Empowering Citizens in International Governance of Nanotechnology

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- Introduction
- Contributions from international relations and deliberative democracy to an ideal model for multi-stakeholder governance of emerging technologies
- Potential role of software decision support in democratising such governance
- Conclusions
Who am I?

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Consultant on Technology and Society:
• EthicSchool for Responsible Innovation [www.ethicschool.nl/english](http://www.ethicschool.nl/english)
• EU projects: currently NanoEIS [www.nanoeis.eu](http://www.nanoeis.eu), NMP-DeLA, [www.nmp-dela.eu](http://www.nmp-dela.eu) and SUN [www.sun-fp7.eu](http://www.sun-fp7.eu), SYNERGENCE [www.synenergene.eu](http://www.synenergene.eu)
• Publications on societal and ethical aspects of emerging technologies incl. nanotechnology.
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C.V:
• Graduated in Physics, University of Utrecht, 1991
• Postgrad. education in Environmental Impact Assessment and Social Studies of Science and Technology
• Scholarship STOA, European Parliament, Luxemburg, 1995-1996
• Fellowship nanotechnology IPTS, JRC, EC, Sevilla, 1996-1998
• 1 year part time study Theology, KTU, Utrecht, 2004-2005
• PhD in Philosophy, Radboud University Nijmegen, 2011.
• Thesis: Ethics and Nanotechnology; Responsible development of nanotechnology at global level in the 21st century: [http://repository.ubn.ru.nl/handle/2066/91234](http://repository.ubn.ru.nl/handle/2066/91234)
This is a thought experiment

**Assuming an ideal world**

Where international norms are adopted democratically

By representatives of all countries and all global citizens

And exploring the role a decision support tool could play

In empowering citizens in international governance

During the norm creation process
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International relations theory:

| Actors in international governance:                  |                                                                 |
|------------------------------------------------------|------------------------------------------------------------------|
| Governmental                                         | States                                                           |
|                                                      | International organisations                                      |
| Trans-National Actors (TNA) or networks (Risse, 2002)| (Non-governmental) advocacy networks diffusing norms             |
|                                                      | Epistemic communities (Haas, 1992) diffusing causal knowledge    |
|                                                      | Multinational companies                                          |

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**Epistemic communities** (Haas, 1992):  

…”network[s] of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area, with:

| A shared set of normative and principled beliefs ... |
| Shared causal beliefs ... |
| Shared notions of validity ... |
| A common policy enterprise ... |

The major dynamics of epistemic policy coordination are uncertainty, interpretation and institutionalisation”.
### Three phases in the international policy cycle (Risse 2002):

| Phase                        | Description                                                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Agenda Setting               | Trans National Actors most influential: e.g. ETC group for nano, 2003                                                                |
| International Norm Creation | Dominated by states and international organisations. Present for nano: joined by epistemic communities and multinational companies |
| Norm Implementation          | TNA monitoring role. Future for nano                                                                                                    |
International relations theory

Figure 1: The actors involved in international governance following Risse (2002).
Key unresolved issues in the literature on transnational actors:

Risse (2002): How can global governance by increasingly complex tripartite networks solve the dual problem of ensuring ‘input legitimacy’ of those concerned by the legislation

And ‘output legitimacy’ through effective and enhanced problem solving?”

e.g. Malsch (2011): “how to govern the emerging technology responsibly during the period of international norm creation?”
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### Input legitimacy: Rawls, A Theory of Justice (1971, 1999)

| Deliberative democracy                      | Participation model of pure procedural justice: those affected by a decision may participate in the process by which the decision is made |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Justice as Fairness                         |                                                                                                                                 |

### Aims:

- A criterion of justice agreed upon by all under conditions fair to all;
- To assess the fairness of the institutions of society,
- To structure moral discussions
- While recognising the plurality of moral frameworks in a democracy
- And to justify the outcome of those discussions
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Ethics and Political philosophy
- Input legitimacy (Habermas)

Figure 2: Combining Global and national citizenship following Habermas (2011)
Figure 3 illustrates how key centres of civic influence and decision-making can mutually effect and benefit one another through multiple self-reinforcing feedback loops.

- Ethics complementing law
- Role of Insurance companies as proxy-regulators

Ethics and Political philosophy - Governance during international norm creation
Microeconomic impacts

Integrated Risk and Socioeconomic Analysis Module

- PNECs for ecotoxicological endpoints
- PECs from environmental exposure model
- Ecological Risk Assessment (ERA)
- Social Impact Assessment (SIA)
- Economic Assessment (EA)
- Environmental Impact Assessment (EIA)
- LCA midpoints
- Macroeconomic impacts
- Microeconomic impacts
- Social Impacts

Occupational & Consumer Human Health Risk Assessment (HHRA)

Public Human Health Risk Assessment (HHRA)

DNELs for toxicological endpoints

Occ. and Cons. exposure scenarios

RISK CONTROL

ADDITIONAL SUSTAINABILITY ASPECTS
Option: an MCDA wiki-tool

- **Aim:** contribute to democratising international norm creation
- **Two entries:** data input / value preferences input

| Data input: aims: | Value preferences input: aims: |
|-------------------|---------------------------------|
| Support transparent formation of epistemic community | Support stakeholders to influence political choices |
| Collect relevant data and explicitly consider uncertainty | Develop indicators to monitor value conflicts between stakeholder groups |
| Support evidence based international norm creation | Support fair and democratic international norm creation |
Supporting access to the governance arena for transnational actor networks:

- Epistemic community
- Advocacy networks
- Private experts
- Multinational Companies
- Insurance companies

| Supporting global citizenship | adoption of new international norms |
|------------------------------|-------------------------------------|
| Representative democracy     | UN General Assembly & ideal Global Parliament |
| Direct democracy             | all citizens participate in international norm creation |
- International relations theory and deliberative democracy allow for sketching an ideal model for multi-stakeholder governance of emerging technologies.

- Software decision support could play a role in democratising such governance.

- Further work is needed to assess feasibility and to specify design criteria.
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