
Technology Assessment for sustainable development

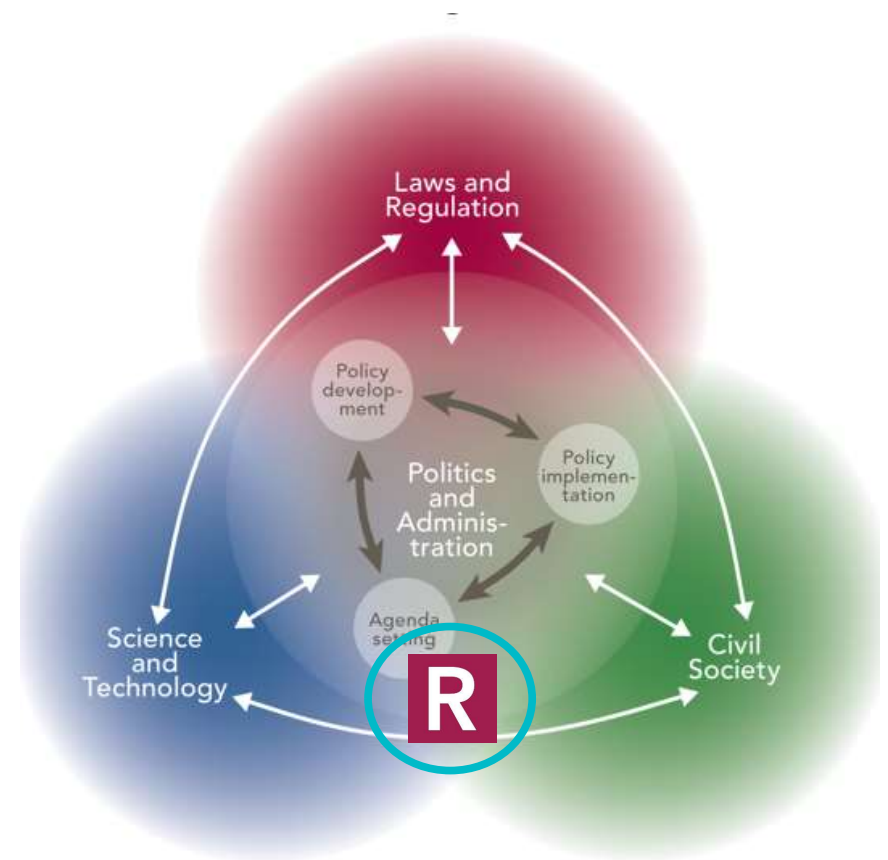
*A realistic and comprehensive
view on technology in society and
its governance*

Rinie van Est, Rathenau Instituut

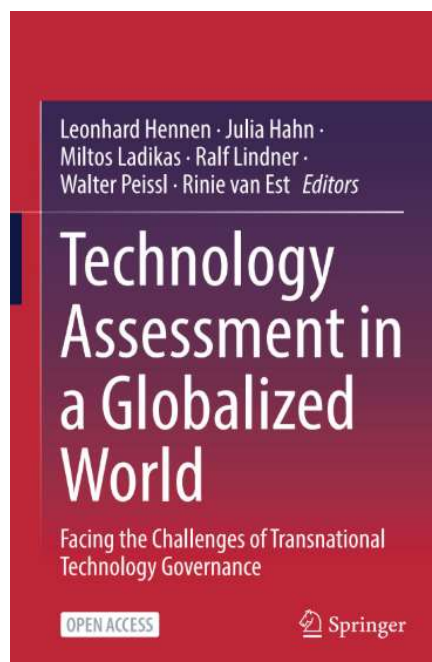
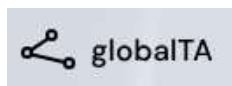


