SCIENCE SHOPS AND LIVING KNOWLEDGE
CO-CREATION IN THE CONTEXT OF SCIENCE-SOCIETY RELATIONS

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www.livingknowledge.org
OVERVIEW
Expectations
A Short Introduction to RRI
Science Shops
The Living Knowledge Network
Co-Creation
Expectations

Society

Resources

Science

Requests

Researcher

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

Community Based Research (CBR)

Science Shops

Participatory Action Research – Community Based Participatory Research – Participatory Rural Appraisal – Community Engaged Scholarships – Service Learning – Knowledge Mobilization

Citizen Science …
Expectations

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**.

**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 possibly, 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

AR - Action research
CBR – Community-Based Research
CBPR – Community Based Participatory Research
PAR - Participatory Action Research
RRI – Responsible Research and Innovation

Knowledge

- **Scientific or expert knowledge**, the peer reviewed knowledge produced through scientific research.

- **Political knowledge**, encompassing 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

Living Knowledge
The International Science Shop Network

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

www.livingknowledge.org
How do Science Shops work?

**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
Science Shops in Europe

Science Shop
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
Networking

GACER
Global Alliance on Community Based Research

PRIA
Participatory Research in Asia

UNESCO Chair
for Community Based Research

ENGAGE Australia

KmbF
Canadian Knowledge Mobilization Forum

Global Alliance on Community Based Research

GUNI
Global University Network for Innovation

PASCAL
Observatory

EUA
European University Association

Community Based Research in Canada

International Science Shop Network

LIVING KNOWLEDGE

EUN
European School Net

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

ECSA
European Citizen Science Association

EUN
European School Net

Midwest Knowledge Mobilization Network

CCPH
Community Campus Partnership for Health

NCCPE
National Coordination Center for Public Engagement

Ecsite
European Network of Science Centres and Museums

APUCEN
Asian Pacific University Community Engagement Network

BGCI
Botanic Gardens Conservation International

EUSEA
European Science Event Association

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CO-CREATION

Participation and Co-Creation: Why?

New forms of collaboration & innovation potential
➢ against decoupling of science and society

Addressing local - global challenges
➢ Transdisciplinarity as a national discus 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
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.
Connecting knowledge – driving change

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

Frank Zappa

A mind is like a parachute.

It doesn’t work if it is not open.
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'.
- Don't give a destination. Give a sense of direction.
Science Shop Wageningen:
A new economic base for the Gulp Valley herd

Cultural heritage, Biodiversity, Landscape services, Tourism

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.
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
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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Twitter: @ScienceShops

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

Wissenschaftsladen Bonn
www.wilabonn.de

RRI Tools
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 Consultancy Assen
• Volunteers of NGO

http://irs.ub.rug.nl/dbi/4b839607cf91f
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

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:

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Promising Practice</th>
<th>Study level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>• Architecture Street Society project (Queen’s University Belfast)</td>
<td>Ba, Ma</td>
</tr>
<tr>
<td></td>
<td>• History of Architecture (Vilnius College of Technologies and Design)</td>
<td>Ba, Ma</td>
</tr>
<tr>
<td>Business</td>
<td>• Decision Techniques (Corvinus University of Budapest)</td>
<td>Ba</td>
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<tr>
<td></td>
<td>• HR &amp; OD Skills (Corvinus University of Budapest)</td>
<td>Ma, PhD</td>
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<tr>
<td></td>
<td>• Social Entrepreneurship &amp; Economy (Corvinus University of Budapest)</td>
<td>Ba</td>
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<tr>
<td></td>
<td>• Bachelor Idea &amp; Innovation Management (Erasmushogeschool Brussel)</td>
<td>Ba</td>
</tr>
<tr>
<td></td>
<td>• Business Analysis (Queen’s University Belfast)</td>
<td>Ba, Ma</td>
</tr>
<tr>
<td></td>
<td>• Heritage, Culture and Tourism (Dublin Institute of Technology)</td>
<td>Ba</td>
</tr>
<tr>
<td>Engineering</td>
<td>• Gender &amp; Equality (INSa de Lyon)</td>
<td>Ma</td>
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<tr>
<td></td>
<td>• Social Responsibility Engineer (INSa de Lyon)</td>
<td>Ba</td>
</tr>
<tr>
<td>Environmental</td>
<td>• Transport and Mobility module (Dublin Institute of Technology)</td>
<td>Ma</td>
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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
Aktuelle Projekte

Treffpunkt Vielfalt – PikoPark

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

> MEHR INFOS

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 vielfältiger 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 Nahrungsmitteleversorgung und städtische Agrikultur.

> MEHR INFOS

Bürgergesellschaft

Stadt und Land im Fluss

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

> MEHR INFOS

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.
Science Shop Project

SAIN – Innovative Developments in Urban Agriculture
A Citizen Science Project
Bonn Science Shop and Fraunhofer UMSICHT
Community Engagement

It takes time and many efforts to move forward in Society-Science-Interaction
What can / should / must be done?

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.

RESIFAR M CoPs

Engaging a variety of stakeholder groups

Variety of means of stakeholder engagement

Institutional diversity

Attention for appropriate Bioeconomy models

Engagement of publics
Engaging a variety of stakeholder groups

- Wide range
  - Is there a wide variety of stakeholders involved, such that there is a diversity of *values* and a diversity of types of *knowledge/expertise*?

- Relevant voices
  - Is there diversity in the stakeholders engaged such that *all relevant voices* are heard – silent as well as loud?

- Demographic diversity
  - Is there diversity within the stakeholder groups involved in terms of gender, ethnicity, socio-economic status, age, disability etc.?

- Sufficient amount
  - Are sufficiently many perspectives and participants included, such that eventual outcomes are robust?
Democratization of Knowledge

Science Shops – Knowledge Mobilization - RRI

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