



# **An empirical impact assessment framework for RRI key dimensions**

## **RRI Impact messen?**

**Prof. Dr. Petra Ahrweiler**

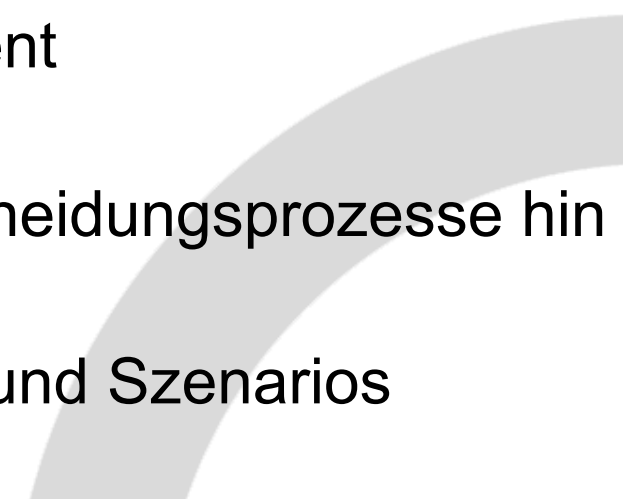
**EA European Academy of Technology and Innovation Assessment**





# Neue Governance durch RRI?

(am Beispiel von zwei EU-Formaten diskutiert)

- Welche Vorstellung von RRI Impact steht hinter den Förderinitiativen der europäischen Forschungspolitik?
    - „Klassische“ Interventionskonzepte
    - Indikatorenbasiertes Assessment
  - Verändert RRI Wissensproduktion und die damit verbundenen Entscheidungsprozesse hin zu einer RRI Governance?
    - Multiple Interventionsoptionen und Szenarios
    - Prozessbasiertes Assessment
- 



# What is RRI?

- Definition 1: von Schomberg (2013)

Transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the **(ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products in order** to allow a proper embedding of scientific and technological advances in **our** society



# What is RRI?

- Definition 2: von Schomberg (2013) after revision by Davis and Laas (2013)

Transparent, interactive process by which **researchers, innovators and other** societal actors and innovators become mutually responsive to each other with a view to ~~the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products in order to allow a proper embedding of~~ scientific and technological advances in our society **in societally desirable ways (including, but not limited to, ways that are sustainable and ethically acceptable)**



# Ein RRI-Beispiel aus Mexico-City

Responding to  
health issues

Contribution to  
employment and  
local  
development

Involving the  
local  
community



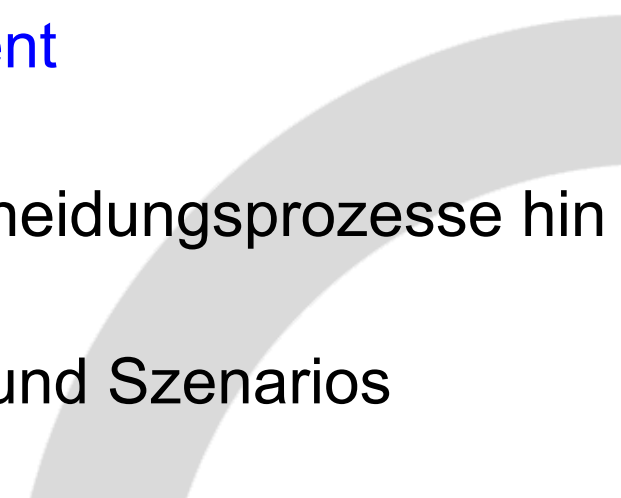
Responding to  
environmental  
issues such as  
preventing the  
extinction of a  
threatened species

Looking for cross-  
fertilisation and  
synergy effects  
(connection to  
tourism activities)



# Neue Governance durch RRI?

(am Beispiel von zwei EU-Formaten diskutiert)

- Welche Vorstellung von RRI Impact steht hinter den Förderinitiativen der europäischen Forschungspolitik?
    - „Klassische“ Interventionskonzepte
    - Indikatorenbasiertes Assessment
  - Verändert RRI Wissensproduktion und die damit verbundenen Entscheidungsprozesse hin zu einer RRI Governance?
    - Multiple Interventionsoptionen und Szenarios
    - Prozessbasiertes Assessment
- 