Rathenau Instituut

- **Mission:** Support formation of public and political opinion on social and ethical aspects of science, technology and innovation (STI)
- **Main target group:** Dutch Parliament
- **Associated with** Royal Netherlands Academy of Arts and Sciences (KNAW)
- **Collaborative networks:**
 - European Parliamentary TA (EPTA) network
 - European TA Group (ETAG)
 - GlobalTA network



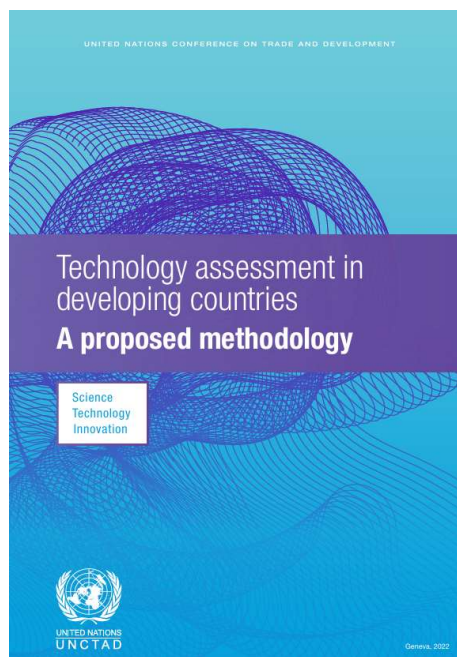
International cooperation: TA goes global



OECD publishing

TECHNOLOGY ASSESSMENT FOR EMERGING TECHNOLOGY MEETING NEW DEMANDS FOR STRATEGIC INTELLIGENCE

OECD SCIENCE, TECHNOLOGY
AND INDUSTRY
POLICY PAPERS
April 2023 No. 146



United Nations
E/CN.16/2025/3
Economic and Social Council
Distr.: General
23 January 2025
Original: English

Commission on Science and Technology for Development
Twenty-eighth session
Geneva, 7–11 April 2025
Item 3 (b) of the provisional agenda
Science and technology for development: Priority themes

Technology foresight and technology assessment for sustainable development

Report of the Secretary-General

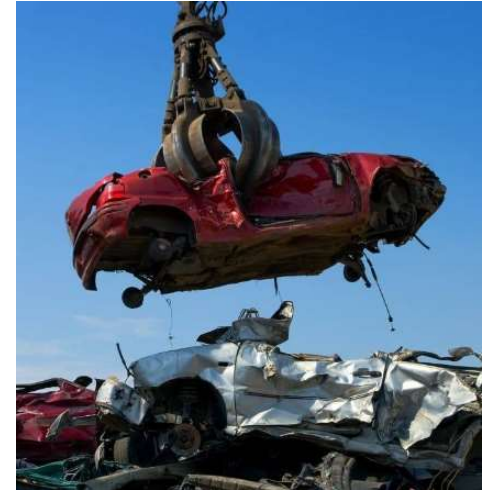
Summary

Technology foresight and technology assessment can guide sustainable development policies, as highlighted in this report. While distinct, the two practices complement each other in helping countries strengthen anticipatory governance capacities and proactively adjust technological trajectories. Together, they help foster resilience by enhancing adaptability to unforeseen technological changes, creating shared goals that unite diverse stakeholders and challenging existing policy narratives by helping to reveal blind spots, debunk biases and identify missed opportunities and risks. Technology foresight and technology assessment can act as honest brokers, as underscored in the report, expanding the range of policy options rather than promoting a single course of action. Building local capacities and institutional frameworks to implement technology foresight and technology assessment is critical in developing countries, although it is neither easy nor inexpensive, as shown in the report, which draws on international case studies, panel discussions and national experiences. Recommendations are provided on institutionalizing technology foresight and technology assessment, ensuring the independence and inclusivity of such activities and strengthening global support and knowledge-sharing networks, to ultimately embed them more firmly into sustainable development policies.

