Governance issues for the Reconstruction of the Science and Technology Policy System

TOKYO FOUNDATION FOR POLICY RESEARCH INTERNATIONAL WEBINAR
on **"Science and Technology Policy at a Turning Point," Feb 17, 2022,**
Session 1: "Cross-sectoral Governance of Emerging Technologies" (10:00–11:15)

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Environment Surrounding Emerging Technology

- Increasing importance of ST in face of **Grand Challenges**
  - Climate change, pandemic, ST plays great role
- Appearance of emergence of new technologies (AI, IoT, biotechnology etc), with unprecedented speed in advancement
- Broad, ambiguous and uncertain social impact→increasing complexity, interrelatedness, systematic effects

- ST's promotion must be balanced with its social impact
  - Increasing recognition of "innovation" aspect
  - Social demand for accountability, consideration of ELSI

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Can current STI policy respond to changing environment?

- Limits in responding due to 3 STI governance deficits
  - ① **Shortsighted**: focused on immediate short-term interest, evident risks)
  - ② **Siloed**: Sectionalism, lack of collaboration with different fields/sectors, pursuit of partial optimization)
  - ③ **Fixed**: institution strongly build in a path dependent manner, resist response to change)
- The characteristics of current ST governance may work efficiently for the issues that have limited impact and known, but not for most issues we are facing today.

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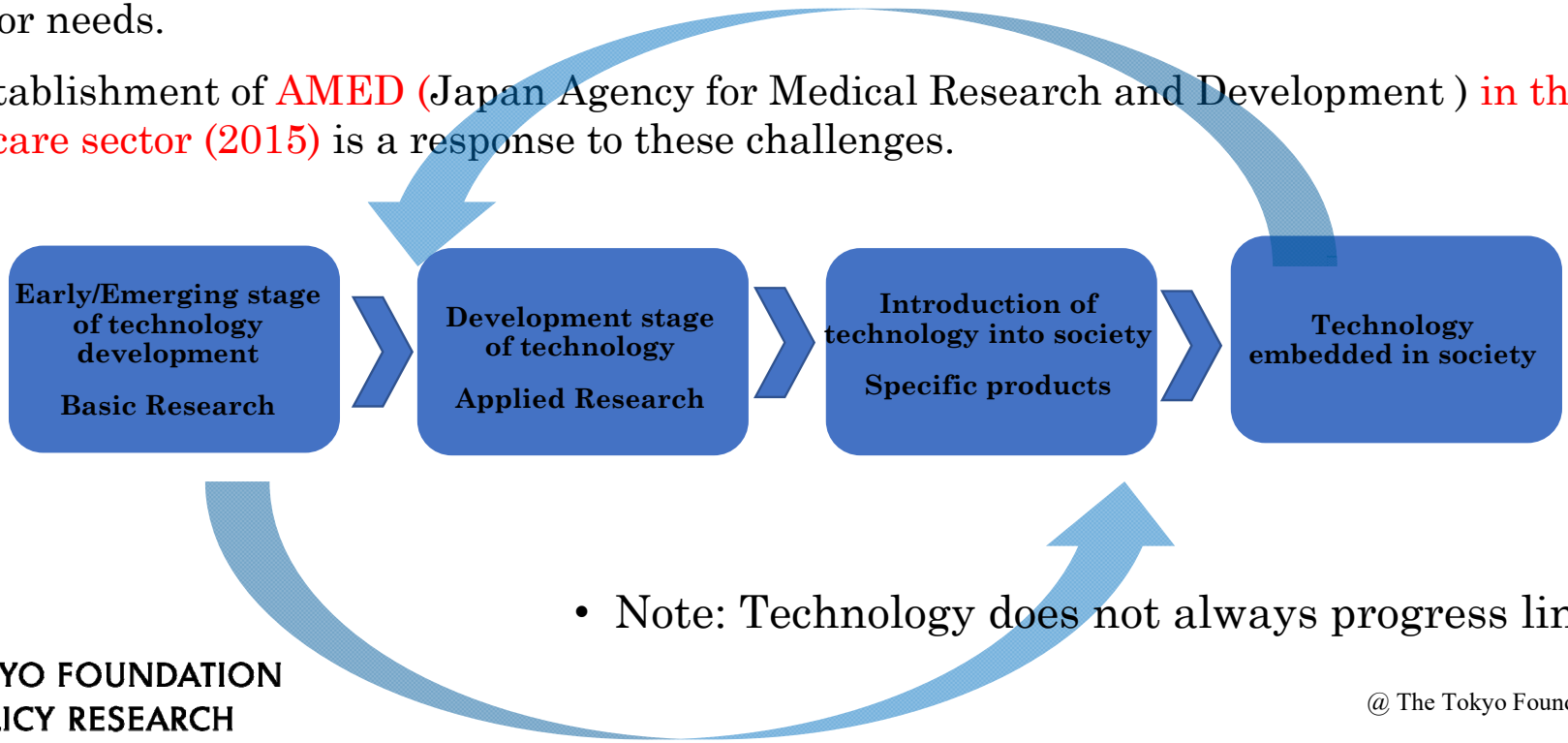
Fragmentation of the process and actors of social introduction of emerging technologies

