



*Living Knowledge*  
The International Science Shop Network

# SCIENCE SHOPS AND LIVING KNOWLEDGE

## CO-CREATION IN THE CONTEXT OF SCIENCE-SOCIETY RELATIONS

Online Workshop  
Gdansk, 24 April 2023

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# **OVERVIEW**

Expectations

A Short Introduction to RRI

Science Shops

The Living Knowledge Network

Co-Creation

# Expectations

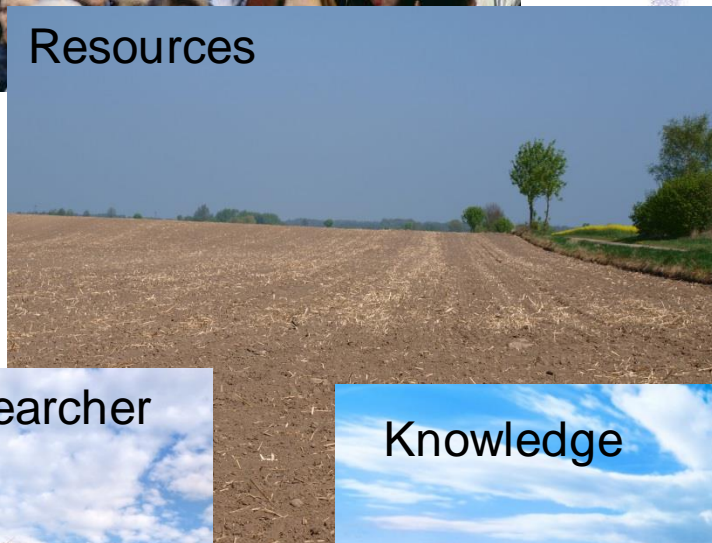


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Society



Resources



Requests



Science

Researcher



Knowledge

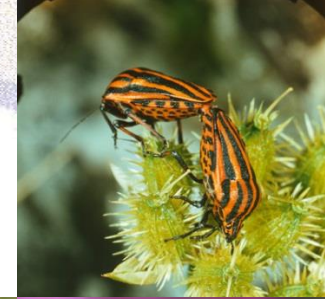


# Expectations



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Society



**What about these CSOs  
(Civil Society Organizations)  
and their non-for-profit needs?**

# Expectations



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Knowledge production



**Mainstream Research**



**Community Based Research (CBR)**



Participatory Action Research – Community Based  
Participatory Research – Participatory Rural Appraisal –  
Community Engaged Scholarships – Community Campus  
Partnerships – Service Learning – Knowledge Mobilization  
Citizen Science ...



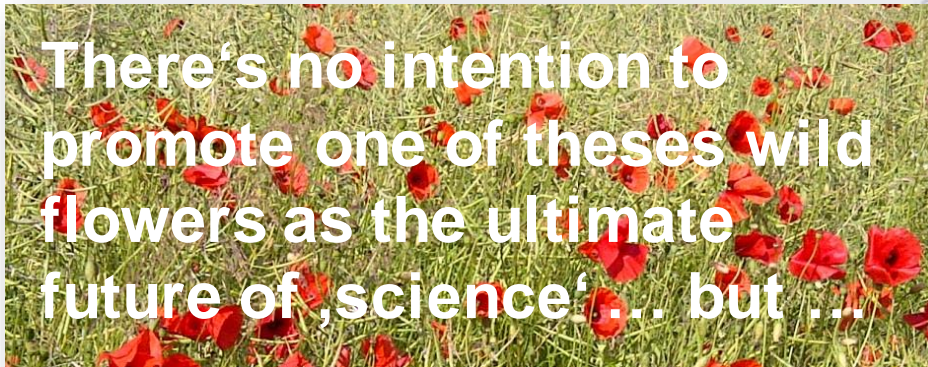
**Science Shops**



# Expectations

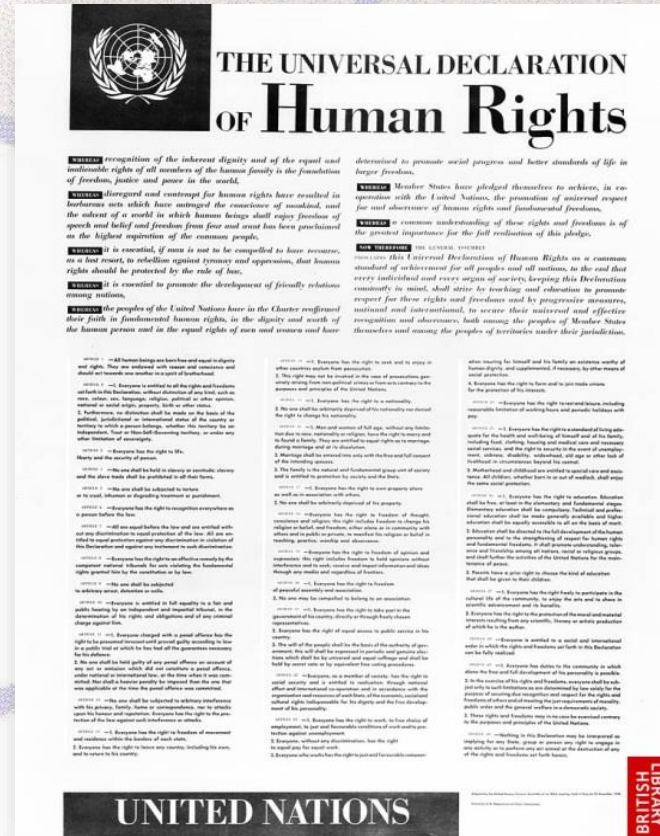


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There's no intention to promote one of these wild flowers as the ultimate future of science! ... but ...

**'Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share the scientific advancement and its benefits'**



Universal Declaration of Human Rights,  
Art 27(1)(United Nations, 1948)



## A short introduction to Open Science and RRI

- **Open Science and RRI are *inclusive* approaches 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*.**
- *<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society>*

# Open Science

consists of designing and implementing R&I policy that will:

- require **research data to be FAIR and open** by default (with exceptions notably for commercial purposes)
- promote the **adoption of open science practices**, from sharing research outputs as early and widely as possible, to citizen science, and developing new indicators for evaluation research and rewarding researchers
- **engage and involve citizens**, civil society organisations and end-users in **co-design and co-creation processes** and promote responsible research and innovation
- ensure **gender equality**, in both the research process and research content, and take into account the **ethical dimension**, and
- promote formal and informal **science education**.



## A short introduction to RRI

# RRI and Open Science are not a box-ticking exercise!

They are a permanent reminder,  
not just a single input event!