Technological dream



Sociotechnical reality



Dual role of governments in innovation

- Stimulating technological innovation
- Stimulating innovation with an eye for
 - Good and bad chances
 - Winners and losers
 - Public values

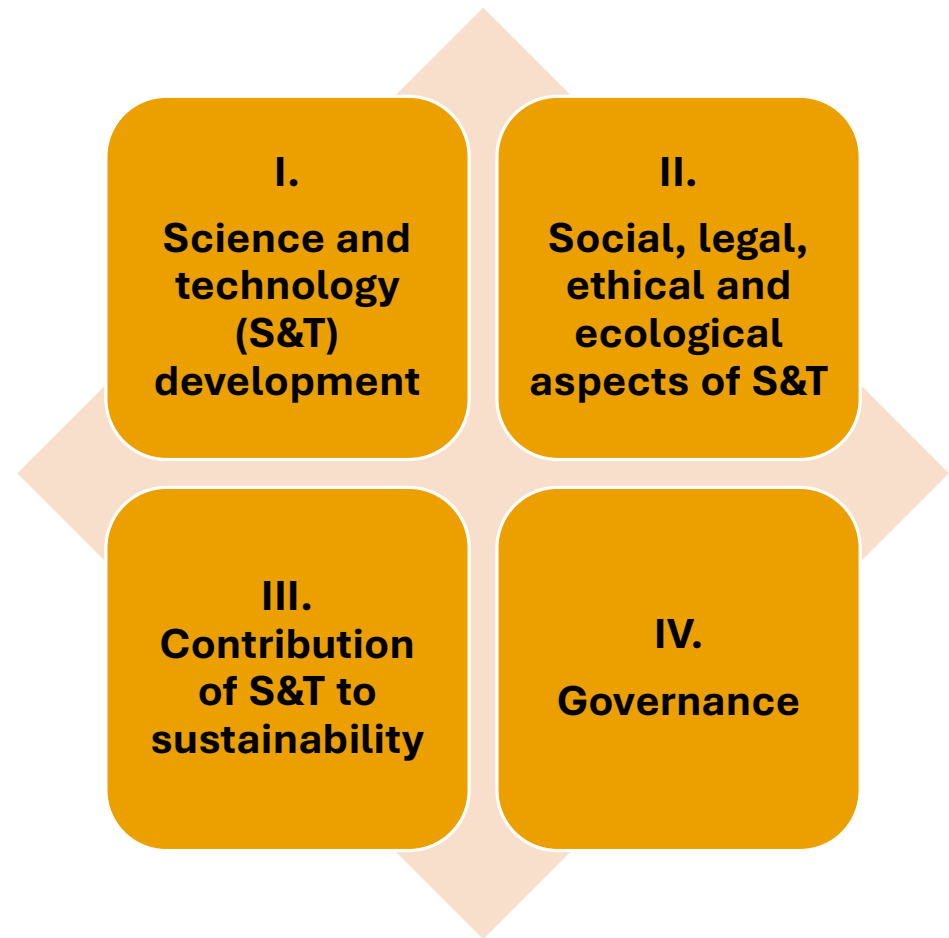


How to get a realistic and comprehensive view on technology in society and governance?

Mark Twain: “If you read the newspaper, you are misinformed, and if you don’t, you are uninformed.”



