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**Responsible Research and Innovation  
Implications for research evaluation at  
universities**

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# Background

RRI is an emerging discourse at national and European level for the governance of science

- Public engagement
- Science education
- Gender dimension
- Ethics
- Open science

RRI is a process devoted (EC 2011)

- to align research and innovation with the values, needs and expectations of society
- to produce a 'right impact'
- to make the motivations and the intentions for actions in research and innovation more democratic

# Background

The Rome Declaration (Novembre 2014) calls for action governments, research funding organizations and research performers toward RRI

Governments and research funding organizations should:

- Invest resources to build RRI capability
- Revise and adapt metrics and narratives on R&I

Research organizations should:

- Realize institutional change keeping on board the need to pursue RRI on strategies, decision-making processes, internal organization
- Revise career and recruitment principle

Being responsible:

- “the shift from ‘responsibility’ to ‘responsible’, and applied to processes of research and innovation, rather than actors”(Rip, 2014)

# Aim of the paper

- RRI is likely to challenge University with new approaches and questions, which require new criteria and indicators
  - How evaluation can become a mean to support the RRI implementation?
- We argue that research evaluation shall improve the formative approach to assess opportunities and characteristics of the stakeholders' engagement in research
  - Using activity indicators rather than performance indicators of current implementation
- RRI cannot be assessed under a performance-based approach based on efficiency and effectiveness. RRI asks for reflexivity on processes and results that universities and research communities should adopt as normal component of their research practice

# Literature

- The metaphor of a tacit negotiated contract has been used science and society relationships during the eighties
- Clear division of tasks between the two parties: government provides money; the scientific community provides knowledge retaining the power to decide (Guston, 2000)
- New conceptualization from mid nineties : society is not only represented by governments, and science comprises different actors contributing to the production of a “socially robust knowledge” (Gibbons et al., 1994; Martin, 2003)

# Literature

- Changing views on innovation processes
  - How innovation is generated (Gibbons et al, 1994; Nowotny, 2000)
  - Innovation affecting also society and institutions
- RRI highlights the need:
  - To improve the democracy in decision-making
  - To develop the institutions' and scientists' awareness before society
  - To open new spaces of public dialogue
  - To question about choices of academic research and desired results.

# Main problems relevant for evaluation

- One problem is the *uncertainty of the results of research activities* which make difficult to understand today the future developments of knowledge, and to direct science and innovation toward specific desired results
- Others relate to the *freedom of individual research activity* and the *autonomy of the research organizations*
- Define the perimeter:
  - RRI is different from public scrutiny of science, public understanding of science, accountability and precautionary principle
- Opening up of boundaries between science and society (Rip, 2003)
- Actual tendency toward including RRI in the ‘third mission activities’ of universities
  - Under a performance-based model

# RRI definition

- Definition of RRI moves from a focus on policy processes and values to a notion where it means:
  - “Taking care of the future through collective stewardship of science and innovation in the present” (Stilgoe et al., 2013)
- RRI implementation shall impact the research organizations’ governance mechanisms
  - Decision making and priority setting
  - Evaluation
  - Recruitment and careers
- Open debate on the need to separate Research from Innovation as far as responsibility is concerned
  - research non always generates technological innovation
  - separate research from innovation does not reflect the reality of the knowledge production



# RRI and universities

- RRI differently affects university
  - Strategies and planning at central and meso government level (prepare conditions and 'spaces of dialogue' in the academic governance Rip and Joly, 2012)
  - Research projects at laboratory level (changes of research practices by developing 'supportive environments' Randles and Laredo, 2012)
- Specificities of Universities:
  - Capability of universities to act as strategic actors is limited because of the limited control they have on knowledge production
  - Scholars do not want to disclose contents, methods of their work and results they want to achieve
  - A distinction between evaluation of research and evaluation of RRI research and/or universities must be traced

# Dimensions of RRI

- Stilgoe and colleagues (2013) proposed four dimensions to develop RRI:
  - *Anticipation*, shall answer the “what if” question to anticipate (not predict) and to shape desirable futures (manage the social uncertainty, Barben et al. 2008; Guston, 2014)
  - *Reflexivity*, mirroring and minding the consequences, the system of values and the activities actually developed
  - *Inclusion*, making the non-academic people inside the decision-making process of the science
  - *Responsiveness*, as capability to change direction of research activities “in response to stakeholders and public values and changing circumstances”

