



# Citizen Science and local knowledge in Open Science

Open Asia September 2025

Prof. Dr. Marjolein Zweekhorst



Co-funded by  
the European Union



VRIJE  
UNIVERSITEIT  
AMSTERDAM



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# Who am I ?

- Prof.dr. Marjolein Zweekhorst
- VU University Amsterdam
- The Netherlands



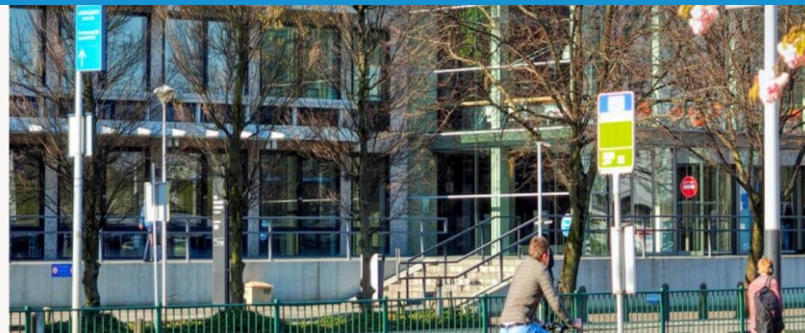
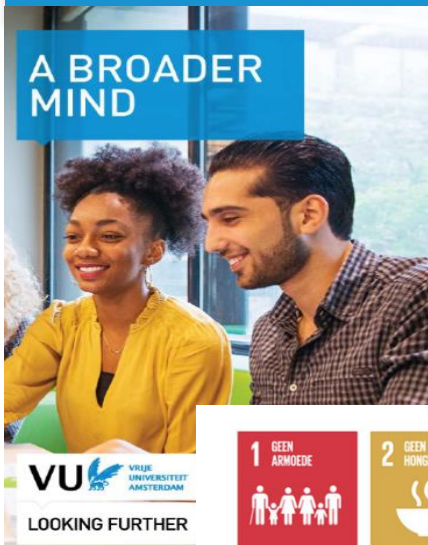
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# VU University, Amsterdam, The Netherlands

- 32.000 students
- 45 BSc programs
- 100 MSc programs
- 4700 staff
- 31 % female professors
- 358 phd defences / year



# VU University



1 June 2023

The Impact ranking of Times Higher Education (THE) strongly reveals the social commitment of Vrije Universiteit Amsterdam. Research and education of VU Amsterdam is among the top 15 percent of 1.591 participating universities worldwide when it comes to impact on the Sustainable Development Goals (UN SDGs).



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# Athena Institute, The Netherlands



## Athena Institute

<https://vu.nl/en/about-vu/research-institutes/athena-institute>

The Athena Institute is dedicated to making research and innovation more responsive to societal needs. To achieve this, we take a transdisciplinary approach, defined by multi-actor engagement. We bring together researchers, policymakers, practitioners and citizens to collaboratively address persistent, multi-faceted societal problems.

# OPEN SCIENCE

Source: Unesco

Understanding open Science 2022

<https://doi.org/10.54677/UTCD9302>



# Open Science: Citizen Science different models / definitions

Source	Definition	Main idea
Bonney et al (2009)	Citizens as data collectors	Data collection
Irwin (1995)	Science for and by citizens	Accountability and participation
European Citizen Science Association 2015	Public and researchers	Joined collaboration
Haklay (2013)	Different levels of participation	crowdsourcing, distributed intelligence, participatory science, and extreme citizen science
UNESCO (2021)	inclusive	Participation throughout the research cycle

# Citizen science contributory model

## Warning system invasive exotic species

Species Observations Alerts

Due to human activities, an increasing number of exotic species are entering our environment. Most of these species do not survive here or cause no harm. However, a limited number of exotics become 'invasive' after establishment. These invasive exotics spread and outcompete native animals and plants, causing health issues or clogging our waters. The longer they expand undisturbed, the more difficult and expensive it becomes to control them. In such cases, intervention is only possible if such an exotic species is quickly detected. As a volunteer, you can assist in the rapid detection of exotics. You can enter or access reports of exotic species here, or sign up for the reporting system. There are three types of invasive exotics:

- (Potentially) invasive exotics that are not yet present or only found in a few places in our country.
- Emerging species: invasive exotics that are spreading within our country.
- Widespread species: invasive exotics that are already widely distributed in our country.

species All species groups All species lists Filter Clear filters

### Rose-ringed Parakeet



I've seen this species!