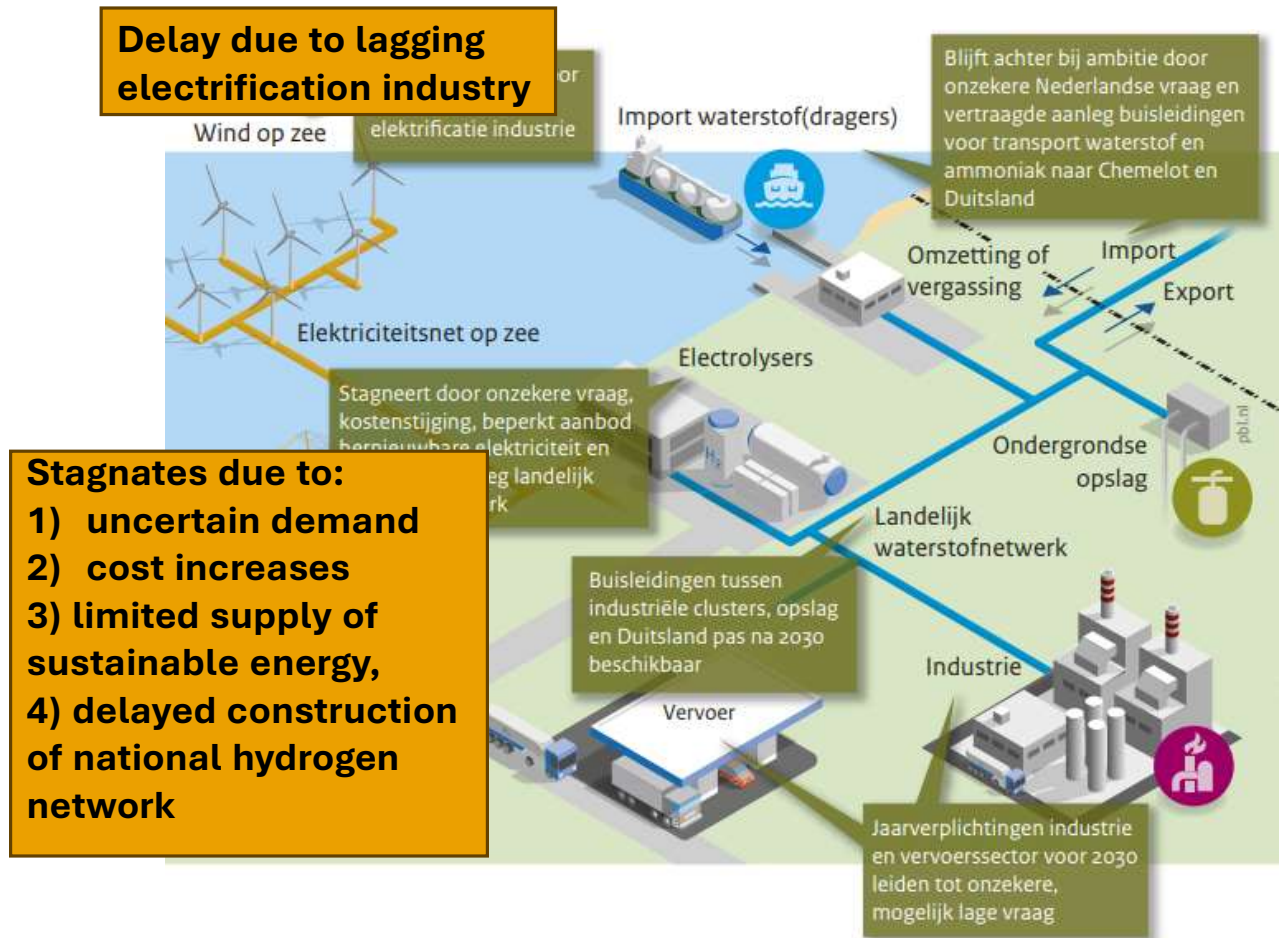
Technology assessment



Example: Bottlenecks in the development of green hydrogen

I. Science and technology (S&T) development

- Uncertainty: Role of expectations
- Sociotechnological system



II. Social, legal, ethical and ecological aspects