# Welche Vorstellung von RRI Impact steht hinter den Förderinitiativen der europäischen Forschungspolitik?

„Klassisches“ Interventionskonzept (input-output)

Starting conditions: Societal challenges, needs for growth and innovation	Policy Interventions concerning RRI key dimensions	RRI	Informed citizens and policymakers	Improved conditions: Societal challenges, needs for growth and innovation
			Improved policymaking	

Implementierung von  
RRI-Schlüsseldimensionen

Wirksamkeit von  
RRI-Benefits



# Wer will messen?

**CALL FOR TENDERS N° RTD-B6-PP-00964-2013**

## **Monitoring the evolution and benefits of Responsible Research and Innovation**

- The subject of this call for tender is one of four studies that are foreseen in the Science in Society Work Programme.
- Its objective is to provide scientific evidence, data, analysis and policy intelligence to support directly Directorate General for Research and Innovation (DG RTD) research funding activities and policy-making activities in relation with Responsible Research and Innovation (RRI).
- Specifically, the study aims to determine the scope and the benefits of Responsible Research and Innovation for Europe, based on a sound ... methodology that allows monitoring the current state and short-term evolution of Responsible Research and Innovation and its socio-economic and democratic impacts.





# Was soll gemessen werden?

## 5 RRI Key Dimensions in EU-28 and AC

(Systemebene, Organisationsebene und Wissensebene)

- **Citizen engagement and participation** of societal actors in research and innovation;
- **Science literacy and scientific education**;
- **Gender equality** in research and innovation and gender dimension in research and innovation content;
- **Open Access** to scientific knowledge, research results and data;
- **Research and innovation governance (including ethics)**.



# Wie soll gemessen werden?

RRI-Schlüsseldimensionen werden auf detaillierte Indikatorensets heruntergebrochen

RRI Dimensions				
1	2	3	4	5
Citizen engagement	Science literacy	Gender equality	Open Access	Governance and ethics
Participation of CSOs in publicly funded research and innovation projects	Scientific workforce as % of total workforce	Number/share of females in scientific workforce	Open Access Policy in place yes/no	TA Office in place yes/no
Alumni networks of universities				
E-participation of individual citizens and CSOs in online fora of research and innovation	Number of people with university degree / high school degree	Number of female entrepreneurs		National ethics committee in place yes/no



# Wie soll gemessen werden?

## Benefits der RRI-Schlüsseldimensionen in EU-28 and AC

- Impact assessment of social, economic, democratic and environmental benefits coming from the five RRI key dimensions

Do the RRI key dimensions have had a statistically significant influence since their implementation?

An example:

RRI key dimension *Participation of societal actors in research and innovation*  
and benefit dimension *social innovation*

following up on the hypothesis: “We see more/less social innovation in countries with high/low participation of societal actors in research and innovation”.



# Zusammenfassung: Neue Governance durch RRI?



## Klassische Interventionslogik & indikatorenbasiertes Assessment

- Grundannahme: Gesellschaften, die ihre Forschung und Wissensproduktion offen, transparent, partizipativ, egalitär und ethiksensitiv organisieren, begegnen gesellschaftlichen Herausforderungen erfolgreicher als Gesellschaften, die dies nicht tun
- Europäische RRI-Förderstrategie „hebt“ EU-28 und AC auf diese Ebene
- Es gibt verschiedene RRI-Implementierungsstufen, die gemessen werden können und EU-28 und AC in einer Typologie anordnen (early adopter, forerunner, imitator, slow responder etc.)
- Meßinstrument ist ein Indikatorenset, welches die Variablen der RRI-Schlüsseldimensionen operationalisiert und welches vergleichendes Assessment des Implementierungsgrades der Dimensionen und der dazu gehörigen RRI-Benefits ermöglicht



