



ENERGY CITIZENSHIP: MUST OR MYTH?

# The impact of citizen participation on local energy systems

SEP. 6TH – SEP 9TH, 2022 NICE, FRANCE

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SUSTAINABLEPLACES.EU



VILLE DE NICE



Chair: Sander Smit, R2M Solution

#SUSTAINABLEPLACES2022

# Welcome and introduction

Socrates Schouten , Waag, ATELIER

# Block 1: Strategy & Tools

1. Welcome and introduction
2. “CommunityxChange as a toolkit for empowered energy citizenship – The +CityxChange approach”,  
*Introduced by Helena Fitzgerald and Dirk Ahlers, +CityxChange,*
3. Making City: citizen engagement strategies and tools for district approaches in the energy transition,  
*Introduced by Cyril Tjahja and Beril Balpagut, Making-City,*
4. “Citizen Engagement approaches and the challenges of Engagement Monitoring”,  
*Introduced by Bianca Banica and Manuel Aires de Matos, POCITYF,*
5. 15” Coffee break

# Block 2: Reflections and outlooks

1. **"Sustainable Energy Communities" A UNESCO outlook in SD programmes for the promotion of clean energy use and production** *introduced by Marco Raugi, Chair Holder of the UNESCO/UNITWIN Chair "Sustainable Energy Communities"*
2. **"Practical experiences with applied research on energy citizenship in positive energy districts"**, *Introduced by Socrates Schouten, ATELIER*
3. **"Energy citizenship in secondary schools: context literacy in taking personal and collective actions"**, *Introduced by Marina Wellink, ENERGE,*
4. **Citizen and consumer engagement in the development of Demand – Response instruments**, *Introduced by Joke Kort and Annemarie Mink, BRIGHT,*
5. **Group discussion**
6. **Wrap up and closure**, Socrates Schouten, Waag

# CommunityxChange

## A toolkit for empowered energy citizenship

Helena Fitzgerald, University of Limerick.

Dirk Ahlers, Norwegian University of Science and Technology.

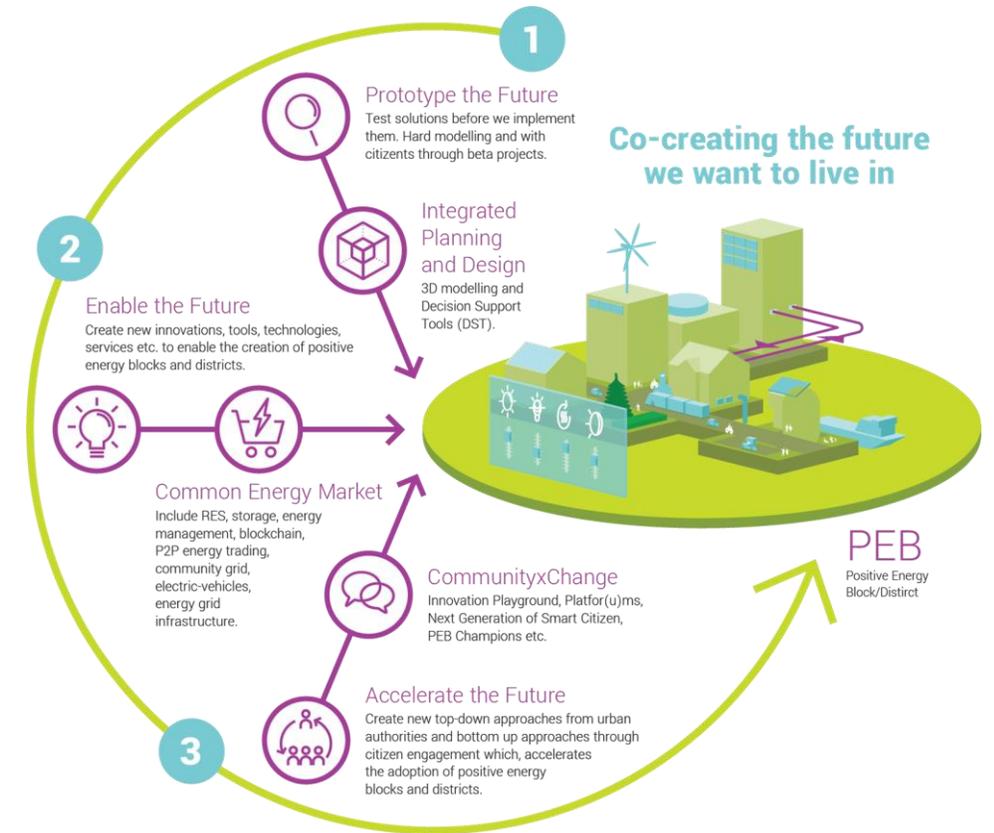
Positive City Exchange (+CityxChange) H2020 Project

