

Responsive Regulation for Governance of Nanomaterials

Martin Führ
Kilian Bizer
Julian Schenten

5th Law and Economics Conference in Lucerne
“Environmental Law and Economics”

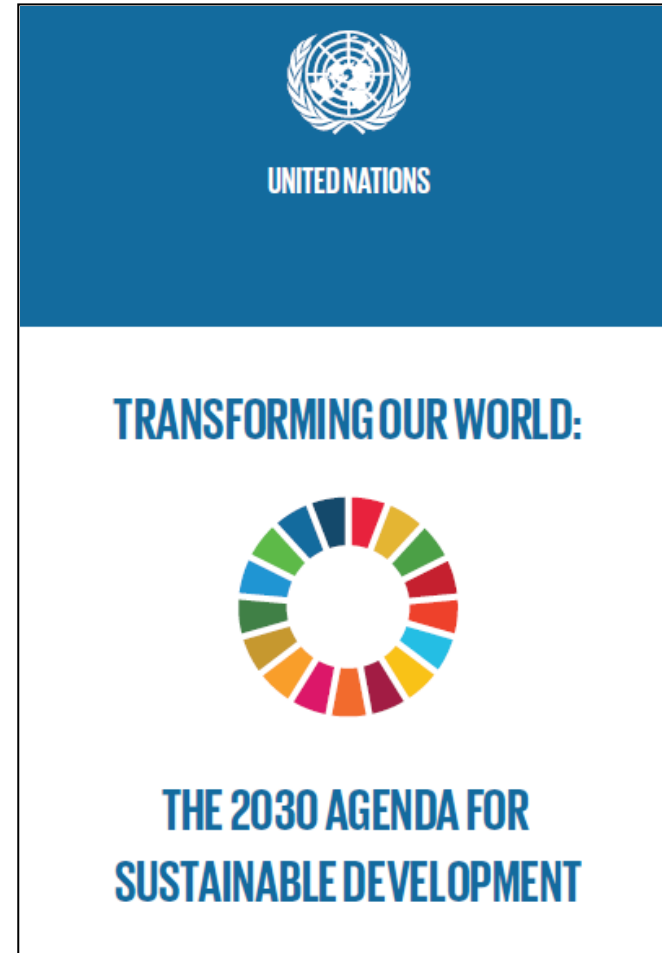
15 April 2016 – Panel 2A chaired by Régis Lanneau

Agenda

- I. Normative Objectives: SDG 12
- II. Nanomaterial Potentials and Uncertainty
- III. Challenge for Legislator
- IV. Responsive Governance Approach
- V. Integrative Governance Perspective
- VI. Policy Design Recommendation

I. Normative Objectives

- ▶ SDG 12: Ensure sustainable consumption and production patterns
- ▶ SDG 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle ... to minimize their adverse impacts on human health and the environment
- ▶ Agenda 2030 calls for **Innovation**



II. Nanomaterial potentials

- ▶ Nanotechnologies = “key enabling technologies”
- ▶ Focus: **Nanomaterials (NM)**
 - Mainly: chemical substances
 - **Small size:** 1 nm = 10^{-9} m
 - Increased surface → **reactivity**
- ▶ Improved processes and products

II. Nanomaterial Risk and Uncertainties

- ▶ Huge substance amounts on markets (France 2013: >390K t)
- ▶ Applications i.a. in consumer products → Exposure
- ▶ **Need for adequate risk management**
- ▶ Lack of hazard data (e.g. threshold levels)
- ▶ Release into environment: vast variability
- ▶ Absorbed by organisms: become systemically available, penetrate into individual cells
- ▶ Knowledge gaps + “unknown unknowns” (e.g. fate and behaviour in environment) constrain risk management

