

TAKING
COOPERATION
FORWARD



Kick-off meeting

Rimini, Italy, 12-13 SEPTEMBER 2017



ROSIE – T1 – Introduction to STIR



Dr. Miklós Lukovics, EMFIE - First Hungarian Responsible Innovation Association

Activity	Period	Deliverables
A.T1.1. RI Tools	07/2017 - 10/2017	D.T1.1.1 - RI Tools Inception Report D.T1.1.2 - ROSIE Workbox Conceptual Framework D.T1.1.3 - ROSIE Workbox technical specifications D.T1.1.4 - Description of 3 ROSIE Workbox Tools Groups D.T1.1.5 - Description and Guidelines to ROSIE RI Workbox
A.T1.2. RI Capacity Building for Innovation Actors (RI Consultants) -> Training the trainers	08/2017 - 02/2018	D.T1.2.1 - ROSIE Train the Trainer Capacity Building programme D.T1.2.2 - Report and Material from Capacity Building Session 01 D.T1.2.3 - Report and Material from Capacity Building Session 02
A.T1.3. SME Engagement	10/2017 - 02/2018	D.T1.3.1 - Text and criteria of Open Call for SME participation D.T1.3.2 – Report on Publication of Open Call D.T1.3.3 - Shortlist of SME participants from each local pilot area

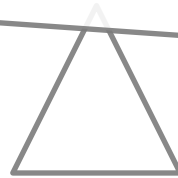
Deliverables for activity A.T1.1	Deliverable Title	Description of deliverable	Delivery month
Deliverable D.T1.1.1	RI Tools Inception Report	Report on existing knowledge (partner experience; other projects / initiatives) related to RI tools for SMEs (not academic content) and detailing relevance to ROSIE.	09.2017
Deliverable D.T1.1.2	ROSIE Workbox Conceptual Framework	Document detailing the structure of the ROSIE Workbox, from the concept to the proposed index of content.	09.2017
Deliverable D.T1.1.3	ROSIE Workbox technical specifications	Report detailing the technical specifications of the Workbox, given that it will be an online resource.	09.2017
Deliverable D.T1.1.4	Description of 3 ROSIE Workbox Tools Groups	Document with descriptions of 3 Workbox tool sets (1. Requirements /standards; 2. STIR/Design thinking; 3. Living Labs), with details on practical implementation.	09.2017
Deliverable D.T1.1.5	Description and Guidelines to ROSIE RI Workbox	Document with the content of the ROSIE Workbox (on line), descriptions and guidelines for tools to support SMEs in 3 stages of RI strategy development and implementation.	10.2017