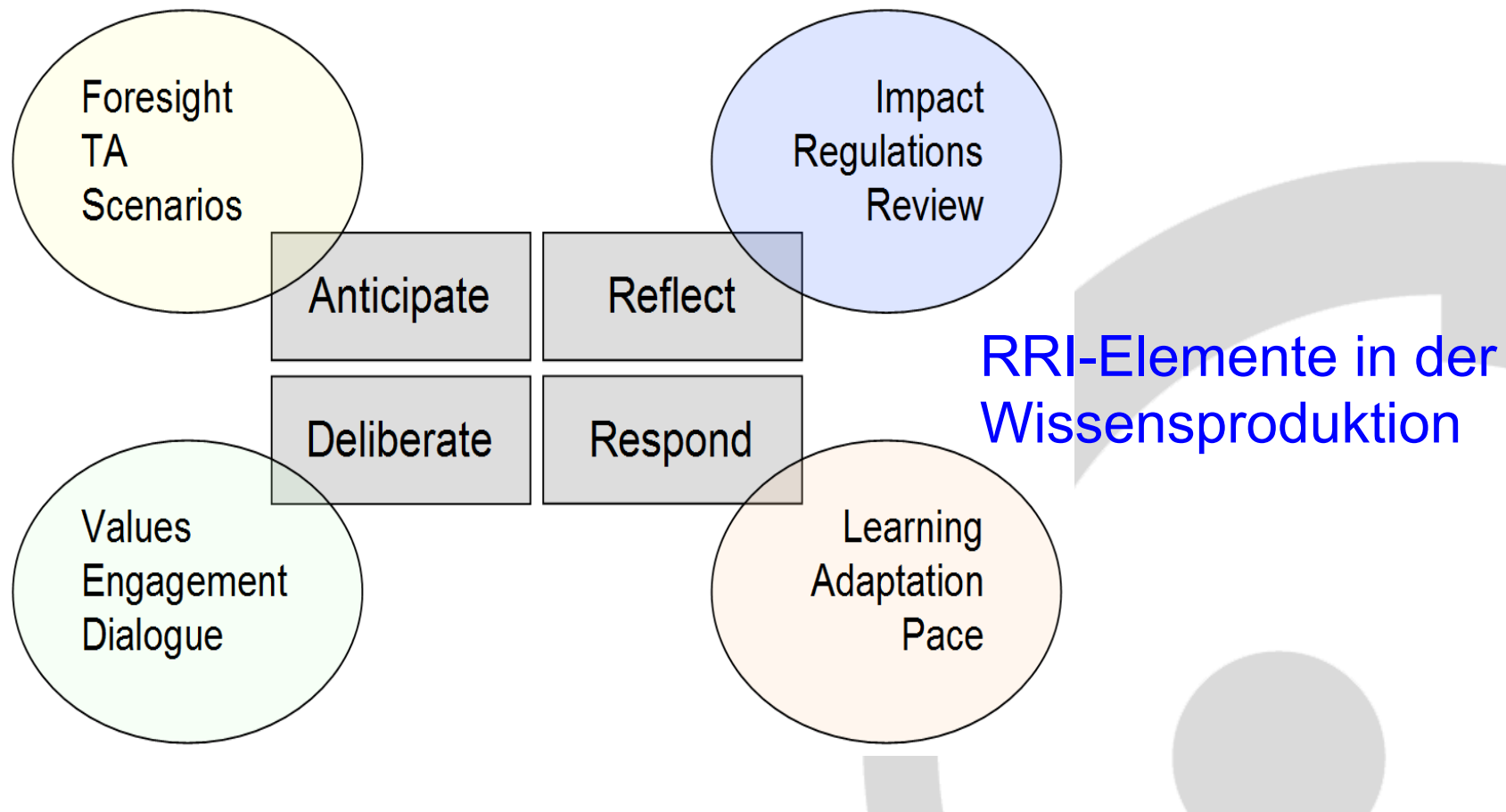
## ■ Neue Governance durch RRI?

- Welche Vorstellung von RRI Impact steht hinter den Förderinitiativen der europäischen Forschungspolitik?
  - „Klassische“ Interventionskonzepte
  - Indikatorenbasiertes Assessment
- **Verändert RRI Wissensproduktion und die damit verbundenen Entscheidungsprozesse hin zu einer RRI Governance?**
  - **Multiple Interventionsoptionen und Szenarios**
  - **Prozessbasiertes Assessment**



# Verändert RRI Wissensproduktion und die damit verbundenen Entscheidungsprozesse hin zu einer RRI Governance?

## EU-Konzept von Responsible Stewardship





# EU-Forschungsprojekt GREAT



SiS.2012.1.1.1-1: Governance Frameworks  
for Responsible Research and Innovation  
(RRI)