Sustainable Places 2022, 08.09.2022



# The +CityxChange Approach

- A localised energy transition through Positive Energy Blocks and Districts
- Links technical and community aspects
- Works with and across disciplines
- Works across strategic and operational levels
- Embeds open innovation and co-creation in the approach

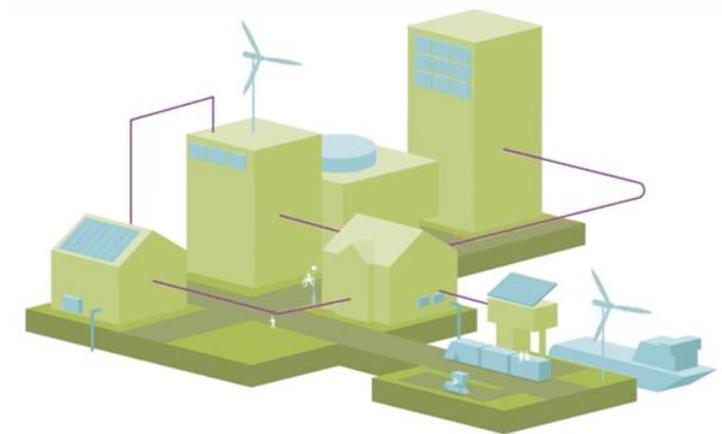


# Impacts at Multiple Levels

- Systemic/collective/individual behavior change
- Broad participation on direct and indirect energy issues
- Participation in co-creation and energy communities
- Innovation ecosystem – Innovation Playgrounds and Innovation Labs
- Bold City Vision – Changes in strategic city governance and transitions