Introduction to STIR

Positive impacts

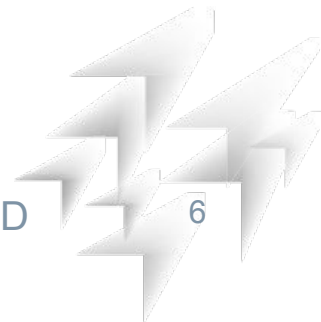
Negative impacts

RESPONSIBLE Research
and Innovation

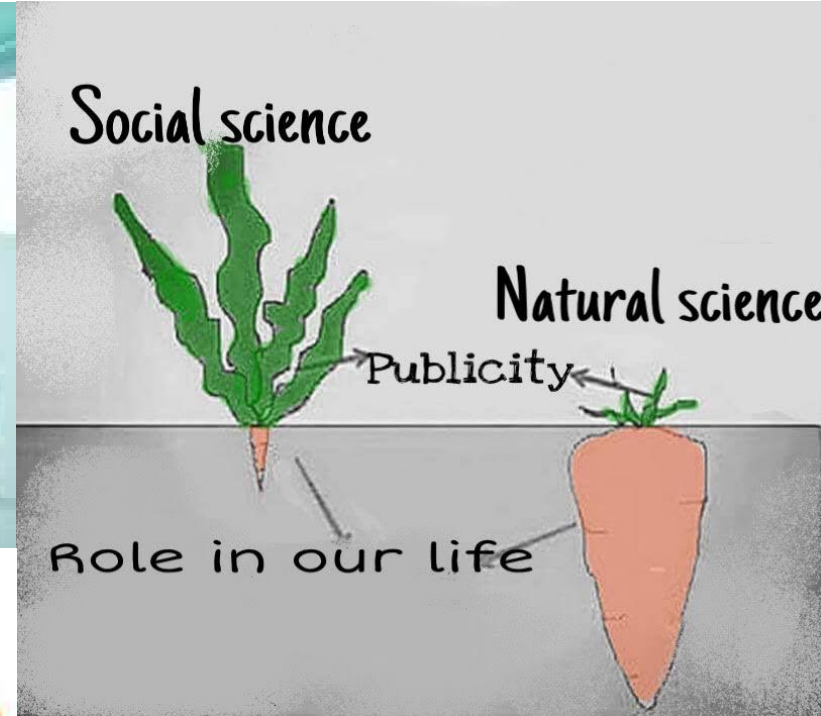


Four empty rounded rectangular boxes stacked vertically on the right side of the scale, intended for notes or additional information.

- von Schomberg (2012, p. 9): “A *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)”*”



Practical implementation



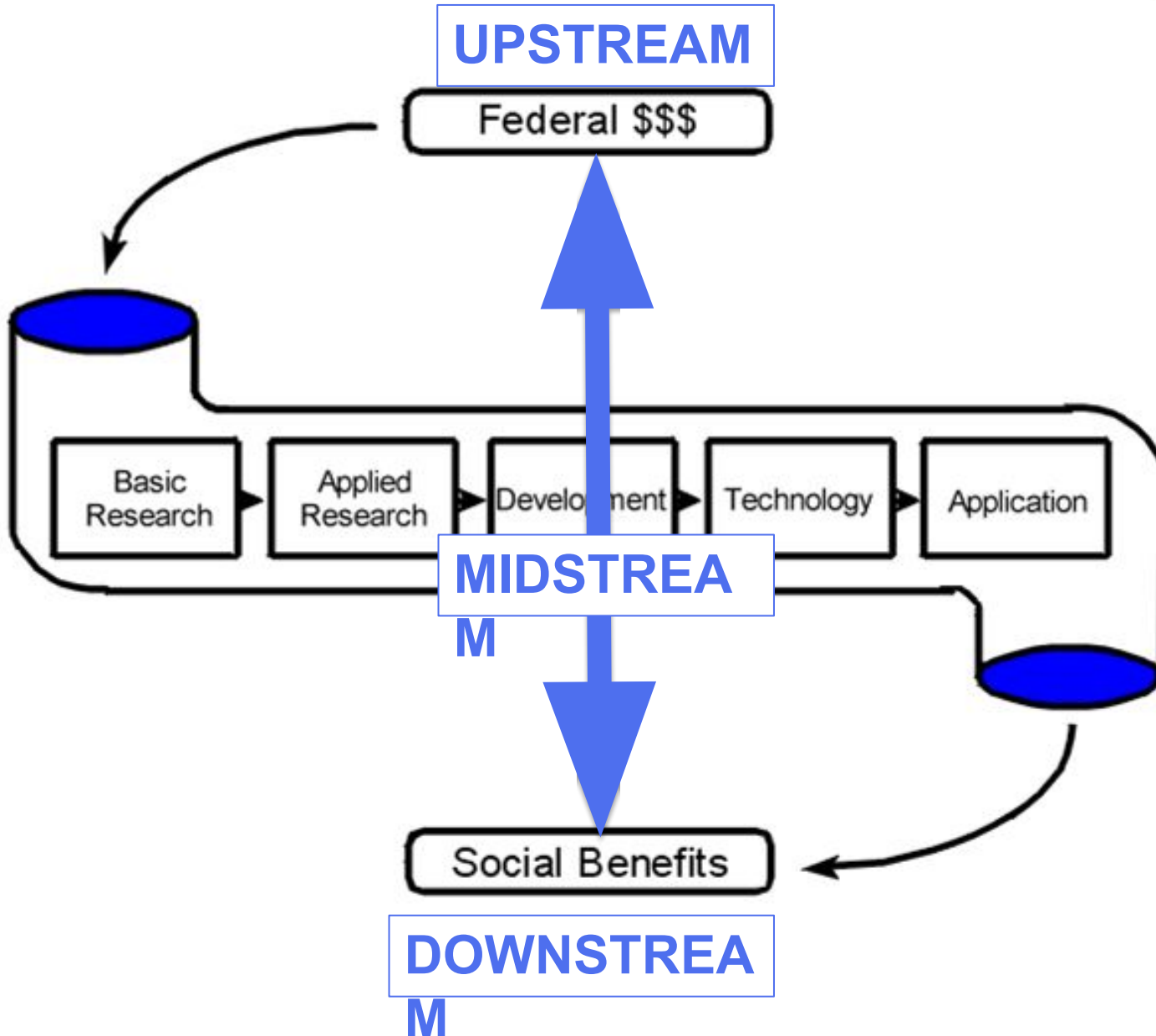
One possible solution:

Socio-Technical Integration Research (STIR)

Originality: Erik Fisher, Arizona State University (USA)

Natural sciences + social sciences

INNOVATION POLICY MODEL



STIR – SOCIO TECHNICAL INTEGRATION RESEARCH



<https://www.youtube.com/watch?v=rKSF9JtUZxM>
<https://www.youtube.com/watch?v=-fd6bUVR0EU>
<https://www.youtube.com/watch?v=hWpmBbaIEMA>

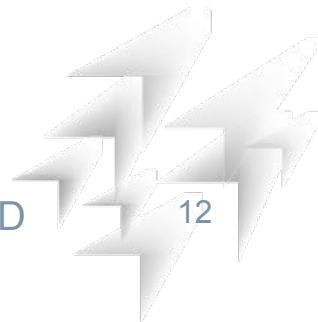


- "Horizon 2020 funded activities will support the relationships between science and society through the promotion of Responsible Research and Innovation (RRI) as a cross-cutting issue as well as through Part 16 of the Work Programme, 'Science with and for society'. Included in this are actions aimed at increasing public awareness, improving the scientific knowledge base, and encouraging formal and informal science education.,, (2016-17 Work Programme page 14)
- Excellent Science – "Future and emerging technologies" Work Plan: "A Responsible Research and Innovation approach, including aspects of ethics, as well as social science and humanities should be taken into account.,,
- "16. Science with and for Society"



"RRI is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European Society. In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI consists of designing and implementing R&I policy that will:

- *engage society more broadly in its research and innovation activities,*
- *increase access to scientific results,*
- *ensure gender equality, in both the research process and research content,*
- *take into account the ethical dimension, and*
- *promote formal and informal science Education"*



