Challenge for Science of R&D Evaluation in Japan

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Historical Background

Conventional Budgeting system: Internal

Economy depletion in 1990s

Innovation policy

1st Science and Technology Basic Plan 1996-2000

General Guideline for Evaluation in 1997

Ministerial guidelines

Internal → *External*

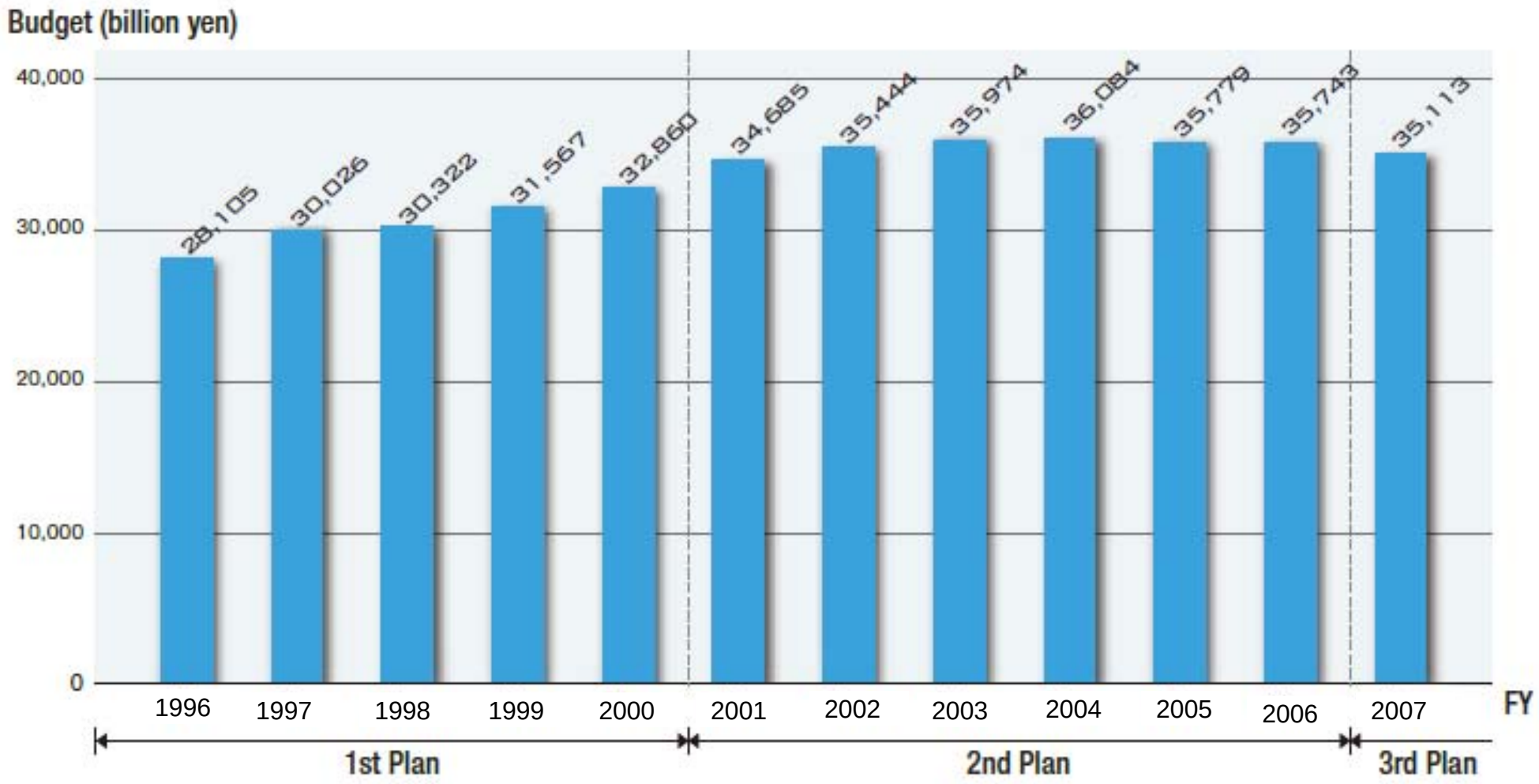
Review of Basic Plan

Innovation policy in each ministry

Innovation policy in 3rd Basic plan 2006-2010

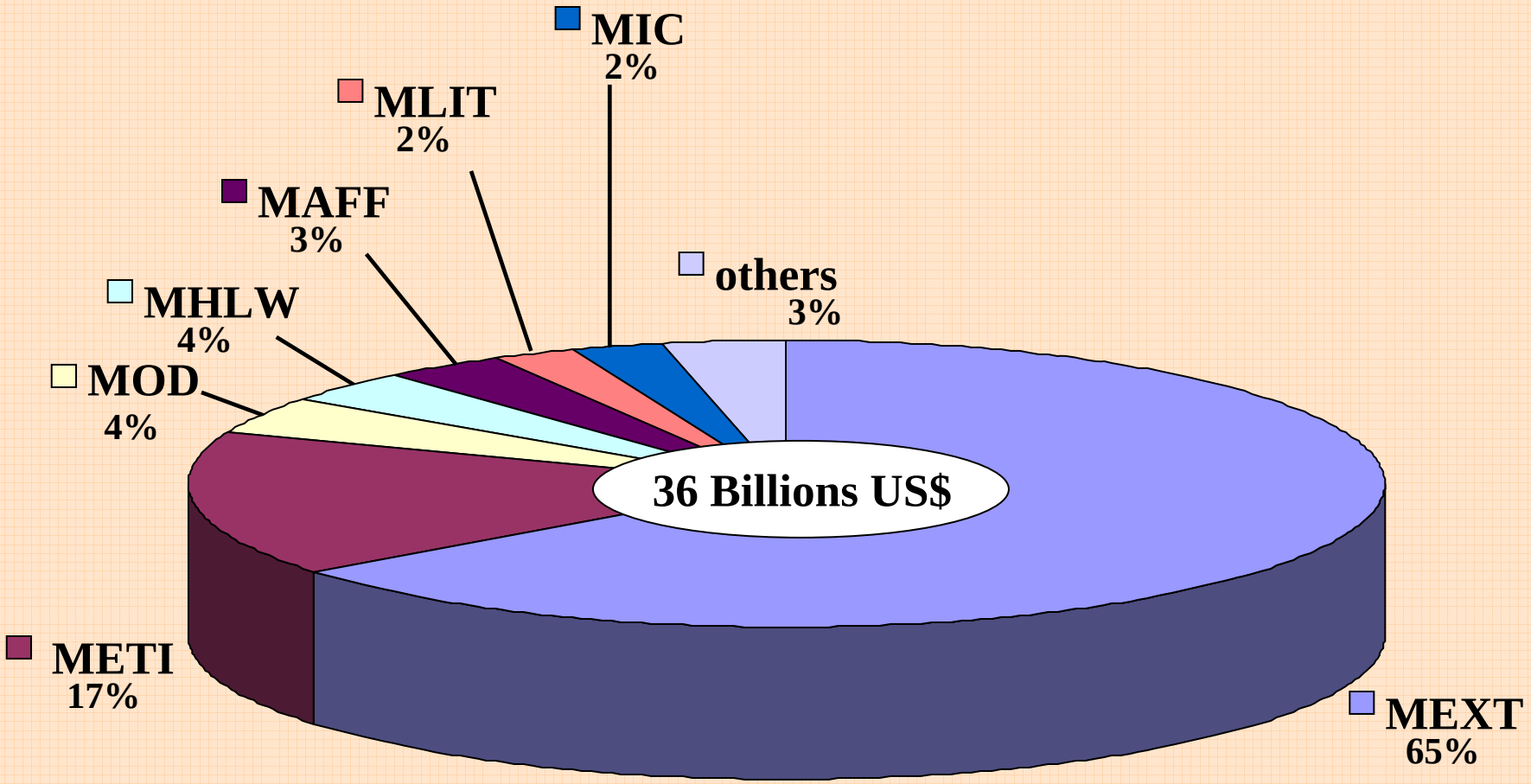
New challenge: Evaluation for innovation policy

