Setting Research Priorities

the outline of activities of CRDS

(Center for Research and Development Strategy)

15/Sep./ 2009

Shushi Ueta, Deputy DG for administration

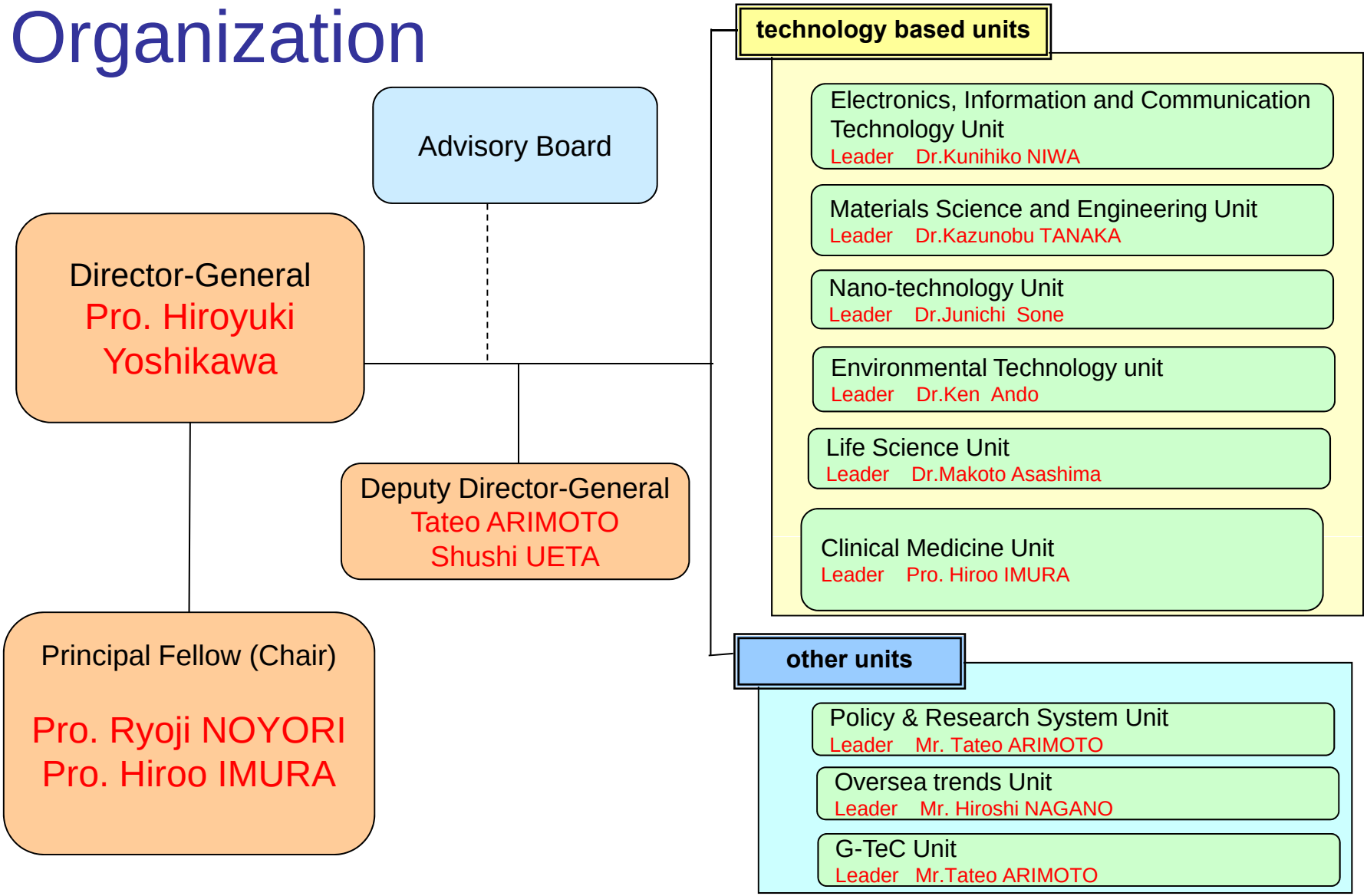
CRDS

- Established on 1, July 2003 in JST
- Main Activity

  To prepare "Strategic Proposals" and present them to JST HQ and the relevant ministries of the Japanese Government.