Identification

Occurrence map

### Bar-headed Goose



I've seen this species!

Identification

Occurrence map

### Egyptian Goose



I've seen this species!

Identification

Occurrence map

### Ruddy Duck



I've seen this species!

Identification

Occurrence map

ved 10kn

Waarneming.nl

Add Explore Projects About us

## BioBlitzes » Blitzten in Breda 2025-2026

2025-09-01 until 2026-08-31 Species seen 447 Observations 1,467 Observers 228

Doe mee met Blitzten in Breda:

Ontdek de natuur in je eigen omgeving. Stichting Breda National Park City en de natuurverenigingen nodigen je uit om naar buiten te gaan om zoveel mogelijk ontdekken en te registreren. Dit is jouw kans om de biodiversiteit in Breda te verkennen en te helpen in kaart te brengen. Voer alleen soorten in waarvan je 100% een wilde oorsprong hebben.

Op deze website zie je de tot nu toe waargenomen soorten. Ook vanaf je scherm kijk je mee naar de natuur om de hoek.

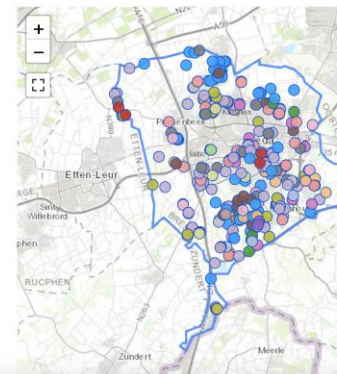
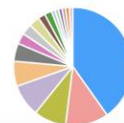
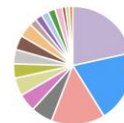
Je kunt ook meedoen aan diverse excursies tijdens de BioBlitz. Ga naar [Bredanationalparkcity.nl](https://www.bredanationalparkcity.nl) voor het programma.

### Species

Plants	98
Birds	90
Moths (Lepidoptera)	69
Bugs, Plant Lice and Cicadas (Hemiptera)	26
Other Arthropods (Arthropoda)	21
Show all	

### Observations

Birds	595
Moths (Lepidoptera)	180
Bees, Wasps and Ants (Hymenoptera)	135
Plants	126
Butterflies	107



•Citizens mainly contribute observations or measurements, while professionals design the research and analyze the data.



# Citizen science collaborative model

- Citizens mainly contribute observations or measurements, while professionals design the research and analyze the data.



Rijksinstituut voor Volksgezondheid  
en Milieu  
Ministerie van Volksgezondheid,  
Welzijn en Sport

Samen Meten Nieuws Zelf meten **Dataportaal** Initiatieven Scholen

Home > Samen Meten Meetgegevens

## Samen Meten Meetgegevens

- Citizens contribute data but are also involved in
- shaping research questions or methods.



[Samen Meten Dataportaal  
Nederland](#) ↗



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# Citizen science: co-created / participatory model

Waterdierpjes.nl

NAAR DE KAART

METING INVOEREN

HOME

Meedoen

Waarom?

Voor wie?

Resultaten

Partners

C



## Voor wie?



Iedereen

Wil je de natuur een beetje helpen of ben je gewoon nieuwsgierig naar wat er onder water leeft?



## Over Living Lab B7

Met Boeren, Bewoners, Bezoekers en Beleidsmakers werken aan een Betere Biodiversiteit in de Bollenstreek



Citizens and researchers jointly design, implement, and sometimes even publish research. Focus is often on **local issues, empowerment, and policy influence.**