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Urgent Upgrade

Protect public values
in our digitized society



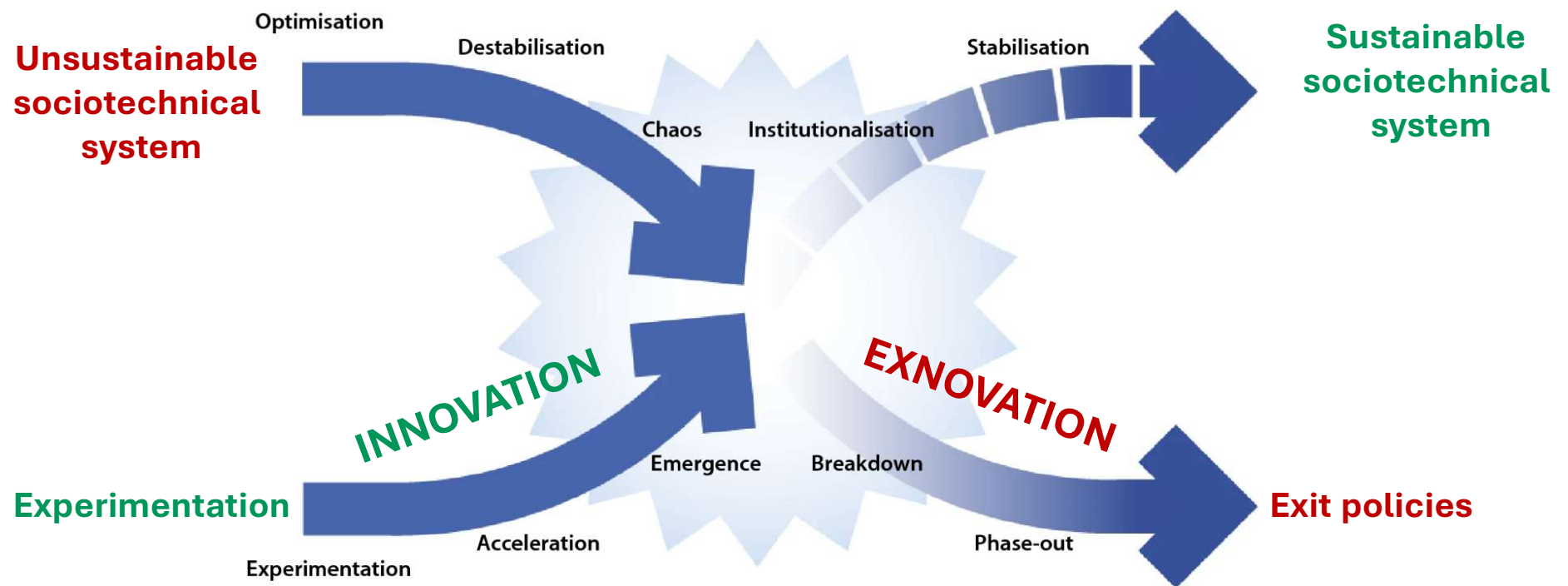
Report

2017

Social and ethical issues of digitization

- **Privacy**
- **Security**
- Autonomy
- Justice
- Human dignity
- Control over technology
- Balance of power
- Sustainability

