

Living Knowledge The International Science Shop Network

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

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# Overview Expectations A Short Introduction to RRI Science Shops The Living Knowledge Network Co-Creation







Society







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















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

Citizen Science ...











Living Knowledge



#### *`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'



**EXERCISE** recognition of the indecent dignity and of the equal and indicable rights of all members of the human family is the foundation of freebox, junkee and poors in the work.

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#### UNITED NATIONS

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



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#### 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 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.

https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science\_en





#### A short introduction to RRI

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

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



#### **Responsibility = Response Ability**



WILA Wissenschaftsladen Bonn

# **Creating value from knowledge**

The variety of strategies – User pull and co-production

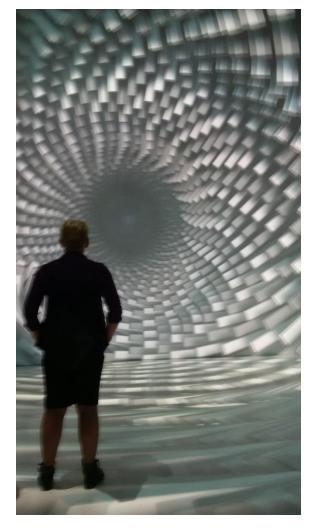
### Citizen Science Science Shops

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

http://www.thedesigngym.com/wp-content/uploads/2018/03/Co-creation\_TheDesignGym.jpg

#### Knowledge

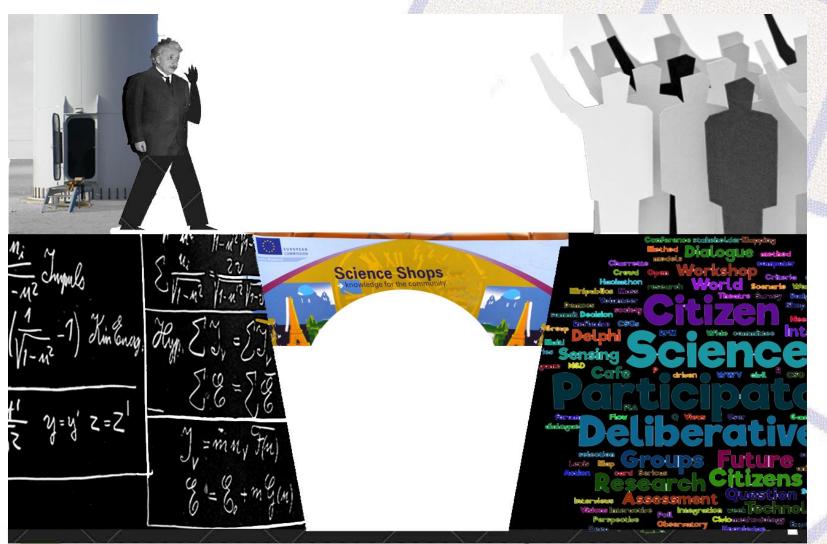




- <u>Scientific or expert knowledge</u>, the peer reviewed knowledge produced through scientific research.
- <u>Political knowledge</u>, encompassing a those in positions of power who are able to influence decision making processes;
- <u>Individual local knowledge</u>, the lived experiences of an individual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

