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Maastricht University

Tensions, Turns, and Policy

Dr. Serdar Turkeli
turkeli@merit.unu.edu
UNU-MERIT | MGSoG| SBE | UCM | UM

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Tensions

Governance of science and technology (S and T) is characterized by **three sets of persistent tensions**.

1. These are the tension between **the self organization of Science and Technology** and **the politics of purpose**;
2. The tension between **hierarchy, network**, or **market forms** of organizing interactions especially in regulating new technologies; and
3. The tension between **the role of citizens (democracy)** and **that of scientific experts** (Techno-scientific knowledge) in the decisions about collective problems and solutions involving science and technology.

Tension # 1 - Normative theories' views on the democratic dimension of socio-technical knowledge

	Empowering citizens	***Empowering experts***
Representative democracy	Improving the public understanding of science for an informed public debate.	Ensuring "sound science" in agencies with effective problem-solving capacity
Participatory democracy	Actively participating "science citizens" generating deliberation.	Participation of a wide range of experts producing "socially robust knowledge."

Source: Borras (2012)

Examples: The safety of genetically modified organisms, concerns regarding xeno-transplantation, or the food scandals of BSE (mad cow disease) and dioxin levels in food..
Context dependency: **T**he US's preference for independent regulatory agencies (delegating decisions to scientific experts), in contrast with the European preference for "advisory-only" agencies (Jasanoff 2005)

Turn #1 – Argumentative Turn in Policy Analysis

Positivist (expert oriented)

- Analycentric policy analysis
- Neo-positivist policy analysis (e.g. fs/QCA, SEM PLS)

In-between

- Critical Rationalists (transitionary)
- Frame analysis (transitionary)

Post-positivist (expert and citizen oriented)

- Participatory policy analysis (e.g. Q Methodology, ISM MICMAC)
- Argumentative policy analysis

Source: Hoppe (1999)

So what?

- **How do you approach your policy research?**
  - Is your policy research a technical routine (e.g. a measurement-researcher system, isolated to observed and observer, a mathematical reality) or
  - Is your policy research a socio-technical process (e.g. a mixed method, multi-method, interdisciplinary, quantitative and qualitative, hybrid measurement-societal system, a social reality in the making, mid-range theories, with non observability?, non measurability?, non repeatability?)

Tension #2 - Regulating new technologies: markets, networks, or hierarchical coordination

- The issue of interdependency and externalities
- Technical standard-setting -> trade matter -> political matter
- Examples: regulation of ICT, life sciences or aerospace…, which have different features in terms of interdependency and externalities.
- Crucial crosscutting regulatory issues, examples: intellectual property rights, phytosanitary codes, or environmental standards…

Turn #2 – Governance Turn in Policy Design and Implementation

Public-Private Collaboration	High	Outsourced Government	Networked Government
	Low	Hierarchical Government	Joined-up Government
		Low	High
		Network Management Capabilities	

Models of Government
(Goldsmith, S, Eggers, D.)

Governance

Advantages of the Network Governance Model:

- Specialization
- Innovativeness
- Increased Reach
- Speed and Flexibility

Governance

Challenges of the Network Governance Model:

- Goal Congruence
- Contorted Oversight
- Communication Meltdown
- Fragmentation of Coordination
- Data Deficits and Bad Benchmarks
- Capacity Shortages
- Relationship Stability

Tension #3 –
Self-organizations vs. Politics of Purpose

- **The autonomy of creativity** (between the scientists' and the technicians' own organizational rules)
- **The politics of purpose** (the state's interest in using science and technology for purposes of defence, economic growth, public health, and others, either governmental or commercial)

Self-organizations vs. Politics of Purpose

- The first front has to do with the changing societal expectations about the role of science in society