+

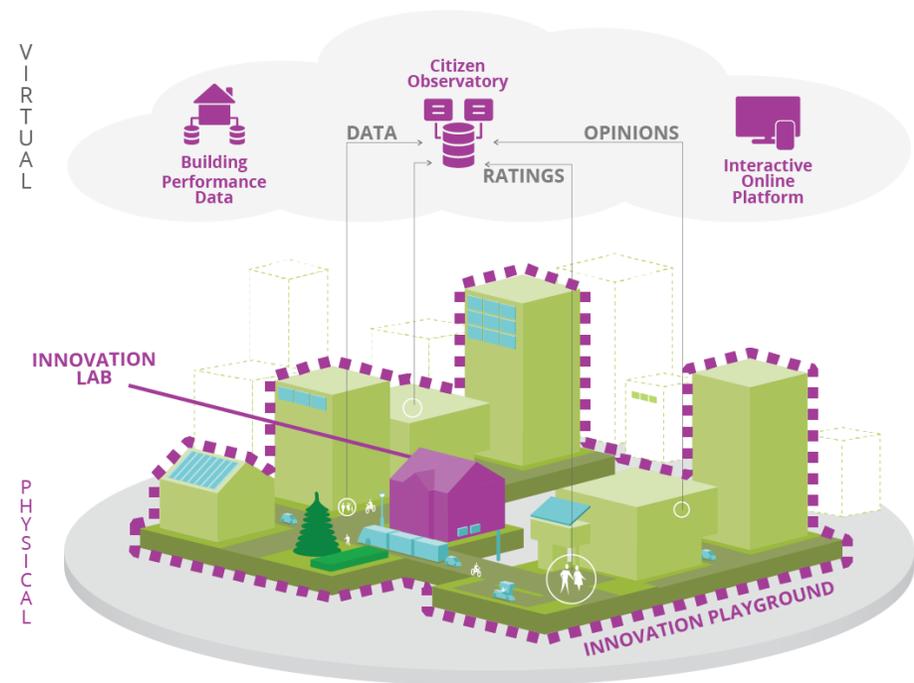


# The Toolkit – CommunityxChange

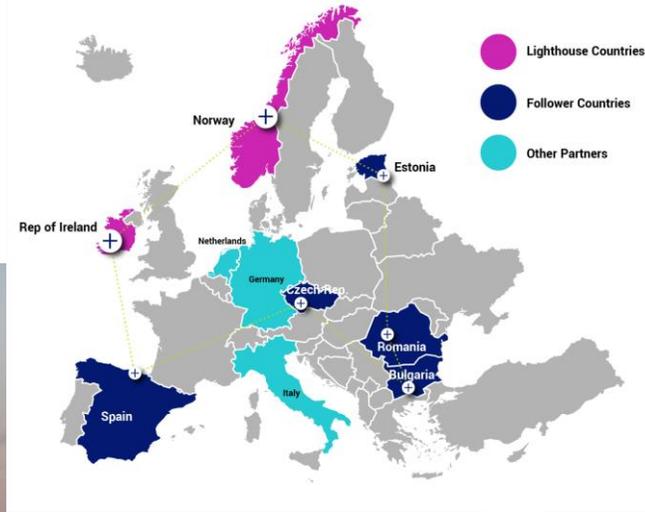
Six frameworks to enable top-down and bottom-up engagement:

- Bold City Vision
- Citizen Participation Playbook
- Innovation Playground
- Learning Framework - Next Generation Smart Citizen
- Positive Energy Champion Network
- DPEB Innovation Lab

<https://cityxchange.eu/knowledge-base/>



# The Cities



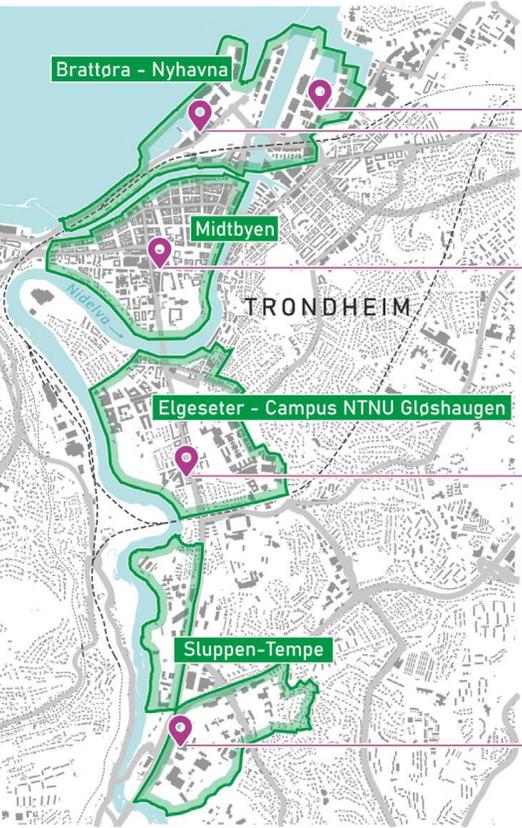
Powerhouse Brattørkaia, Trondheim. Image Snøhetta



Image by Urban Innovation Department, Limerick City and County Council

# Innovation Playgrounds: Trondheim + Limerick

 **innovation playgrounds**



 **city labs**

**Skippergata 11**  
**Skipperkontoret**

Event room and meeting place at Nyhavna  
Skipperkontoret is a community meeting place located in the Nyhavna area.



**Brattørkaia 17**  
**Powerhouse**

A visitor center at Brattøra  
Powerhouse is Norway's largest energy-positive building and will generate more energy in the operation phase than was used for the production of building materials, construction, operation and disposal of the building.



**Erling Skakkes gate 14**  
**Bærekraftssenteret**

Sustainable value creation in Midtbyen  
Bærekraftssenteret, the Sustainability Center, supports the work of the Municipality related to research, education and guidance in sustainable value creation and restructuring of cities and local communities.



**Professor Brochs gate 2**  
**Bøker og bylab**

A meeting place at Elgeseter  
Bøker og bylab is a meeting place and open library for conversation, idea development and collaboration.



**Sluppenvegen 11**  
**Lager 11**

Visitor center and event room at Sluppen  
Lager 11 is a meeting place, an exhibition center for local urban development and a food hall.



Innovation Playgrounds (green) and City Labs (purple) in LHC Trondheim. (Source: Tomasz Opach)

 **Preliminary Limerick Innovation Playground**



● DPEB Building  
▭ Preliminary Innovation Playground



1 Chamber of Commerce



2 Limerick Youth Services



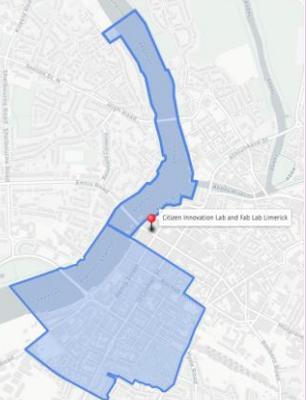
3 Gardens International



4 General Post Office (GPO)



5 Rooney's Auctioneers

**Citizen Innovation Lab**

A physical space, a digital platform and a programme of engagement.  
The Lab orchestrates the Innovation Playground, a spatially defined area for experimentation where journeys of observation, sensemaking, co-creation, and prototyping, enable collaboration and empower people to innovate to address challenges that matter to them.