- Strategic Proposals (55 proposals published)
  - Identify important R&D areas and subjects to be funded by the Japanese Government （＝Research Priority Setting）
  - Proposals for S&T policy

Organization



Research Grants in Japan

- Curiosity Driven (bottom up)

  Funds are distributed based on Science Community's activity.

  All scientists are eligible. → **Funding Agency**

  JSPS

- Strategic/Policy Oriented (top down)

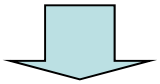
  The Japanese Gov. decides priority areas／subjects.

  Not all scientists are eligible. → **Funding Agency**

  JST **NEDO**

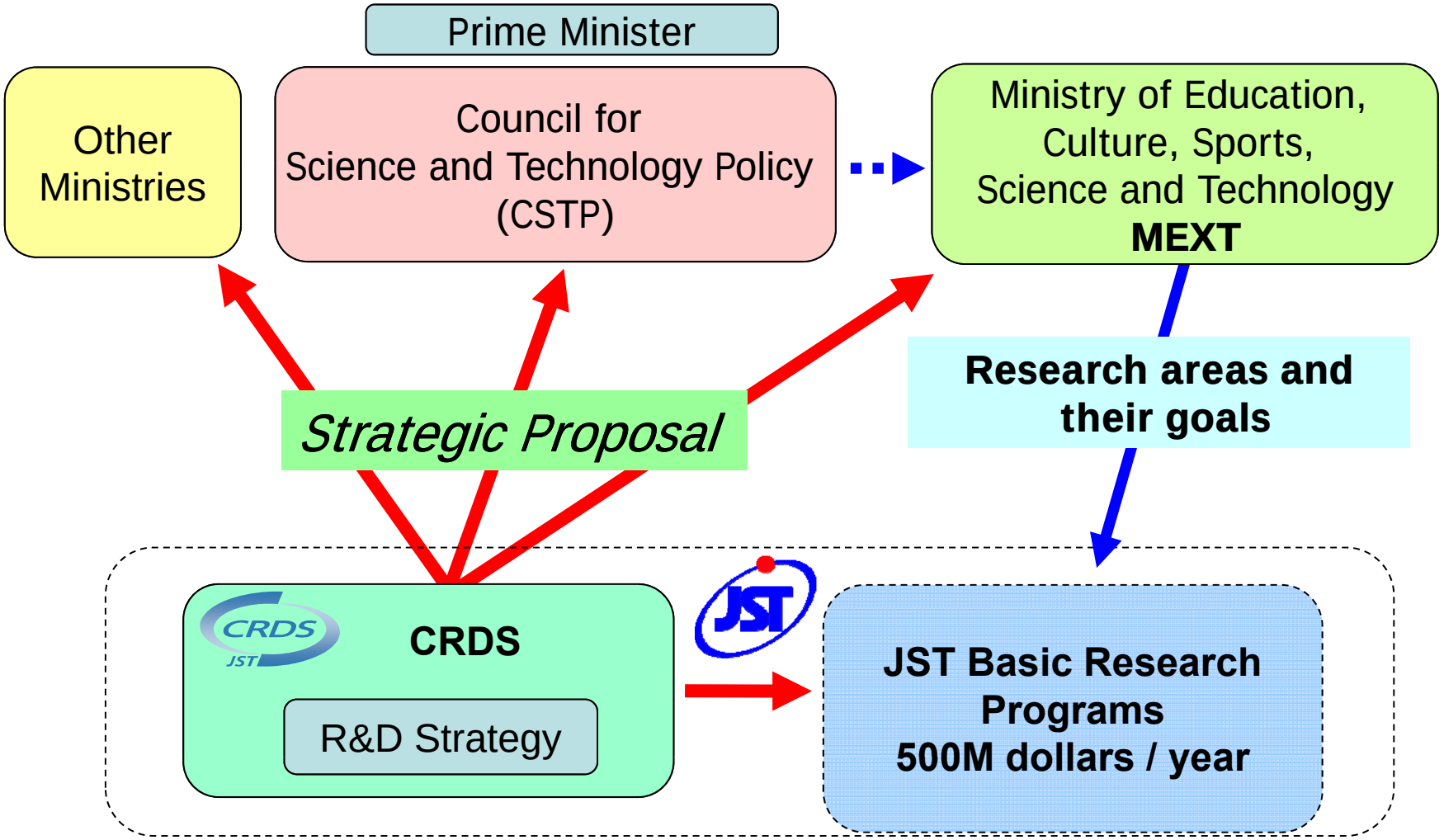
  (basic) （industrial）

- CRDS's proposals are neutral and evidence based.