- Different policy actors in different sectors are in charge of basic research, applied research, and social introduction. No seamless flow from basic research to social introduction (cf. case of biotech).
- the results of basic research are not passed on, or no feedback to basic research from the societal lesson or needs.
- The establishment of AMED (Japan Agency for Medical Research and Development) in the healthcare sector (2015) is a response to these challenges.



- Note: Technology does not always progress lineary.

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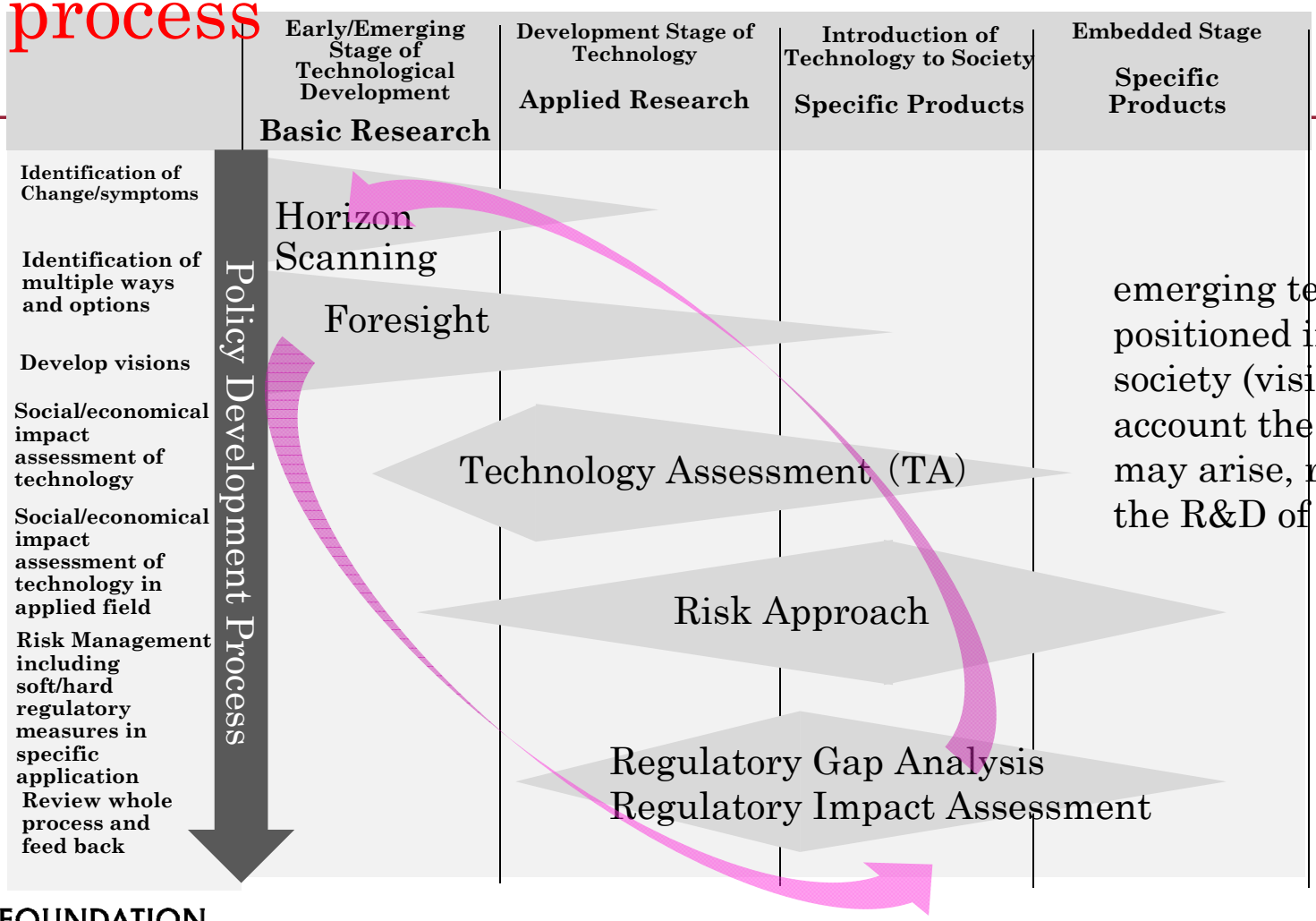
Need for coordination of various policy tools in policy process