FP7 Collaborative project “Governance of  
Responsible Innovation” (GREAT)

Laufzeit: Februar 2013 – Januar 2016

•



# EU-Forschungsprojekt GREAT



The *GREAT* project will **develop an empirically based and theoretically sound model of the role of responsible research and innovation governance.**

The project will explore the dynamics of participation in research and innovation, and investigate the characteristics of responsible practices. It will investigate the nature of new partnerships among various stakeholders, researchers and policymakers that are developing within innovation networks and the influence that these developments have on knowledge production and policy.

This will be done by:

- determining the characteristics of research and innovation
- involving diverse groupings and
- determining the social processes involved in responsible research and innovation practices.

In doing so, the *GREAT* project will address **all three issues requested in the call:**

It will explore the knowledge and research potential of multi-stakeholder approaches in research;

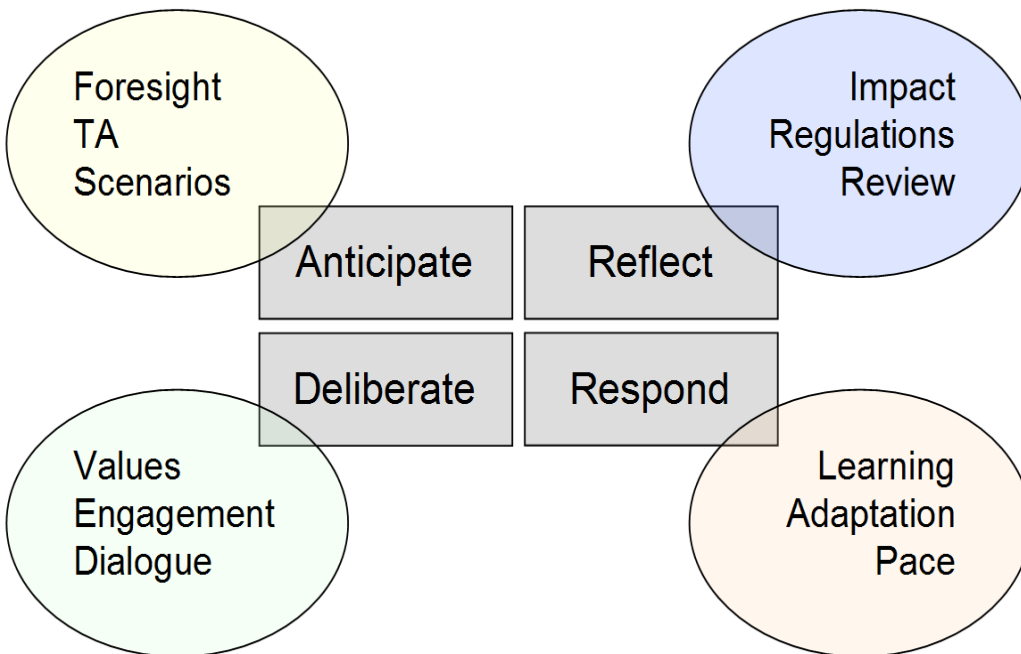
it will investigate how responsible innovation is involved in research processes and it will use this knowledge to inform policy makers on how to integrate responsible innovation in further research activities.





## Impact Assessment:

**(Wie) funktioniert so etwas auf der Ebene von Systemen (z.B. ERA), Netzwerken (z.B. EU-geförderten Forschungsprojekten), Organisationen und Individuen?**



- RRI-Profile von Akteuren
- RRI Life Cycle von Projekten



# WP4 GREAT

- Empirische Forschung zu RRI-Profilen von Forschungsakteuren in EU-Projekten (quantitativ u. qualitativ)
- Empirische Forschung zu RRI Life Cycles von EU-Projekten und –Programmen (quantitativ u. qualitativ)
- Empirisches Impact Assessment von Interventionen und Prozessen
- Multiple Interventionsoptionen und Szenarios: Was-Wäre-Wenn-Fragen mit agentenbasierter Simulation (SKIN-Modell)