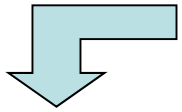
- The Japanese Government decides research priorities taking various factors into consideration.

Proposal to S&T Policymakers



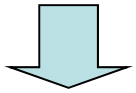
JST Basic Research Program

CRDS proposals



Other factors

MEXT research area and goals



JST implementation

(example)

- CSTP (the chairperson is the prime minister.)
  4 priority promotion areas of S&T
  IT, Life science, Environmental science, Nanotech & materials

⇩

- CRDS's proposals in the field of IT
  Dependability (Dependable OS, Dependable VLSI etc)
  Integration of IT and Robotics technology
  Ultra Low Power Technology
  Knowledge creation support etc

⇩

- JST started several projects based on CRDS's proposals.

CRDS proposals on S&T policy

- S&T based Innovation Policy

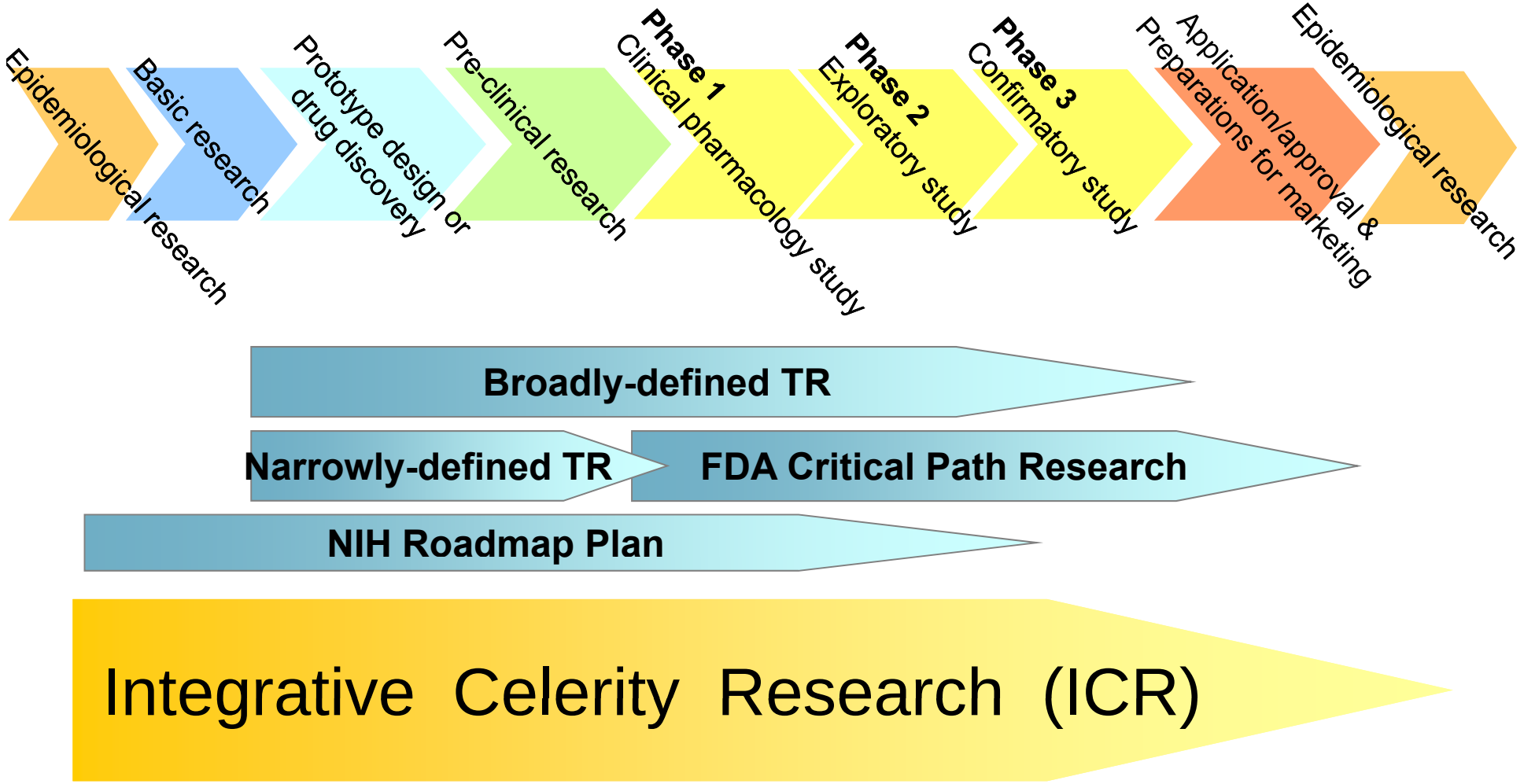
  National Innovation Ecosystem

- Innovation of Health and Medical Care

  Integrated Celerity Research (ICR)