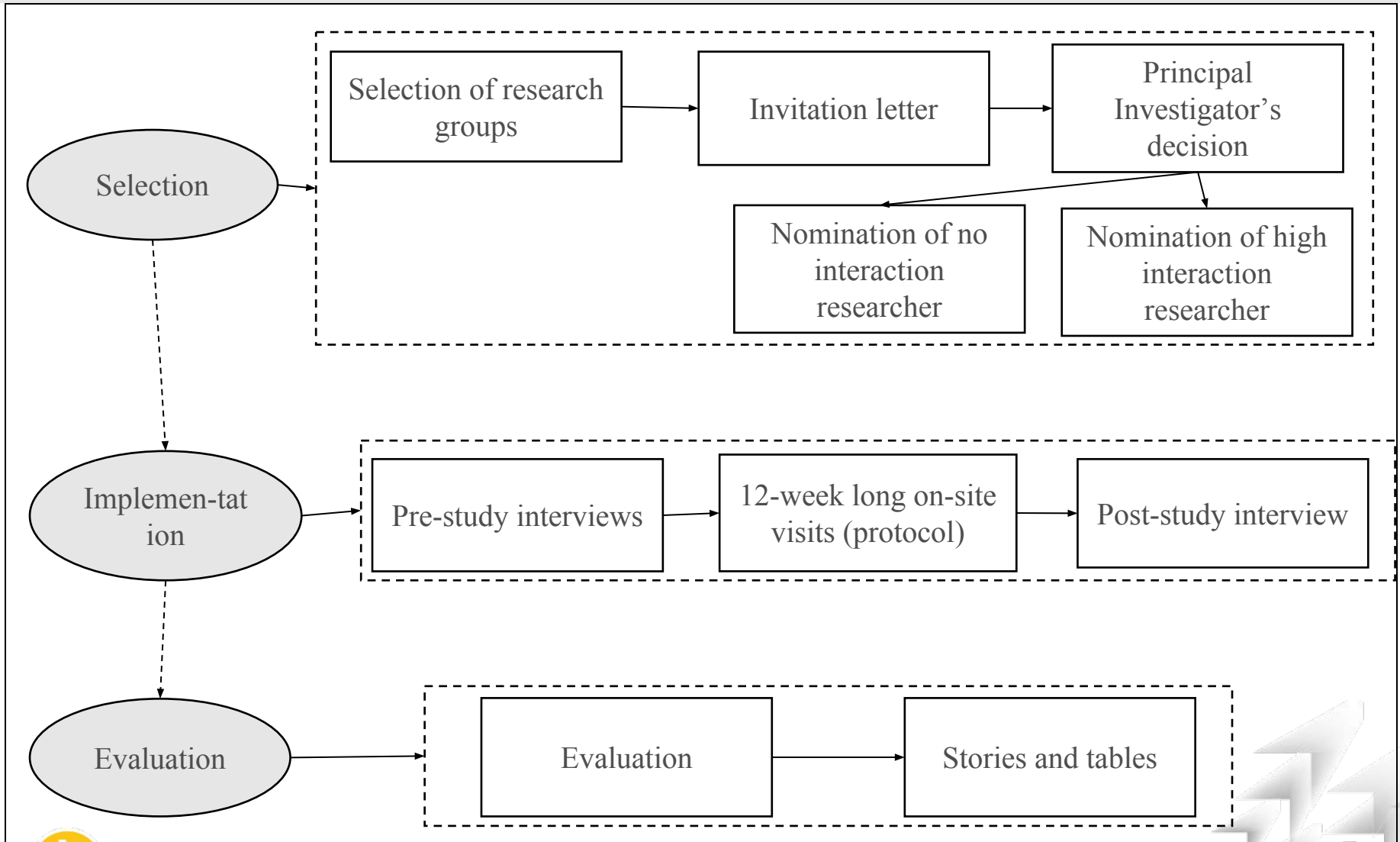
RRI KEYS AND CONCRETE PROPOSALS

- **Public engagement**
- Gender equality
- Science Education
- **Ethics**
- **Open Access**
- Governance

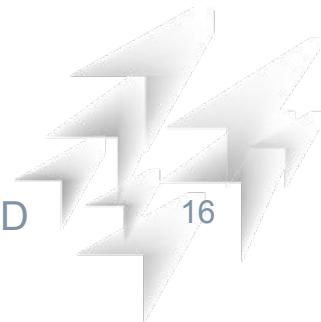


- *„Benefits, barriers, or just talk?”*
- *Common learning process*
- *Most important benefits:*
 - *Ended daily routines*
 - *Widened the way of thinking (integrated some kinds of social issues to natural scientist’s thinking, which has been evaluated by themselves very useful)*
- *„STIR helped us to predict and consider the non-immediate effects of the research on the society and the environment to promote sustainability” (Hungarian pilot1)*