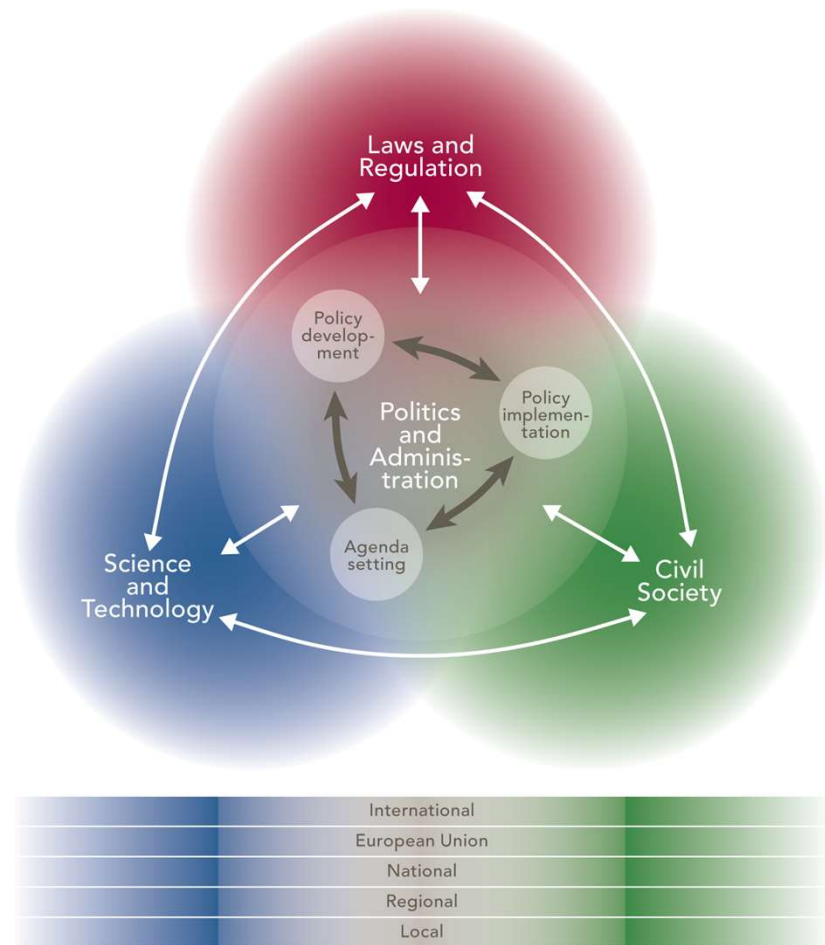
III. Contribution of S&T to sustainability



The X-curve portraying the interaction of patterns of build-up and breakdown (based on Loorbach et al. [2017](#))
Also based on Fossati et al. (2022)