- Promotion of Interdisciplinary Research

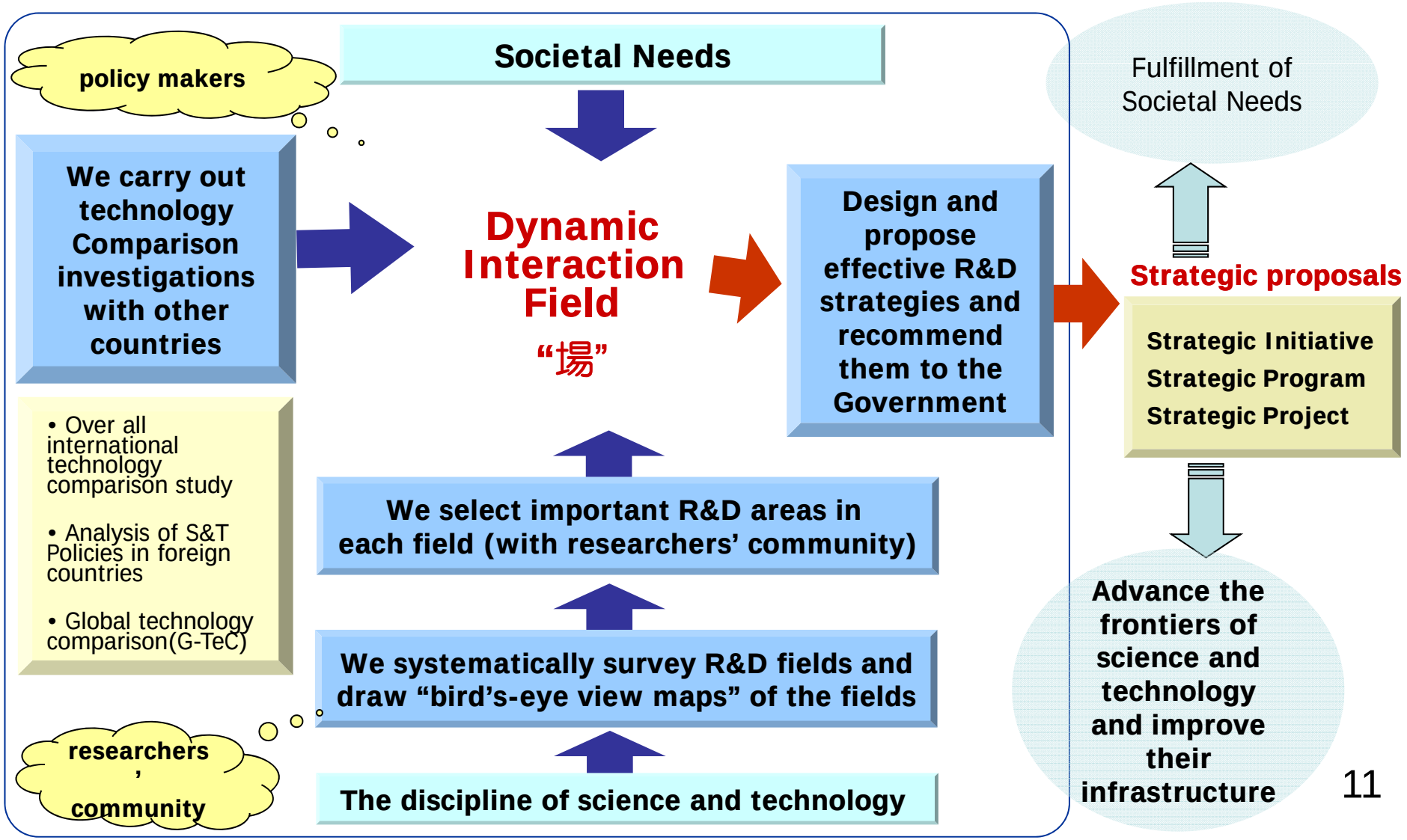
CONCEPT OF ICR — FROM TR TO ICR



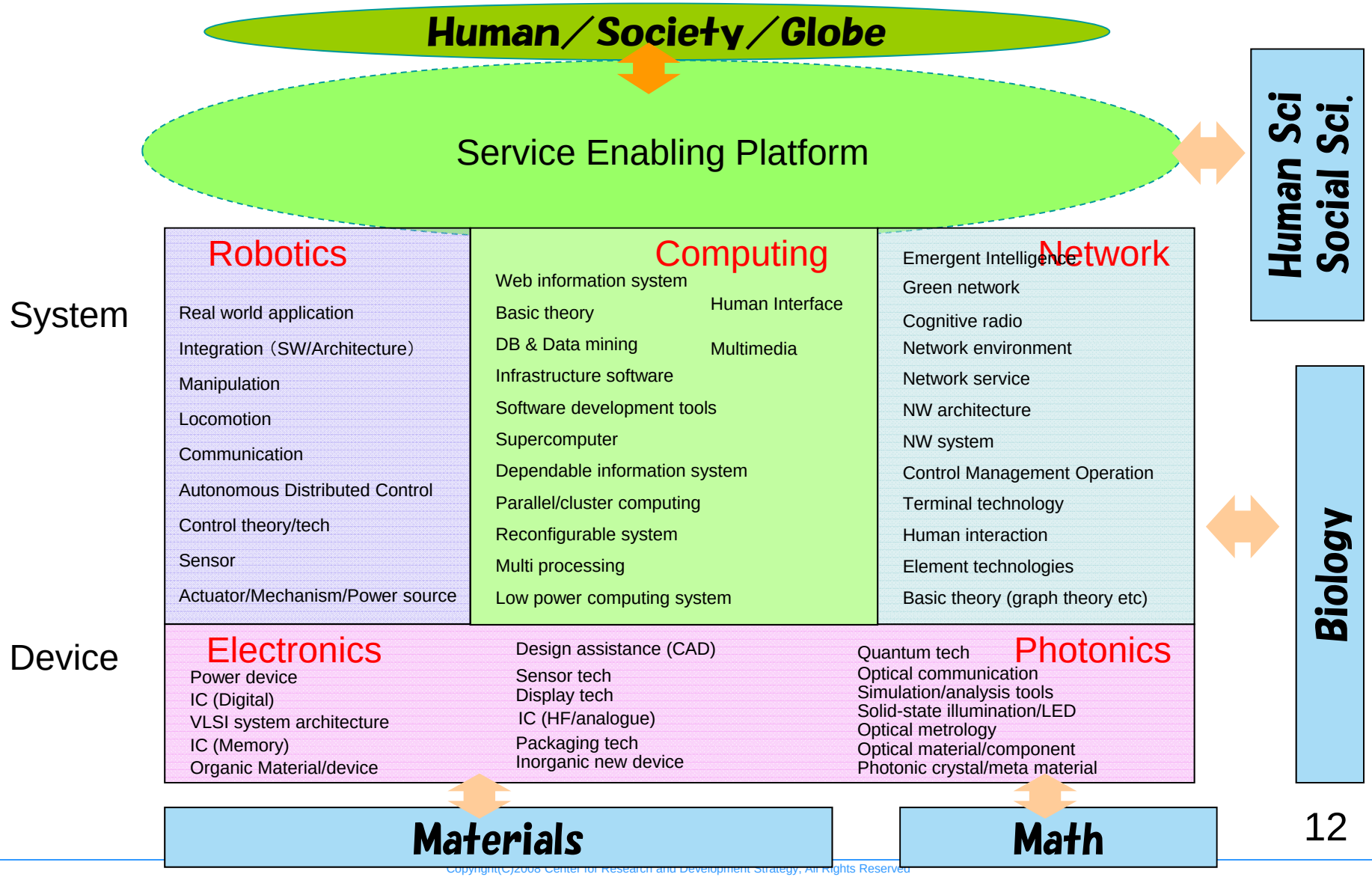
How CRDS makes proposals

1. Promote dialogue between S&T policymakers and academia.
2. Survey S&T fields and draw their “bird’s eye view maps” .
3. Select important R&D subjects to be funded by the Government, and investigate effective methods for performing R&D on the selected subject.
4. Compare research activities of Japan with those of other countries.
5. Propose R&D strategy that can contribute to fulfillment of societal needs and expansion of research frontier.

How to make Strategic Proposal?