**Responsibility = Response Ability**

# Creating value from knowledge

The variety of strategies – User pull and co-production



# Knowledge

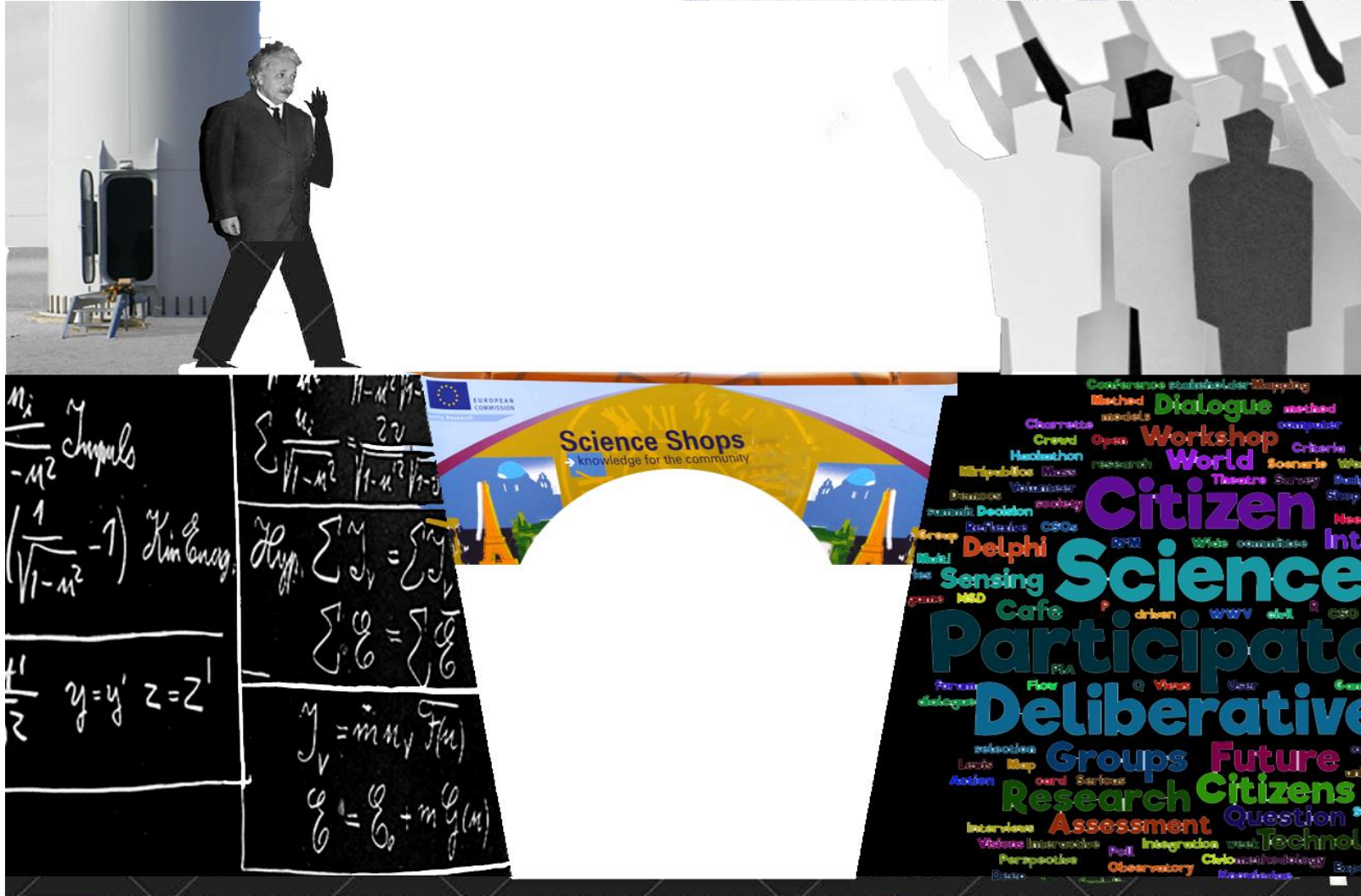


- Scientific or expert knowledge, the peer reviewed knowledge produced through scientific research.
- Political knowledge, encompassing a those in positions of power who are able to influence decision making processes;
- Individual local knowledge, the lived experiences of an individual in a place;
- Collective cultural knowledge, e.g. the indigenous peoples' understanding of natural resource management

# Science Shops



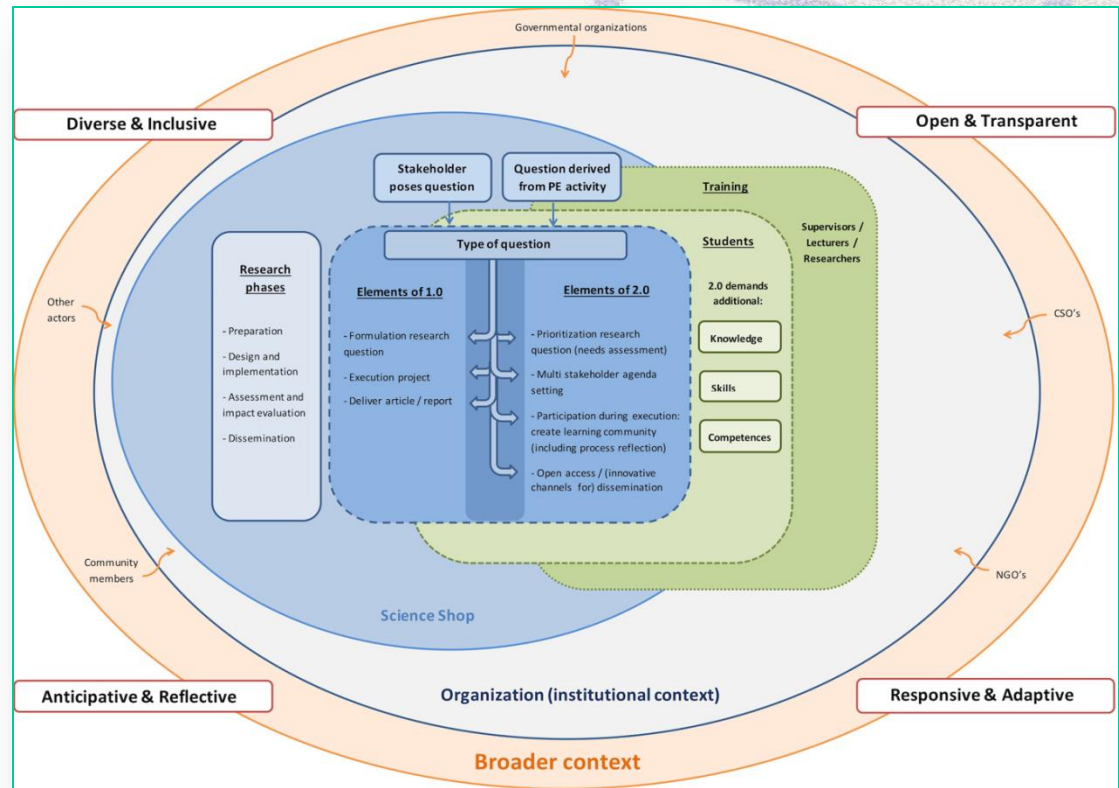
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# Science Shops