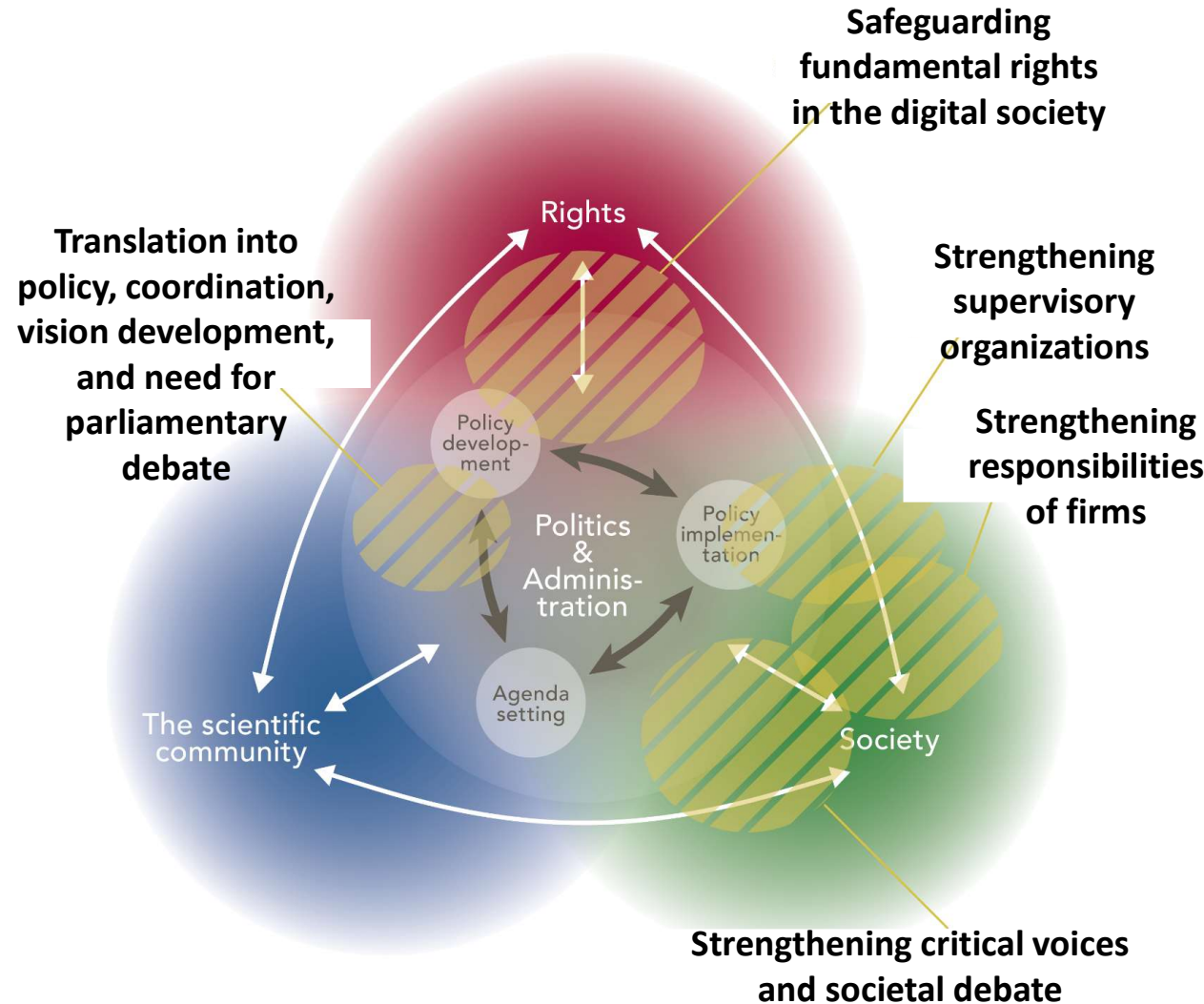
IV. Governance

*Multi-level governance
eco-system framework*



Source: Kool et al. 2017; Arentsen & Van Est 2023

Example:
Blind spots
Dutch
governance
of social
aspects of
digitalization



Upgrading technology governance by strengthening institutions



Nederlandse
Digitaliseringsstrategie 2.0
Hier heb het. Hier gebeurt het.

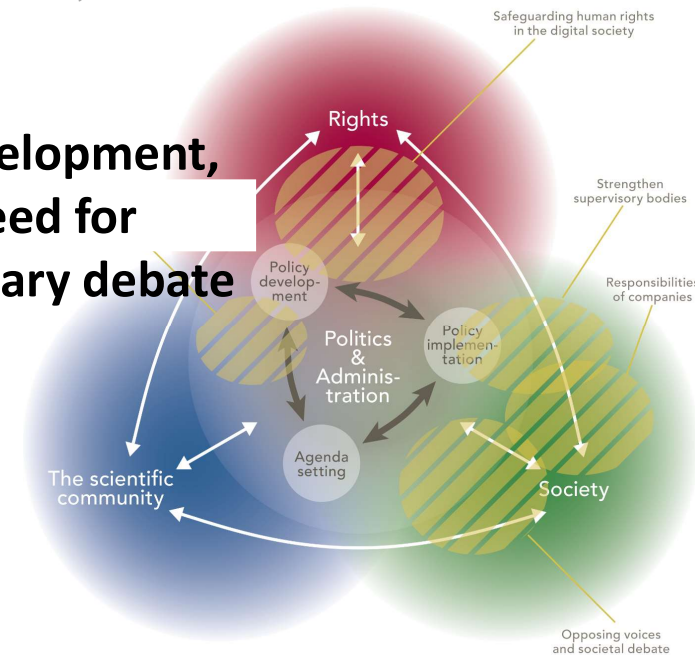


Permanent committee for
Digital Affairs in Second
Chamber (2021) and Senate
(2024)



First Secretary of State
Internal Affairs and
Digitization (2022)

↑
**Policy development,
and need for
parliamentary debate**
↓



Global need for technology governance and TA

TA expertise

Public and political awareness

Political vision (funding)

Technology governance

TA part of technology governance

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