# RRI dimensions at universities

	Anticipation	Inclusion	Reflexivity	Responsiveness
<b>University Strategies and Planning</b>	Open the future possibilities on emerging fields and technologies (e.g. foresight, risk assessment, scenarios)	Open up the decision making process to external voices (e.g. consensus conference, deliberative mapping, focus group)	Questioning about responsibility (code of conduct, guidelines, standards)	Questioning about transparency (e.g. open access, transparency, project design)
<b>Actual Research projects</b>	Integrating the results of anticipation in the research activities	Including the participation of non-academic stakeholders from the very beginning of the research projects	Building connections between internal values and external believes	Changing the directions of the activities under development when the knowledge and control on possible effects and control are insufficient

# Characterizing RRI

- Activity indicators are generally used to present an indeterminate progress state
  - *who* is conducting the activity, *what* was done, and *where* it was working
- Activity indicators indicates what feature a user is currently using;
  - how far the commitment of the institution, group or individual is going in the right direction in order to pursue its main goal
- Should allow assessing techniques and approaches used in terms of (Callon et al., 2009):
  - *Intensity* (if the technique occurs at an early stage and how large it is in terms of actors involved and processes affected)
  - *Openness* (how diverse and varied is the group of actors involved)
  - *Gravity* (if the discussion is on actual items related to the future of the science)

# Activity indicators characterizing RRI

<b>Intensity</b>	When	Before starting the policy-research action (e.g. before deciding the strategic plan; before addressing new techniques that implies ethics problems) Alongside the implementation of the objective At the end of a period of time of implementation
	Size	One-time use vs continuous use External /internal people involved Adequacy to the objective pursued
<b>Openness</b>	Internal	Diversity of internal actors as to governance level, academic position, disciplinary sectors-areas
	External	Diversity of external actors (groups from different organizations, cultures and practices)
<b>Gravity</b>	Relationship	Relationships between the issues selected for RRI practices and the university strategy
	Importance	Importance of the issues selected for RRI practices for the university quality and competitiveness Importance of the issues selected for RRI practices for the society

# Assessing the progress toward RRI

	<b>Intensity</b>	<b>Openness</b>	<b>Gravity</b>
<b>Anticipation</b>	Activities (regular, one-time) linked to figure out future possibilities and emerging fields in the strategic planning for research	Is participation an issue at stake in anticipatory practices and what is its relevance in the final output	What are the effects produced by spaces implemented for anticipatory purposes on the university strategy
<b>Inclusion</b>	When and how far there are attempts to opening the decision making processes and what actors are involved	How far the debate about RRI issues involve internal actors and at what level	The contents elaborated during inclusive decision-making process improve the quality of research
<b>Reflexivity</b>	When responsibility come into consideration in the decision-making and what the objectives addressed	How the different fields integrate the dimensions of responsibility in the research activities	The university strategy toward improving responsibility in research
<b>Responsiveness</b>	Actions toward improving transparency beyond the activities requested by law	Actions toward improving open access of the research outputs	Assessing the capability of open access to improve the quality of research and its valorisation

# Learning through indicators

The matrix can be used as a canvas of reference to represent the characteristics of the actions within the universities  
exercise of reflexivity as a collective action

This assessment shall come from an open debate aimed at understanding  
*who* put the actions toward RRI in practice  
*what* changes the mentioned actions produced inside the research practice  
*where* the actions seem working in the right direction.

Activity indicators as a language for RRI evaluation (Barré, 2010), to be used under a comparative perspective to allow public debated based on hard facts, through multi-actors' interactions to improve science and society relationships.

# Conclusions

- RRI implementation must find new evaluation perspectives, new criteria, new methods
- Going beyond third mission and indicators based on performance
  - If we want to keep the concept of responsibility seriously
- Be aware of risks
  - How transformation of universities can interact with the emergence of RRI?
  - Innovative and frontier research, handling technologies
  - Autonomy of institutions, freedom of research
- Formative evaluation through activity indicators is a perspective to be explored
  - Variety of approaches creating ‘space for interactions’ between different actors (Rip and Joly, 2014)
  - Findings should reflect the diverse perspectives of multiple stakeholders, including the less powerful
  - Not only “what works and what doesn’t” but also “why” and “for who” and “under what circumstances”