emerging technologies must be positioned in the context of society (vision) and take into account the various ELSIs that may arise, rather than simply the R&D of technologies.

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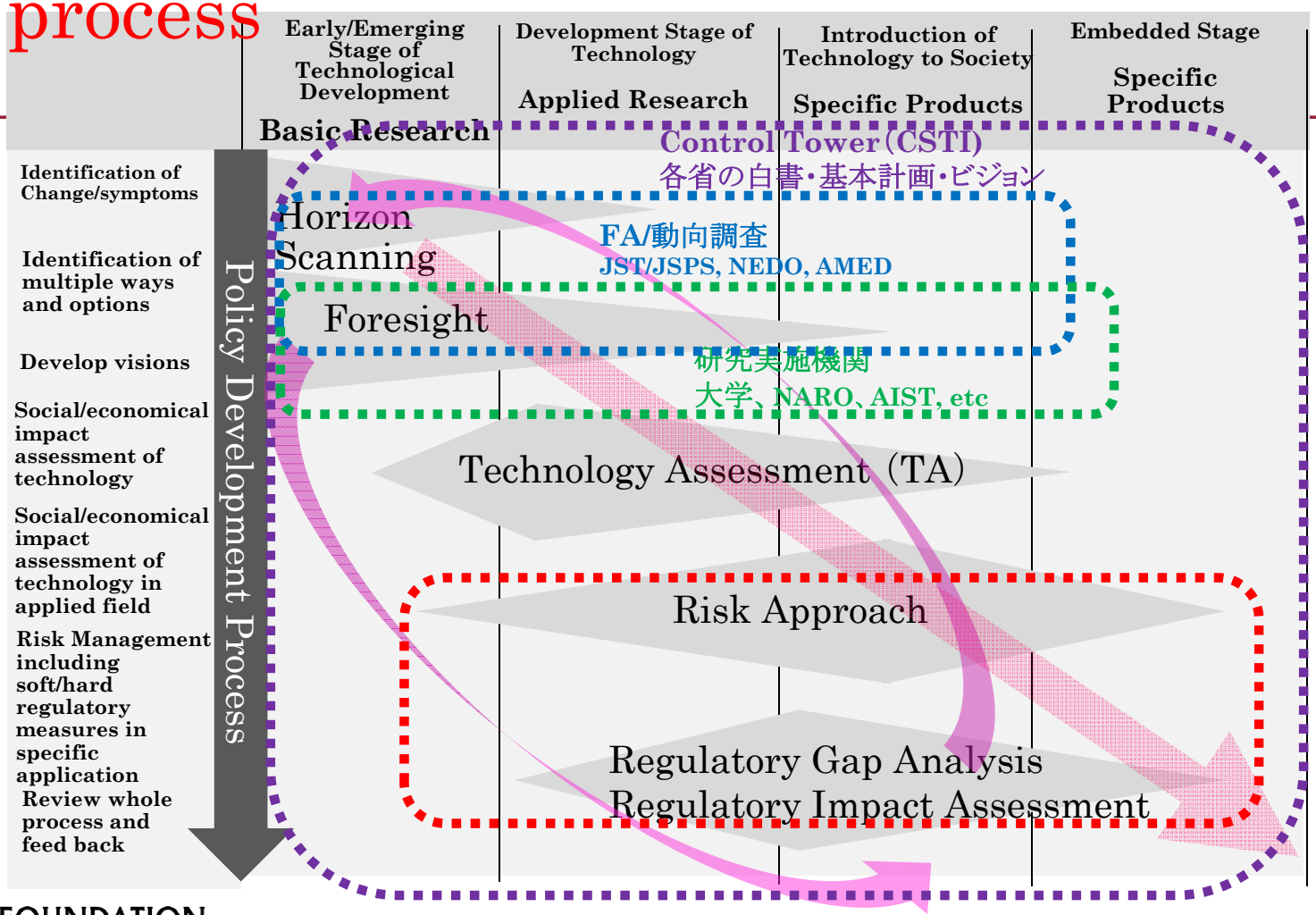