People Working at NIOO Cont

Who we are

What we do

Our themes

News & eve

Working together

NEWS > • 24 JULY 2020

## Learning to recover biodiversity in three 'living labs'

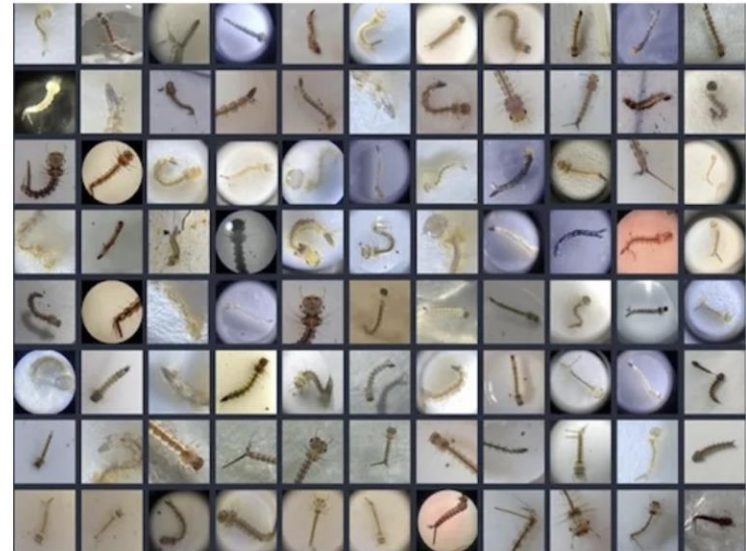
# Citizen science: grassroots



[Home](#) [Meten en observeren](#) [Resultaten](#) [Blog](#) [FAQ](#) [Achtergrond](#) [Steden](#) [Agenda](#) [Doe mee!](#)

•Citizen-driven, often outside institutional science, with goals ranging from **local activism** to **open innovation**.

# Citizen science: international projects



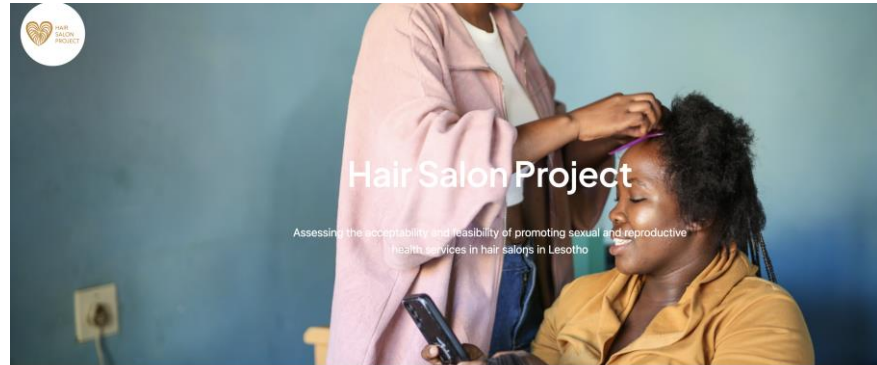
*This image, selected as **Biomedical Picture of the Day**, shows mosquito larvae photos submitted by citizen scientists during the Mosquito Habitat Photo Challenge, July-August, 2021. Collage created by Kristen Weaver.*

# Citizen science in Malaysia and India

Mobile phones are useful

Working with local communities

Ensure benefits for the community




## Citizen Science in SRH

A first of its kind citizen scientist survey.

<https://hairsalonproject.com/>

# Citizen science in india and Malaysia



**CitSci India**  
Citizen Science for Biodiversity

[Home](#) [CitSci India 2024](#) [About](#) [Working Groups](#) [Past Events](#) [CitSci](#)

## CitSci India 2024

National Conference on Citizen Science for Biodiversity  
#CitSciIndia2024  
12th – 13th December 2024