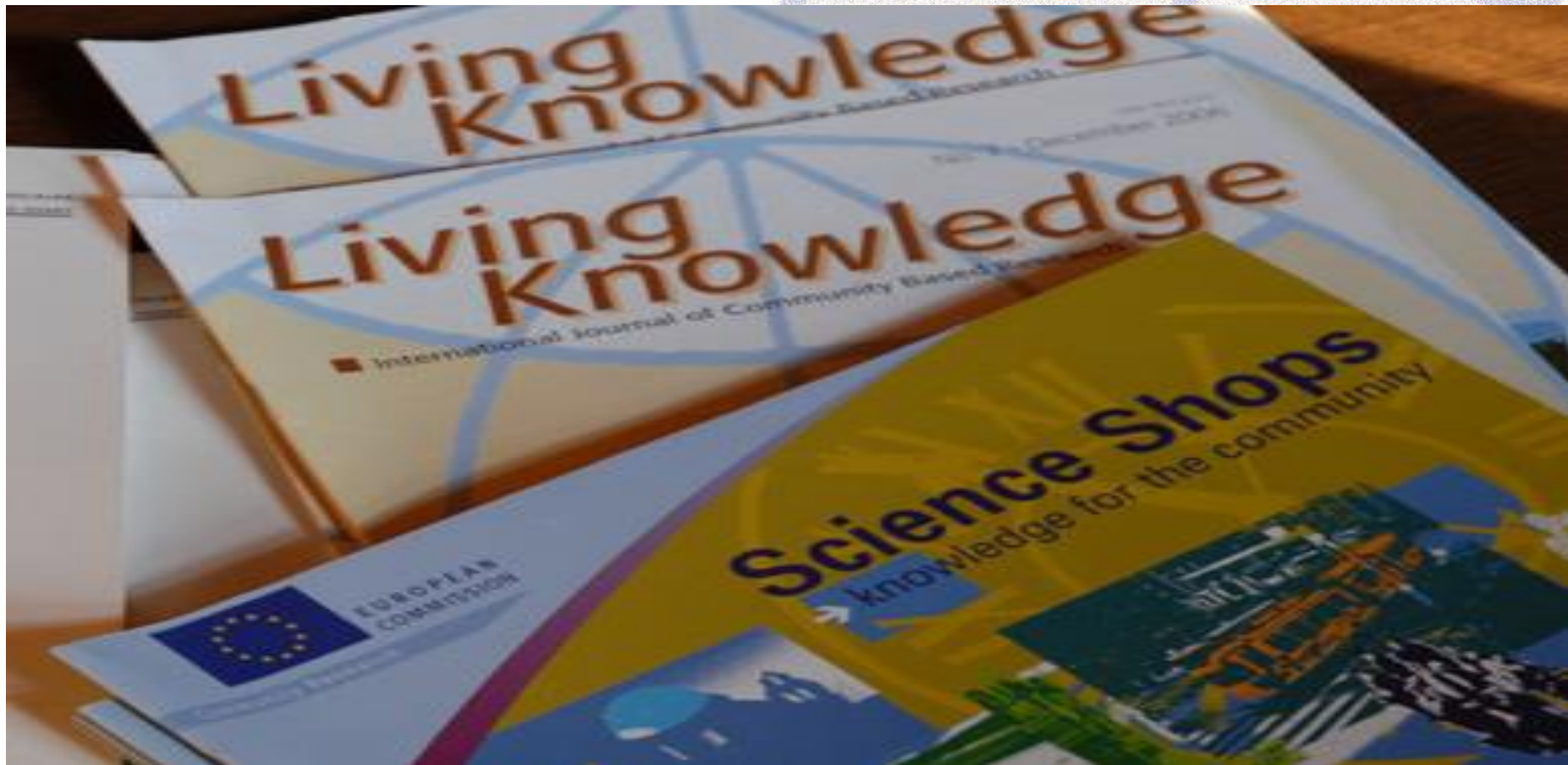
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# Science Shops



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**A Science Shop (is a unit that) provides independent participatory research support in response to concerns expressed by civil society.**