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What is needed for our policy and institution – Governance

- **3 governance deficits (all are interrelated)**
  - ① **shortsighted→Long term, forward looking app**
  - ② **siloed→ meta, holistic, whole-of-government app.**
  - ③ **fixed→ flexible, responsive app.**

- Need to keep in mind, there is no perfect approach, every approach can have merit and demerit.

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①Introduction of long-term and forward looking app in policy process

- **Introduce a mechanism in policy process to form long-term vision** (from early to late stage) in priority issue domains
  - **Promote collaboration** between existing foresight and HS activities
    a. We do have foresight and HS : **promote collaboration/exchange of info** between existing foresight and HS (MEXT NISTEP, METI NEDO), strengthen social aspect in their analysis, make sure to ensure different multiple paths in foresight
  - **Seamlessly connect long-term vision, foresight, and social implementation**
    a. Consider institutional design that seamlessly connect R&D to implementation including its oversight and regulation
    b. Make sure to consider **safety, regulatory science and ELSI from the outset**. Embed **RRI from the early stage** together with the researchers and developers to avoid "pacing problem"

  Cf. Lack of long-term perspective in policy making may due to the Japanese bureaucratic system (generalists vs specialist)

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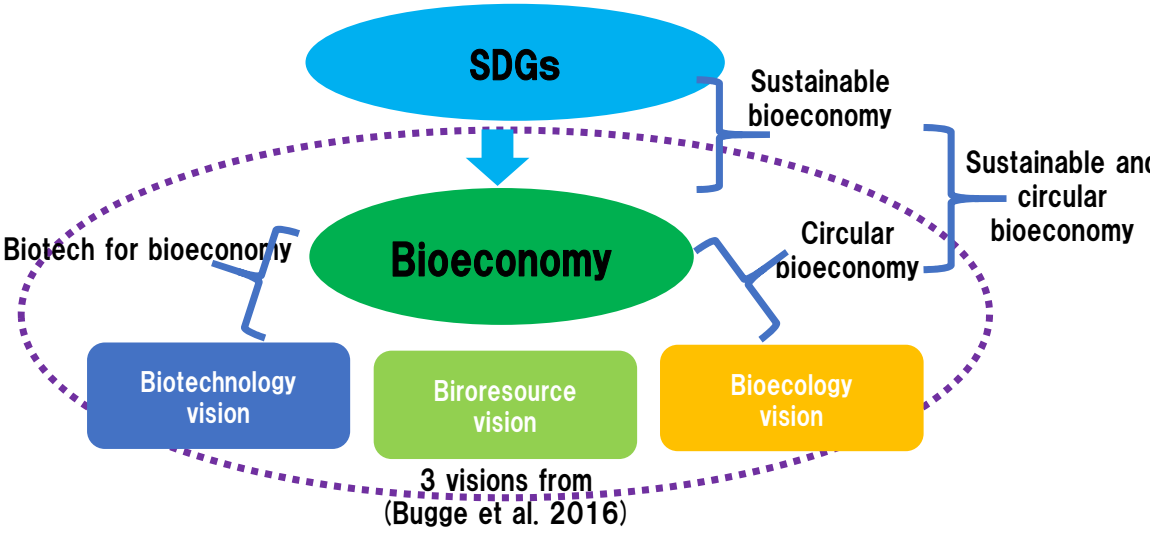
②Introduce mechanism to ensure holistic app in policy issues

- Need for a Holistic/meta and multi-level analysis
  a. Need for a **Holistic/meta app in policy issue**: interrelatedness, trade offs
     - Importance of cross-sector, jurisdiction etc had always been acknowledged
       Cf. need to reconsider coordination and control tower function?
  b. Need for a **multi-level perspective (Transition management)**
     - Need to be aware of overall trend and landscapes, changing environment, international relations and niche in addition to policy sphere.



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③introduce a mechanism that allows **flexibility to policy system**

- Consideration of approaches that enables **flexibility and responsiveness in responding to uncertainty**

a. Can we learn lessons from **the (planned) adaptive governance, agile governance, reflexive governance, experimentation** etc?
   - The concept of agility is appealing in face of unchanging inflexibility and rigidity