**PUBLIC SESSIONS**

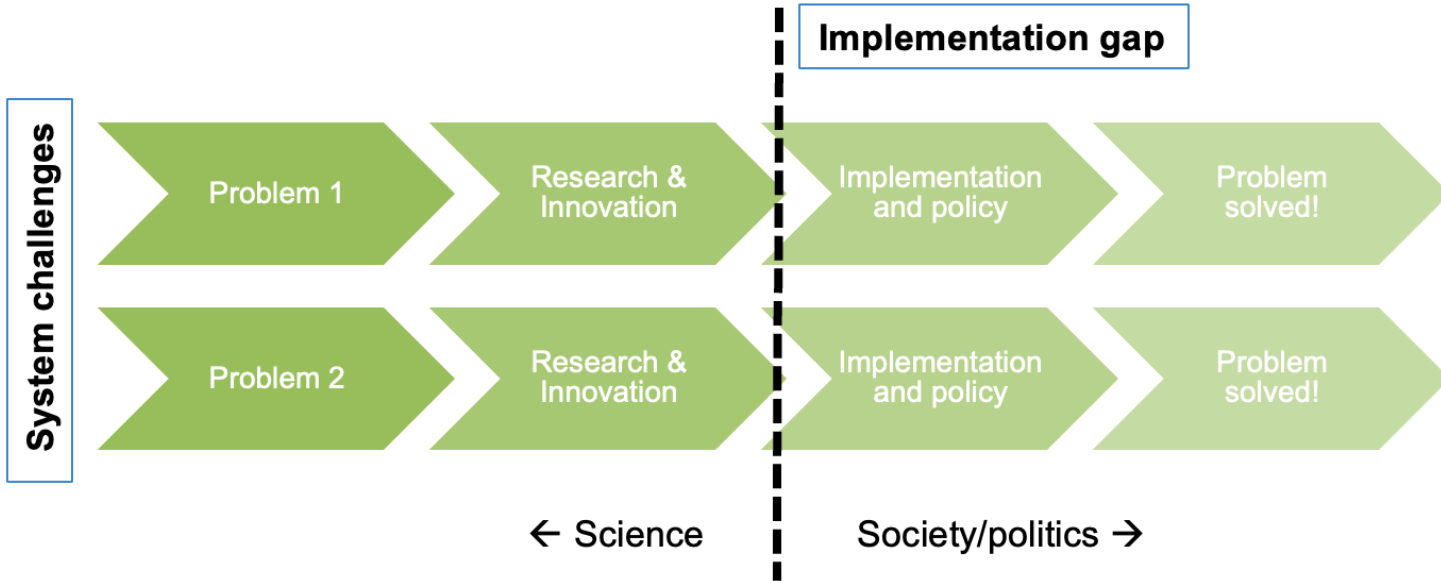


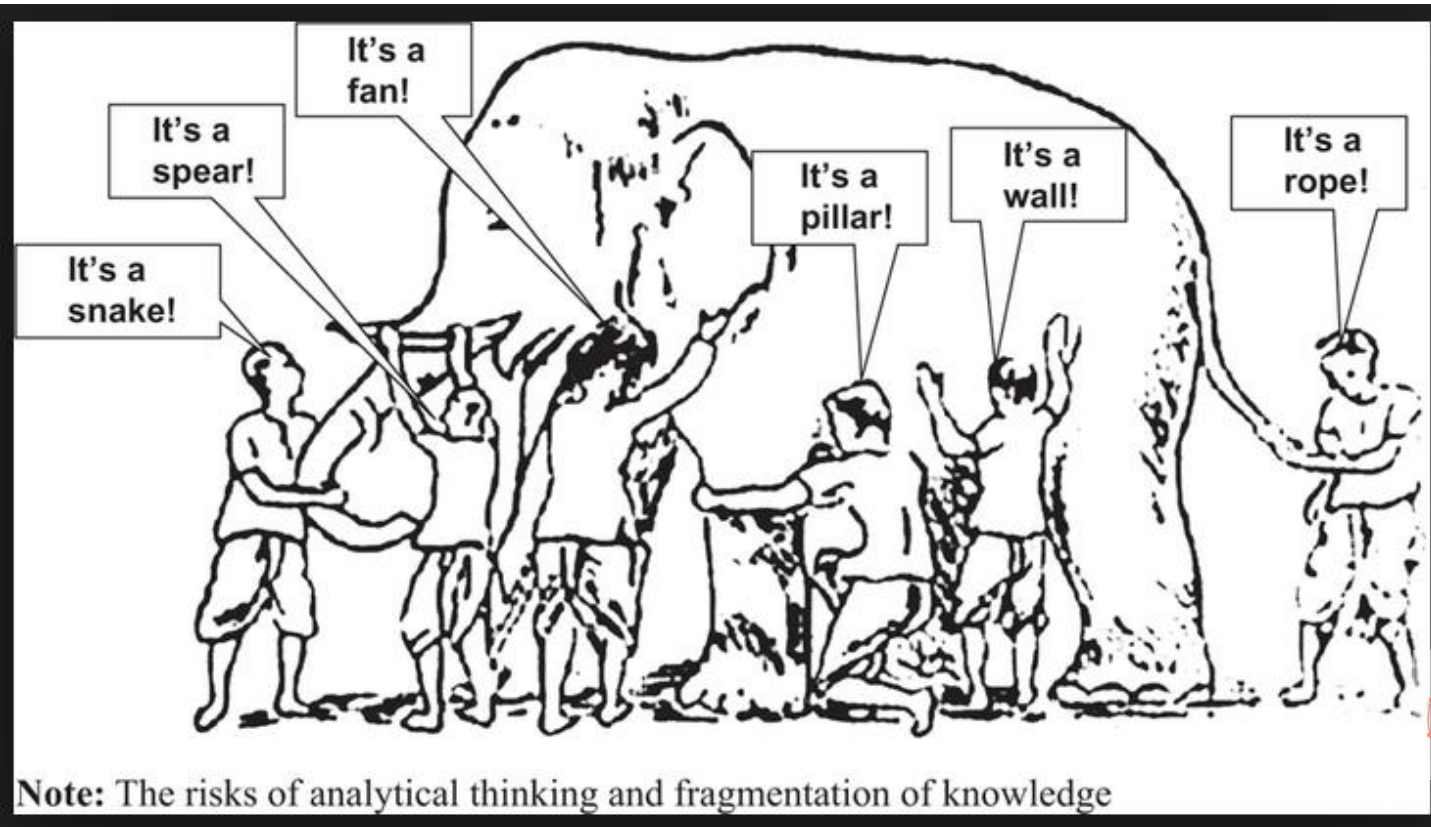
malaysia

# Traditional research

## Traditional linear approach

Solving problems by breaking system down in 'solvable' sub-problems in sequence:





