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New Innovation Strategy for Development: Benchmarking Korean STI Development Experiences

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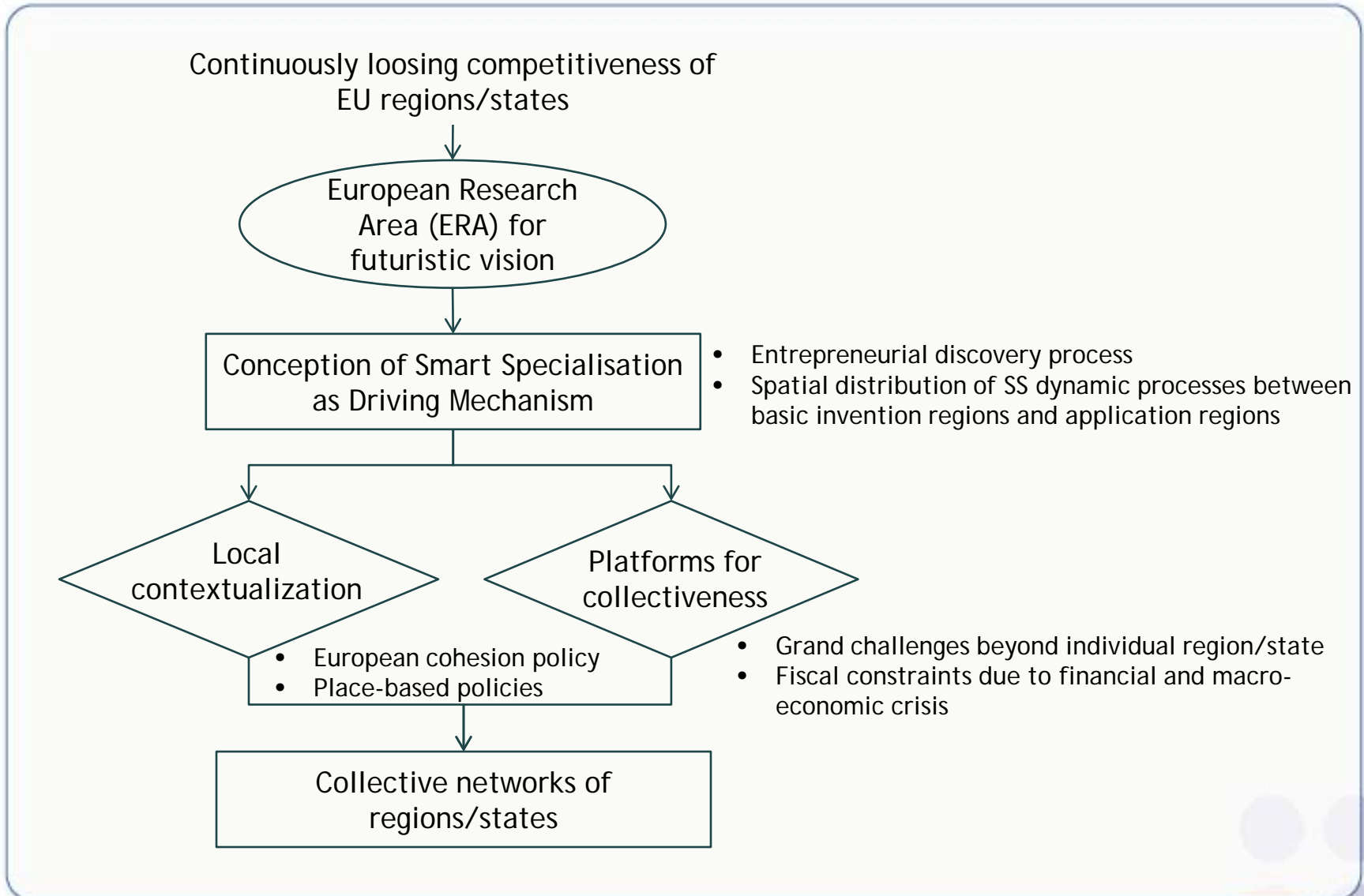
I. Visioning the Future and Potential Bottlenecks



1. Introduction

- Lack of Longitudinal Approaches and Prevalence of Benchmarking Practices
 - Rush to Benchmark Korean Experiences without Contextualized Understanding
- Need to Develop New Approaches for Diagnosis and Strategy Development
- Pilot STI Strategies Development and Extension to Other Countries
 - Poverty Traps: Nepal (2012), Laos (2013-2014)
 - African Health Challenges: Nigeria (2013), Tanzania (2013)
 - ASEAN Global Challenges (2013-2014): Indonesian Water, Vietnamese Green Energy, and Filipino Food
- Iterative Process for Multilateral and Bilateral STI Strategy Development with Selected Cases

2. ERA and Smart Specialisation: Vision and Mechanism



3. Potential Bottlenecks for Futuristic Strategy Development and Implementation

- ◆ Vague and irrelevant futuristic vision
 - “Wish list” of Post-2015, STI just addressing socio-economic and global challenges, etc
 - Individual country vision irrelevant for APEC region
 - ERA as a more specific vision for scale economy to compete with USA and China
- ◆ Absence of driving mechanism
 - No coordination mechanism for various stakeholders of nations, regions, individual STI actors to work together to achieve collective goals
 - Smart specialisation conceptually designed for a driving mechanism
- ◆ Poor implementation
 - Lack of longitudinal approaches and prevalence of benchmarking practices leading to intrinsic conflicts of implementation
 - Once implemented, specific programs/projects are not relevant, coherent or consistent to achieve goals especially bottom-up competition processes.

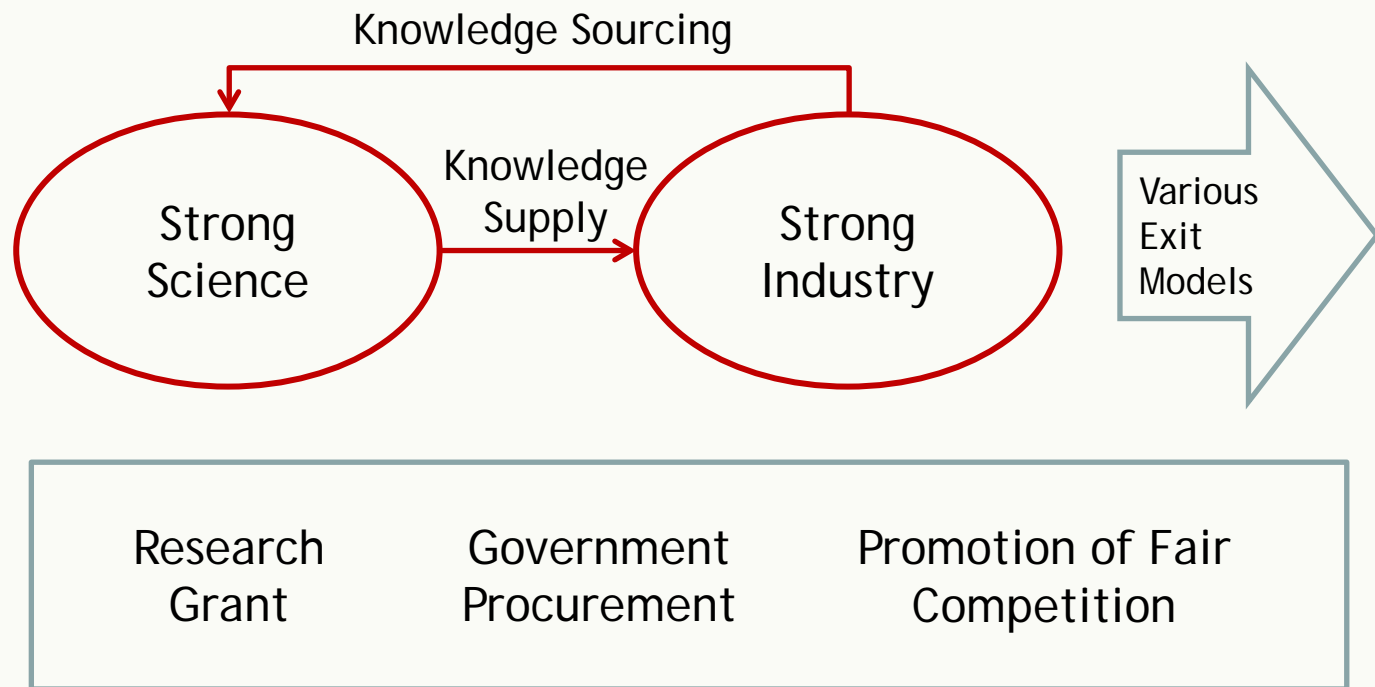


II. Driving Mechanism based on Korean STI Experiences



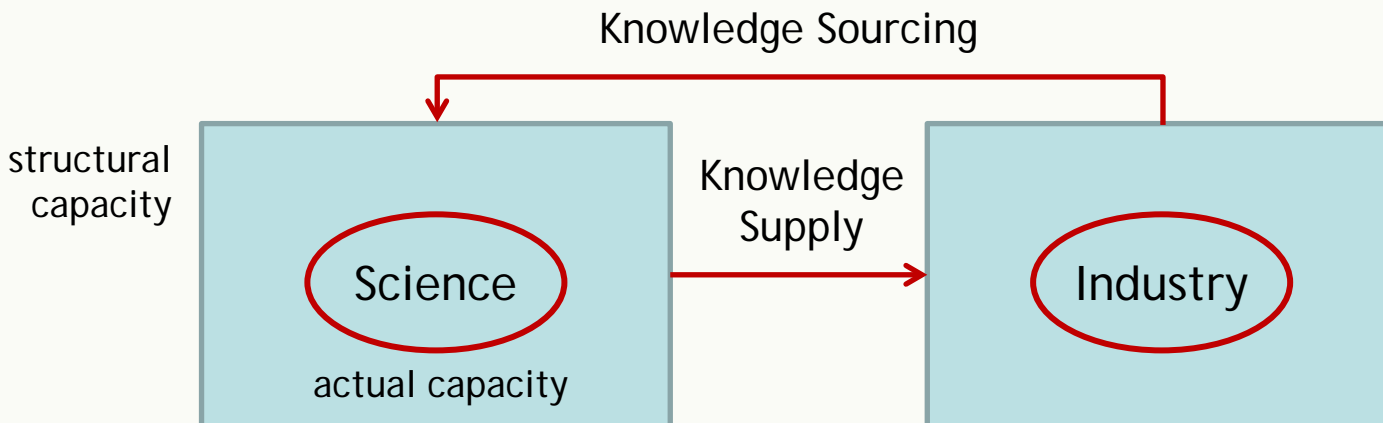
1. Different approaches in different context