#### **Science Shops**





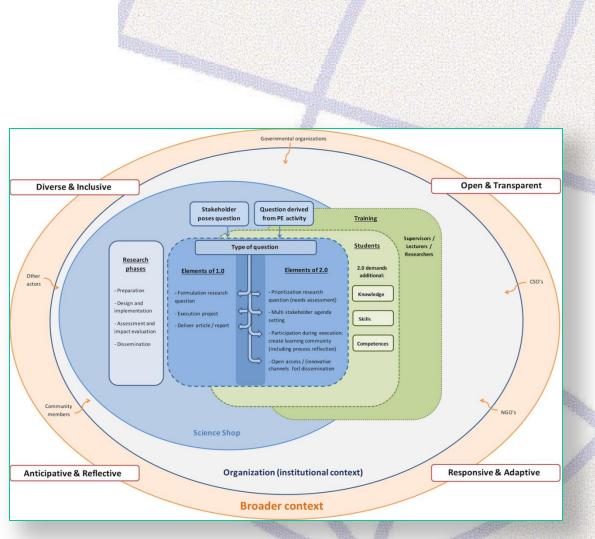


#### **Science Shops**



The International Science Shop Network

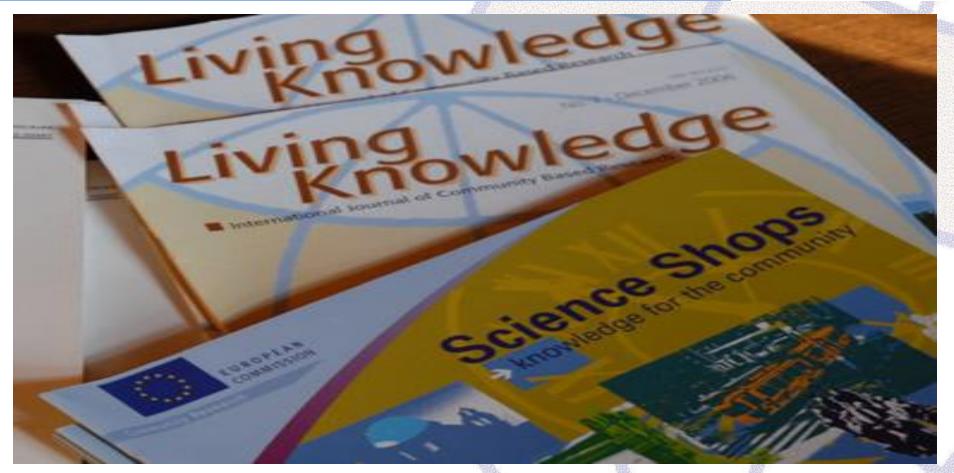






#### **Science Shops**





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

## How do Science Shops work?



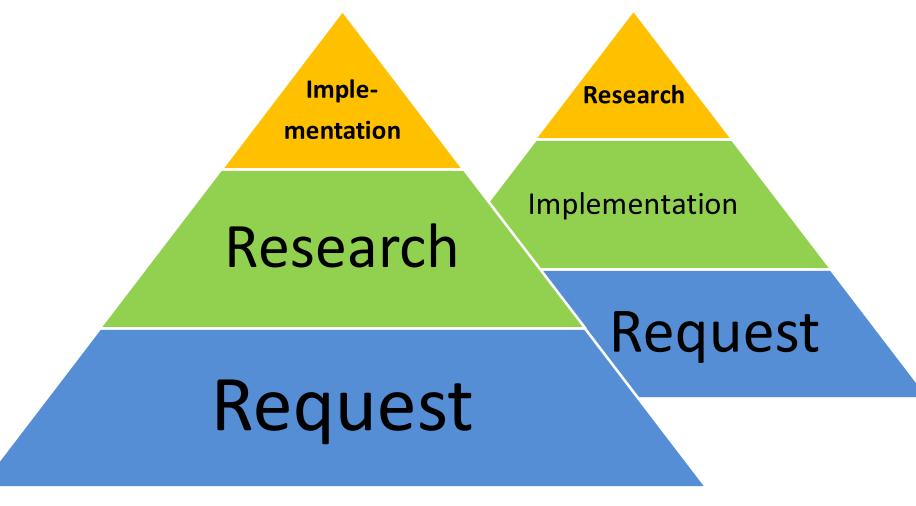
#### **Basic Idea**

- 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** 

# The Living Knowledge Network





# Living Knowledge The International Science Shop Network

HOME	ABOUT LK 🗸	SCIENCE SHOPS ~	RESOURCES ~	EVENTS ~	NETWORK PARTNERS ~	CONTACT	Q
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#### **Living Knowledge Network**

## **Science Shops in Europe**

Science Shop Wetenschapswinkel -Wissenschaftsladen -Boutique de Science – Epylion - Videnskabsbutiken -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



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#### **Science Shops worldwide**

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## Networking

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**GACER** Global Alliance on Community Based Research

PRIA Participatory Research in Asia

**ENGAGE** Australia

UNESCO Chair for Community Based Research

GUNI

Global University Network for Innovation PASCAL Observatory

Community Based Research in Canada

**International Science Shop Network** 

#### LIVING KNOWLEDGE

EUN

European Nation School Net (DE, N

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

Midwest Knowledge Moblization Network CCPH Community Campus Partnership for Health

APUCEN Asian Pacific University Community Engagement Network

EUSEA European Science Event Association

KmbF Canadian Knowledge Mobilization Forum

EUA European University Association

> ECSA European Citizen Science Association

> > NCCPE National Coordination Center for Public Engagement

Ecsite European Network of Science Centres and Museums

> **BGCI** Botanic Gardens Conservation International



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# **CO-CREATION**

http://www.thedesigngym.com/wp-content/uploads/2018/03/Co-creation\_TheDesignGym.jpg

## 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

#### **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 problemsolving 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**



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## 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. lt 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.