# Datenbasis: CIP ICT-PSP

geeignet weil innovationsorientiert  
und viele zivilgesellschaftliche Akteure

[http://ec.europa.eu/information\\_society/activities/ict\\_psp/index\\_en.htm](http://ec.europa.eu/information_society/activities/ict_psp/index_en.htm)

Europe's Information Society  
Thematic Portal

European Commission > Information Society

en

Go to main content

**ARCHIVED ON**  
**13/09/12**

**! See the [latest ICT PSP pages](#) on the DAE website !**

Home

- About ICT PSP
- Participating in ICT PSP
- Events
- Running Activities and Projects
- Library
- FAQ
- Useful links
- Contacts

**ACTIVITIES :: ICT Policy Support Programme**

## ICT Policy Support Programme as part of the Competitiveness and Innovation framework Programme (CIP)

The ICT Policy Support Programme (or ICT PSP) aims at stimulating innovation and competitiveness through the wider uptake and best use of ICT by citizens, governments and businesses.

### Call 6 is now closed

The 6th Call for Proposals was open from 3 February until 15 May 2012. [Details on Call 6 are available here.](#)

For details on eligibility please see our dedicated page "[who can participate](#)".

## Work Programme - 2012

The ICT PSP Work Programme 2012 has been formally adopted by the Commission.

You can download the [ICT PSP Work Programme 2012](#) here.

### News

- Last call - Help shape the Exhibition of ICT 2013 (18/06/13)
- Network Technologies Newsflash (04/06/13)
- Help shape the Exhibition of ICT 2013 (15/05/13)

All news...

### Funding

- No funding opportunities available for the moment.

### Next Events

- FuNeMS2013 (Lisbon, Portugal, 3 - 5 July 2013)

More events...


### In the Library



<http://cress.soc.surrey.ac.uk/SKIN/>

# SKIN

Simulating Knowledge Dynamics  
in Innovation Networks



Home Research People Resources Forum Links Events

Home

### Events Calendar

<<	June 2010	>>				
M	T	W	T	F	S	S
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

### Upcoming Events

Thu Mar 31, 2011 @09:00 -  
Simulating Knowledge  
Dynamics in Innovation  
Networks: Workshop

### JEvents Legend

- Workshop
- Seminars
- All Categories ...

### Latest News

## SKIN - Simulating Knowledge Dynamics in Innovation Networks

SKIN is an agent-based model to simulate the behaviour of innovation networks in complex social systems.

### Learning about innovation processes and networks

Using conceptual models based on robust empirical studies, SKIN is the ideal platform for learning about different processes for creating, transferring and distributing knowledge, collaborating for innovation, models of innovation networks and governance of these processes, collaborations and networks. [Read more...](#)