S&T budgets in initial government budget



R&D Budget of Japanese Ministries

(including expenses for labors and facilities, 2005)



R&D Funds in private sectors

- GDP of Japan: 500 Trillion Jyen/year
- Total Funds in private sectors: 12 Trillion JYen/year

  - Toyota Motor 755 Billion JYen
  - Matsushita electricity 615 Billion JYen
  - Sony 502 Billion JYen
  - Honda Motor 468 Billion JYen
  - Nissan Motor 398 Billion JYen
  -
  -

- Government: 3.5 Trillion JYen/year

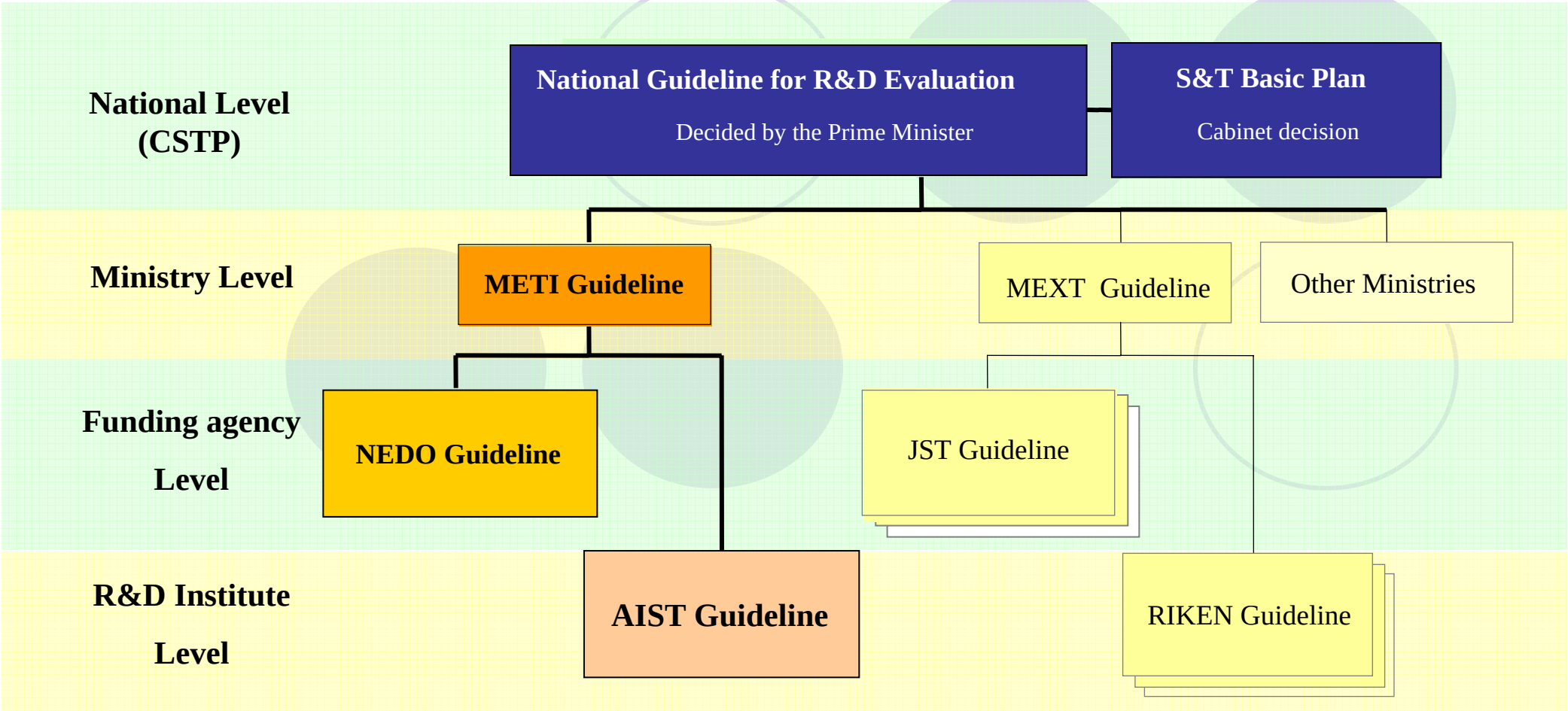
Objectives of evaluation for public entities General Guideline indicates