III. Challenge for Legislators

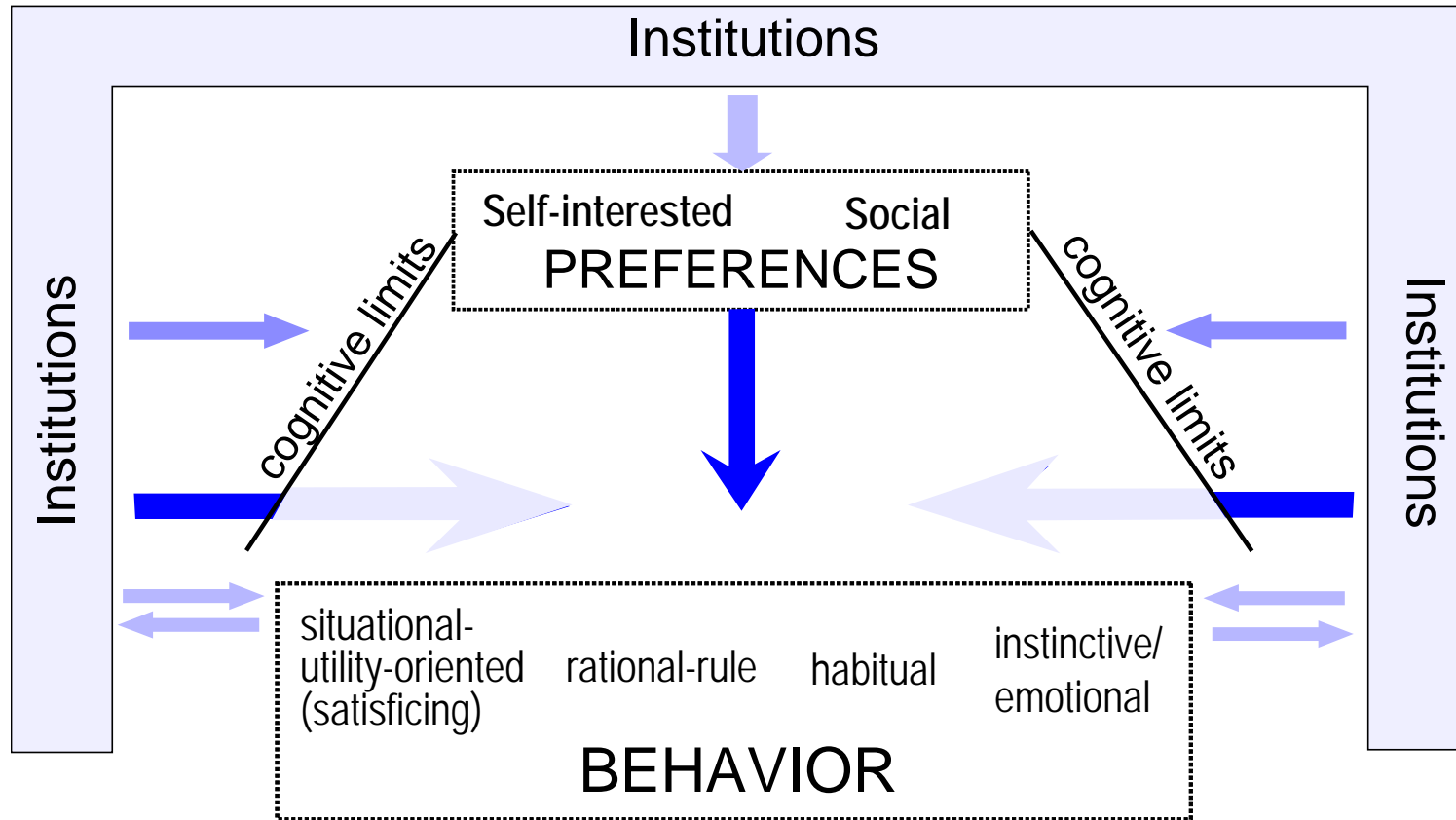
Governance: Framework conditions

- “Ensure safe and sustainable management of NM”
(= aim of 7th EU Environment Action Programme to 2020)
- Traditional “command and control“ approach limited
- Consider various incentives and impediments of individual actors
- **Enabling institutional context:** Encourage ...
 - proactive behaviour of all actors in the supply chain
 - openness to cooperate with other actors
 - willingness to undergo learning processes

IV. Responsive Governance (1)

- ▶ Responsive regulation
 - Defines normative objectives (safe and sustainable management of nano; SDG 12.4)
 - Assesses actors' incentives and impediments
 - Identifies "delta"
 - Modifies institutional framework by "most harmonious fit", incl. e.g. cooperative and pluralistic elements
- ▶ Focus on actors' behaviour („Better Regulation“)
 - Incorporate *homo oeconomicus institutionalis* (hoi)