### Applying ABM to real-world policy contexts

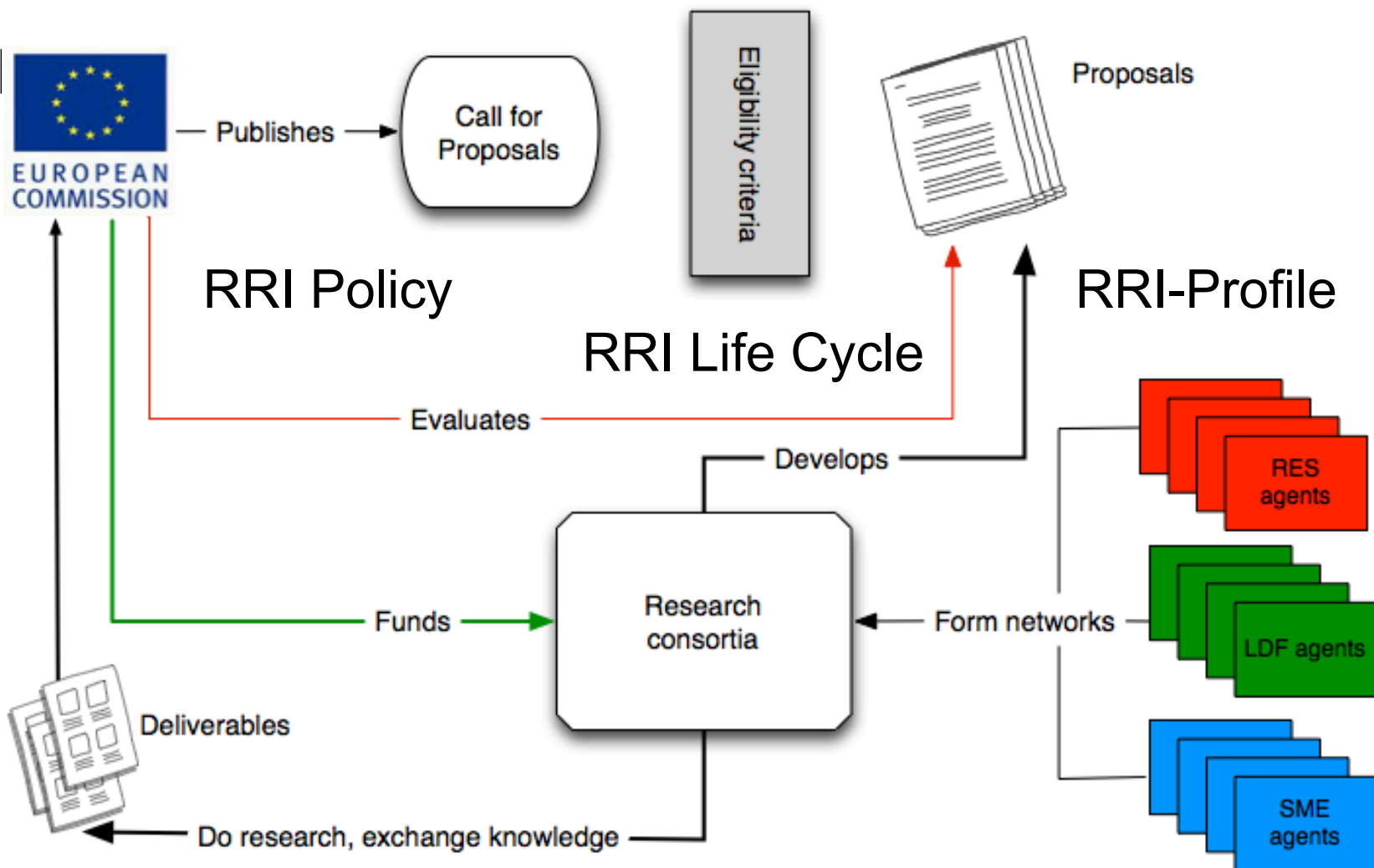
Developed in European studies with case studies in different technological and institutional contexts, SKIN is one of the leading platforms for applying agent-based modelling (ABM) to innovation networks found in a variety of different, real world contexts. [Read more...](#)

### Combining innovation research methods

Add SKIN to the innovation policy-making toolbox. The mix of traditional analytical methods and the powerful SKIN approach, combining robust empirical studies, computational network analysis and ABM, allows for cross-fertilization

