assessment Methodology

"Urgency Analysis has 2 assessment indexes."



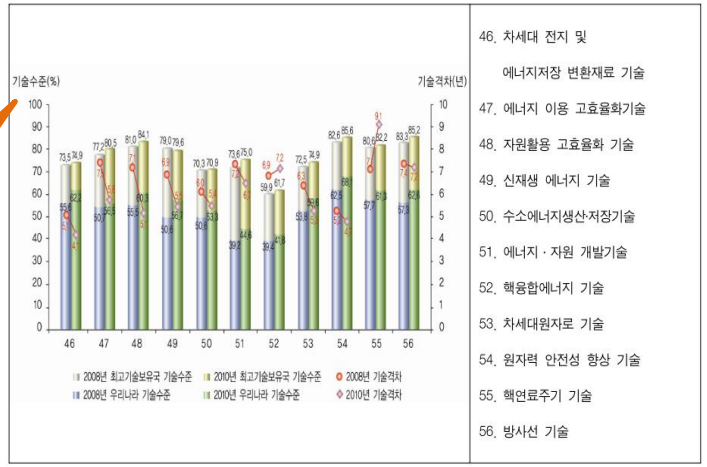
The timeliness of R&D program

- To check if it is the right time to launch R&D program

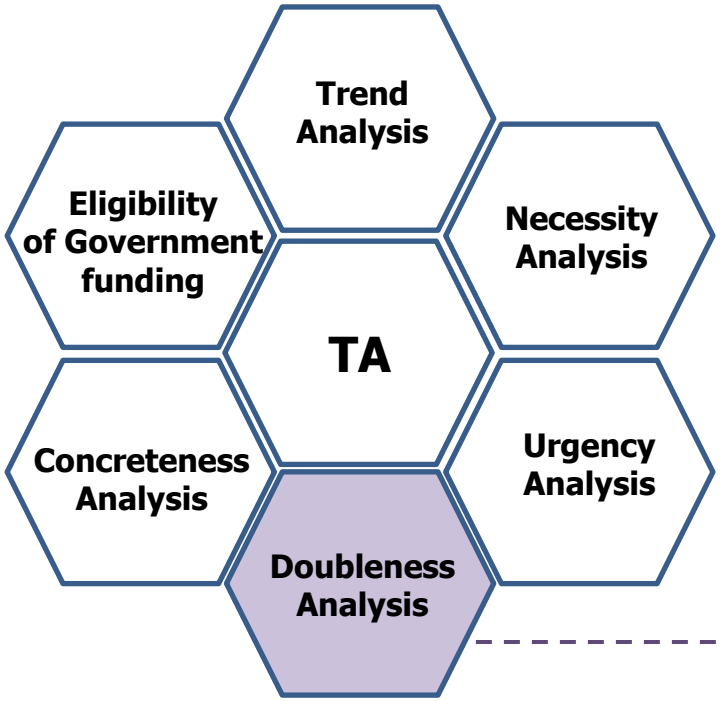
Environmental maturity for R&D program

- To check if the environment for R&D program like technology level, the number of researchers, and infrastructure is mature enough

The technology level



"Doubleness Analysis has 2 assessment indexes."



The difference in the goal, the target, the technology, and the strategy

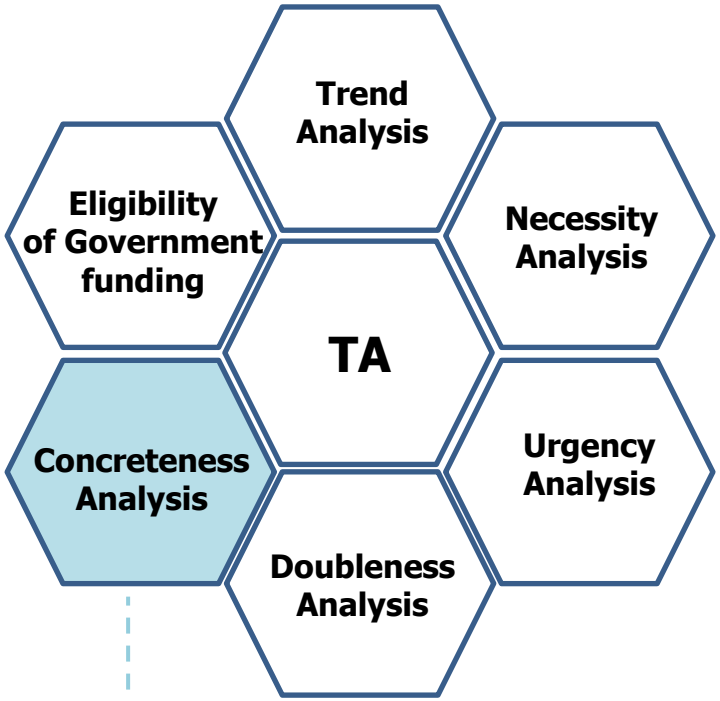
- To check if the proposed R&D program differs with previous other R&D programs in terms of the goal, the target, the technology field, and the strategy