- Policy Engagement in Strong Science and Industry





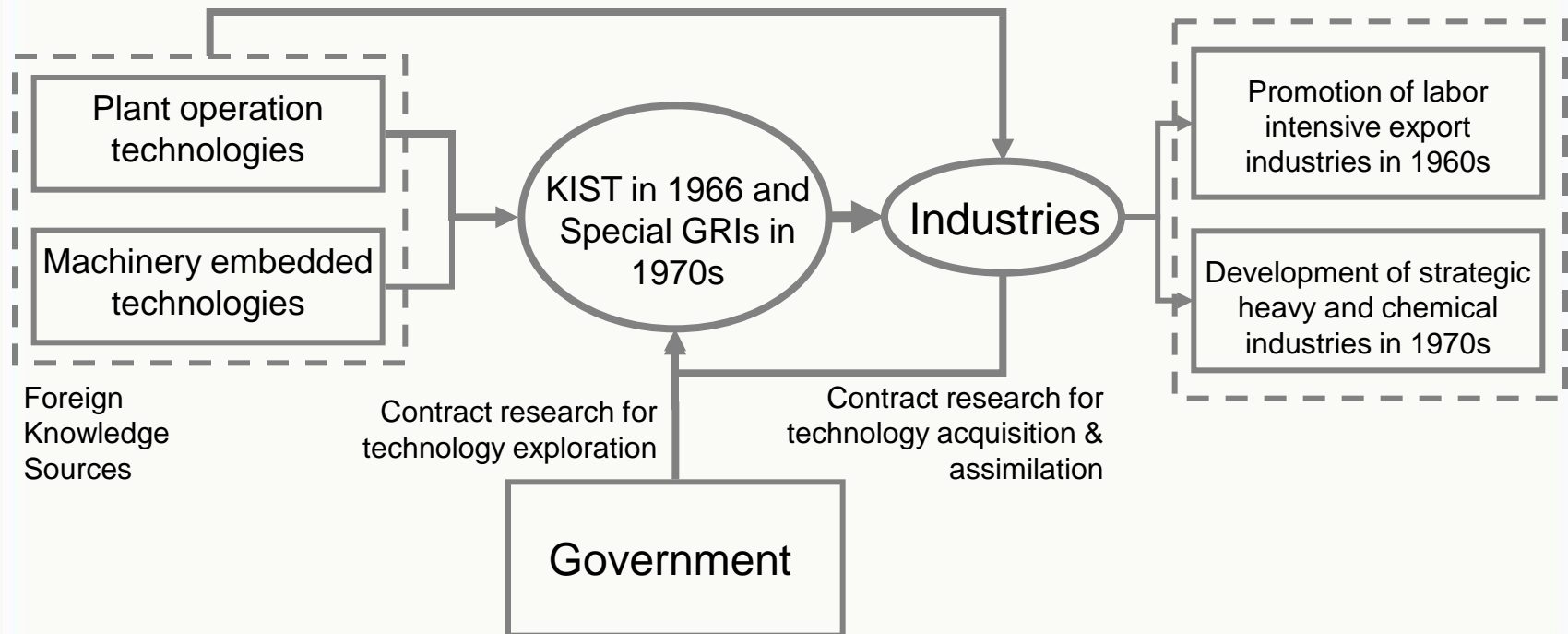
- Government-provided structural capacities (blue rectangle) to supplement the actual weak capacities and interests (red circle) of both science and industry.



2. Technology windows of GRI in 1970s

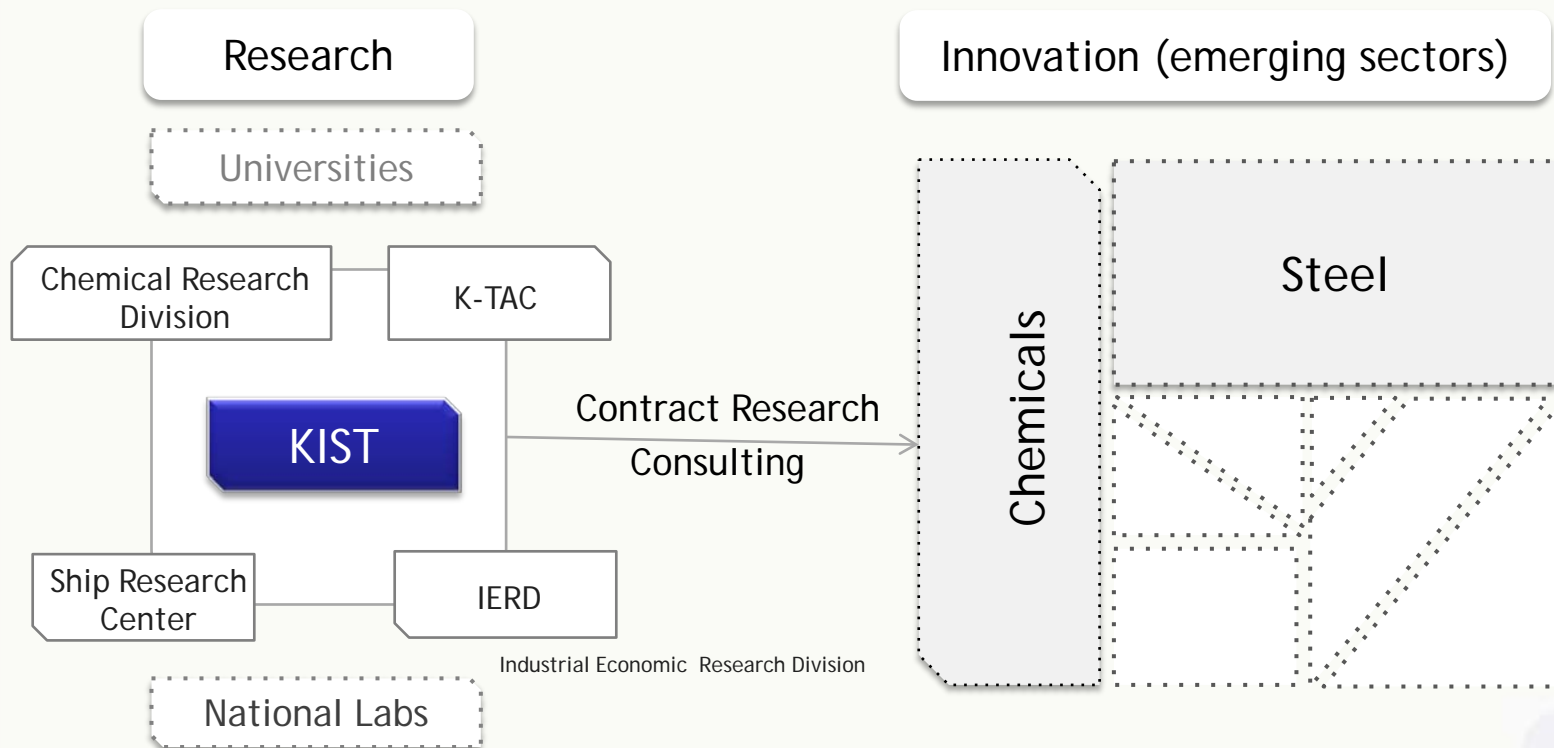
● Schematic Description of 1960s and 1970s of Korean STI system

- Turnkey-based technology transfer in 1960s
- Reverse engineering based technology acquisition and assimilation in 1970s





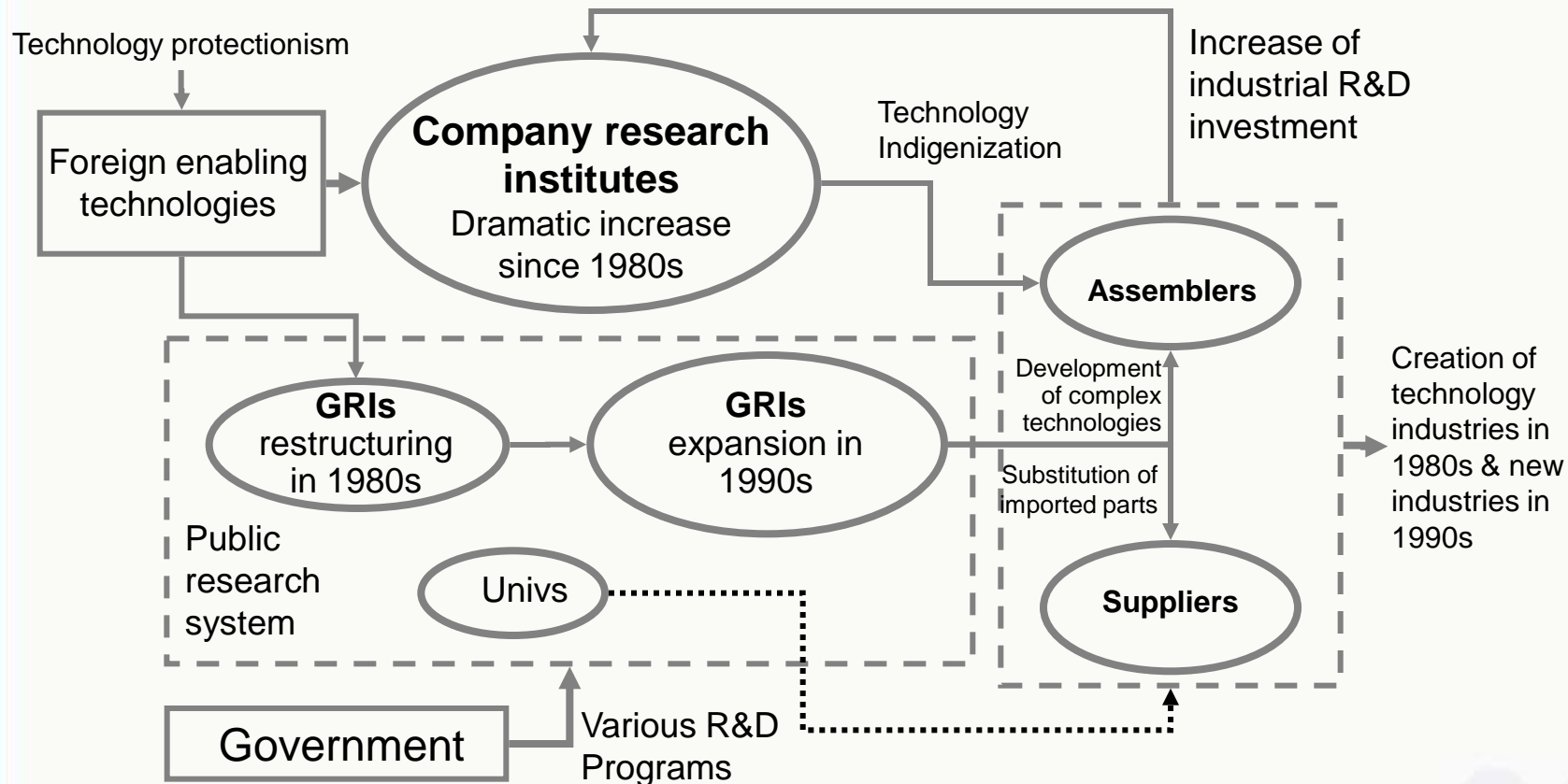
- **KIST and later other GRIs (Government Research Institutes) as Technology Windows to Assist the whole process of technology absorption, learning, application of industry**