**Note:** The risks of analytical thinking and fragmentation of knowledge

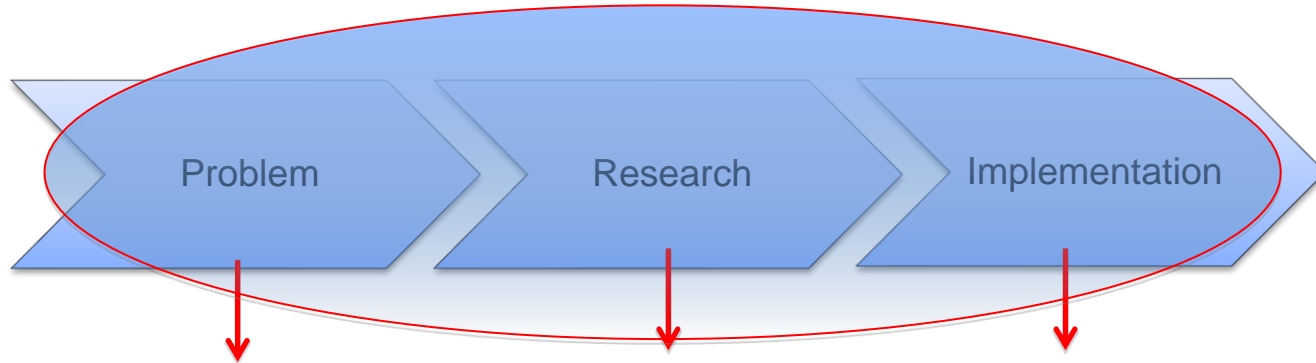


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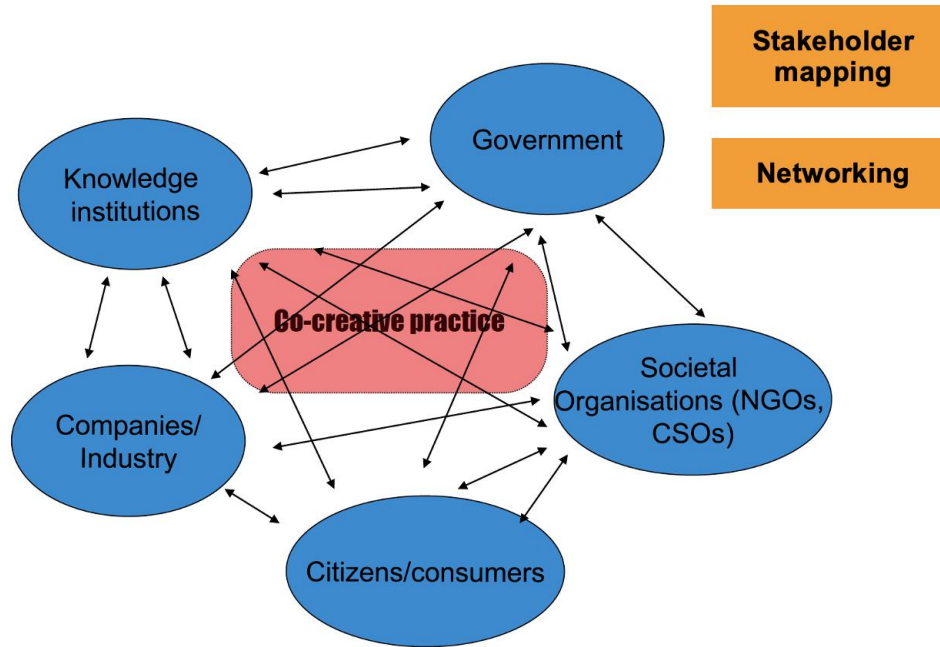
# CO-CREATION RESEARCH CHARACTERISTICS

“A co-creation form of learning and problem solving...”