PRACTICAL STEPS OF STIR



- Original application – USA, Western/Northern Europe (BEL, NL, UK, ESP, DK)
 - Nanoscale Engineering
 - Genetics
 - Biotechnology
 - Environmental Engineering
 - Biophysics
 - Industrial strength (NL)



PILOT PROJECTS IN HUNGARY

Participant	Status	Inter-action	Research area	Research group	STIR-period	
Site 1	P1	PhD student	High	Epilepsy (electronic stimulus of brain)	Oscillatory Neuronal Networks Research Group in the Department of Psychology of Faculty of Medicine	September-November 2015
	P2	PhD student	High	Epilepsy (long-term electronic stimulus of brain)		
	P3	PhD student	No	Vision		
	P4	PhD student	No	Neuropsychology		
Site 2	P5	PhD student	High	Carbon dioxide reduction on conductive polymers	Photoelectrochemical Research Group, in the Department of Physical Chemistry and Materials Science of Faculty of Science and Informatics	December 2015 - February 2016
	P6	Postdoctoral	High	Carbon dioxide reduction on graphene		
	P7	PhD student	No	Diffusion rate in several materials		
	P8	PhD student	No	Patterns on rocks and on animal integuments		

Eastern-Europe STIR Pilot Project 1: Oscillatory Neuronal Networks Research Group



MAIN RESULTS BY THE END OF THE 12TH WEEK

Thinking of researchers: remarkably expanded: in one case it was significant; in the other case it was minimal but also remarkable

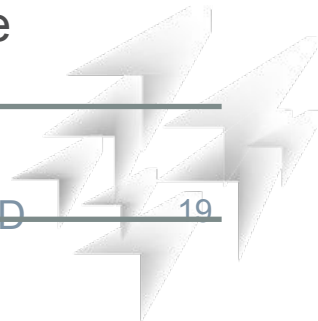
The main output of the research: **broadening their horizon**, integration of social science aspects into natural science thinking

Decision awareness by the end **increased remarkably**; for instance, at the beginning one of the participants believed he did not make decisions at all

Ad hoc nature of their work: has declined

Several changes in practice Commitment to engage in early anticipation of negative consequences

Time management



GENERAL FINDINGS OF PILOT 1

- supports reflexive learning and changes in research practice reasonably well.

- Huge amount of time discussing basic social, ethical and economic issues of science and technology
- Post-socialist environment continues to influence behaviour