- Reduce redundancy

(=Streamline government budget for R&D)

- Promote effective R&D → Innovation

Structure of R&D Evaluation in Japan



- **CSTP has been promoting R&D evaluation as an integral part of S&T policy.**
- **Ministries and R&D Organizations carry out the major part of evaluation activities.**

Current evaluation

- CSTP evaluation

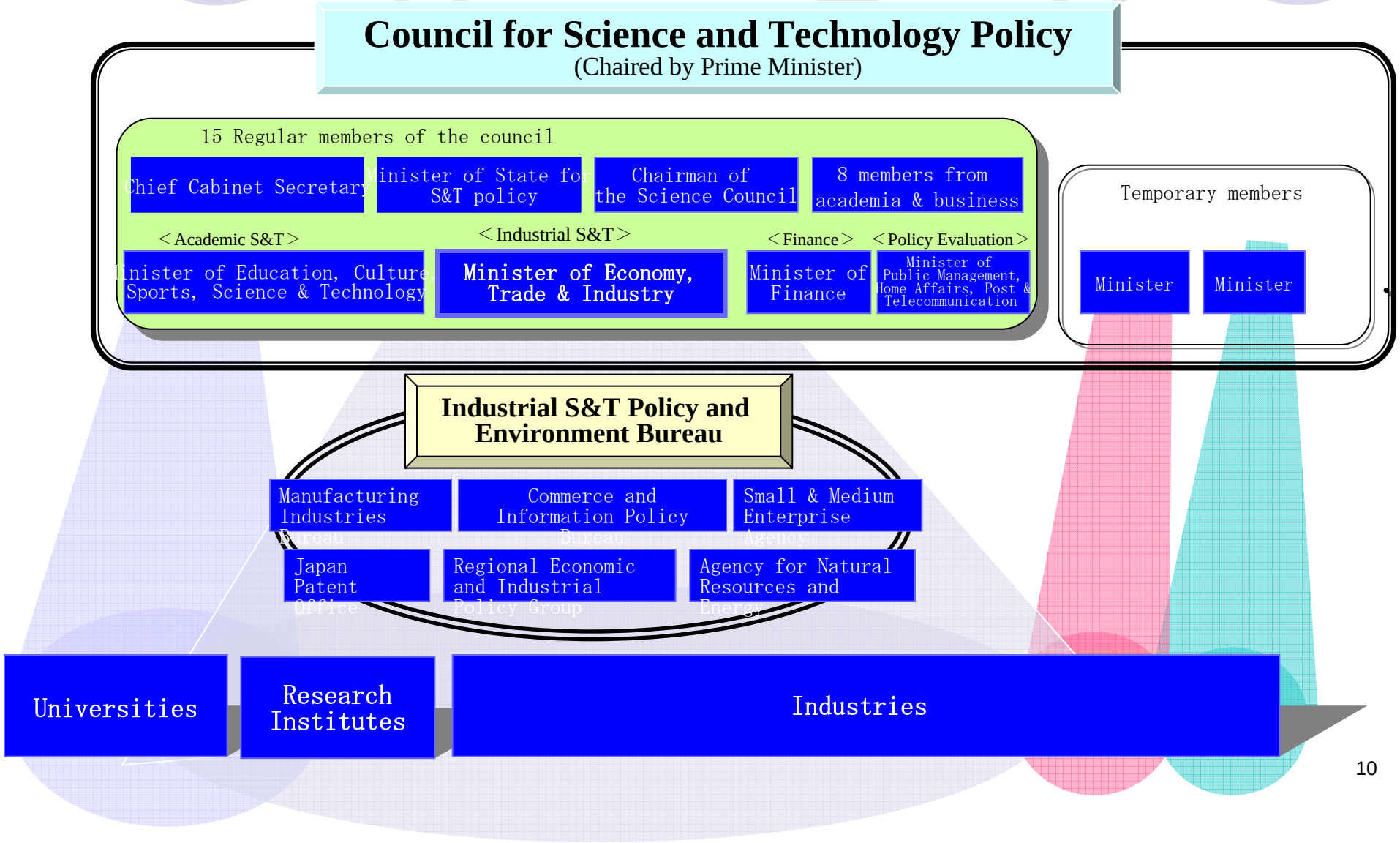
  Priority setting
  Evaluation for large scale project

- Ministerial evaluation

  Project evaluation
  R&D public entity evaluation

New Science and Technology Administration System in Japan

The Council for Science and Technology Policy (CSTP) was established in January 2001, as a headquarter for national S&T policy.