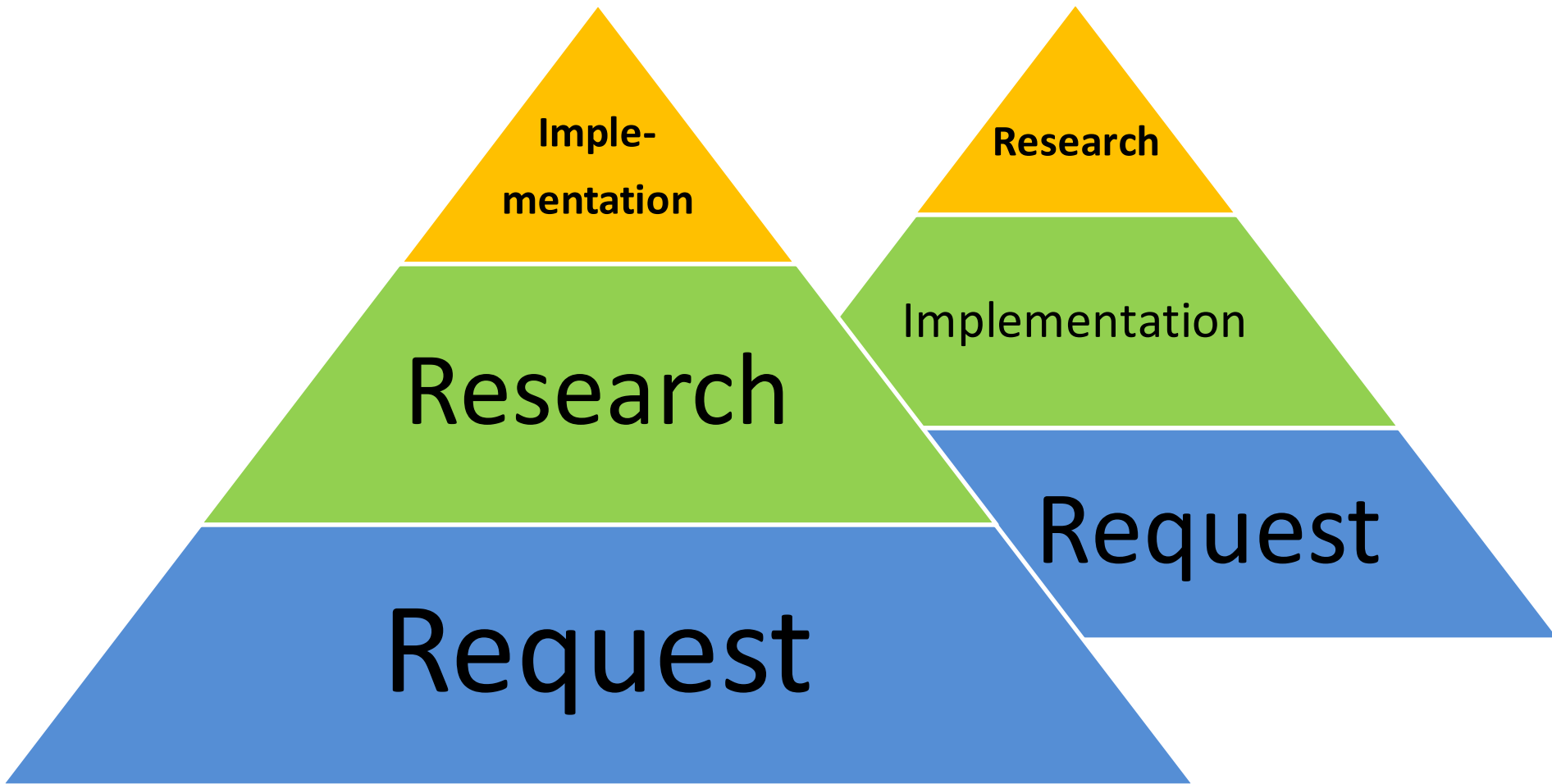


## Basic Idea

- Questions from civil society organisations (and other stakeholders) are rephrased to scientific research topics which will be approached by a researcher or students under supervision of a professor.
- The research will lead to a report (or other product) which is made to be of use to the client.

## Advanced Idea

- Sciences Shops take the role of a Civil Society (Stakeholder) Contact Point to lead tasks in mediating society-science interactions through various methodologies
  - supporting citizen science, service learning, co-creation, CERL or
  - organising science cafés, focus groups, scenario workshops, or
  - developing training and education for specific topics and needs



**The Science Shop Methodology**



# The Living Knowledge Network



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Living Knowledge Network

00:27

# Science Shops in Europe



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## Science Shop

*Wetenschapswinkel –*

*Wissenschaftsladen –*

*Boutique de Science –*

*Epylion - Videnskabsbutikken –*

*BioSense – IntHum –*

*Bazar de las Ciencias –*

*InterMediu – Interchange –*

*CUPP HelpDesk –*

*Community Knowledge Exchange –*

*Research Shop –*

*Echop a Sciences –*

*Forskningstorg –*

*Knowledge Co-Op –*

*Community Based*

*Research Center –*

*Students Learning With*

*Communities –*

*Teadusturg*



# Science Shops worldwide



# Networking



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**GACER**  
Global Alliance on  
Community Based Research

**PRIA**  
Participatory Research in Asia

**UNESCO Chair**  
for Community Based Research

**GUNI**  
Global University Network  
for Innovation

**PASCAL**  
Observatory

**ENGAGE Australia**

**KmbF**  
Canadian Knowledge  
Mobilization Forum

Community Based  
Research in Canada

**EUA**  
European University Association

## International Science Shop Network LIVING KNOWLEDGE

**ECSA**  
European Citizen Science Association

**EUN**  
European  
School Net

**National Science Shop Networks**  
(DE, NL, RO, FR, (ES), (IT))

**NCCPE**  
National Coordination Center  
for Public Engagement

**Ecsite**  
European Network of  
Science Centres and Museums

**Midwest Knowledge  
Mobilization Network**

**CCPH**  
Community Campus  
Partnership for Health

**APUCEN**  
Asian Pacific University  
Community Engagement  
Network

**EUSEA**  
European Science  
Event Association

**BGCI**  
Botanic Gardens  
Conservation International





# CO-CREATION





## **New forms of collaboration & innovation potential**

- against decoupling of science and society

## **Addressing local - global challenges**

- Transdisciplinarity as a national discuss for finding scientific & societal solutions

## **Modern science processes**

- scientific, social, political & media interest

## **But most of all**

- participatory science and co-creation are useful tools when addressing the SDGs. They allow for a buy-in from a broad spectrum of actors to contribute to the SDGs, but also support the European Green Deal targets and to engage co-implementation of transition pathways

# Co-creation



There is **no generally accepted definition** of co-creation in the literature on the subject. Definitions are very broad such as ‘any act of collective creativity’. Definitions mainly focus on the following elements:

- involvement of citizens in problem-solving as experts on their own experiences;
- customers become an active part of the innovation process;
- open process of participation, exchange and collaboration;
- creation of (long-term) outcomes by changing the relationships, positions and rules between stakeholders and customers.



## Multidisciplinarity Transdisciplinarity - RRI



<https://www.superhealthykids.com/the-best-frozen-fruit-for-smoothies/>



# Co-creation

The principle of co-creation is the process of creating new solution, public policies and services **with** people and not **for** them.



Innovation in this context is a **continuous learning process** which needs sufficient capacity and resources, in terms of adaptation, feedback and accountability.



The co-creation process needs an organisation with an **open, communicative culture**, willing to facilitate the 'active' involvement of citizens or other external stakeholders.

**A mind is like  
a parachute.**

**It doesn't  
work if it is  
not open.**

*Frank Zappa*

**Listen twice as much  
as you speak. This is  
why we have two ears  
and one mouth.**

# Co-Creation - Hurdles

- Limited resources, lack of capacities, Lack of 'skills' (methods, communication skills ...)
- Bureaucratic effort and numerous forms of organization
- Lack of binding rules, criteria and structures for participation and transdisciplinary collaboration.
- CSOs are often perceived as problematic partners in terms of legitimacy and credibility. Engagement is often tokenistic.
- CSOs are not necessarily willing to conduct their own research.
- Loss of interest, conflicts
- Reviewers
- **It's not about the 'IF', it's about the 'HOW'.**





## Science Shop Wageningen: A new economic base for the Gulp Valley herd

**Cultural heritage, Biodiversity,  
Landscape services, Tourism**

[www.wur.nl/en/project/A-new-economic-base-for-the-Gulp-Valley-herd.htm](http://www.wur.nl/en/project/A-new-economic-base-for-the-Gulp-Valley-herd.htm)

The analysis of farm economy and the management arrangement of the Gulpdal lands delivered a number of options that could contribute to an economically sustainable solution for the herd.