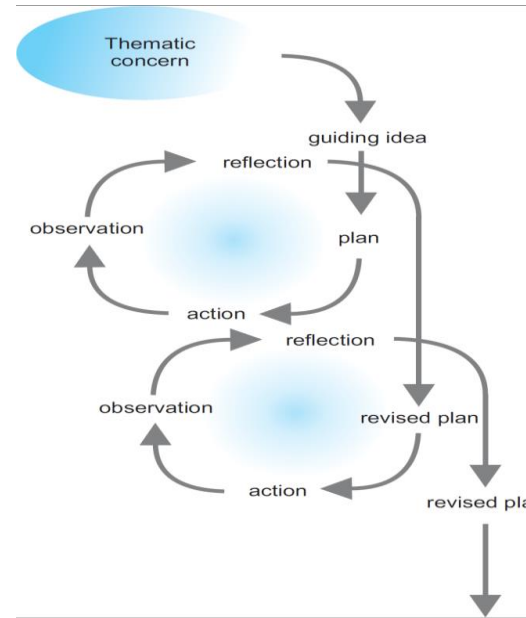


Science and society join and collaborate → *requires active/meaningful participation*

# Transdisciplinary research



# What is participatory action research?



# Examples

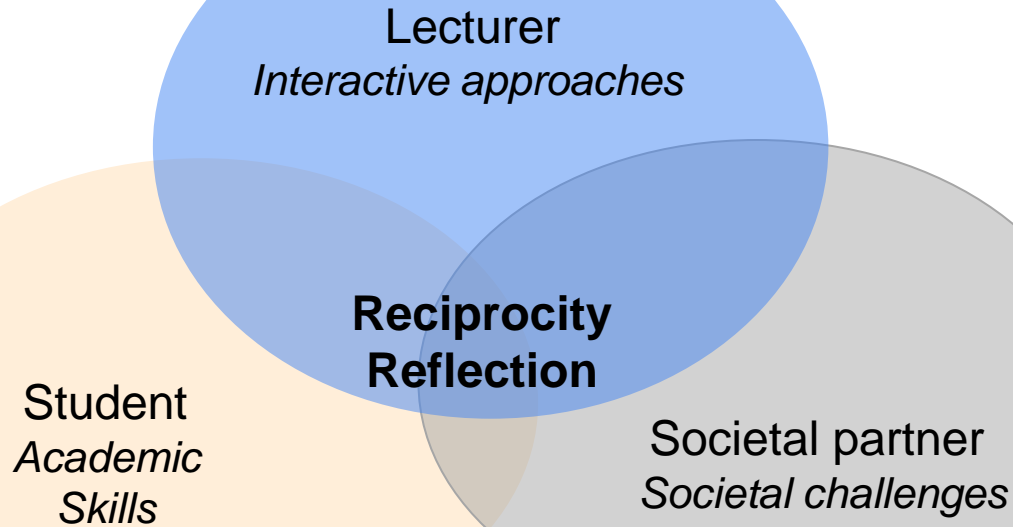
- Stigma-reduction interventions in Indonesia
- Mental health interventions in India, for migrants in Europe
- Maternal health in LMICs – Safe Motherhood, teenage pregnancies, anti-natal care
- Sexual and reproductive health in Laos – health literacy



- ‘food and nutrition security’ – examining strategies increasing access to affordable, nutritious food for vulnerable, resource-poor populations worldwide, using approaches such as nutrition-sensitive agriculture, urban agriculture, agri-business development
- ‘food system transformation’ – transition governance to realize food environments where healthy sustainable food is the easy choice
- ‘nature development’ – evaluation of nature policies developing and applying *learning evaluation*