"Bird's-eye view map" of ICT field



International comparison of S&T

- Comparison of research activities
  - International Technology comparison (broad areas)
  - G-TeC report (detailed study)

- Science and Technology policy in foreign ountries

International Technology Comparison

- S&T Fields
  - Electronics, Information and Communication technology (6 areas, 58 Sub-areas)
  - Nanotechnology and Material technology (15 Areas, 71 Sub-areas)
  - Advanced Measurement and Analysis technology (7 Areas, 41 Sub-areas)
  - Life science (7 Areas, 50 Sub-areas)
  - Clinical Medicine(6Areas, 11Sub-areas)
  - Environment technology (4 Areas, 43 Sub-areas)
- Each field is divided into Areas and Sub-areas.
  - Field > Area > Sub-area total 274 Sub-areas
- Comparison in each “Sub-area” (A, B, C, D)
  - Japanese Experts’ subjective evaluation
- Phases
  - Research : Research level at universities
  - Development: Research level at industries
  - Industrial Technology: Production level at industries
- Countries/region
  - Japan, EU, US, Korea, China

International Technology Comparison

Results (Example 2008 version) Nanotechnology / Materials

Field L		Nanotechnology / Materials																							
Field S		Nano-structured Materials, New function materials														Nano-Fabrication									
Area		Carbon nanomaterials		Nanocomposite materials		Nanosurface modification		Functional gel		Supermoleculars, Dendrimer		Mesoporous Materials		New molecules and molecular assembly		Strongly-correlated electronic		Semiconductor micro fabrication technologies		Nanoimprinting Nano-graphic technologies		Self-organization, Self-assembly		nano-processing		MEMS・NEMS	
	Phase	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend	LVL	Trend
JPN	Research	A	→	A	→	A	↗	A	↗	A	↗	A	↘	A	→	A	→	B	→	B	→	B	↗	B	↗	A	→
	Development	B	→	A	→	A	→	A	↗	B	↗	B	→	B	→	A	↗	B	↘	B	↗	B	↗	A	→	B	→
	Industrial Tech	C	↗	B	→	A	→	B	↗	C	→	A	→	A	↗	D	↗	B	↘	C	↗	D	→	B	↗	A	→
USA	Research	A	↗	A	→	A	↗	B	→	A	↗	A	↘	A	→	B	↗	B	↗	B	↗	A	↗	B	↘	A	↗
	Development	A	↗	A	→	A	→	A	→	A	→	B	→	A	→	A	↗	B	↗	B	↗	B	↗	A	→	A	↗
	Industrial Tech	C	↗	A	→	A	↗	A	↗	B	↗	B	→	A	→	D	→	B	→	C	↗	D	→	C	→	A	↗
EU	Research	A	↗	A	↗	A	↗	B	→	A	→	B	↘	A	↗	A	↗	A	↗	A	→	A	↗	A	→	B	↗
	Development	B	↗	B	↗	A	↗	B	→	B	↗	B	→	B	↗	B	↗	B	↗	B	↗	B	↗	A	↗	A	↗
	Industrial Tech	C	↗	B	→	A	↗	C	→	B	→	C	→	B	↗	D	→	C	→	C	↗	D	→	C	↗	A	→
CHN	Research	B	↗	B	↗	B	↗	C	↗	B	↗	C	→	B	↗	C	↗	C	↗	D	→	B	↗	D	→	D	↗
	Development	C	↗	B	↗	B	↗	C	→	C	↗	C	→	B	↗	D	↗	D	→	D	→	C	→	D	↗	D	→
	Industrial Tech	D	↗	B	↗	C	↗	C	→	C	↗	C	→	C	↗	D	→	C	↗	D	→	D	→	D	↗	D	→
KOR	Research	A	↗	B	↗	B	↗	C	↗	A	↗	B	→	A	↗	B	↗	C	→	C	→	C	→	B	↗	C	↗
	Development	B	↗	B	↗	B	↗	C	→	B	↗	B	→	B	↗	A	↗	A	↗	B	↗	C	→	B	↗	C	↗
	Industrial Tech	C	↗	B	↗	B	↗	C	→	C	↗	B	→	B	↗	D	↗	B	↗	C	↗	D	→	D	↗	C	↗

Summary

- CRDS supports the Japanese Government's decision of research priority setting.
- CRDS's advices are neutral and evidence based.
- CRDS takes three factors into account.
  - bird's eye view maps of S&T
  - social needs
  - international comparison
- CRDS also prepares proposals for S&T policy.