Priority setting

- CSTP conducts ex-ante evaluation for ministerial R&D projects
- Ministry of Finance reflects the result (SABC) to budgeting

Expert Panel on Evaluation

- Investigation and study relating to the overall evaluation of the government funded R&D
- Evaluation of national large-scale projects related to S&T

Ministerial evaluation

- Project evaluation
- R&D public entity evaluation

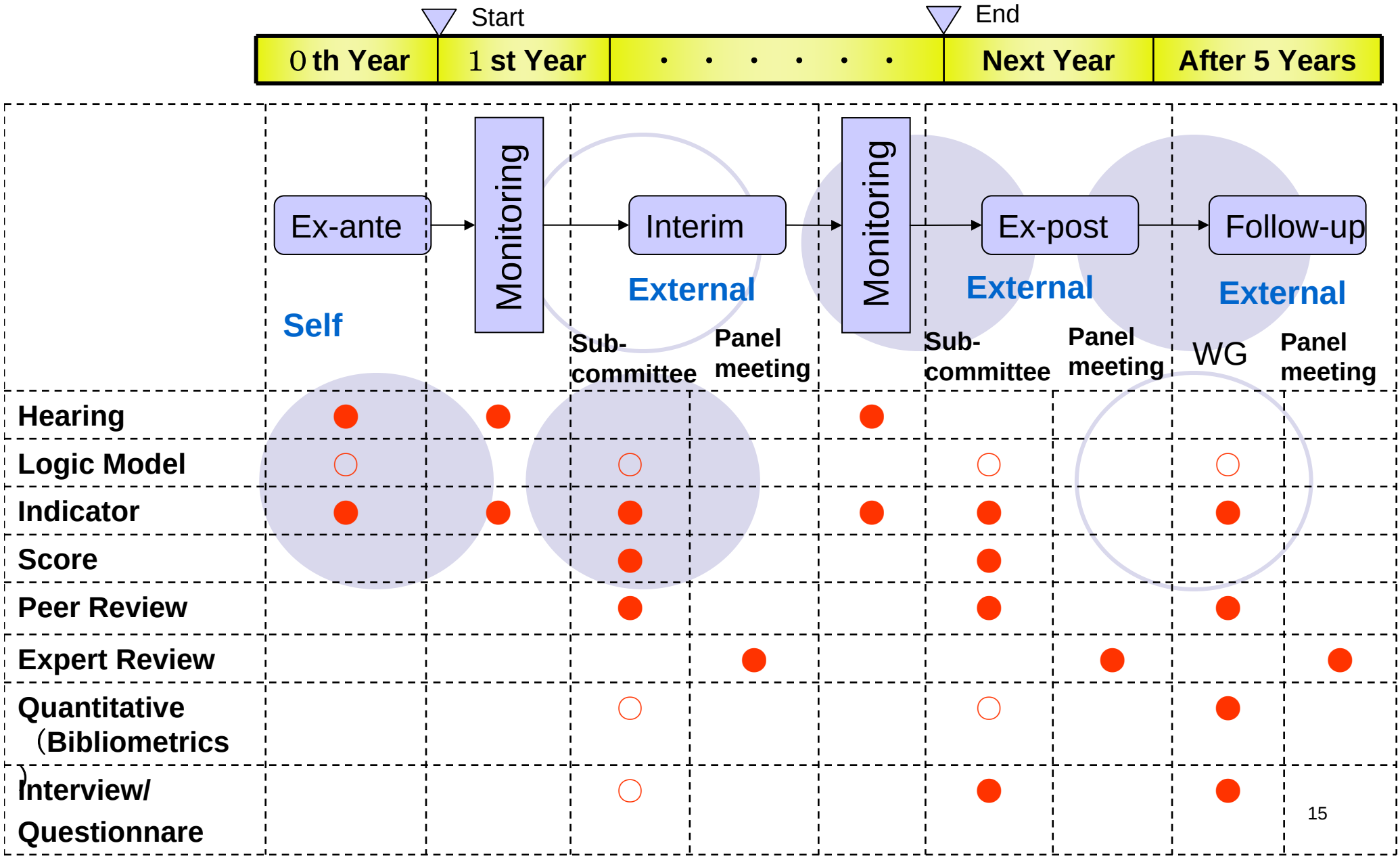
Ministerial evaluation
→ Practical evaluation on specific issue