- **Green movements, patient associations, and traditional knowledge communities** are today collecting, processing, and using sophisticated knowledge, which complements (and sometimes challenges) conventional scientific knowledge (Desai 2007).
- This is a “mode-2” of knowledge production that departs significantly from the “mode-1” of self-contained scientific academia (Gibbons et al. 1994

Self-organizations vs. Politics of Purpose

- The **changing nature of governmental involvement** in the specifics of science and technology policy.
- Among the most important elements of this are changes in the forms of
  - funding of research conducted at universities, public research organizations, and firms (Lepori et al. 2007);
  - new forms of management requirements (Rip 1994); and changes in the mechanisms for verifying science's integrity and productivity (Guston 1996)

Self-organizations vs. Politics of Purpose

A multitude of different institutional arrangements.

Institutions like

- *peer review,*
- *increased power of research councils, and*
- *non-commercial mechanisms of knowledge dissemination* have been reinforced and coexist with a series of new institutional arrangements like
  - *centralized scientific verification instruments,*
  - *competitive sources of research funding, and*
  - *commercialization of public research outputs*, in what seems to be a "push" toward more purposefulness of S&T with a parallel strengthening of the institutions based on the ideal of S&T self-organization.
- This means that **the governance of S&T is today more heterogeneous and complex** than it was a few decades ago, and that the general shift to **"governance" has run parallel with a visible governmental action**.

Turn #3 - The transformative turn of innovation policy

- 13 different roles of the state: **observer, warner, mitigator, opportunist, facilitator, lead-user, enabler of societal engagement, gatekeeper, promoter, moderator, initiator, guarantor and watchdog.**
- The conceptualization of these roles serves to understand that **the transformative agency of the state** is leveraged/constrained by the modes of governance, and that it is also ultimately exercised through **specific mixes of roles**.

Source: Borras and Edler (2020)

So what?

- How does/can your policy research make sense considering these tensions and turns at the start, in the process and after your research?

fs/QCA

Effective R&I policy outcome, configurational solution patterns

Turkeli, Serdar & René Kemp, 2015, Effective research and innovation (R&I) policy in the EU-28: A causal and configurational analysis of political governance determinants, UNU-MERIT Working Paper

CH 2- Effective Research and Innovation policy in the EU-28:

A causal and configurational analysis of political governance determinants

Model 1	Model 2	Model
Formal Coor.	Informal Coor.	Comm Coor.*
0.377		
(0.249)		
	0.428*	
	(0.237)	
		0.593*
		(0.314)
0.874***	0.784***	0.836***
(0.274)	(0.265)	(0.259)
0.420**	0.418***	0.281*

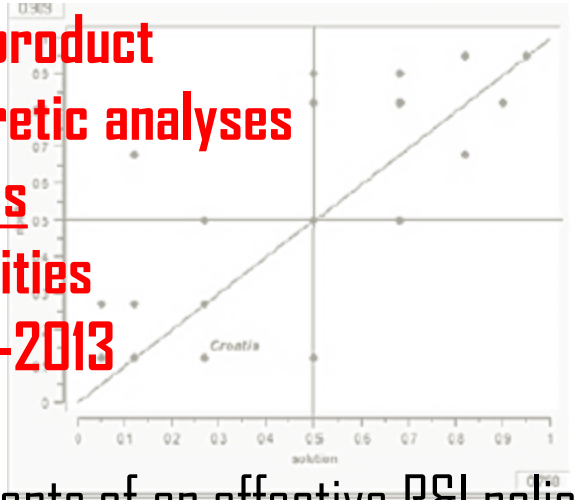
Innovation policy as an output/a product

Ordered logit regressions and set-theoretic analyses

Neo-positivist policy analysis

The case: Generic R&I commodities

In the EU-28 for the period 2011-2013



- The following factors are revealed as positive determinants of an effective R&I policy: (positive standalone or interactive role)
  - Informal coordination among ministerial *institutions,*
  - Societal *interest* group consultations,
  - Paradigmatic/programmatic *ideas* applied by sustainability impact assessments
  - Resources available to parliamentary committees
  - Media attention