# Science Shop Cooperation Project



## BigPicnic



### BigPicnic

Botanic Gardens and their audiences co-created policy recommendations on food security

<https://www.bigpicnic.net/resources/bigpicnic-recommendations/>



Co-creation Workshops, webinars and exhibitions

<https://bloom-bioeconomy.eu/>



Crowd mapping of climate change effects. Website coming up soon



[www-rri-tool.eu](http://www-rri-tool.eu)



[www.parrise.eu](http://www.parrise.eu)

[www.parrise.eu](http://www.parrise.eu)



<https://project.scishops.eu/>



[www.inspiresproject.eu](http://www.inspiresproject.eu)

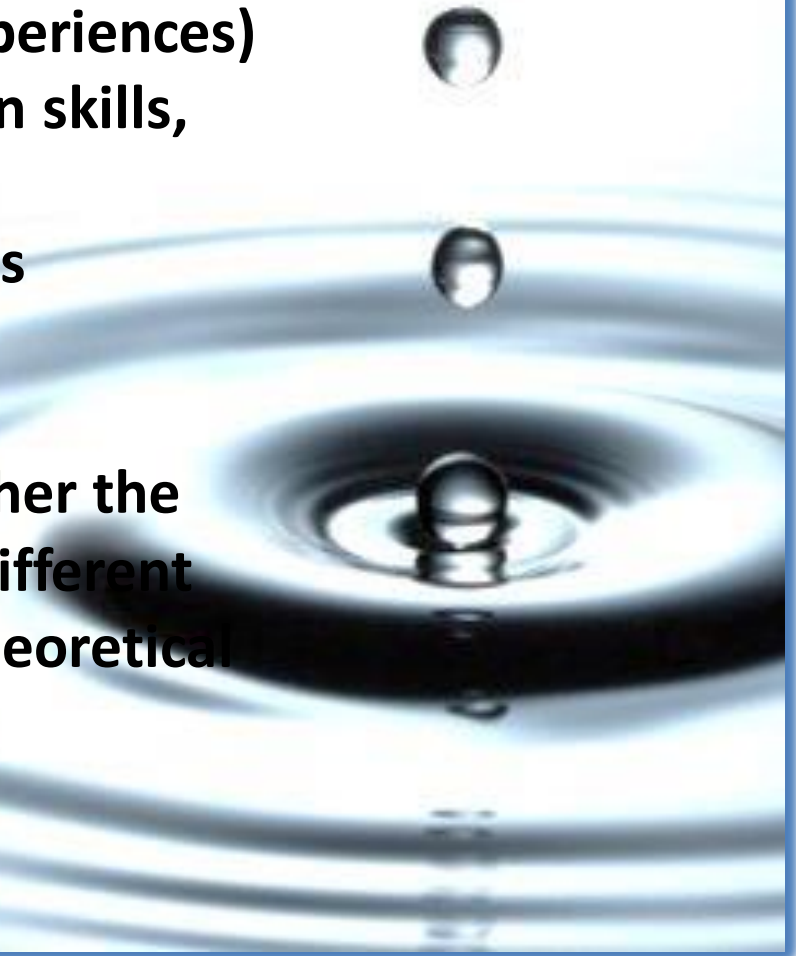


[www.entrance-project.eu](http://www.entrance-project.eu)

[www.inspiresproject.eu](http://www.inspiresproject.eu)

### Enhanced Learning for Students

- **Social competences (Real life experiences)**
- **Communication and co-operation skills, also with non-scientists**
- **New knowledge and perspectives**
- **Knowledge and expertise within transdisciplinary research**
- **Skills to connect and bring together the various needs and demands of different groups, even with their rather theoretical scientific background**



## Broader Impact



**Participatory research methods introduced**  
**Incubator for new research theme**  
**Changed focus, created dialogues**  
**Media / Public Attention**

**Case materials / networking for researchers**  
**PR and social responsibility for institute**  
**Policy influencing success**  
**Empowered CSOs**  
**Informed Decisions**





# Thank you for your attention!



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International Science Shop Network 'Living Knowledge'

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Living Knowledge Discussion List

([LIVINGKNOWLEDGE-L@LISTS.UCC.IE](mailto:LIVINGKNOWLEDGE-L@LISTS.UCC.IE)),

Twitter: @ScienceShops

Facebook: <https://www.facebook.com/livingknowledge>

Wissenschaftsladen Bonn

[www.wilabonn.de](http://www.wilabonn.de)

RRI Tools

[www.rri-tools.eu](http://www.rri-tools.eu)



## **SCIENCE SHOP PROJECTS**

Green Light for Bats (NL)

Local History Museum (BY)

EnRRICH (BE, UK a.o.)

Bonn Science Shop (DE)

SAIN (DE)

# Project Example

- Community of Assen (NL)

Streetlighting along a cycle path between harbour channel and drainage canal

- Safety
- Energy
- Environment



- Community of Assen
- Science Shop Groningen
- Animal Ecology University of Groningen
- Environmental Consutancy Assen
- Volunteers of NGO



# Project Example

- White light at certain locations was replaced by green LED lights
- Impact on water bats (*Myotis daubentonii*) was researched on feeding areas and along the drainage canal
- Transit of bats was counted for 3 different light types (white, green LED and no light) and set into relation of availability of prey insects, weather conditions and light intensity
- Counting took place at two places at the same time – one with light and one without light



## Green Light for Bats

- White light attracts more bats, without more prey being available
- Green LED Light has the same bat activities as dark areas

- **Energy consumption**
- **Impact on environment**
- **GREEN LIGHT FOR BATS**



# Project Example

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## Zditovo

Environment & Biodiversity

Local History and Museum





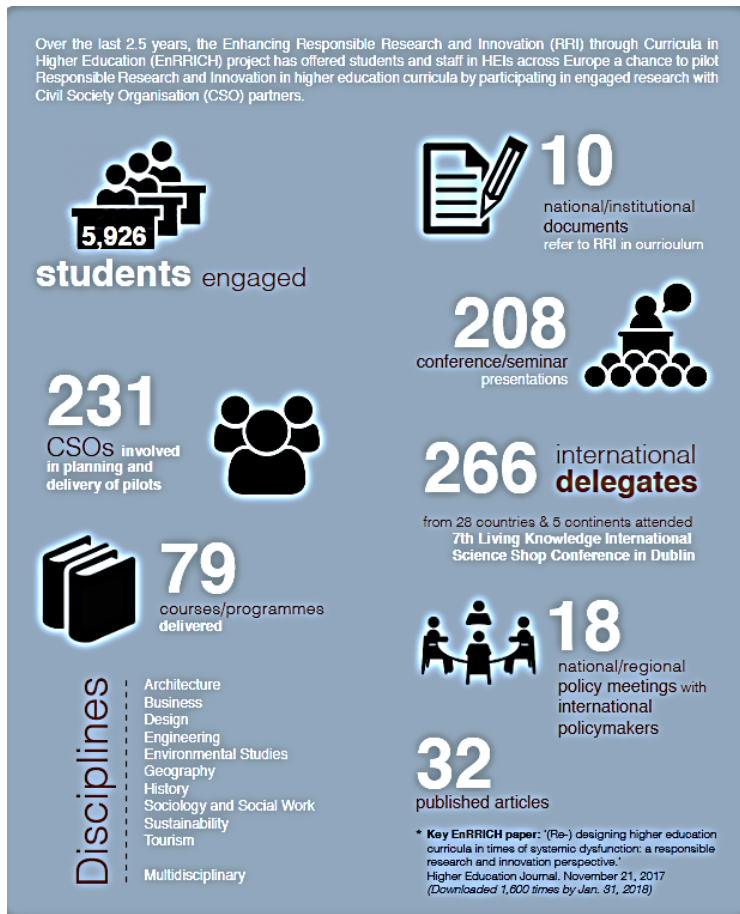
## EnRRICH (2015 – 2018)