IV. Responsive Governance (2)

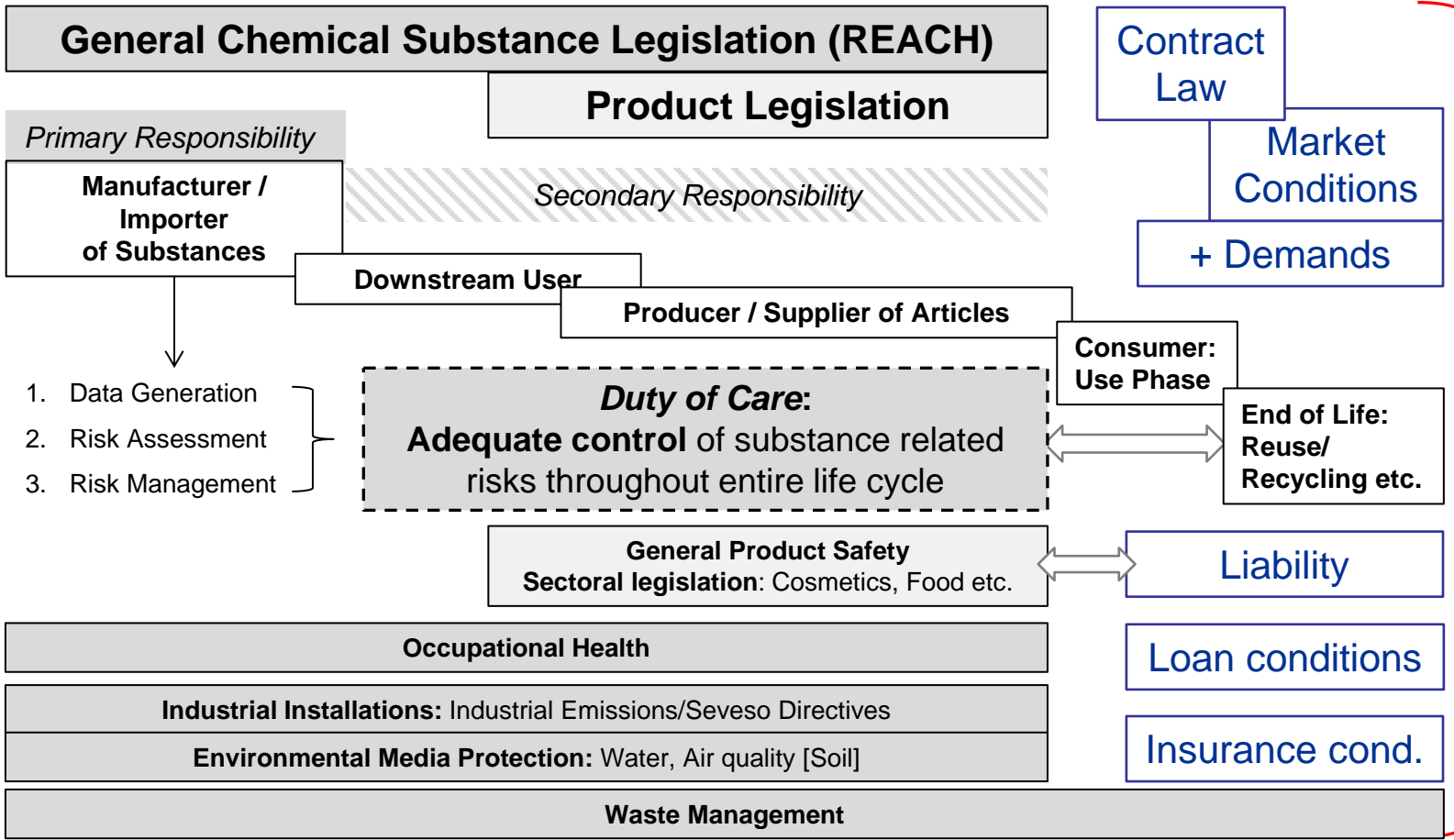


V. Integrative Governance Perspective

- ▶ Governance = understood as any attempt to systematically influence patterns of behaviour
- ▶ Integrative perspective of
 - Societal governance level
 - Organisational governance level
- ▶ Congruent aim at both levels:
“Adequate control” (e.g. REACH) of nanomaterial risks throughout entire life cycle
- ▶ Different instruments and degrees of operationalisation

International Law and Policies – United Nations, OECD...

Governance framework: **Societal level**



Organisational governance level: Business aims + Compliance + Societal demands

Integrated in Enterprise Risk Management (ERM): COSO, ISO 31.000 / ONR 49.000, CSR: ISO 26.000 etc.

VI. Policy design recommendation

- ▶ Nanomaterial uncertainties...
 - hamper adequate control of (health + environment) risks
 - stifle innovation through nanomaterials (e.g. climate protection, energy)
- ▶ Legislator's task
 - Find the right balance between effective degrees of freedom and regulated self-responsibility
 - Institutional analysis supports identification of “most harmonious fit”, prevents legislator from acting out of the blue
 - European Commission Impact Assessment Guidelines
- ▶ Responsive approach described as “state of the art” of actor focused Impact Assessment

Contact and further reading

- ▶ fuehr@sofia-darmstadt.de
- ▶ bizer@wiwi.uni-goettingen.de
- ▶ schenten@sofia-darmstadt.de

- ▶ Bizer and Führ 2016. *Sustainable Behavioral Governance: Responsive Regulation for Innovation*. In Beckenbach/Kahlenborn (eds.). *New Perspectives for Environmental Policies Through Behavioral Economics*
- ▶ Bizer and Führ 2015. *Compact Guidelines: Practical Procedure in Interdisciplinary Institutional Analysis*, sofia-Diskussionsbeiträge zur Institutionenanalyse Nr. 15-4, Darmstadt
- ▶ Schenten and Führ. Law and innovation in the context of nanomaterials: Barriers to sustainable development? Results of an empirical study. In *ELNI Rev* 2012:83–91