

***Methodologies and Practices of
Preliminary Feasibility Studies
on National R&D Programs***

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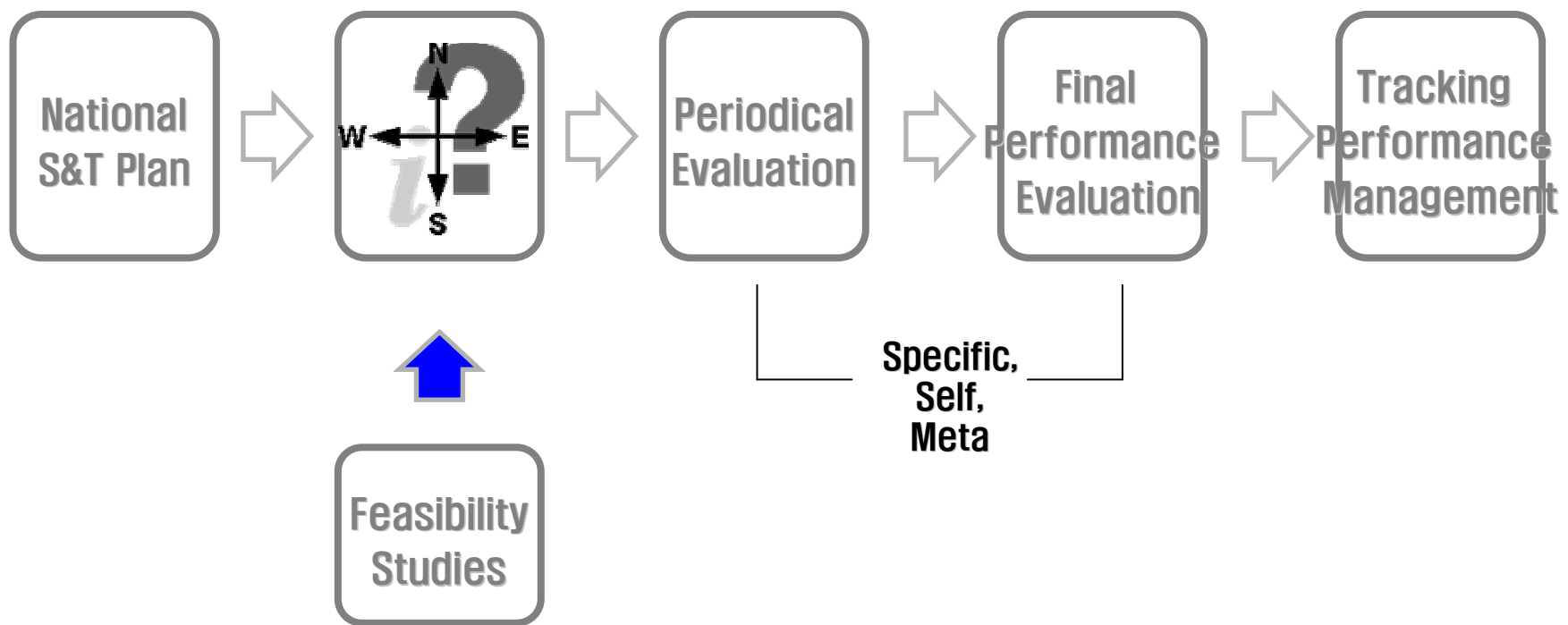
Preliminary Feasibility Studies on R&D Programs



Characteristics of R&D Programs

- Increase of R&D budget and uncertainties
- Systematic evaluation for on-going national R&D programs
 - Project selection process
 - Periodical program evaluation
 - Performance evaluation at completion
- Various types of economic benefit
 - Basic research, Applied research, Development
 - Infrastructure (equipment, human resources), commercialization
- Indirect benefit can be more important than direct benefit.