Preliminary Innovation Playground and Citizen Innovation Lab in LHC Limerick. (Source: LCCC and UL)

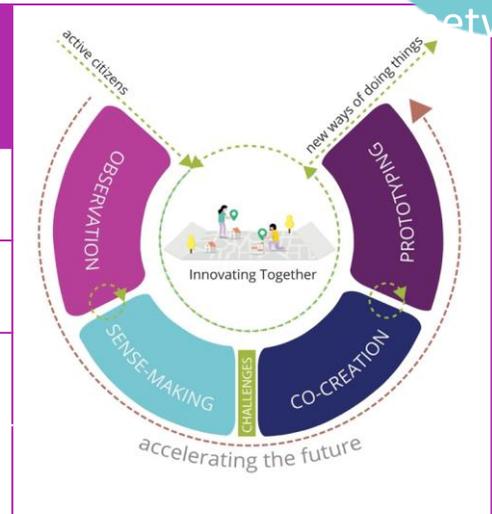
# Empowered Energy Citizenship?

Two examples of energy citizenship:

- Clean Energy Package – Citizens [empowered] as prosumers, or members of Citizen and Renewable Energy Communities.
- Open Innovation Ecosystem – Citizens [empowered] as co-innovators

Sharing stories with their network

4 energy citizen/champion roles	Innovation Playground Journeys
Build capacity for change	Observation and Sensemaking
Prototype the change	Co-Creation and Prototyping
Be the change	(→ Adoption and Scaling-up)
Amplify the change	



Insights from behaviour change models\* and case study analysis

\*CBSM and TTM – D3.5 Framework for a Positive Energy Champion Network

# Orchestration

## eMaaS Development Trondheim

Bold City Vision  
 Participation Playbook  
 Innovation Playground  
 Learning Framework  
 Positive Energy Champion Network  
 DPEB Innovation Lab

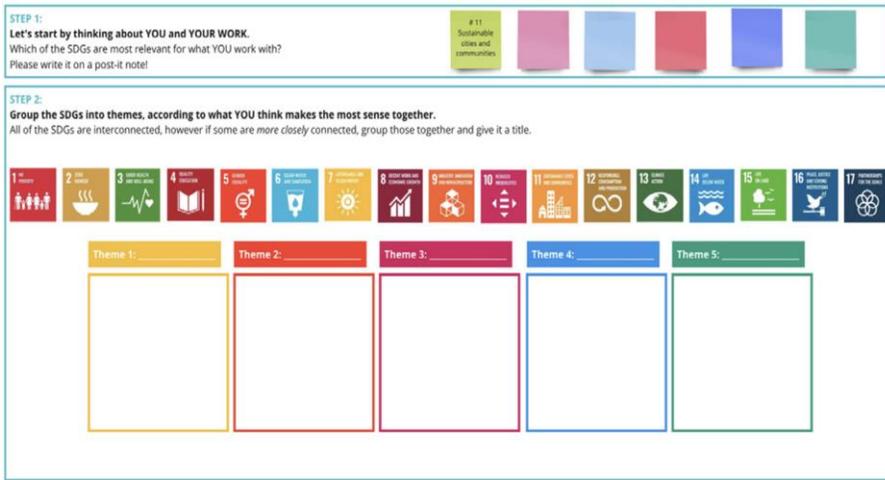
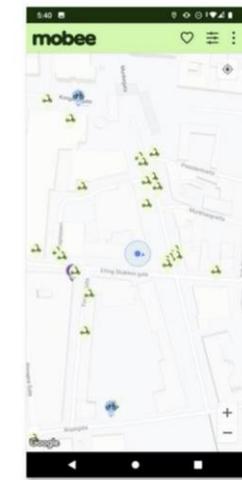
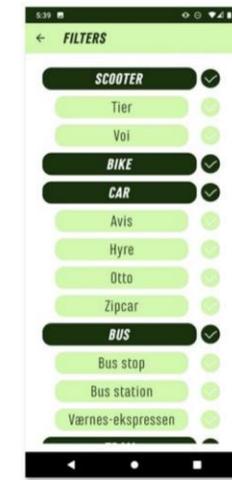
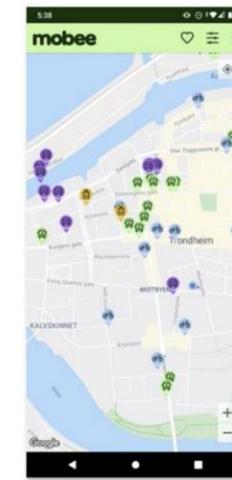
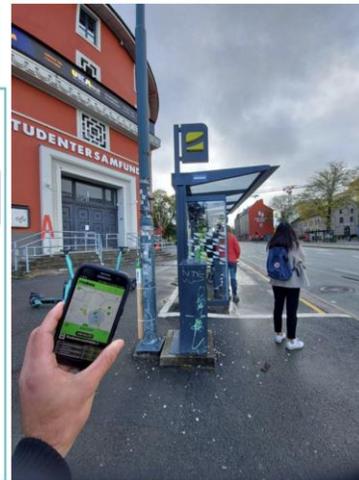