GUIDANCE

- 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.

ASSISTANCE

- Loss of interest, conflicts
- Reviewers
- It's not about the 'IF', it's about the 'HOW'.

SUPPORT ADVICE Don't give a destination. Give a sense of direction.

# **Science Shop Project**





# 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-basefor-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







Wissenschaftsladen Bonn

Co-creation Workshops, webinars and exhibitions <u>https://bloom-bioeconomy.eu/</u>



Crowd mapping of climate change effects. Website coming up soon

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

https://www.bigpicnic.net/resources/bigpicnicrecommendations/





#### **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 theoretica scientific background

#### **Broader Impact**

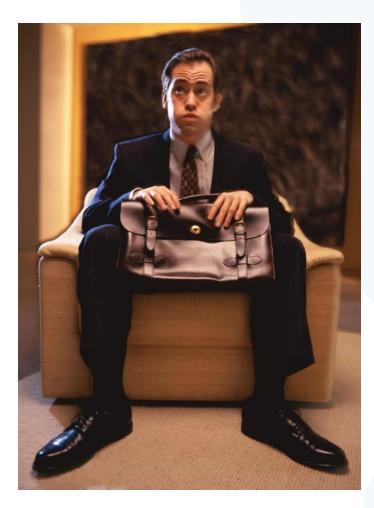




Case materials / networking for researchers PR and social responsibility for institute Policy influencing success Empowered CSOs Informed Decisions

#### Thank you for your attention!





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International Science Shop Network 'Living Knowledge' www.livingknowledge.org

Internat. Science Shop Contact Point <u>livingknowledge@wilabonn.de</u>

Living Knowledge Discussion List (LIVINGKNOWLEDGE-L@LISTS.UCC.IE),

Twitter: @ScienceShops

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

Wissenschaftsladen Bonn www.wilabonn.de

RRI Tools www.rri-tools.eu





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# SCIENCE SHOP PROJECTS Green Light for Bats (NL) Local History Museum (BY) EnRRICH (BE, UK a.o.) Bonn Science Shop (DE) SAIN (DE)





• 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

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

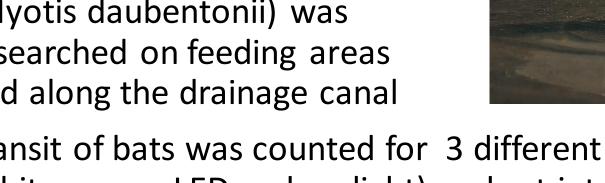




Foto: D. Nill, linnea images



**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.

# **Living Knowledge Projects**



### EnRRICH (2015 – 2018)

Over the last 2.5 years, the Enhancing Responsible Research and Innovation (RRI) through Curricula in Higher Education (EnRIRICH) project has offered students and staff in HEIs across Europe a chance to pilot Responsible Research and Innovation in higher education curricula by participating in engaged research with Civil Society Organisation (CSO) partners.











Architecture Business Design Engineering Environmental Studies Geography History Sociology and Social Work Sustainability Tourism

lultidisciplinary





from 28 countries & 5 continents attended 7th Living Knowledge International Science Shop Conference in Dublin



published articles

Key EnRRICH paper: (Re-) designing higher education curricula in times of systemic dystunction: a responsible research and innovation perspective.) Higher Education Journal, November 21, 2017 (Downkaded 1,600 times November 21, 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.