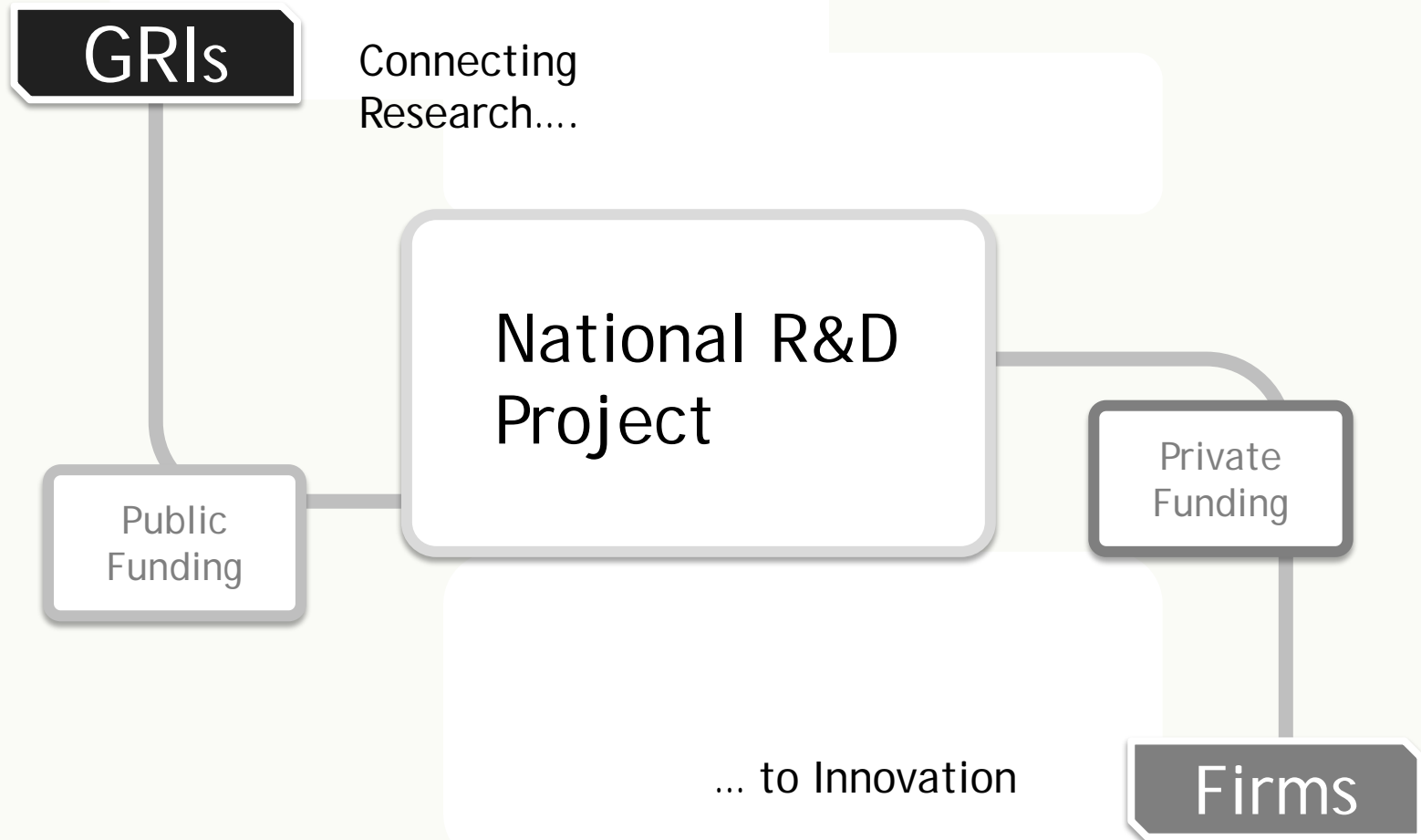
3. Risk sharing through research consortia in 1980s