The connecting and cooperating plan with similar R&D programs

- To check if the proposed R&D programs represents the connecting or cooperating plan with similar R&D programs
- To check if such proposed plans are valid and proper

4. Technology Assessment Methodology

"Concreteness Analysis has 4 assessment indexes."



The procedure for R&D program planning

- To check if the R&D program is planned through the systematic process like the survey for technology demands, public hearing, conference etc.

The properness of contents

- To check if the goal of the program, the object of the subordinated projects are clear and valid
- To check if the strategy and the structure of the program are proposed properly

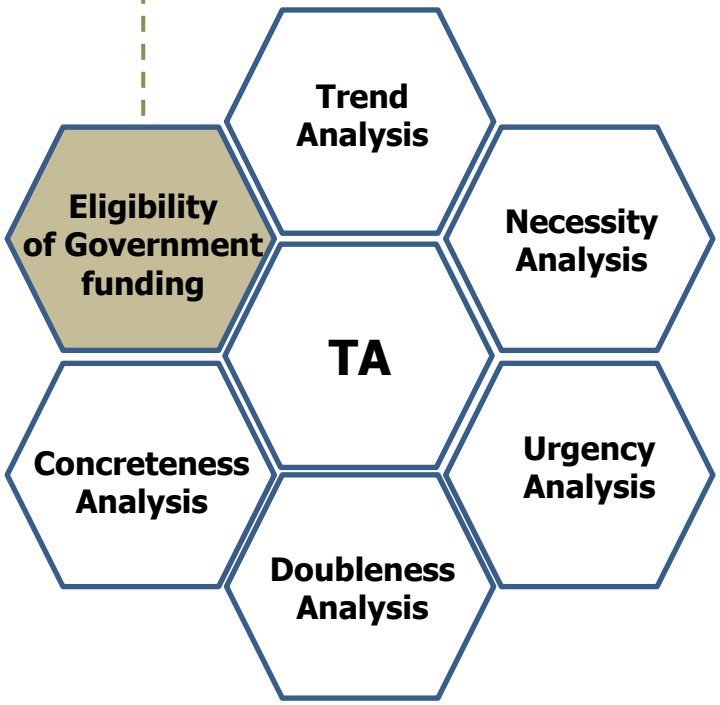
The validity of the plan for the budget, human resource, and the facility

- To check if the proposed plan of R&D budget for the program, human resource and the facility are valid

The validity of the management plan

- To check if the management plans for the schedule, the performance, and the performance evaluation are suggested and valid

"Eligibility of Government funding has 2 assessment indexes."



The innovativeness of R&D program

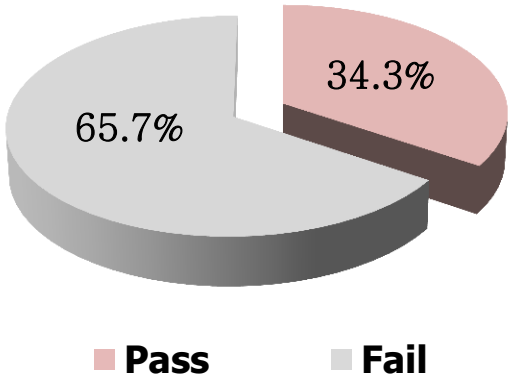
- To check if the proposed R&D program is challenging and innovative so it needs government funding

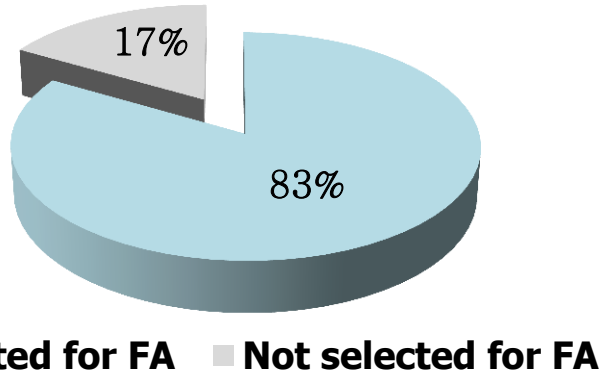
The publicness of R&D program

- To check if the outcomes form R&D program are for the public
- To check if the R&D program could be performed by private enterprises
- To check if the fund matching between government and private enterprise is valid

5. The result of Technology Assessment System

"Technology Assessment has conducted 3 times since the 2nd half of 2011, and shows positive results in its role."