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# **Living Knowledge Projects**



### 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> <li><u>Architecture Street Society project</u> (Queen's University Belfast)</li> <li><u>History of Architecture</u> (Vilnius College of Technologies and Design)</li> </ul>	Ba, Ma Ba, Ma
Business	<ul> <li><u>Decision Techniques</u> (Corvinus University of Budapest)</li> <li><u>HR &amp; OD Skills</u> (Corvinus University of Budapest)</li> <li><u>Social Entrepreneurship &amp; Economy</u> (Corvinus University of Budapest)</li> <li><u>Bachelor Idea &amp; Innovation Management</u> (Erasmushogeschool Brussel)</li> <li><u>Business Analysis</u> (Queen's University Belfast)</li> <li><u>Heritage, Culture and Tourism</u> (Dublin Institute of Technology)</li> </ul>	Ba Ma Ma, PhD Ba Ba, Ma Ba
Engineering	<ul> <li><u>Gender &amp; Equality</u> (INSA de Lyon)</li> <li><u>Social Responsibility Engineer</u> (INSA de Lyon)</li> </ul>	Ma Ba
Environmental Studies	• Transport and Mobility module (Dublin Institute of Technology)	Ма

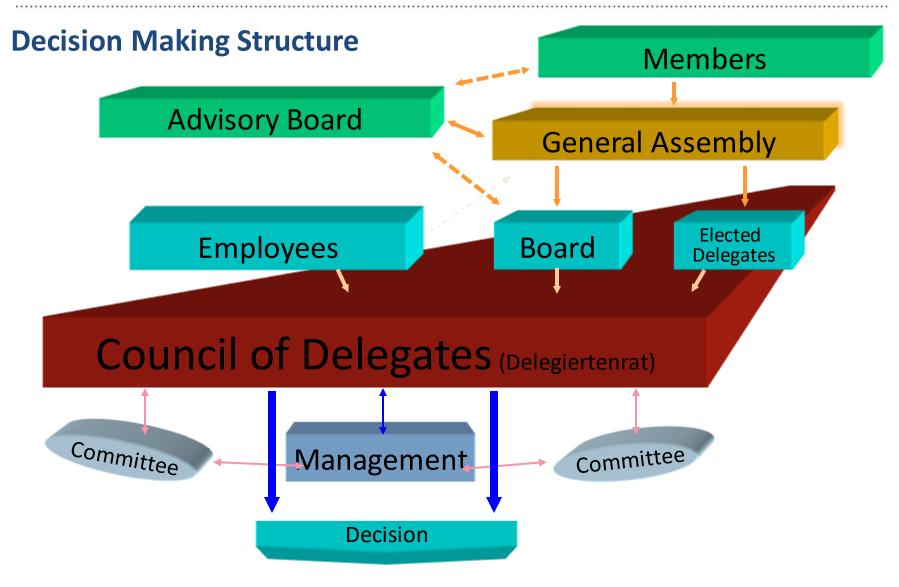


# **Bonn Science Shop**

- 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



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



#### 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.

#### 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



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**





Ouelle: Bo

## SAIN – Innovative Developments in Urban Agriculture

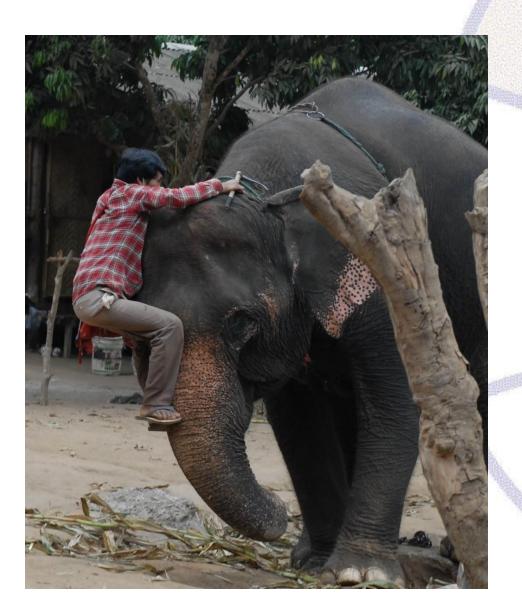
A Citizen Science Project Bonn Science Shop and Fraunhofer UMSICHT



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## **Community Engagement**

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



www.nvmgknowieuge.org

# What can / should / must be done?

Livina Knowledae

TIPS

ADVICE

ASSISTANCE

SUPPORT

**GUIDANCE** 

The International Science Shop Network

**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** HELP

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







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

> Transparent replicable research

Democratization of research

- t Engagement of soc scientific proce
  - Society included in scientific discussions