The EnRRICH project aims to improve the capacity of students and staff in higher education to develop knowledge, skills and attitudes to support the embedding of Responsible Research and Innovation (RRI) in curricula by **responding to the research needs of society** as expressed by civil society organisations (CSOs). It is identifying, developing, piloting, and disseminating good practice and relevant resources to embed RRI in academic curricula across Europe.

This project focuses on the **co-creation of research** to enable students to acquire the broad range of skills, knowledge and experience needed for a knowledge economy and knowledge society to flourish.

There have also been wider discussions of RRI in curricula, in particular during the EnRRICH / **Living Knowledge conference**, and a **tool to guide educators** in revitalizing their modules by applying RRI driven educational design principles, learning outcomes and strategies was provided. **Three brand new Science Shops** have been established, two in higher education institutions and one in a research institute. Furthermore, three early stage Science Shops have been supported.

## EnRRICH (2015 – 2018)



## The EnRRICH Tool – to guide educators to revitalize curricula from an RRI standpoint

The EnRRICH tool provides guidance to educators who wish to embed RRI in higher education curricula. The EnRRICH tool, developed in the frame of the EnRRICH project, proposes three educational design principles for redesigning curricula. And an RRI competence framework to inform the development of curricula enabling students to participate in RRI processes.



## RRI in Curricula - Good Practices and Case Studies

As part of work package 2, good practices and case studies that demonstrate the embedding of RRI in modules and courses were identified. EnRRICH members at 11 higher education institutions, one research institute and one civil society organisation therefore consulted with lecturers and directors of education in higher education institutions about RRI in the curriculum. A special focus is set on the collaboration with Civil Society Organisations (CSOs). Find out more about the modules in the following overview:

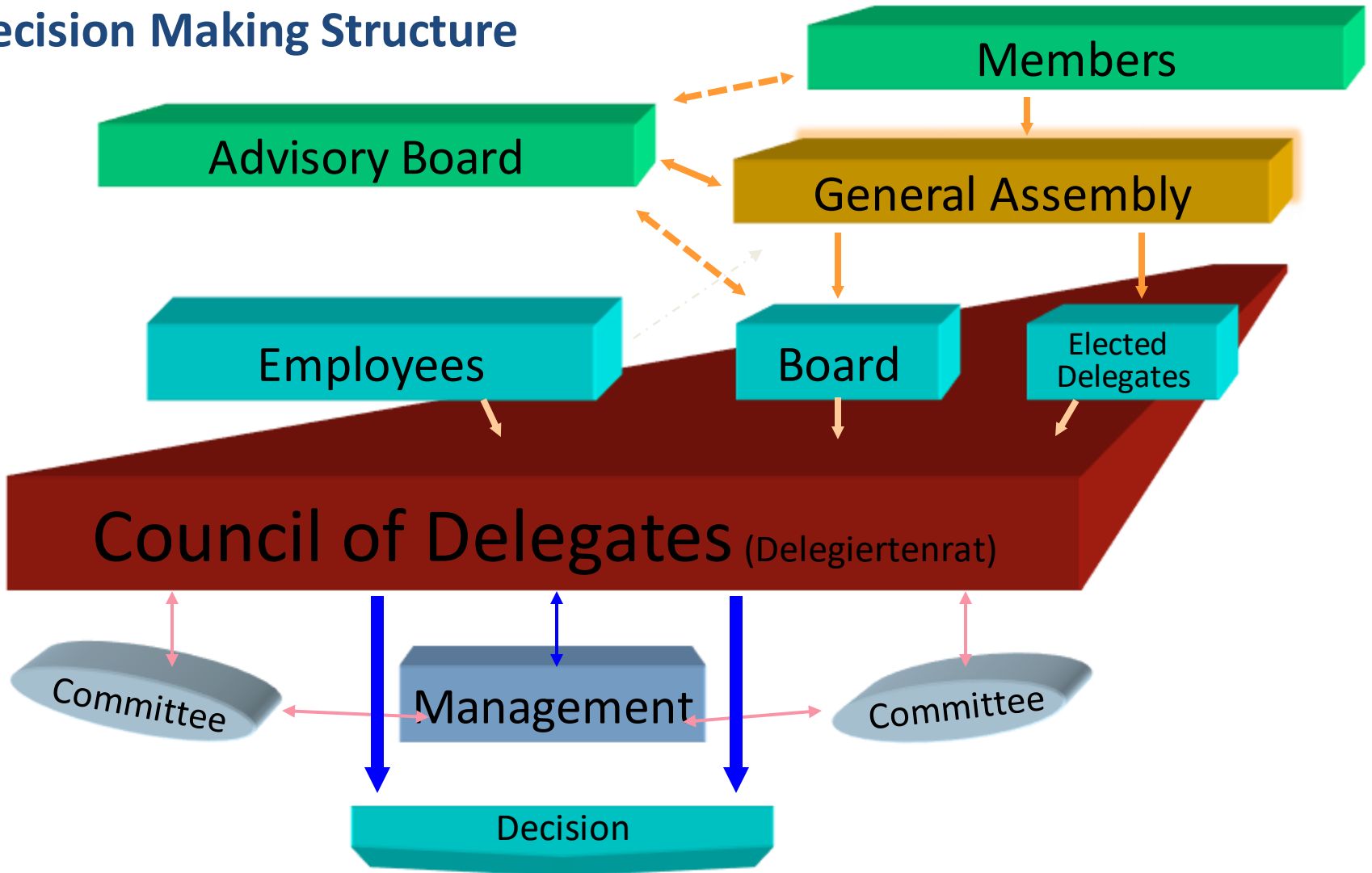
Discipline	Promising Practice	Study level
Architecture	<ul style="list-style-type: none"> <li>• <a href="#">Architecture Street Society project</a> (Queen's University Belfast)</li> <li>• <a href="#">History of Architecture</a> (Vilnius College of Technologies and Design)</li> </ul>	Ba, Ma Ba, Ma
Business	<ul style="list-style-type: none"> <li>• <a href="#">Decision Techniques</a> (Corvinus University of Budapest)</li> <li>• <a href="#">HR &amp; OD Skills</a> (Corvinus University of Budapest)</li> <li>• <a href="#">Social Entrepreneurship &amp; Economy</a> (Corvinus University of Budapest)</li> <li>• <a href="#">Bachelor Idea &amp; Innovation Management</a> (Erasmushogeschool Brussel)</li> <li>• <a href="#">Business Analysis</a> (Queen's University Belfast)</li> <li>• <a href="#">Heritage, Culture and Tourism</a> (Dublin Institute of Technology)</li> </ul>	Ba Ma Ma, PhD Ba Ba, Ma Ba
Engineering	<ul style="list-style-type: none"> <li>• <a href="#">Gender &amp; Equality</a> (INSA de Lyon)</li> <li>• <a href="#">Social Responsibility Engineer</a> (INSA de Lyon)</li> </ul>	Ma Ba
Environmental Studies	<ul style="list-style-type: none"> <li>• <a href="#">Transport and Mobility module</a> (Dublin Institute of Technology)</li> </ul>	Ma