- 51 R&D programs were applied as new national R&D programs from 8 Government departments.
- 36 R&D programs were the target for TA
- Only 12 R&D programs in 36 were satisfied for TA

- 10 R&D programs in 12 from TA were selected for Feasibility Analysis by MSF

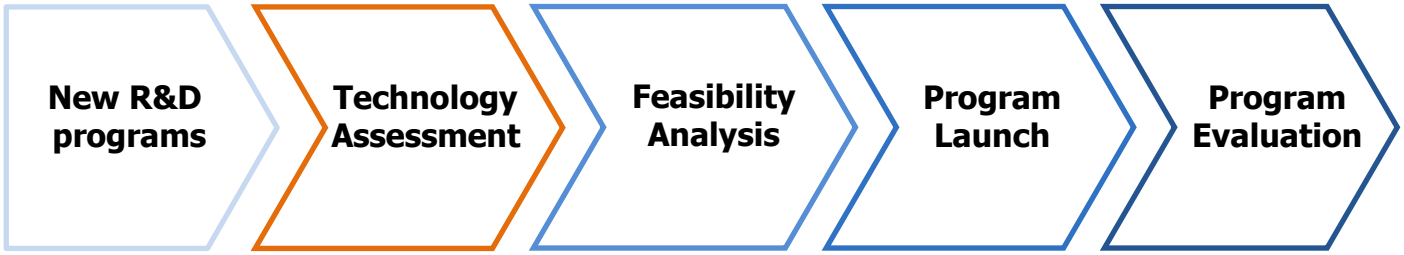
TA System becomes the essential preliminary evaluation system for national S&T

6. Future works

"Technology Assessment System is settled down but still needs to be evolved."

- **To keep the consistency and the objectivity of TA system, KISTEP plans to study how to reflect the diversity of R&D programs' goals in TA, improve Technology Assessment standards and system, and develop more diverse perspectives for TA.**

- **To enhance Korea's Science and Technology, KISTEP plan to research the methodology for the life-cycle evaluation of national R&D programs.**



"I am happy to have the opportunity for the presentation at PACITA conference and appreciate your warm consideration."

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THE END

KISTEP

Additional Info

Additional Info

KISTEP

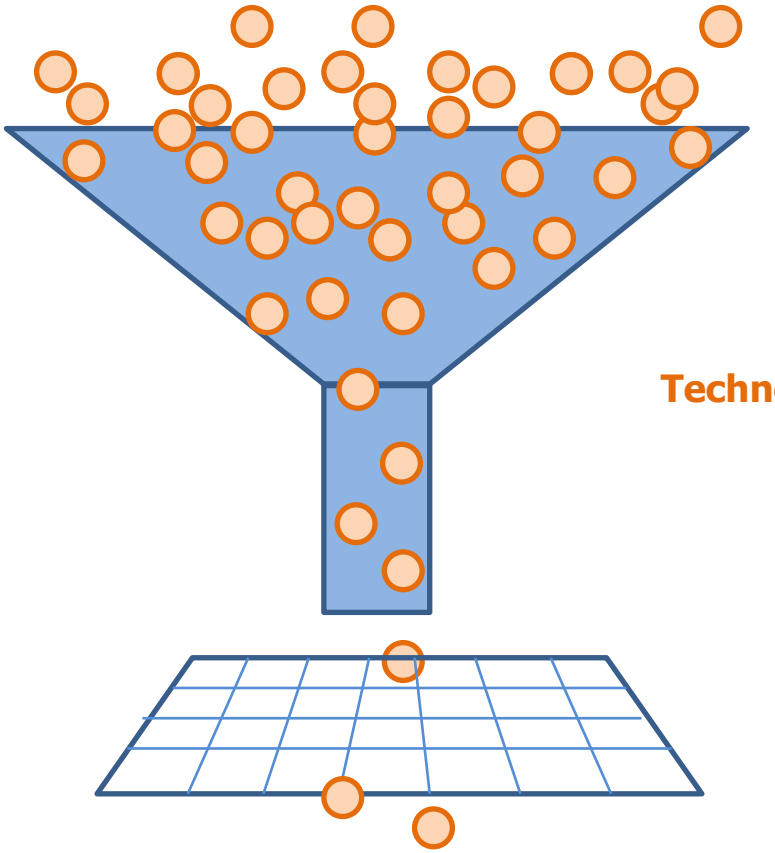
"Technology Assessment System is the Preliminary Evaluation system."