UN SDGs at an Elgeseter festival, and a co-creation event at the Sustainability Centre meeting space

**STEP 1:**  
 Let's start by thinking about YOU and YOUR WORK.  
 Which of the SDGs are most relevant for what YOU work with?  
 Please write it on a post-it note!

# 11 Sustainable cities and communities

**STEP 2:**  
 Group the SDGs into themes, according to what YOU think makes the most sense together.  
 All of the SDGs are interconnected, however if some are more closely connected, group those together and give it a title.

Bold City Vision for Mobility Workshop

Mobee Scavenger Hunt

Mobee App User Interface

Mobee brand and mobility solution from D5.10 Trondheim Innovation Lab Solutions Catalogue & D5.13: +Trondheim eMaaS Demonstration  
<https://cityxchange.eu/knowledge-base/>



# Orchestration

## Positive Energy Champion Campaign Limerick

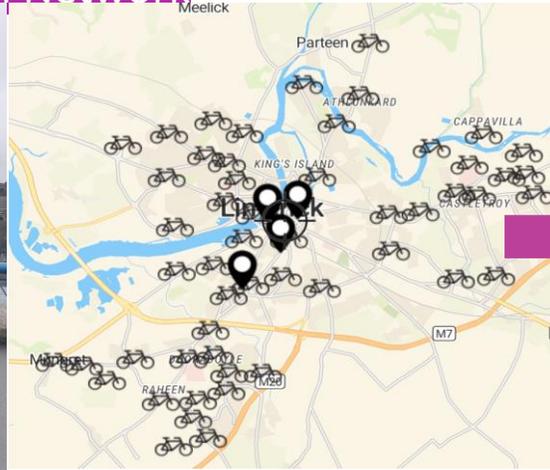
Bold City Vision  
Participation Playbook  
Innovation Playground  
Learning Framework  
Positive Energy Champion Network



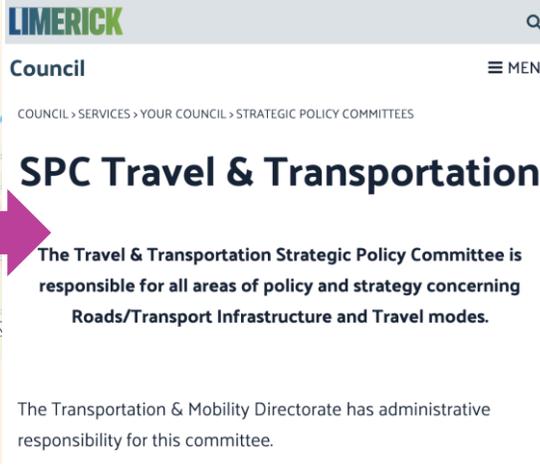
PED Stakeholders play the City Energy Game at City Engage Week. Open Innovation Call projects



Úna wants more choice for sustainable transport options in Limerick. She meets Limerick's Mayor.