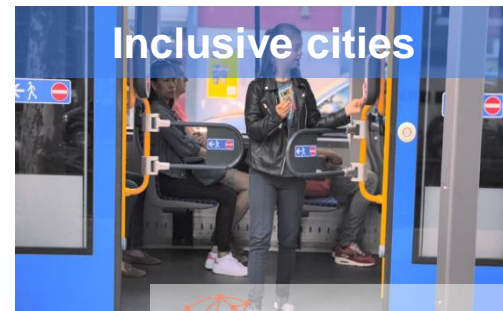
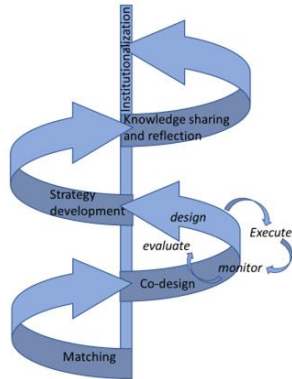


# COMPETENCE DEVELOPMENT COMMUNITY SERVICE LEARNING



# STRATEGY DEVELOPMENT: CSL FOR ADDRESSING COMPLEX PROBLEMS

**The thematic CSL approach:**  
Multiple courses and internships  
from various disciplines to  
address a complex societal issue



# CONTINUOUS PROCESS WITHIN THE THEMATIC APPROACH

Identification of the issue



Doing research

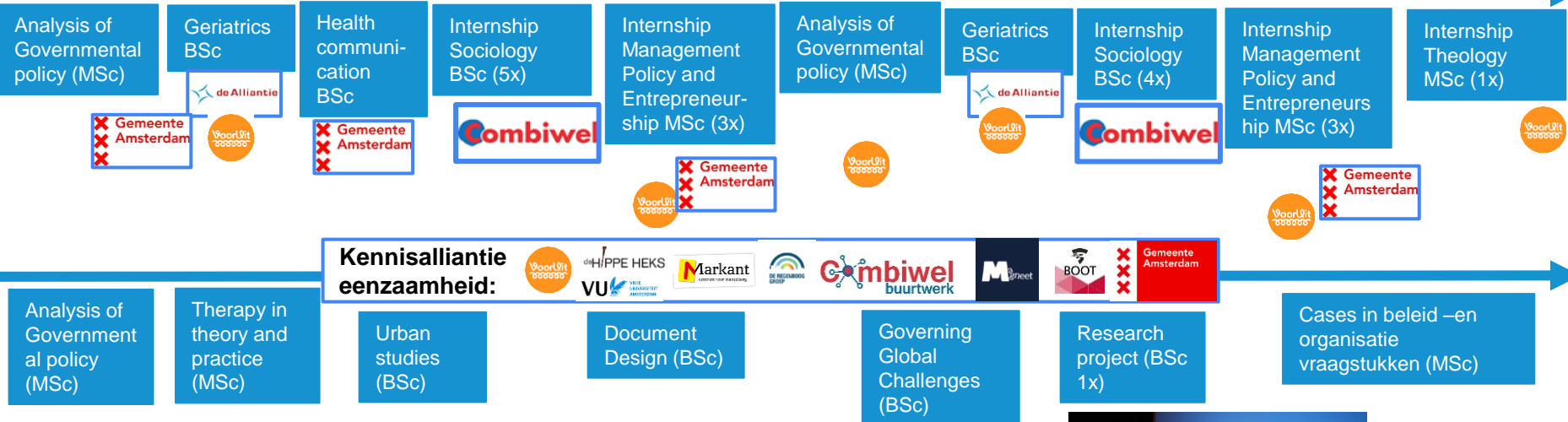


New opportunities

Giving back



# THEMATIC APPROACH (EXAMPLE: LONELINESS)



# BENEFITS OF THE THEMATIC APPROACH LINKED TO GUIDELINES

*'With their Thematic Approach, our Community Service Learning (CSL) team has won the 'Community Engagement Initiative of the Year', organized by the European Triple E Awards' (VU zine edition 27, 2022)*

## **VU thematic initiative**

Winner of the Community Engagement Initiative of the Year Award

*"A Thematic Approach to Address Complex Societal Problems: A-Win-Win-Win Situation!"*



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# Resources

- Open Science NL <https://www.openscience.nl/>
- European Citizen Science Association (ECSA) <https://www.ecsa.ngo/>  
Citizen Science & Theory [journal]  
<https://theoryandpractice.citizenscienceassociation.org/>

# THANK YOU FOR YOUR ATTENTION ]