- Schematic Description of 1980s of Korean STI system



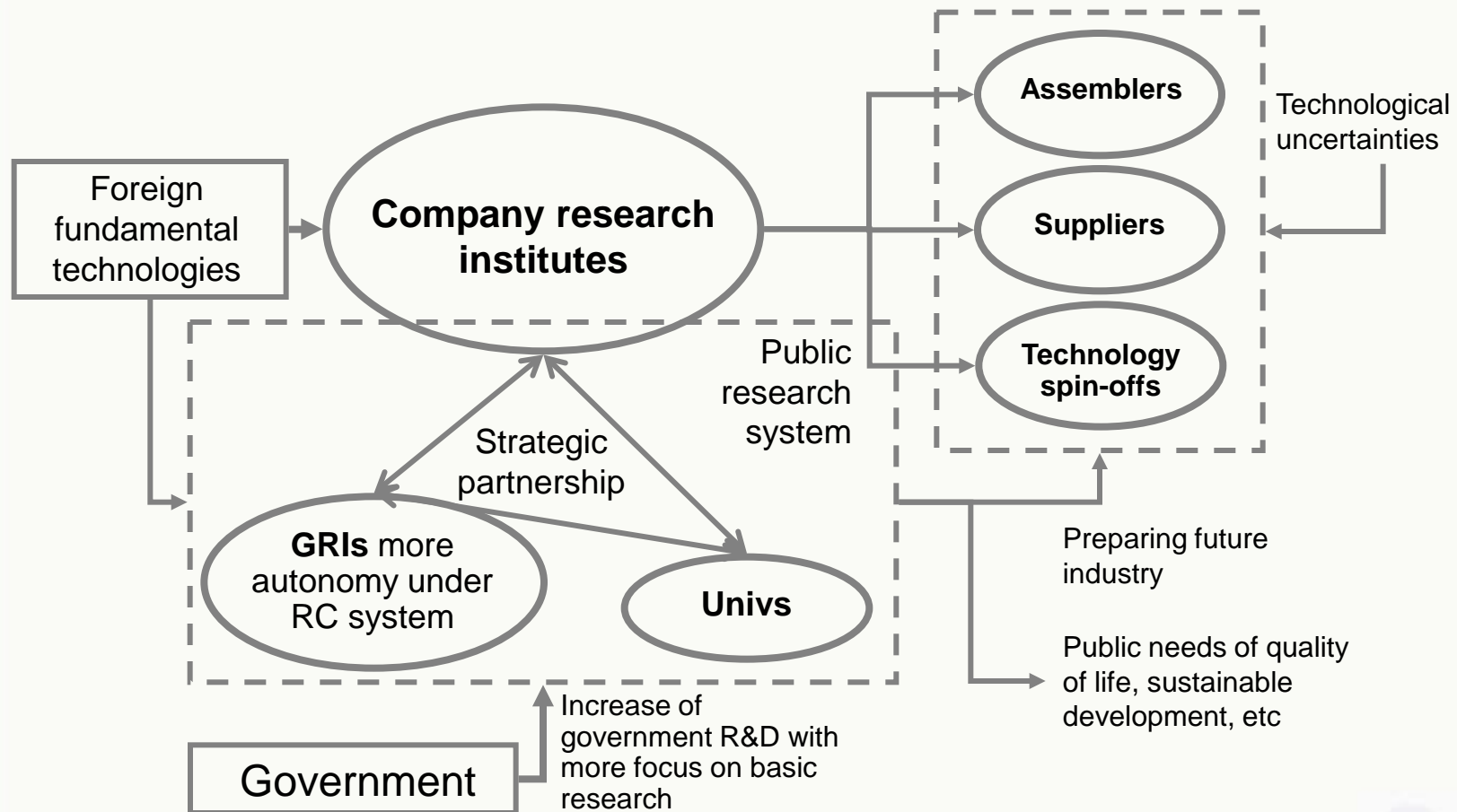


Research Consortium as a RISK Sharing Mechanism



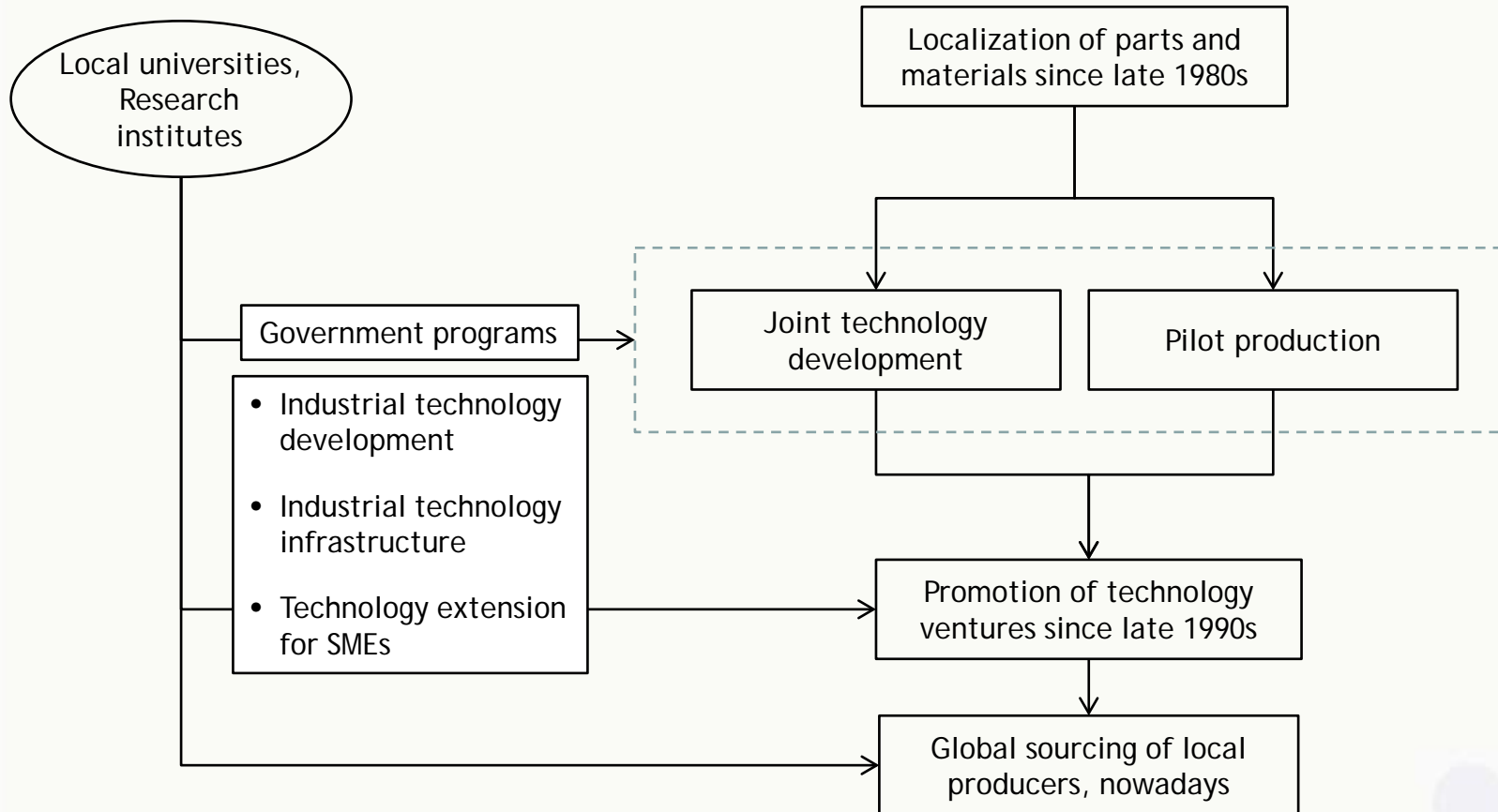
4. Technology extension in 1990s

● Schematic Description of 1990s of Korean STI system

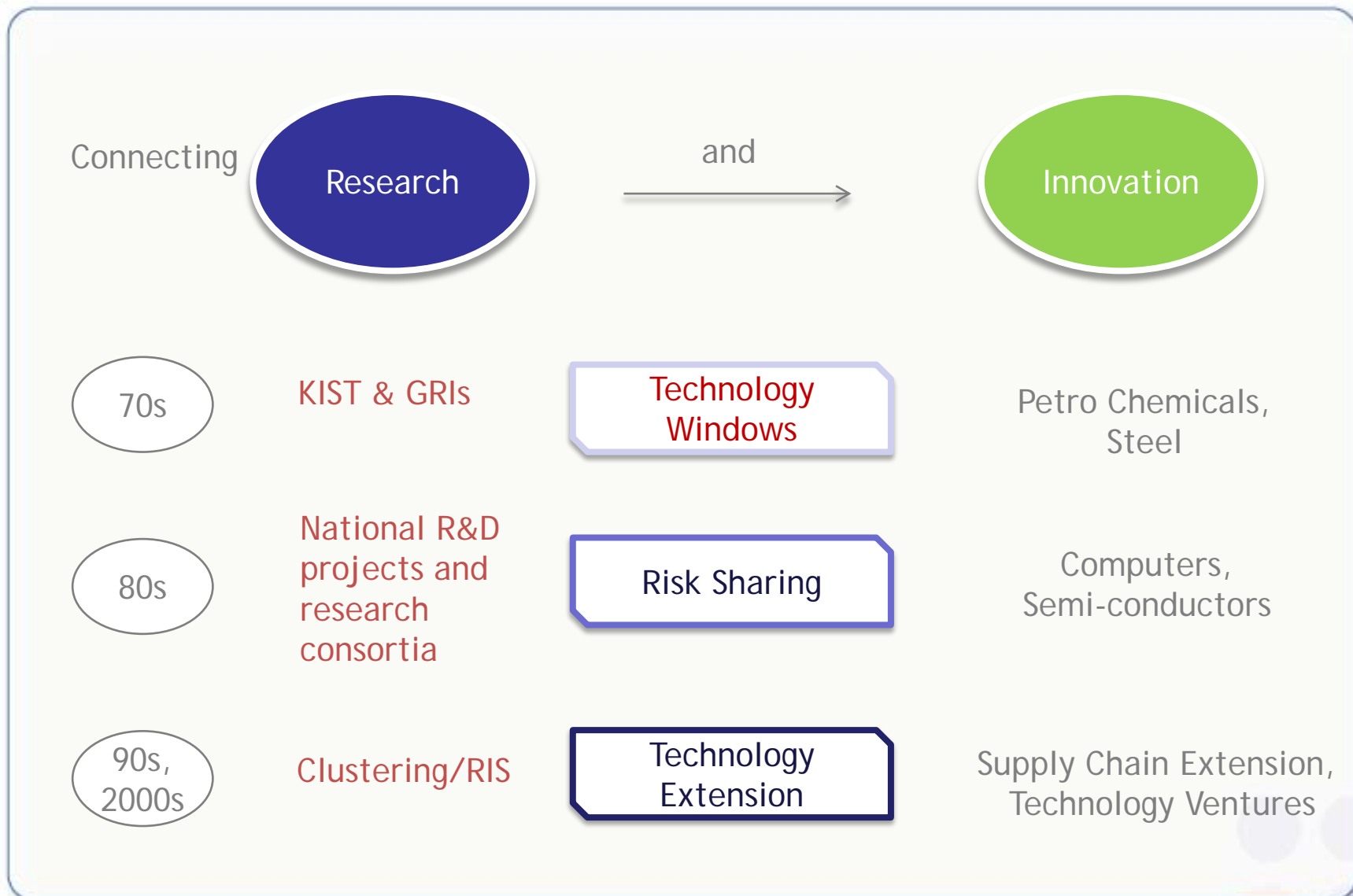




- Government programs to link science and innovation in 1990s



5. Summary and recommendations





- **Implication for Innovation Capacity Building**

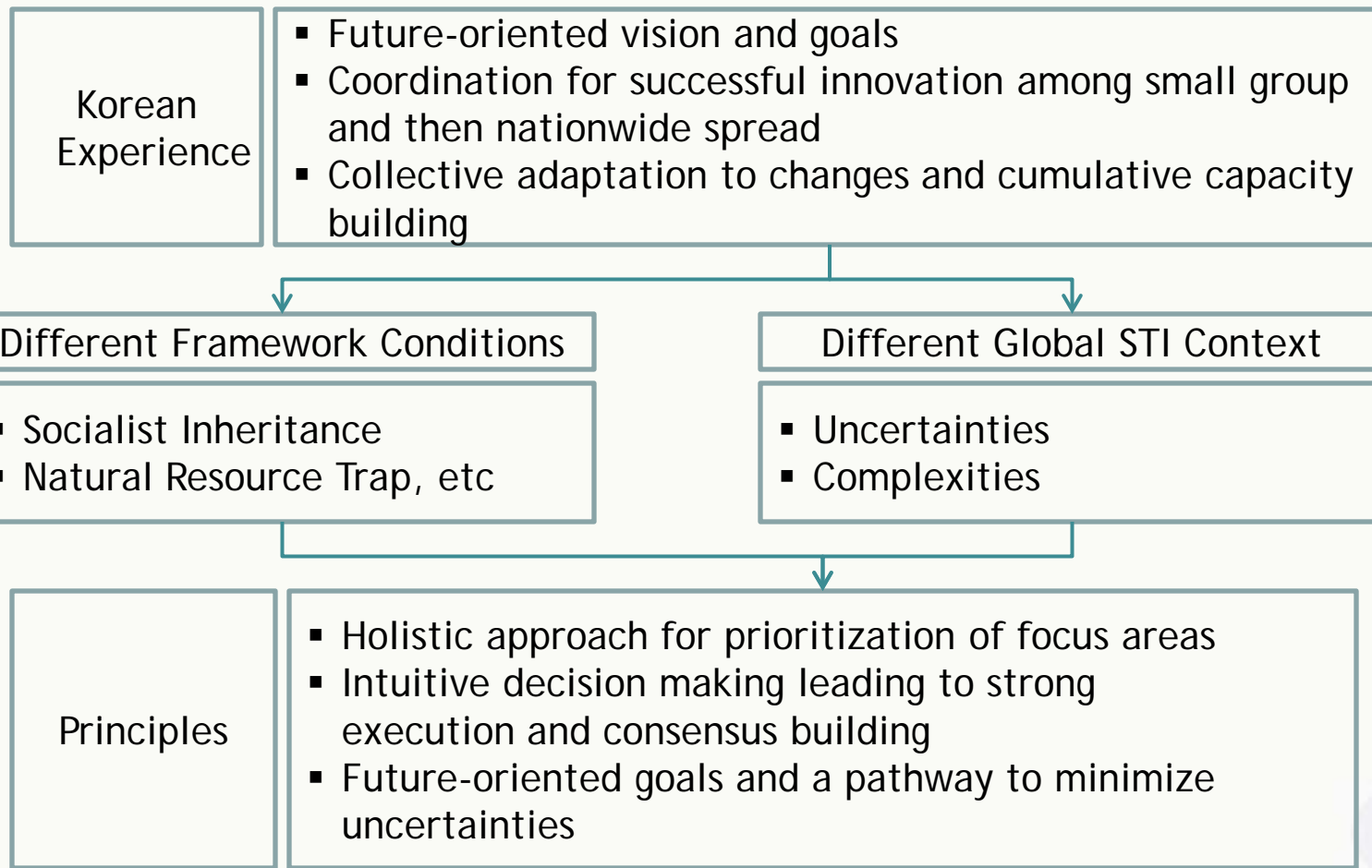
- Starting from identified missions
- Practical solutions to achieve simple missions and to overcome vested interests
- Top-down resource mobilization and allocation
- Appropriate institutional arrangement and operation models
- Simple approaches to trigger transformation to complicated system