Implementation & Evaluation of National R&D Programs



Purpose & Subjects

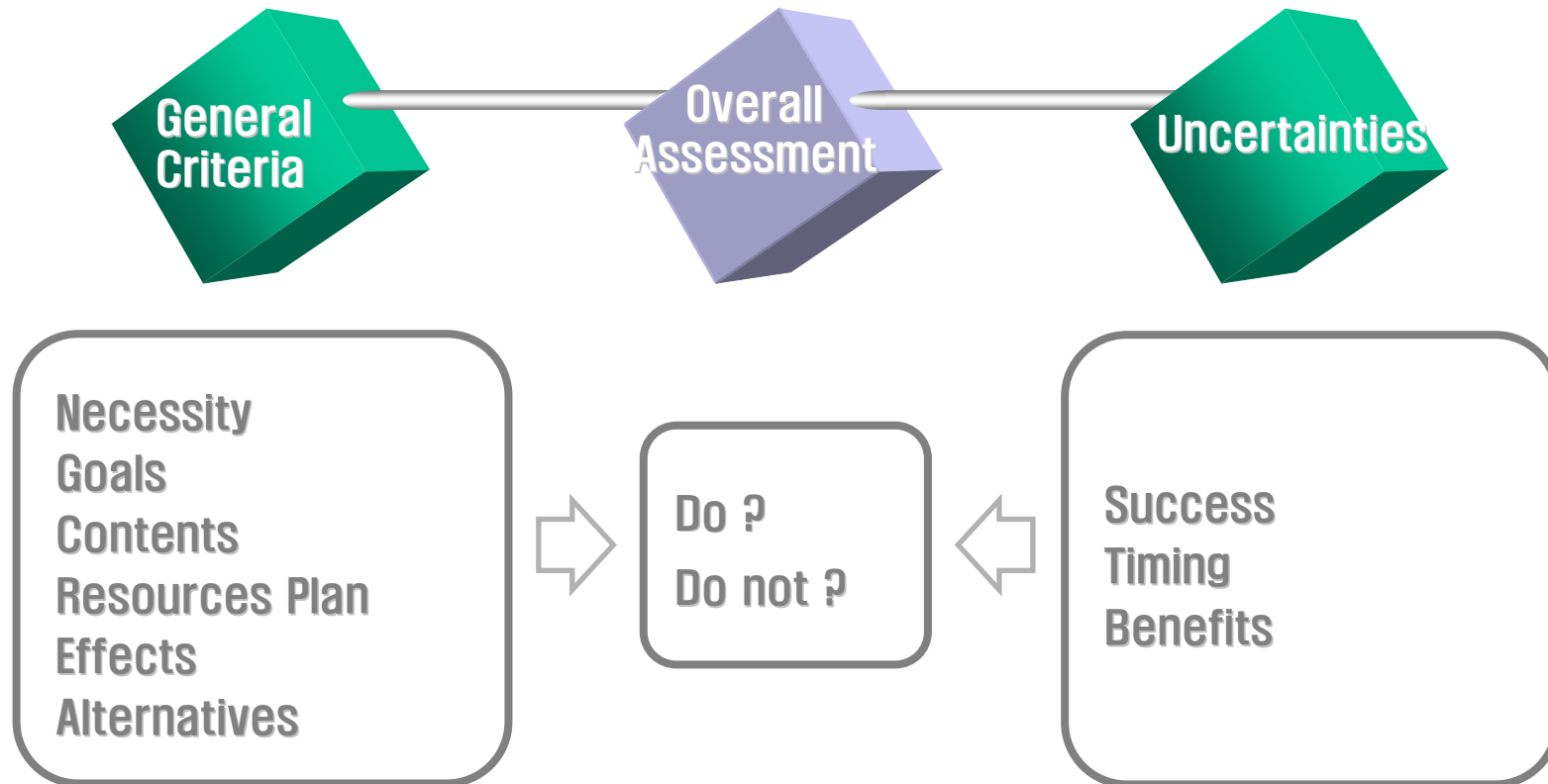
■ Purpose

- Substantiate the feasibility of large-scale public investment R&D programs
- Enhance fiscal efficiency and productivity

■ Subjects

- Newly proposed programs of budget plans over \$50 M
 - Programs with concrete plans on technology development
- The pre-feasibility studies system will be legislated by the end of 2006.