Constraints:

- Conventional negotiation on budget
  - Person in Ministry of Finance vs. Person in ministry on specific issue

- Limit of human resources
  - 2 year rotation

Time Table and Methodology *Example of METI*



R&D public entity evaluation

Restructuring of Gov. System

January, 2001

Restructuring of Central Government

22 Ministries & Agencies → *Cabinet Office+12 Ministries*

April, 2001

Independent Administrative Institutions (IAI)

to separate Operational Sectors from Central Government

90 National Institutes, Hospitals, Museums,..

→ *62 IAIs（▲72,000 staff）*

April, 2004

99 National Universities → *89 IAI National Universities*

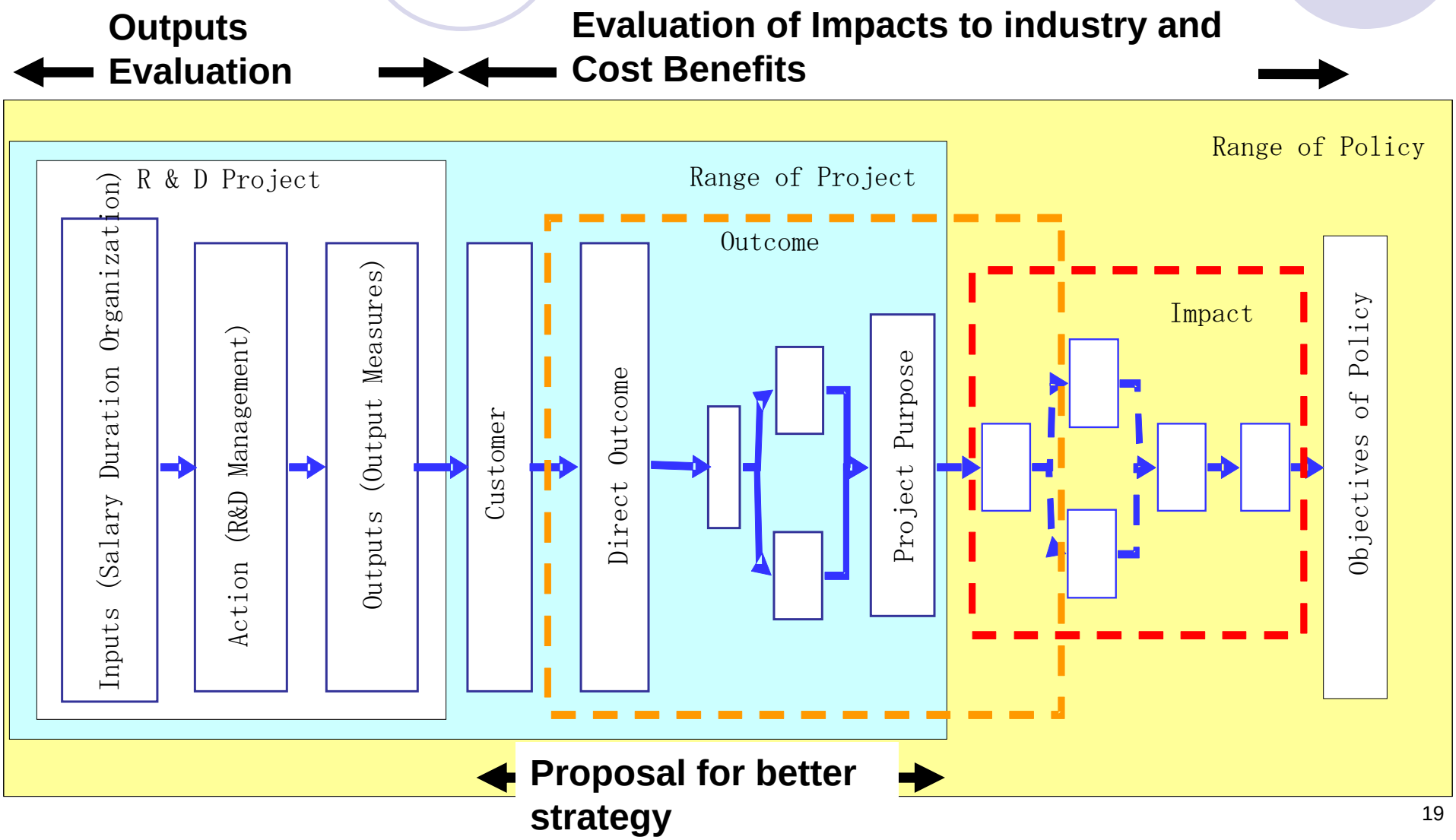
R&D public entity evaluation

- Under Law on the General Rules of Independent Administrative Institutions
- Performance evaluation
- Third-party or external committee organized by ministry
- Reflect evaluations in operational subsidies

Challenge toward science of evaluation

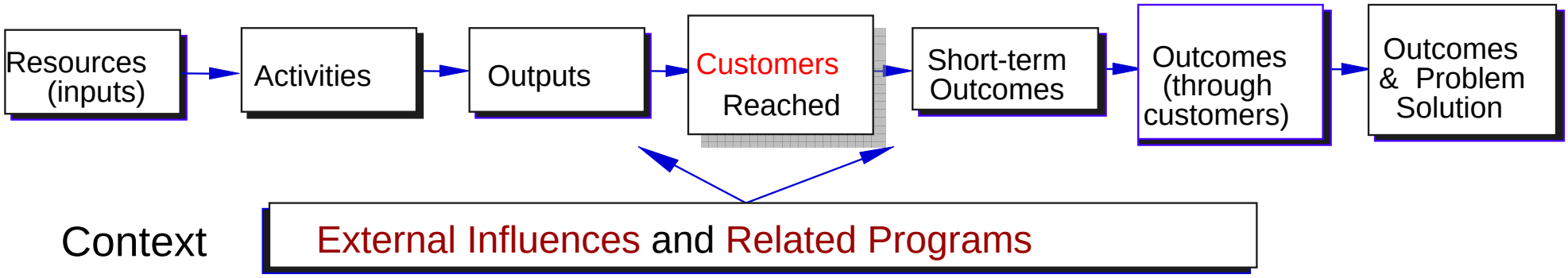
- Scenario writing
- From Project to Program