Table 4 – Calibration: the Outcome, Five Conditions, Fuzzy Values

The Model		DEPENDENT VARIABLE/ OUTCOME	INFLUENCE VARIABLE 1	INFLUENCE VARIABLE 2	INFLUENCE VARIABLE 3	INFLUENCE VARIABLE 4	INFLUENCE VARIABLE 5
No	Member States	R&I POLICY EFFECTIVENESS OUTCOME	RIA TOOLS WITH SUSTAINABILITY CHECKS	PARLIAMENTARY COMMITTEES RESOURCES	MEDIA COVERAGE of RI POLICY AND POLITICS	SOCIETAL CONSULTATION	COMPLEMENTARY INFORMAL INTERMINISTERIAL COORDINATION
1	Austria	0,5	0,9	0,68	0,28	0,9	0,68
2	Belgium	0,68	0,02	0,95	0,99	0,82	0,95
3	Bulgaria	0,12	0,12	0,27	0,04	0,5	0,5
4	Croatia	0,12	0,27	0,68	0,03	0,27	0,27
5	Cyprus	0,27	0,12	0,12	0,56	0,5	0,27
6	Czech Rep.	0,5	0,68	0,95	0,56	0,5	0,82
7	Denmark	0,82	0,95	0,9	0,78	0,95	0,9
8	Estonia	0,82	0,5	0,9	0,45	0,9	0,82
9	Finland	0,95	0,95	0,95	0,51	0,98	0,98
10	France	0,82	0,12	0,82	1	0,68	0,9
11	Germany	0,9	0,9	0,95	1	0,82	0,68
12	Greece	0,12	0,02	0,68	0,93	0,05	0,68
13	Hungary	0,27	0,05	0,5	0,06	0,05	0,98
14	Ireland	0,5	0,27	0,5	0,73	0,27	0,9
15	Italy	0,27	0,27	0,9	0,87	0,27	0,9

Table 5 – Analysis of Necessary Conditions – Presence of the outcome

OUTCOME	R&I Policy Effectiveness	
Conditions tested:	**Consistency**	**Coverage**
RIA TOOLS WITH SUSTAINABILITY CHECKS	0.712758	0.902527
PARLIAMENTARY COMMITTEES RESOURCES	**0.942267**	**0.677254**
COMPLEMENTARY INFORMAL INTERMINISTERIAL COORDINATION	**0.975053**	**0.668622**
MEDIA COVERAGE of RI POLICY AND POLITICS	0.694227	0.727408
SOCIETAL CONSULTATION	**0.915182**	**0.771171**

Parliamentary committees' resources, societal consultation, complementary informal inter-ministerial coordination are necessary but not sufficient conditions for an effective R&I policy outcome, their single presence does not suffice in leading to the positive outcome.

Results

- For effective R&I policy outcome, configurational solution patterns are:

Parliamentary Committees' Resources AND Societal Consultation AND Informal Inter-ministerial coordination AND (RIASC **OR** MCRIPP)

(Consistency: 0.91, Coverage 0.76, *10 Strong Cases*)

Effective Research and Innovation Policy

Effective Research and Innovation Policy

IDEAS

INSTITUTIONS

INTERESTS

Ineffective Research and Innovation Policy

Political Blockage

ABSENCE or LOW LEVELS of
IDEAS AND INTERESTS

Sustainability impact assessments

Societal *interest* group consultations

PRESENCE OR HIGH LEVELS of
PARLIAMENTARY COMMITTEES' RESOURCES

Ineffective Research and Innovation Policy

Regulatory Capture

ABSENCE or LOW LEVELS OF

IDEAS

Sustainability impact assessments

Media attention

Resources available to parliamentary committees

INTERESTS

INSTITUTIONS

Societal *interest* group consultations

Informal coordination among ministerial *institutions,*

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Q&A

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