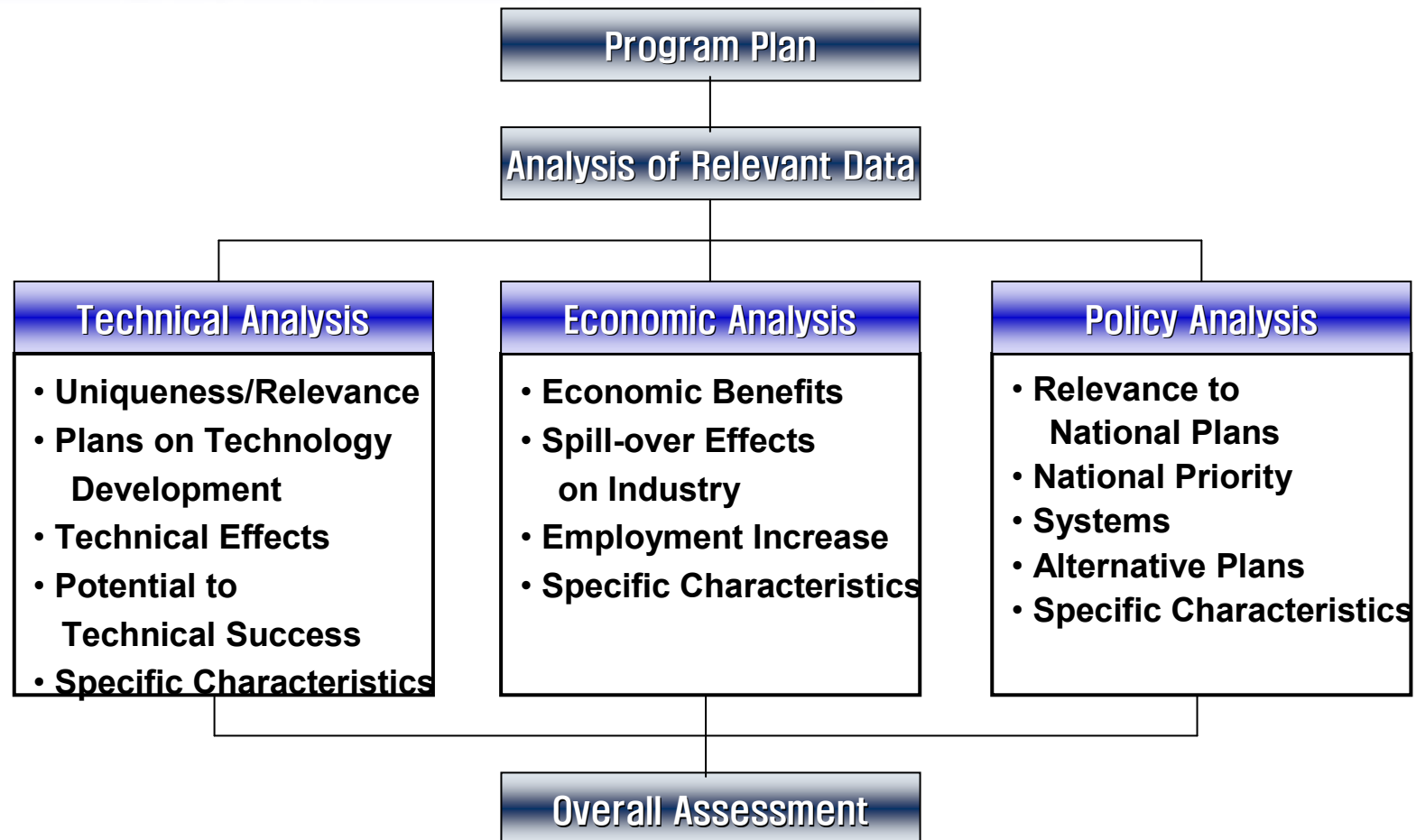
Preliminary Feasibility Studies



General Guidelines



General Procedures



Program-Specific Characteristics

Programs	Specific criteria	Examples
Basic Research	<ul style="list-style-type: none"> . Training & HRD . Patents on fundamental technology . Prior occupation of high-tech R&D 	<ul style="list-style-type: none"> • Infrastructure building for Academic Research • Creative Research Programs
R&D for Public Health & Welfare	<ul style="list-style-type: none"> . Improvement of quality of life . Reduction of energy use . Reduction of environmental pollution 	<ul style="list-style-type: none"> • Alternative energy development • Technology development for Public health
Industry Technology Development	<ul style="list-style-type: none"> . Improvement of industrial competitiveness . Potential to commercialization . Potential to standardization 	<ul style="list-style-type: none"> • Development of component materials • Frontier R&D program

Overall Assessment

- Overall Assessment based on Technical/Economic/Policy Analysis (Analytical Hierarchy Process)
 - Determine relevant importance of each criteria
 - Maintain balance between qualitative & quantitative analysis
 - Maintain consistency in the evaluation
- Basic Requirements
 - Complete understanding on the national R&D program
 - Transparency and objectivity of the evaluation

Results

Technical Analysis

Economic Analysis

Policy Analysis

Result
Do : Don't
0.32 : 0.68

Practices and Implications



Model cases

■ Environment-friendly Vehicle Development

- Ministry of Commerce, Industry, & Energy / \$ 502.6 M
- Main Issues
 - Relevance of on-going programs
 - Economic effects and appropriateness of government funding
- Do : **Don't** = 0.42 : **0.58**

■ Korean Large Telescope Development

- Ministry of Science & Technology / \$ 80 M
- Main Issues
 - Technical advantages of the telescope
 - Potential to obtain key technologies
- **Do** : Don't = **0.76** : 0.24

Model cases

■ Digital Actor Development

- Ministry of Information & Communication / \$ 30 M
- Main Issues
 - Technological competitiveness
 - Economic effects and appropriateness of government funding
- **Do** : Don't = **0.77** : 0.23

■ Development of Medicine for Vascular Disease

- Ministry of Health & Welfare / \$ 9 M
- Main Issues
 - Technical advantages of the target material
 - Economic effects including market size
- **Do** : **Don't** = 0.23 : **0.77**

Implications

Technical Analysis

Economic Analysis



Economic analysis of scenarios based on technology analysis



Technical uncertainties on economic benefits



Technical and Economic analysis can not be separated!

Further Developments



Further Developments

- Revise “General Guidelines for Preliminary Feasibility Studies”
- Develop “Standard Guidelines Preliminary Feasibility Studies”
 - Basic Research
 - R&D for Public Health & Welfare
 - industrial Technology R&D
- Establish new valuation methods and improve guidelines
 - Extensive data collection
 - Fundamental academic studies on critical indices

Thank You !