- Collective and adaptive policies
- Spatial policies incorporated to achieve national industrial development and then articulated as independent policy programs



III. New Initiative for STI Strategy Development and Implementation

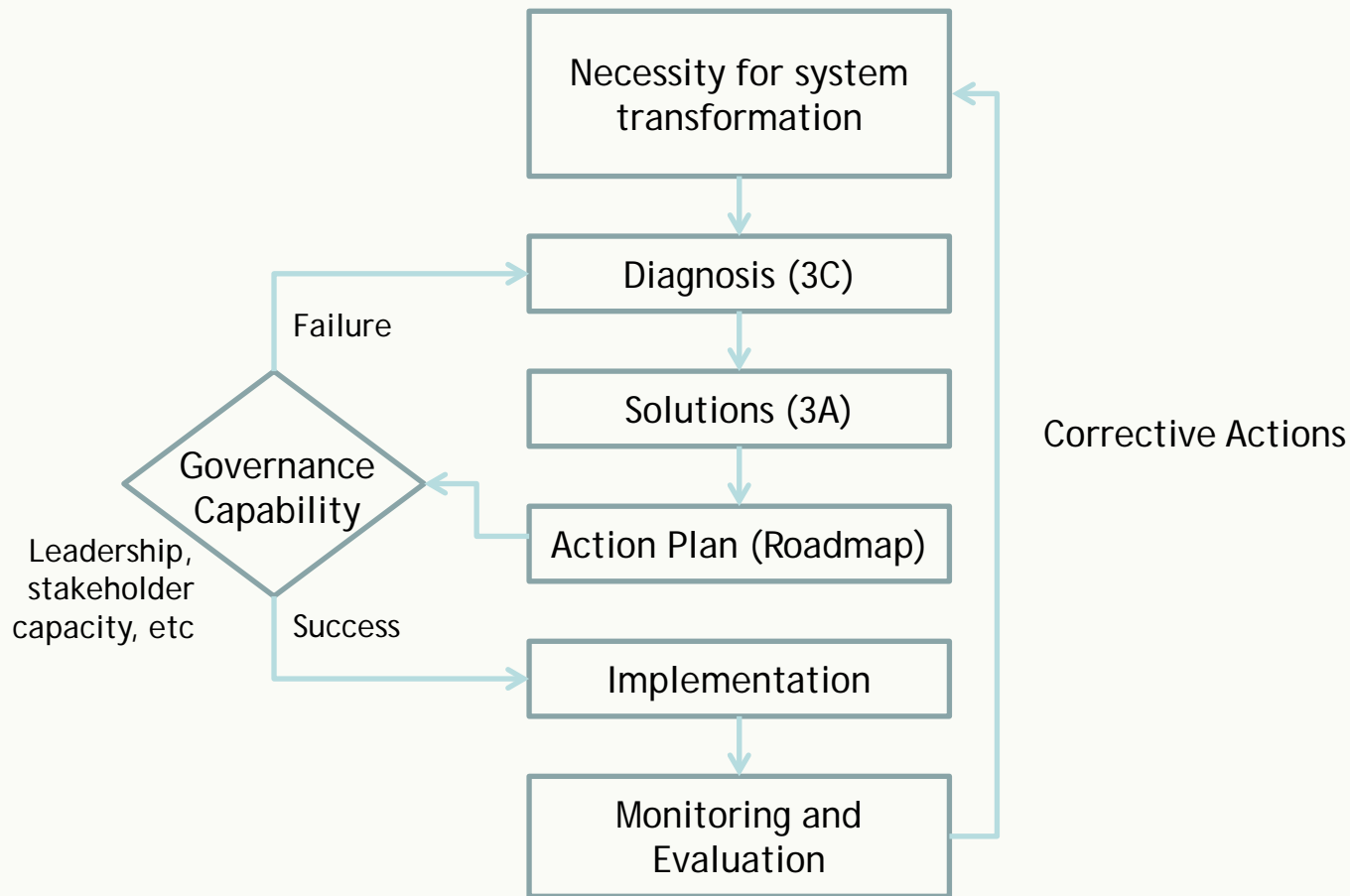
1. New Principles and Methodologies for STI Strategy Development

● Strategy Development Principles





● Strategy Simulation





● Holistic Approach: 3C Diagnosis and 3A Prescription

3C Diagnosis

Componentization

Identification of major components of system weakness and bottlenecks from a holistic viewpoint with statistically described and overviewed symptoms of system

Contextualization

Structurised and heuristic understanding of identified components in the context of system dynamics with several rounds of deepening diagnosis