# Bonn Science Shop

- Established 1984
  - About 50 members, Non-profit-association
  - Budget ca. 2.5 Mio EUR , No external funds
  - Demand driven and creating own fields of work
  - Partner in EU funded projects such as „SPARKS“, „RRI-Tools“, „EnRRICH“, „BigPicnic“, „Soufflearning“ or „PERARES“, „BLOOM“ or „TeRRIFICA“
  - National projects on Work-Based Learning, Employment Market, Education for Sustain. Developm., Land Use, ...
  - Professional staff of 30 in flat, collective structure
- 



## Decision Making Structure



## Aktuelle Projekte



UMWELT

### Treffpunkt Vielfalt – PikoPark

Auf Freiflächen von Wohnungsgesellschaften entstehen gemeinsam mit Mieterinnen und Mietern grüne Räume für Mensch und Natur, so genannte PikoParks.

> MEHR INFOS



ERNEUERBARE ENERGIEN | ARBEITSMARKT

### Netzwerk Grüne Berufe

Um mehr Jugendliche für grüne Berufe zu begeistern, baut der WILA mit Veranstaltungen und einem Online-Portal ein bundesweites Netzwerk von Akteuren auf.

> MEHR INFOS

## Projekte nach Themen

Verschaffen Sie sich einen Überblick über unsere Arbeit. Wir sind in vielen Bereichen tätig. Unsere Projekte sind nur ein Teil unser vielfältigen Arbeit.

- > Umwelt
- > Bürgergesellschaft
- > Bildung
- > International
- > Arbeitsmarkt
- > Erneuerbare Energien
- > Gesundheit



BÜRGERGESELLSCHAFT

### Städtische Agrikultur – Innovation entwickeln (SAIN)

Mit dem Expertenwissen von Bürgerinnen und Bürgern entsteht ein Netzwerk rund um lokale Nahrungsmittelversorgung und städtische Agrikultur.



BÜRGERGESELLSCHAFT | UMWELT

### Stadt und Land im Fluss

Dem Klimawandel trotzen: Wissenschaft, Kommunalverwaltung und Bürger/innen entwickeln zusammen Ideen, um sich an Veränderungen anzupassen.



UMWELT | BILDUNG

### Raus aus'm Haus

Gemeinsam mit Schulen und KiTas der Umgebung wird entwickelt, wie die Grüne Spielstadt in Bonn als „Draußen-Lernort“ noch lebendiger werden kann.



Quelle: Stadtfrüchtchen

## SAIN – Innovative Developments in Urban Agriculture

A Citizen Science Project

Bonn Science Shop and Fraunhofer UMSICHT



Quelle: Bolle



Quelle: Prinzessinnengärten

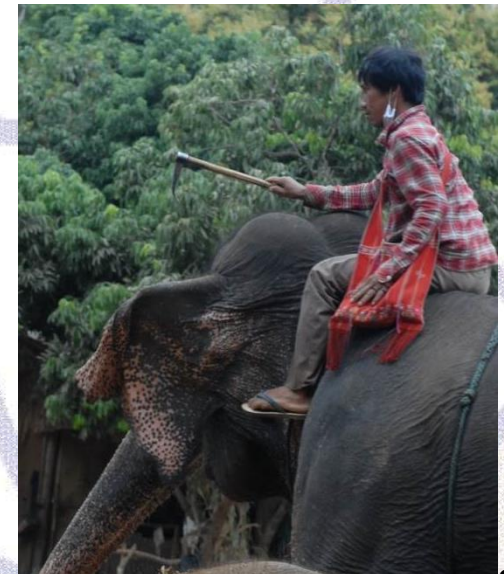


# Community Engagement



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**It takes time and many efforts  
to move forward  
in Society-Science-Interaction**