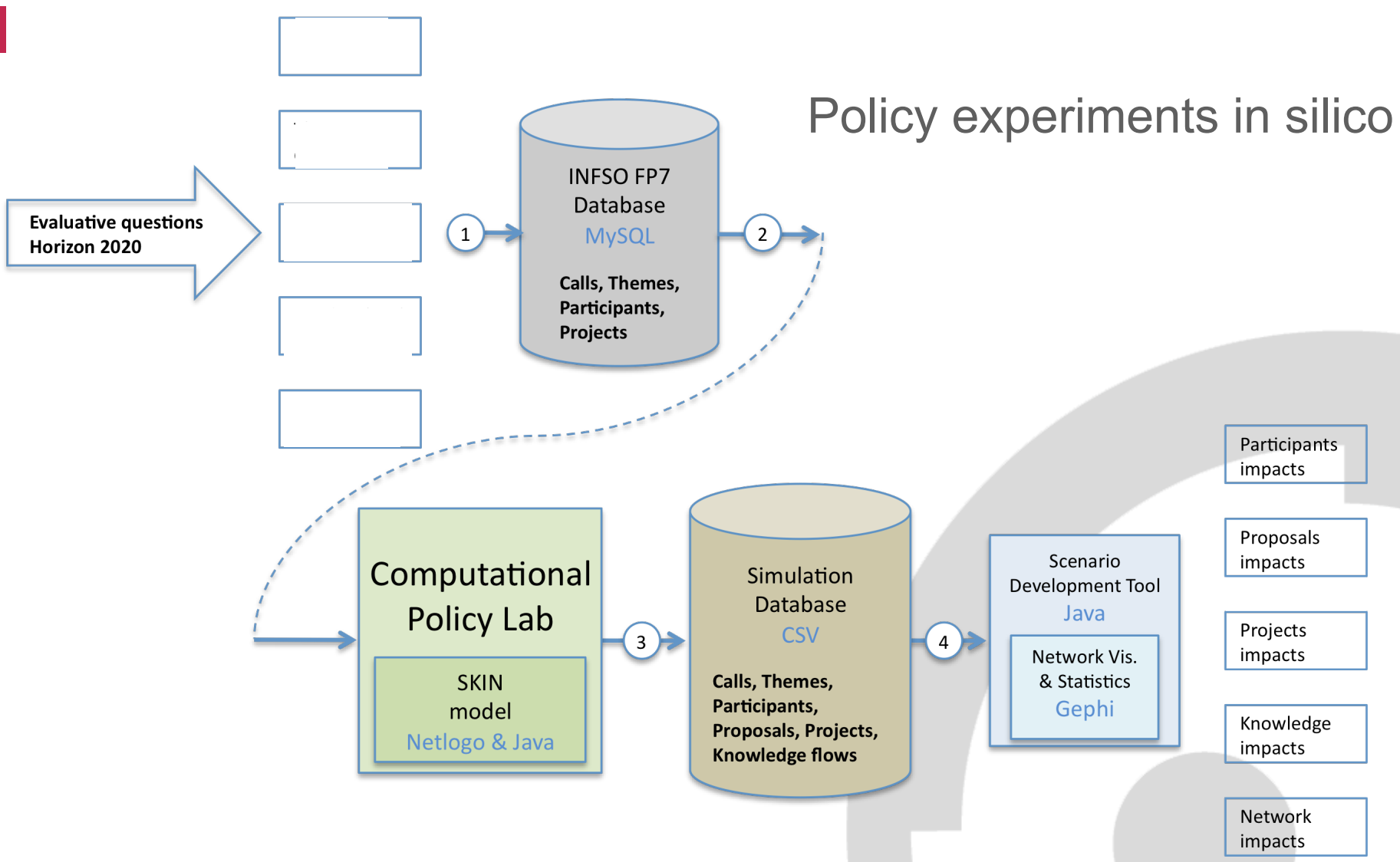


# RRI-SKIN





# Workflow für RRI governance assessment





# Experimente mit unterschiedlichen Modellen von RRI-Governance

RRI Governance Models	Description
<b>Standard Model</b>	Based on the principle of top-down governance of experts and the principle of “irrationality” of non experts
<b>Revised Standard Model</b>	Same as standard model but includes the principle of political mediation (especially regarding risks)
<b>Democratic-Inclusive Model</b>	The principle of irrationality is dropped and substituted by the principles of “industrial biasing” and “public biasing”
<b>Co-Constructive Model</b>	The principle of top-down governance is dropped and substituted by the principle of public co-creation

Die anderen WPs in GREAT erarbeiten RRI-Governance-Modelle, -Hypothesen, -Was-wäre-wennFragen



## Multiple Interventionsoptionen und Szenarios & Prozessbasiertes Assessment

Aus EU-Tender-Ausschreibung: Simulating the role of Civil Society Organisations (CSOs) in EU-funded research (DG Research/Connect; 2014)

- To what extent does increased CSO participation lead to wider and more diverse networks?
- To what extent and how CSOs contribute to network performance?
- What types of policy interventions, if any, help CSOs contribute to more stable and productive networks?
- To what extent and how different types of policy intervention contribute to research impacts?





# Neue Governance durch RRI?

- Welche Vorstellung von RRI Impact steht hinter den Förderinitiativen der europäischen Forschungspolitik?
  - „Klassische“ Interventionskonzepte
  - Indikatorenbasiertes Assessment
- Verändert RRI Wissensproduktion und die damit verbundenen Entscheidungsprozesse hin zu einer RRI Governance?
  - Multiple Interventionsoptionen und Szenarios
  - Prozessbasiertes Assessment





**Vielen Dank für Ihre Aufmerksamkeit!**