Conceptualization

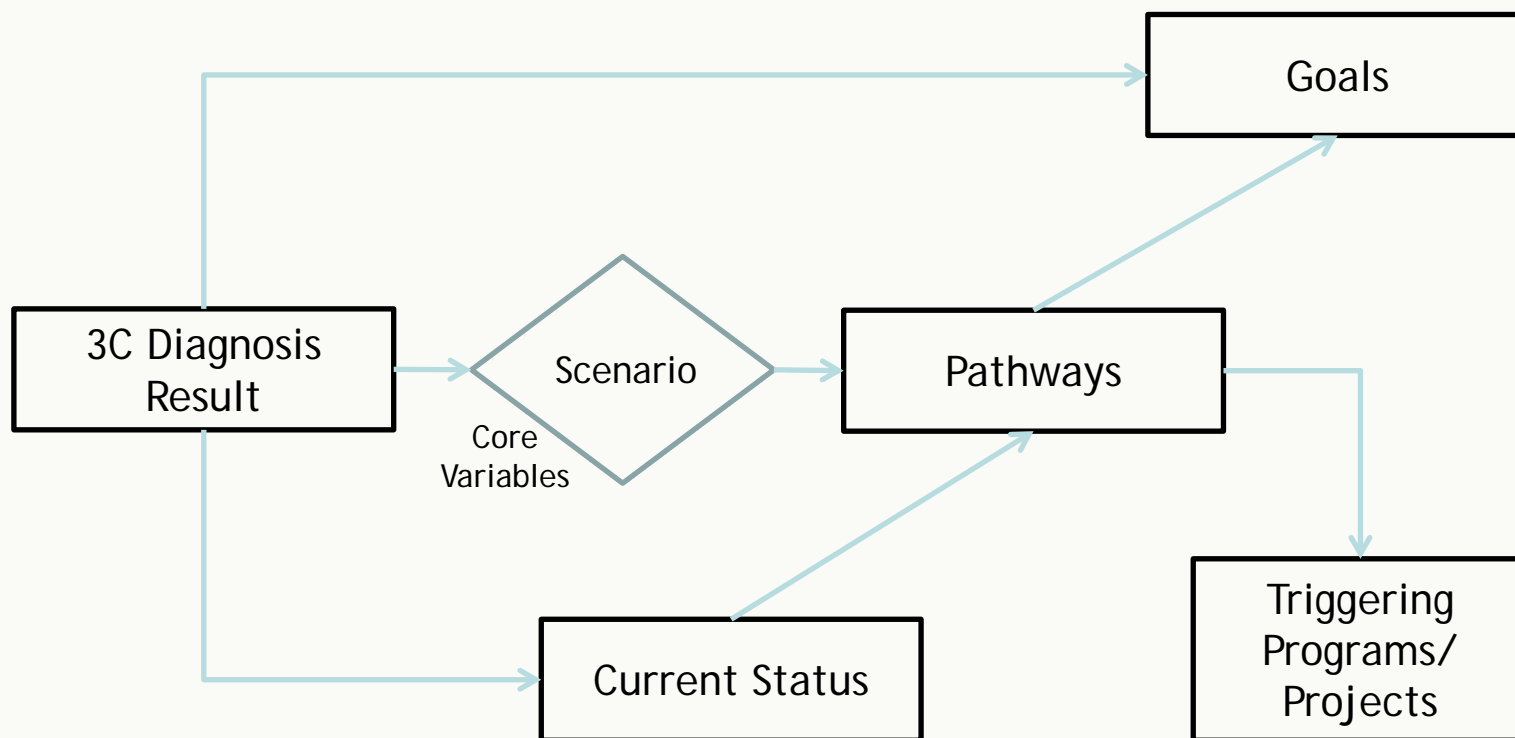
Synthesized diagnosis that provides a plausible explanation of the structural problems of the system and leads to consensus among stakeholders through common understanding of system weaknesses and bottlenecks

3A Prescription

Articulation of Action-oriented, Actor-based Policies



- Future Design Approach: Goals and Pathways

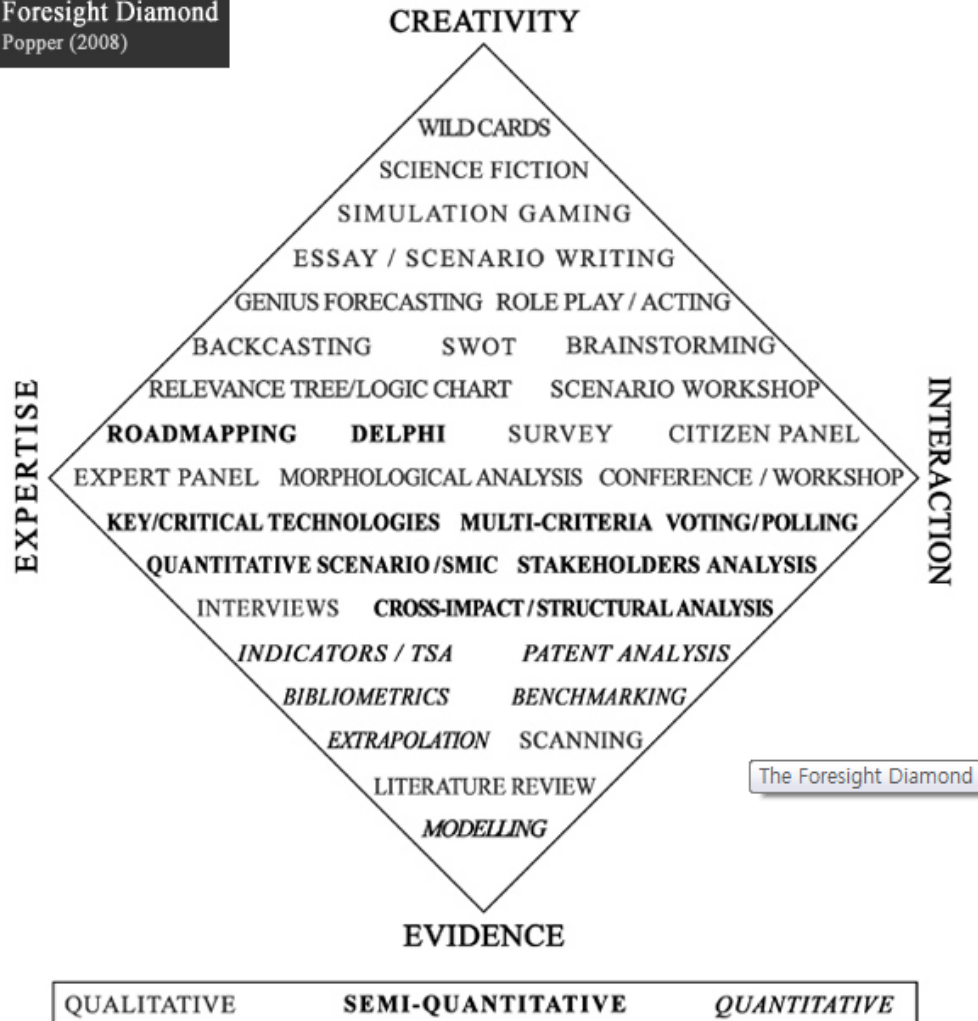




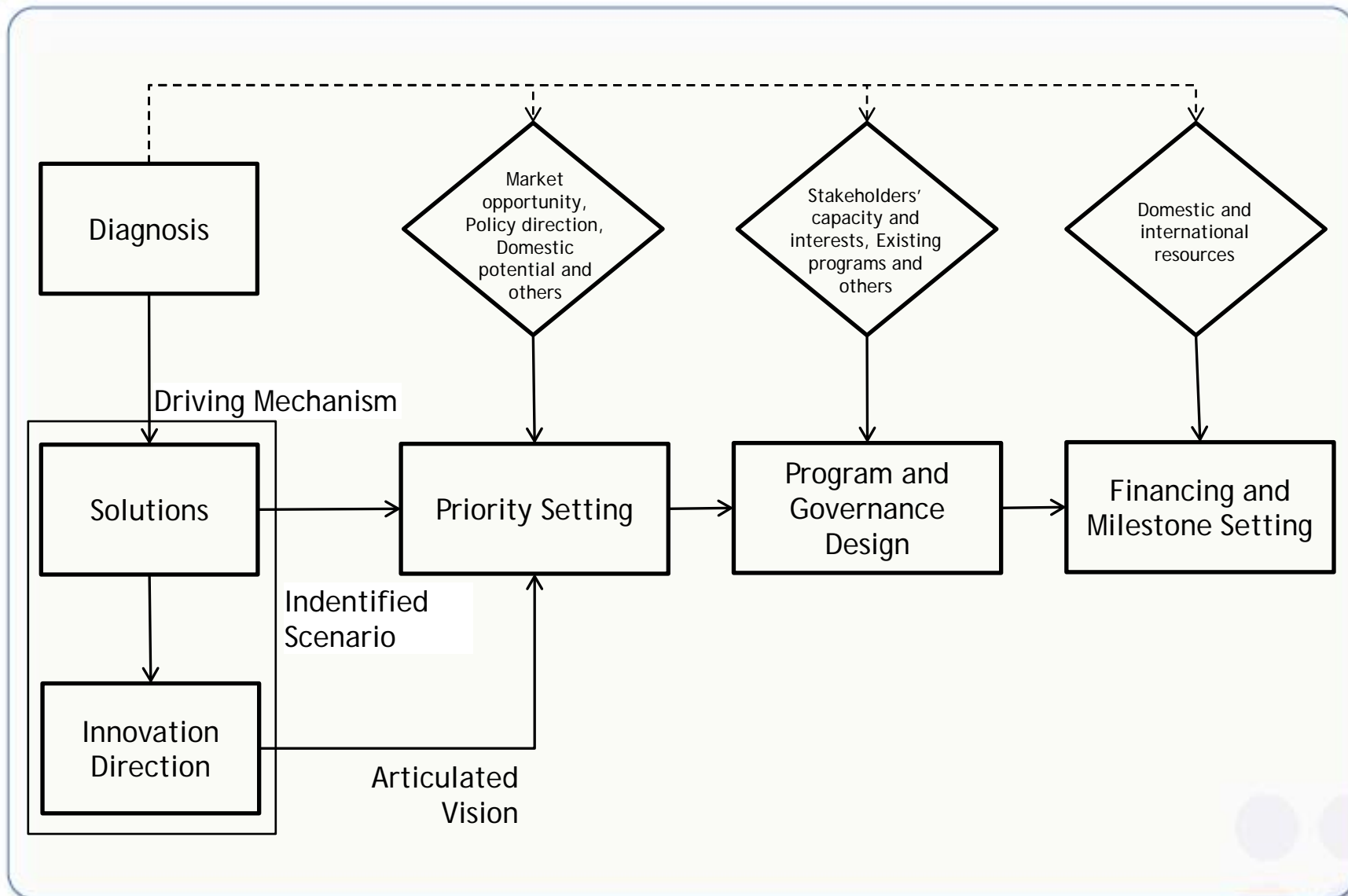
● Intuitive Approach

- Appropriate methodology for effective planning with limited resources and time
- Expert panel brainstorming

Foresight Diamond
Popper (2008)