Symbiosis

of science,

and policy

society

### **Transformation of science**

Open access to research
OA to publications and underlying data
Transparency of

ollaboration in research

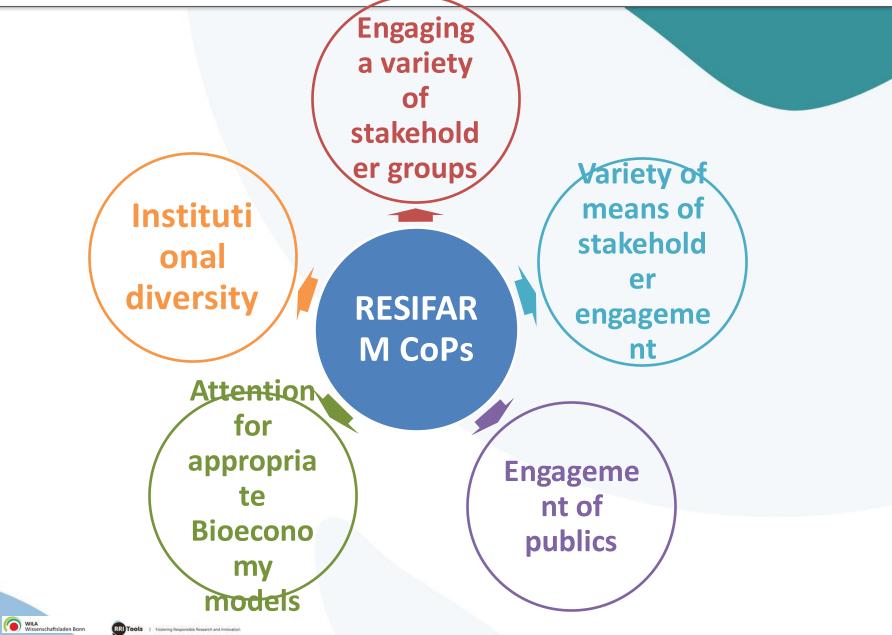
- Data sharing based collaboration
- Crowdsourcing, social media in research

New disciplines, new research topics

https://ec.europa.eu/digital-single-market/en/open-science

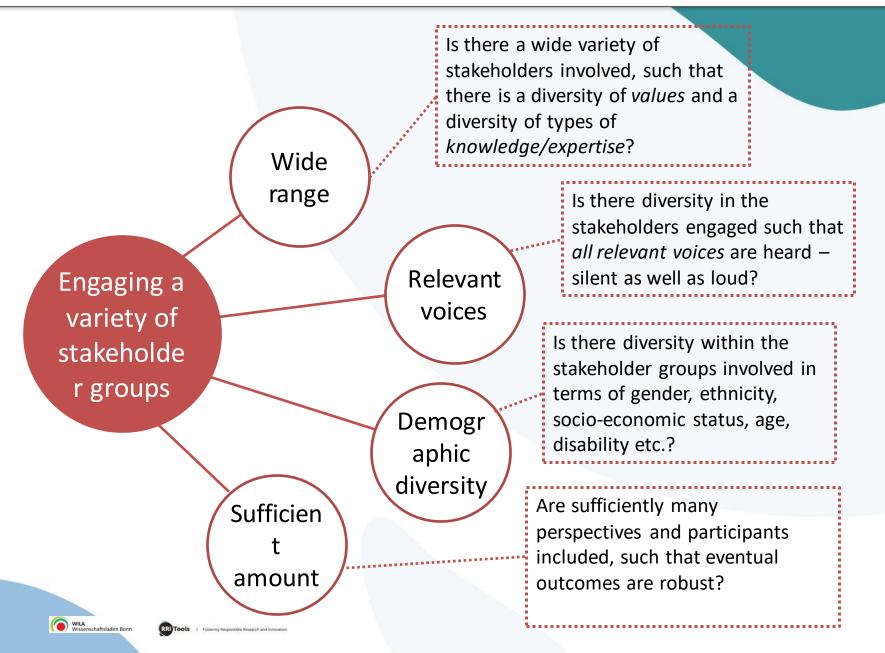












# **Democratization of Knowledge**





### Science Shops – Knowledge Mobilization - RRI

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