- "Assessment" and "Evaluation" have the same meaning in Korean translation.

Apply

1st Screening

2nd Screening



Newly proposed R&D programs

Technology Assessment System

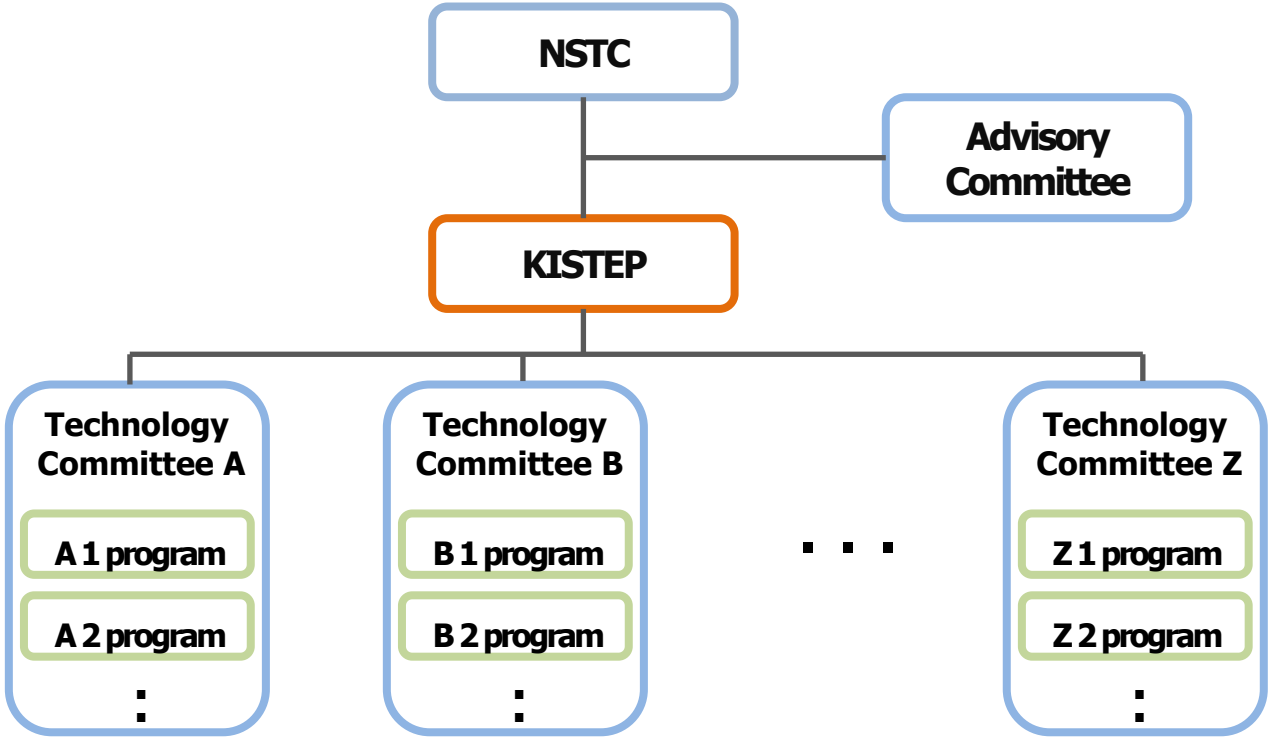
Feasibility Analysis

Launch New R&D program

Additional Info

KISTEP

"Technology Assessment structure and their roles are following ."



NSTC

- Supervise TA process
- Confirm TA result & send the result to MSF

Advisory Committee

- Review & advise about TA result

KISTEP

- Conduct TA about each R&D program
- One of KISTEP researchers becomes MD of each Technology Committee

Technology Committee

- Conduct TA with KISTEP
- Consist of 5-6 experts related with R&D field

Additional Info

KISTEP

"The comparison between TA and FA is…"

	Technology Assessment System	Feasibility Analysis
Purpose	To select practical R&D program for Feasibility Analysis	To analyze the feasibility of the program's promotion
Supervise	NSTC (National S&T Commission)	MSF (Ministry of Strategy and Finance)
Target	Newly proposed R&D program ▪ Total budget ≥ $50M ▪ The budget portion of government ≥ $30M ▪ The budget ratio of construction and facility/ equipment installation ≤ 30%c	Newly proposed program ▪ Total budget ≥ $50M ▪ The budget portion of government ≥ $30M
Evaluation Period	About 2 months	About 5 months
Method	6 items and 14 indexes with Technology committee	3 Criteria with Advisory committee (Economy/Technology/Policy)

Additional Info