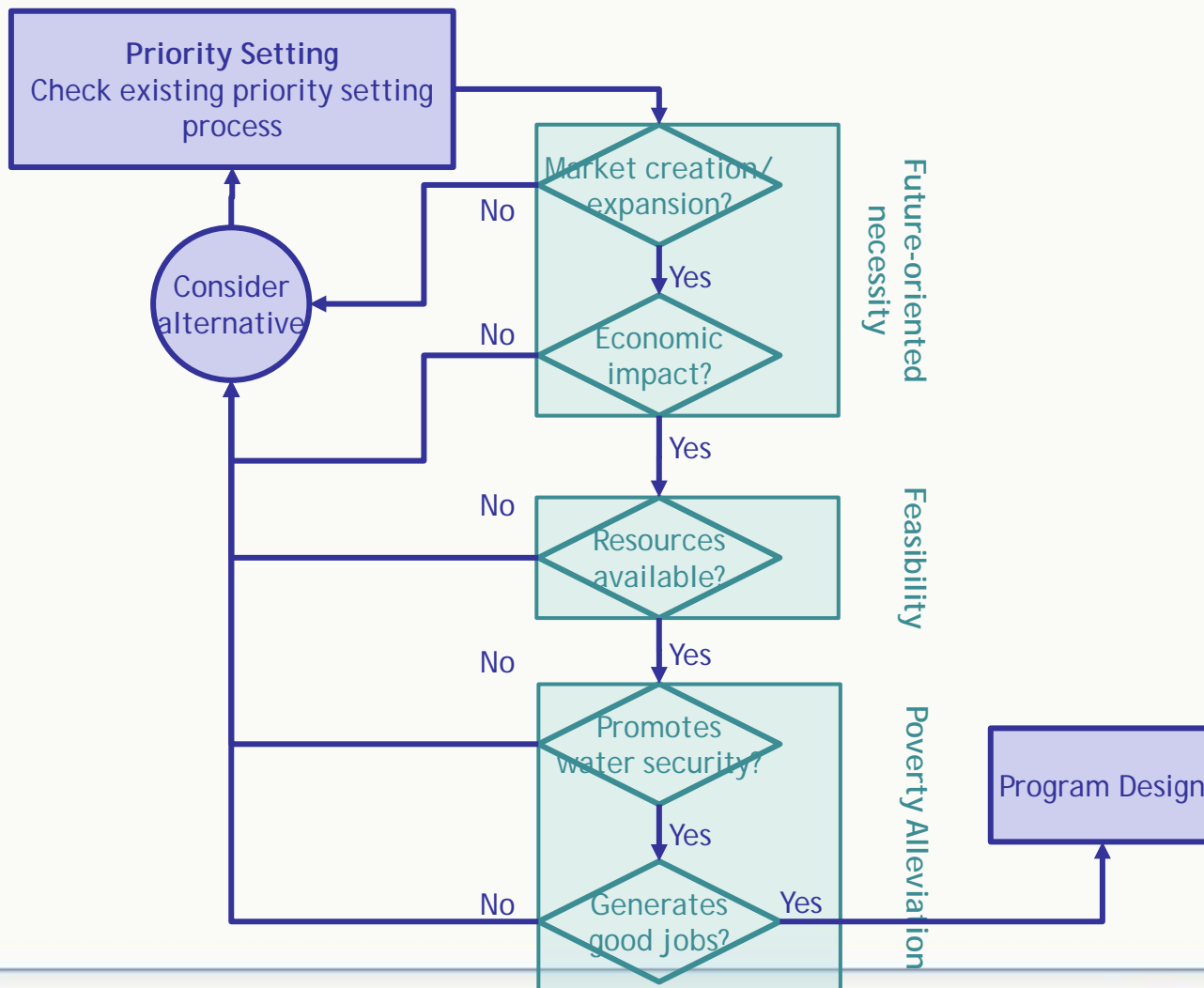


2. Action Planning



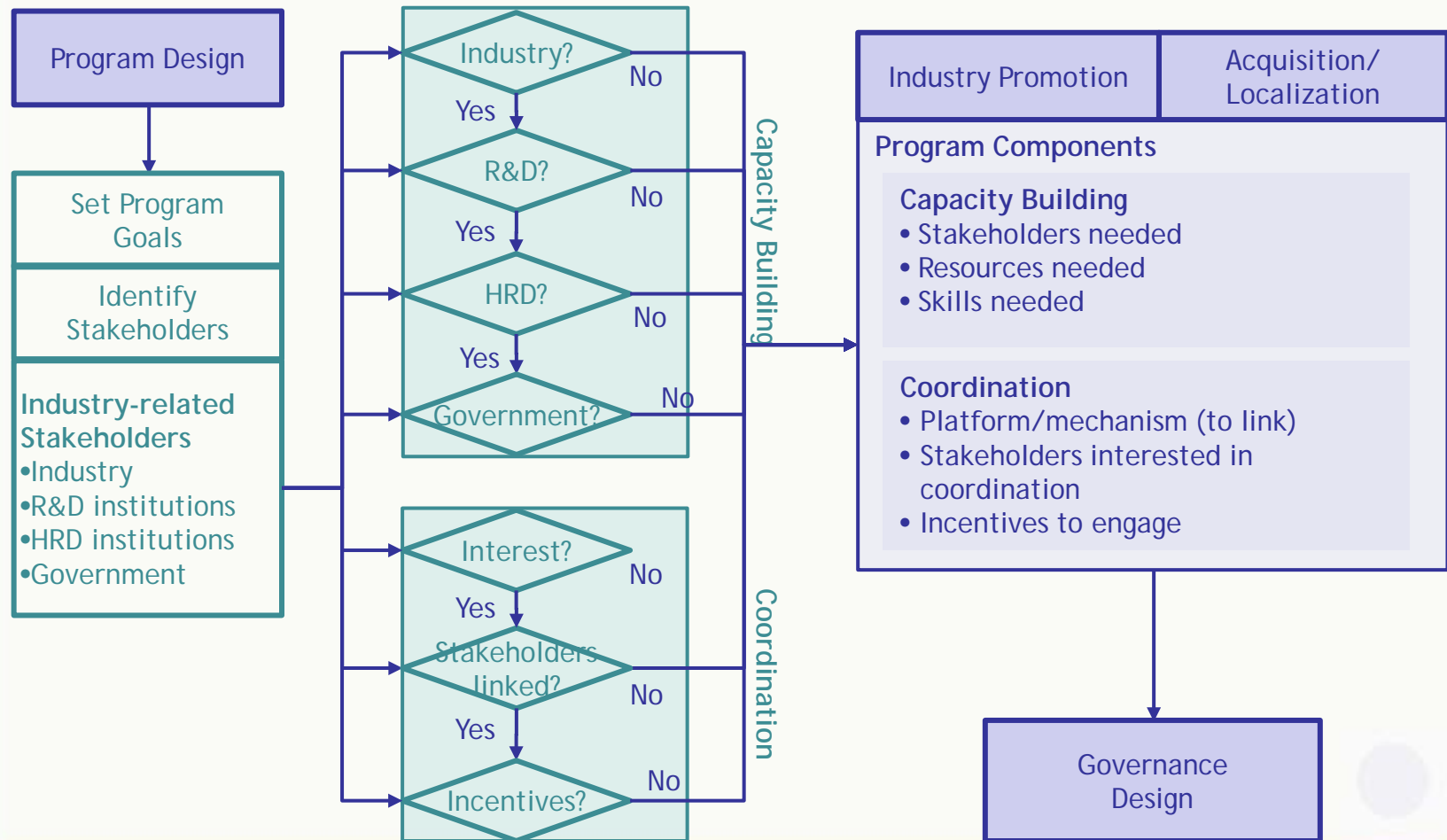


● Priority Setting



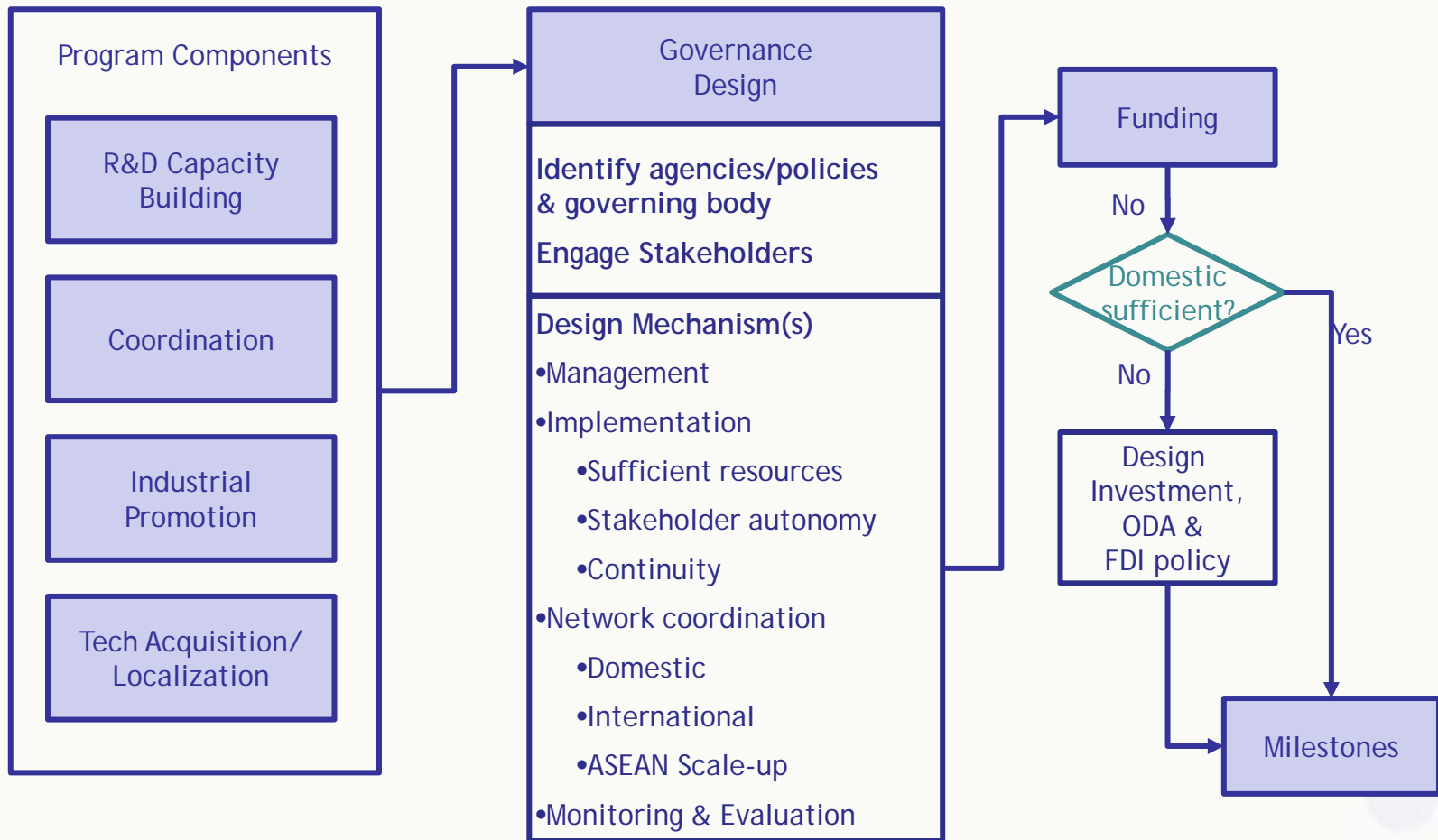


● Program Design: Possible Flow





● Governance & Funding: Possible Flow





V. Benchmarking Principles: Localizing Epistemology



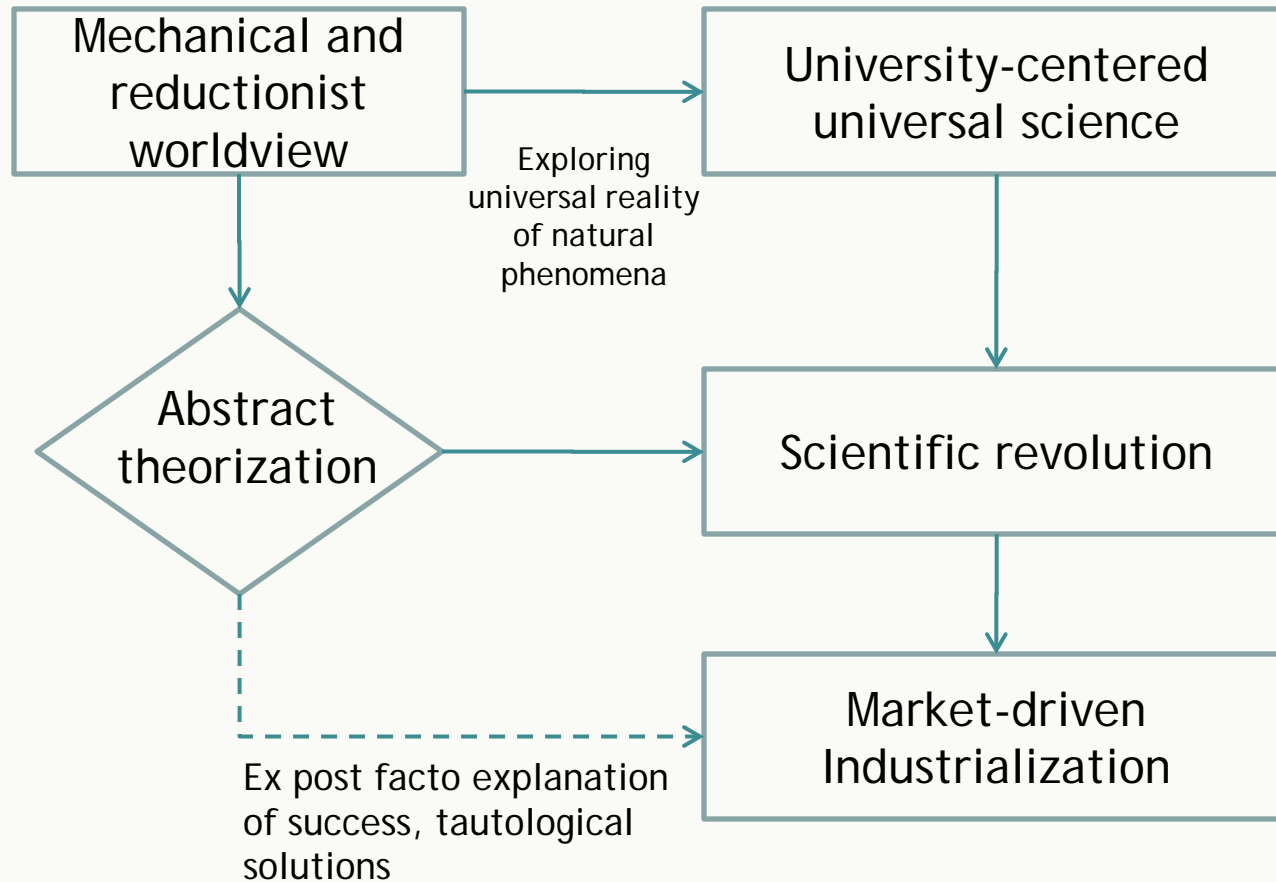
“ Li approached his work in the *Bencao gangmu* by putting existing literature on natural objects into a medical context and by using evidentiary practices from one literary realm to prove claims in another (Carla Nappi, 2009, p. 7)”

- Successful benchmarking requires contextual understanding of success cases in other countries and local epistemology in specific social, economic and cultural contexts.
- Local epistemology is the systemic understanding of STI stakeholders to position themselves in the system to maximize their benefits.
- The local epistemology, which encourages opportunistic behavior, can be transformed by accumulating success experiences, through which their portion of co-created collective wealth increases.

Carla Nappi, 2009, *The Monkey and the Inkpot: Natural History and Its Transformations in Early Modern China*, Harvard University Press.