     - How can we exactly utilize this concept in real policy?
     - What needs to be taken care of in using it? (ex, agility may inherently conceptually conflict with stability)

b. Need for **information and evidence gathering** mechanism
   - In order to make change/rule, (new) information and evidence is needed but difficult in case of emerging tech
     - What kind of mechanism can be considered? (public-private-partnership work?)
     - **Voluntary (consultation) mechanism? (cf. notification procedure in japan for the genome edited food)**

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Cf. Notification procedure for genome edited food in Japan

- Way to keep pace with technology?
- Regulatory clarification of genome-editing for food use
  - Certain genome-edited product (considered to pose same level of risk as conventional breeding, SDN1, SDN2 case-by-case) was exempted from the GM regulation
  - Set in place a mechanism
    - to ensure prior consultation to accumulate information, monitor (and for consumer confidence),
    - Information of products not under the regulation also made available to public
    - Labelling is not mandatory but Consumer Agency encourage developers to provide information on notified products

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What role for government and policy maker in STI?

- Making Strategy?
- Rule and norm making?
- Multi-level, policy coordination and process management (OECD, 2018)?
- matching function?

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Annex: Japan's AI Governance

<Long-term and forward looking?>

- Society 5.0 as social vision? - main focus on integrated technologies of physical space and cyber space such as IOT + mention about social inclusion (everyone including women and elderly can be active)
- Discussion of use cases (autonomous vehicles, fin-tech, medical devices, work-life balance, etc.) for guideline development

<Holistic?>

- Discussion at the level of ministries and cabinet level- various benefits and risks (safety, security, ethics) – de fact TA (Technology Assessment)?
- Parallel development of domestic and international discussion (G7, G20, OECD, WTO, TPP, etc.)

<Flexibility and adaptation?>

- Main focus on non-regulatory measures (soft law) ⇔EU
- Extensive roles of self regulations
- AI policy as a tool for regulatory reform (governance innovation) crosscutting traditional sectors cf. METI Data Contract Guideline Jun 2018
- New type of regulation ex. approval of medical machine using AI

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