# What can / should / must be done?



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**Provide Resources**

**Acknowledge engagement**

**Support publication**

**Check existing curricula**

**Implement societal engagement in teaching**

**Develop new curricula and studies**

**Develop structures**

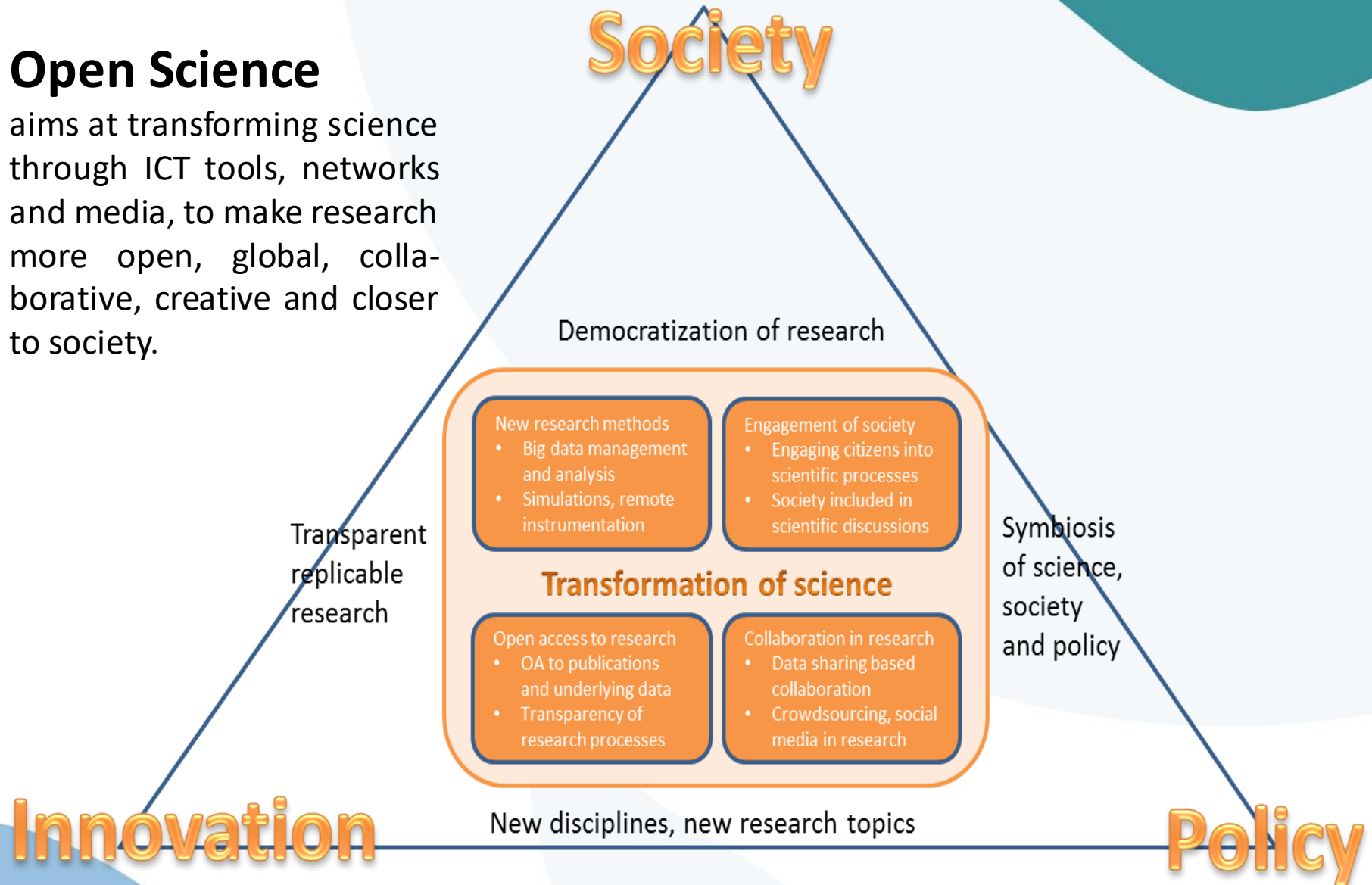
**Open boards for CSOs**

**It's not about the 'IF',  
it's about the 'HOW'.**



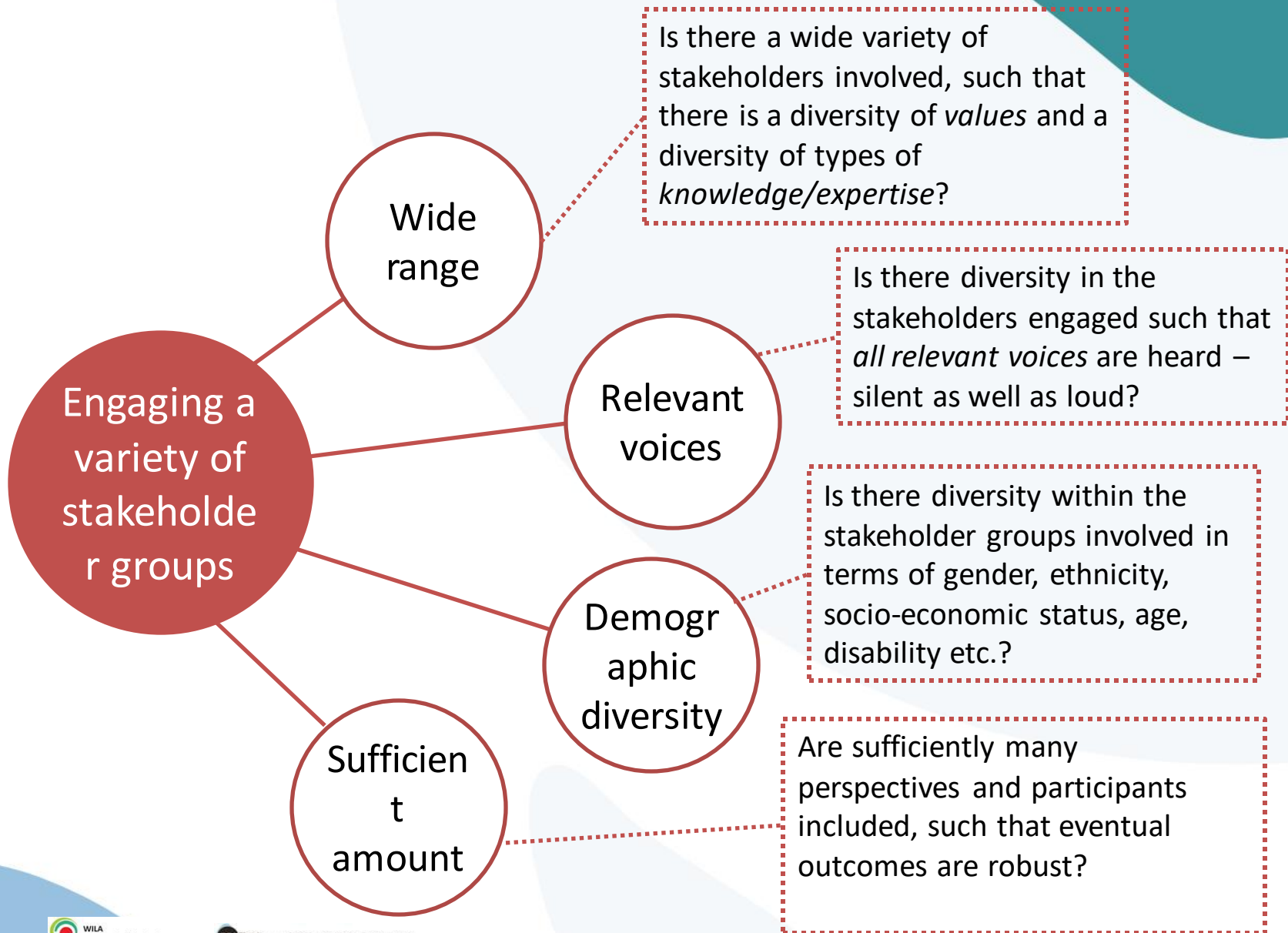
# Open Science

aims at transforming science through ICT tools, networks and media, to make research more open, global, collaborative, creative and closer to society.









# Democratization of Knowledge



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**Science Shops – Knowledge Mobilization - RRI**