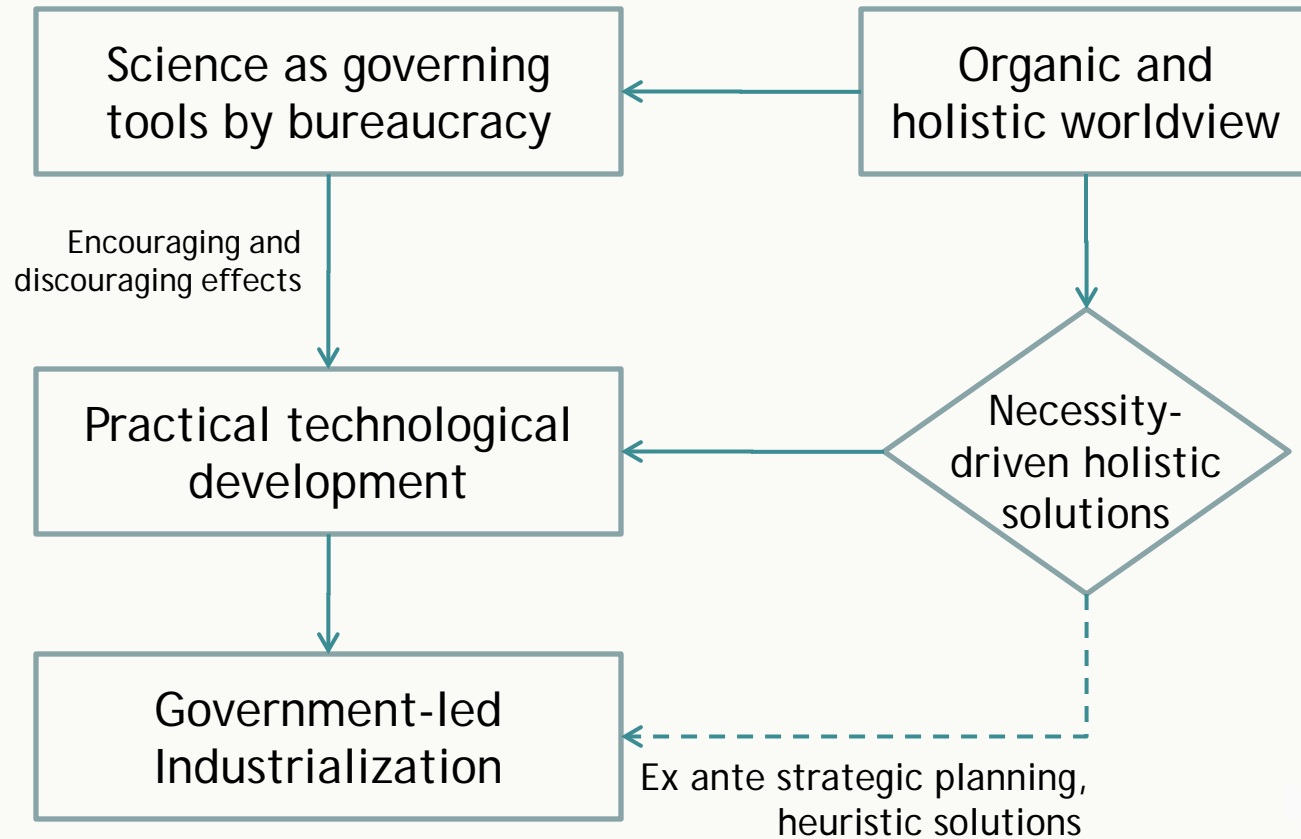


- Western innovation model



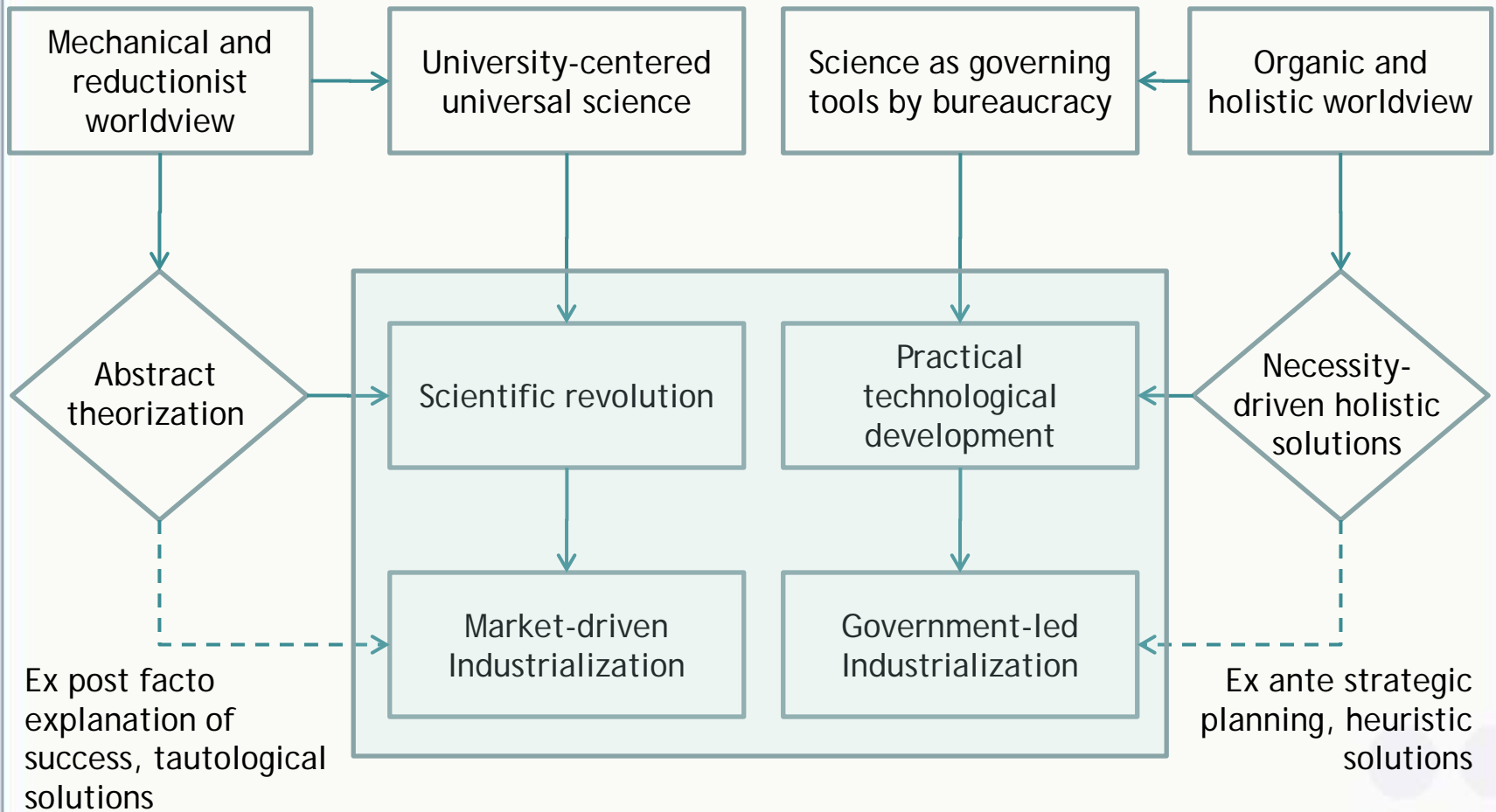


- Eastern innovation model



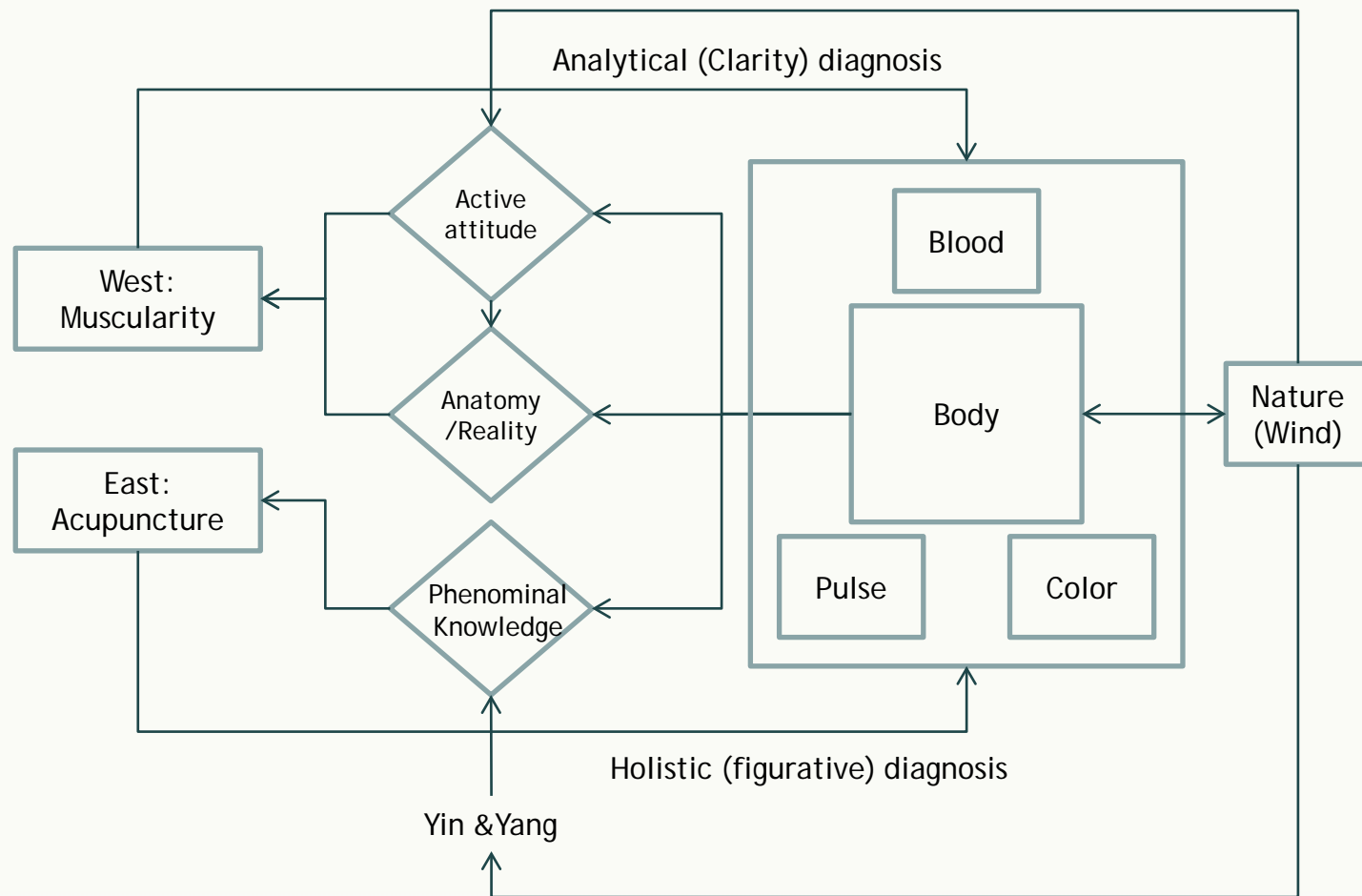


● Complementary pathways





● Comparison of Western and Eastern medical diagnoses



Note: Shigehisa Kuriyama (1999) *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine*, Zone Books, New York.

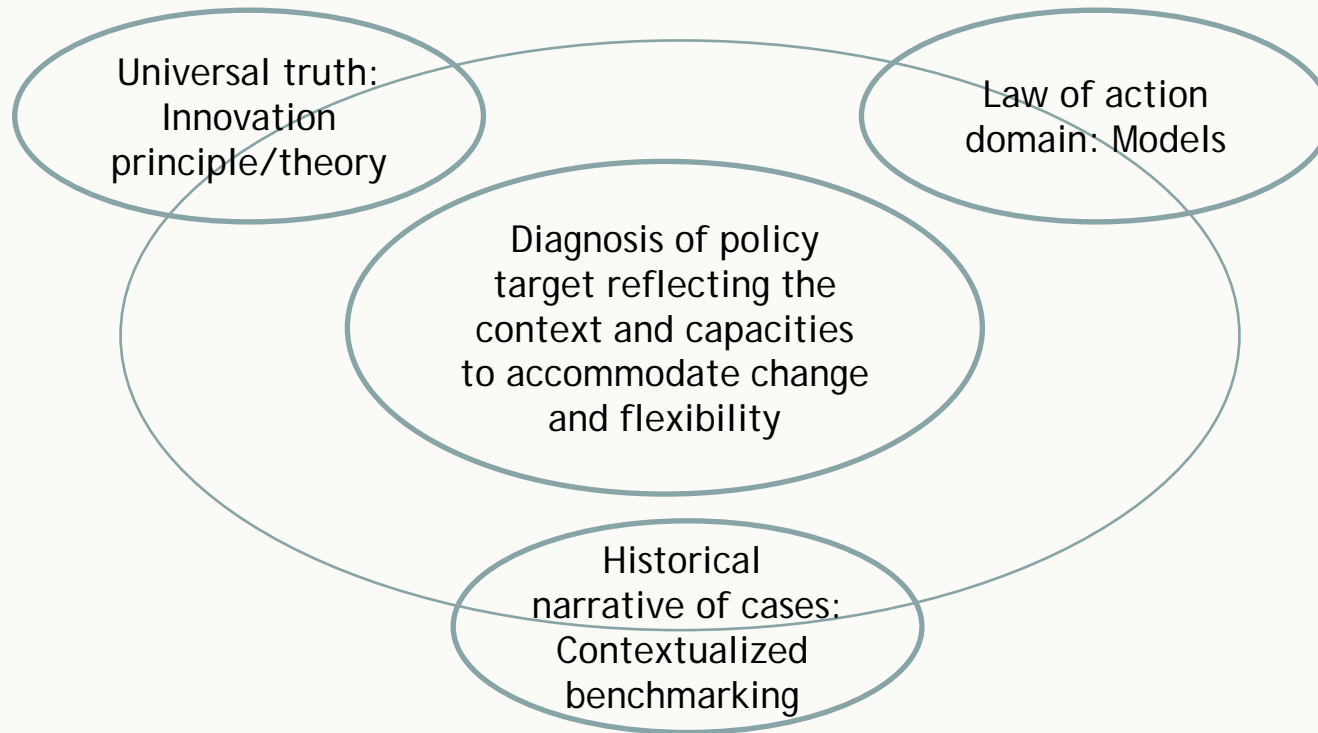


- Chinese diagnosis through cases: philosophical and medical
 - Classics: the cosmologically grounded norms of nature and society
 - Law: a domain of action, where official judgments based on evidence and code constituted grounds for active interventions in the world, not just representations of it
 - History: history's narrative of events provided models for establishing factual particulars
 - ➔ Case based reasoning as an open form, associating its capacity to accommodate change with freedom of thought as a sociopolitical value

Note: Charlotte Furth et al (eds), 2007, Thinking with Cases: Specialist Knowledge in Chinese Cultural History, University of Hawai'i Press, Honolulu.

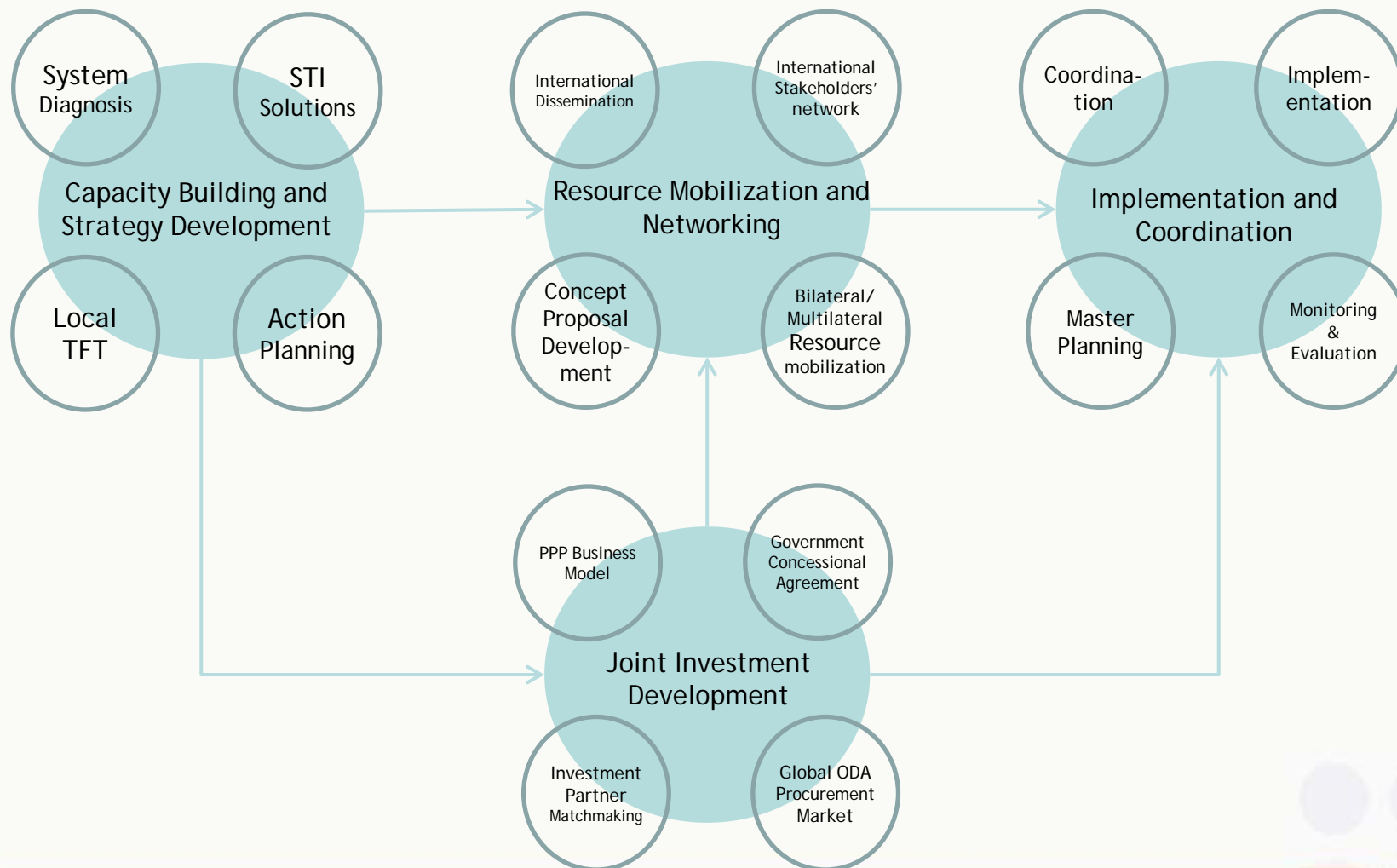


- Diagnosis in an open form with principle, models and benchmarking





● On-the-job capacity building program





**Thank you for your
attention!**