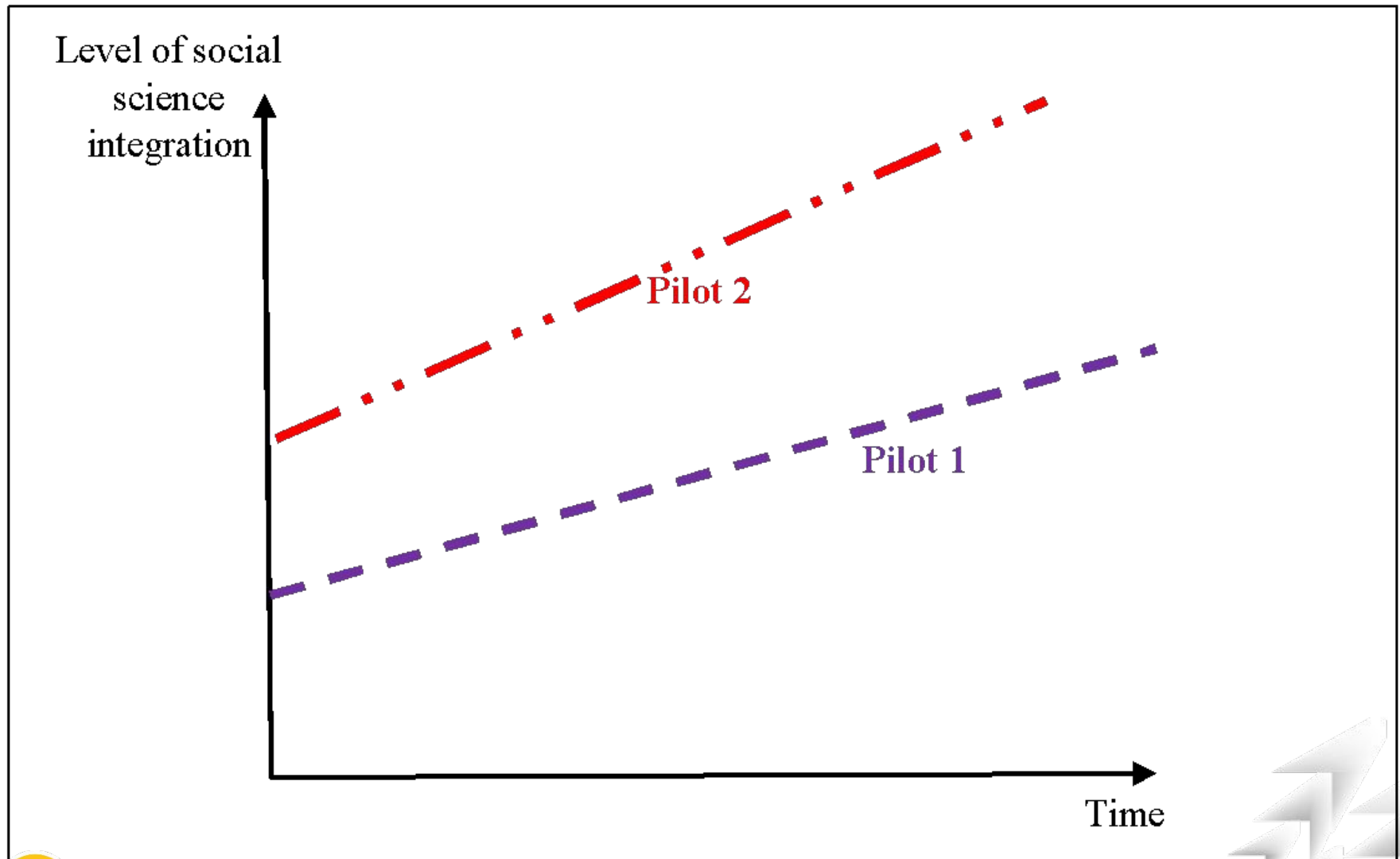
- BUT with a methodology-development



Eastern-Europe STIR Pilot Project 2: Photoelectrochemical Research Group



COMPARISON OF THE TWO PILOTS



HYPOTHESIS – THE ROLE OF THE PRINCIPAL INVESTIGATOR (PI)

Researchers in the second study: more reflexive because **they absorbed social science concepts and perspectives** through interacting with the principal investigator during daily routine tasks.

The principal investigator, as a graduated economist, is carrying a **quasi long-term STIR project** himself in his research group; thus he is an embodiment of a new type of STIR facilitator.

If we **expand the STIR methodology** to include training **PI's to facilitate the STIR process**, we expect that (1) the duration of such a “PI-STIR” would be longer, (2) the effects would appear more gradually over time, and (3) the PI's influence would **produce higher impact and a more sustainable effect**.



CONCLUSION AND RECOMMENDATION

STIR in Eastern European settings

- demonstrable but limited effectiveness

Low readiness for both innovation and responsible innovation

- Limited understanding of broader innovation system
- Limited understanding of self interest
- Recognition of direct costs and benefits

Effectiveness of STIR in an Easter-European setting

- Lab-level: Supplement the general process of a STIR study with an initial „step zero”
- PI-level: train PI’s to gradually facilitate the STIR process
- Policy-level: Work with policy makers to create incentives for researchers to be more aware of and responsive to broader and longer-term societal dimensions of innovation



**Thank you for your
attention!**