Scenario writing by logic model



Features of the Logic Model

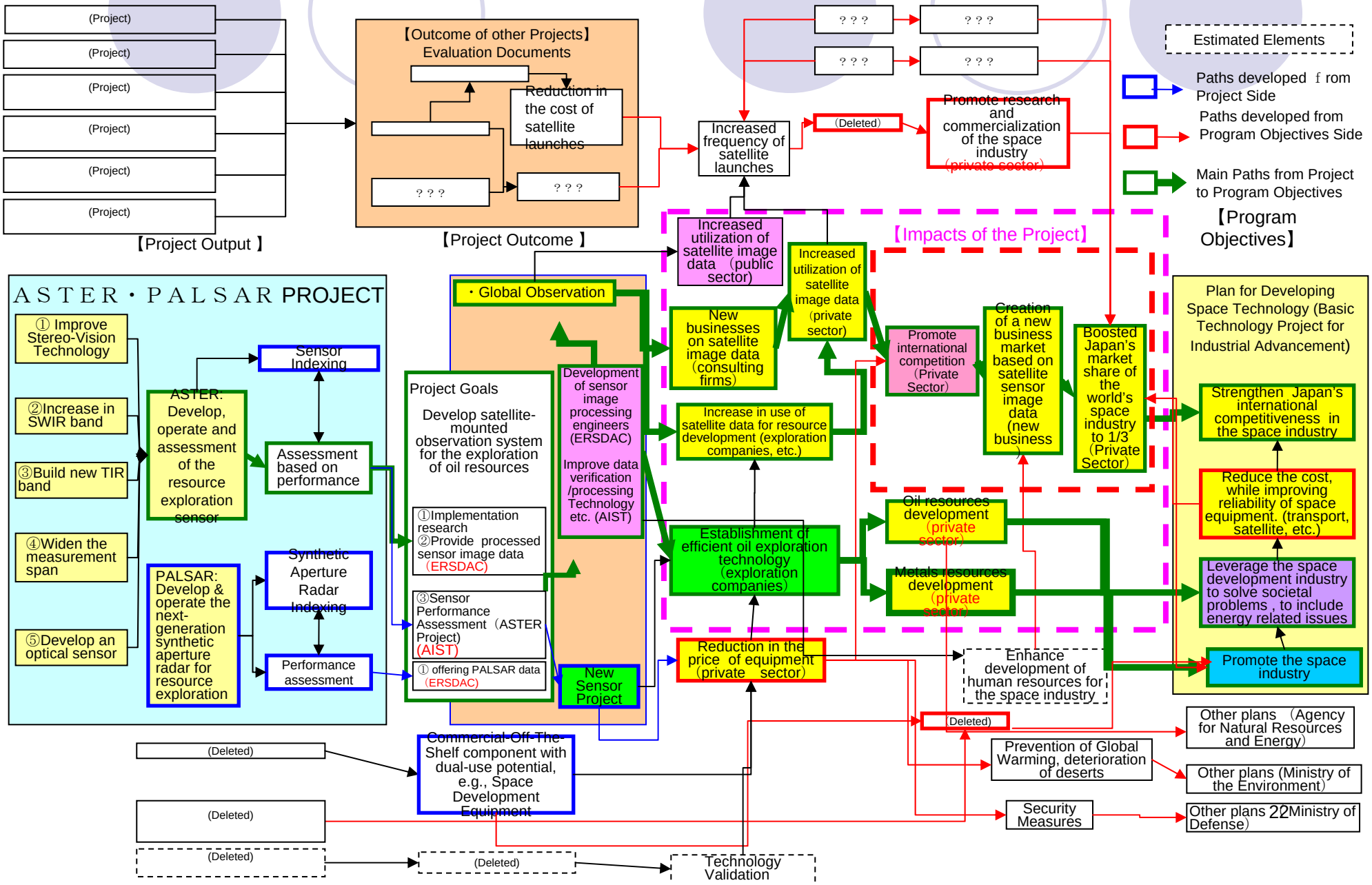
- The model affords a view of the entire process, allowing the stages to follow an organized flow from the “inputs "stage through to the expected goal
- The model allows examination of the entire process, by both a rational and logical views
- The model offers a platform starting from the inputs stage through to the expected goal; wherein, the R&D, promotion, and evaluation related members, as well as the customers, can provide input
- In terms of planning, the concept can be passed on to the next generation
- The model is designed to capture the progress and changes within the entire process
- Ripple effects can be easily observed



Scenario writing

- View issue from a long and wide scope of direct and indirect effects attribute to R&D
- Review diffusion of outputs
- Ensure the legitimacy of policy intervention
- Realize “policy mix” for research and innovation policies

Developed logic model; ASTER PALSAR Project



From Project to Program

- Cross-cutting evaluation
  - More competitiveness
  - More reduction of redundancy
  - More policy mix
- Difficulties to overcome
  - Require program manager
  - Require human resources for evaluation
  - Require budget for outsourcing
  - Require debate from a wide viewpoint

Program:

Group of projects

More theory

More evidences

Conclusions

- Streamline R&D projects under the budget constraint
- The Council for Science and Technology Policy (CSTP) : The first inter-ministry command center for science and technology
- CSTP conducts priority setting and national large project evaluation
- Practical ministerial evaluation under the constraints of conventional budgeting and human resources
- Challenge for more competitiveness, more reduction of R&D budget, and more policy mix