Uses the Community Mapping Tool to crowdsource a map of a future bikeshare scheme



**LIMERICK**  
Council

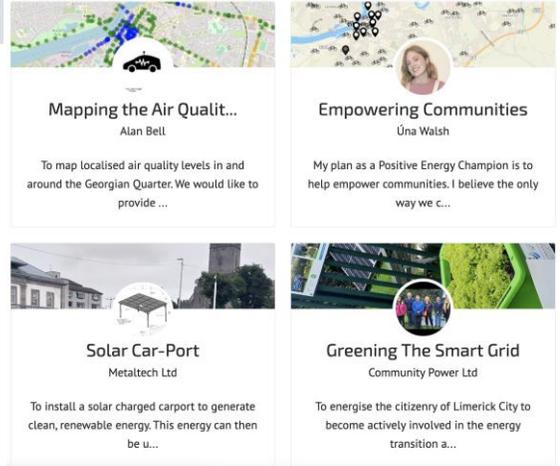
COUNCIL > SERVICES > YOUR COUNCIL > STRATEGIC POLICY COMMITTEES

### SPC Travel & Transportation

The Travel & Transportation Strategic Policy Committee is responsible for all areas of policy and strategy concerning Roads/Transport Infrastructure and Travel modes.

The Transportation & Mobility Directorate has administrative responsibility for this committee.

Data discussed at a transport SPC meeting and used to inform procurement by Limerick City and County Council

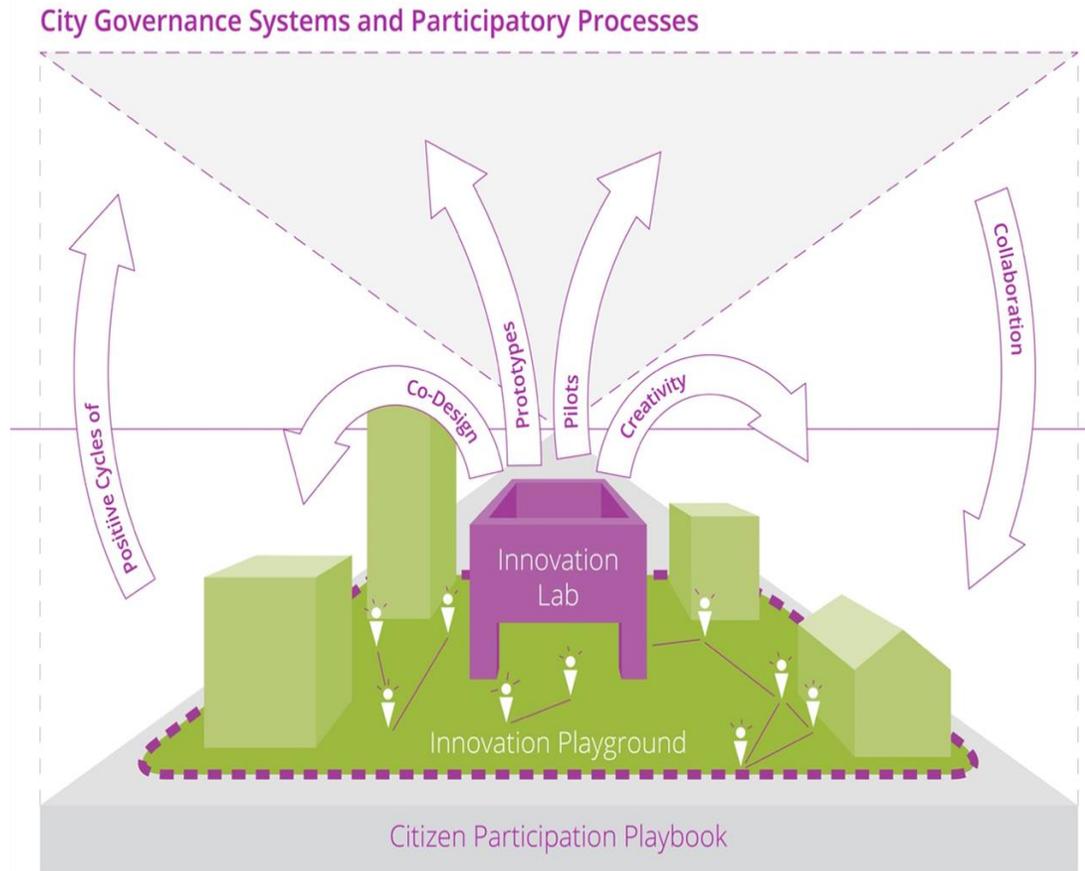


- Mapping the Air Qualit...**  
Alan Bell  
To map localised air quality levels in and around the Georgian Quarter. We would like to provide...
- Empowering Communities**  
Úna Walsh  
My plan as a Positive Energy Champion is to help empower communities. I believe the only way we c...
- Solar Car-Port**  
Metaltech Ltd  
To install a solar charged carport to generate clean, renewable energy. This energy can then be u...
- Greening The Smart Grid**  
Community Power Ltd  
To energise the citizenry of Limerick City to become actively involved in the energy transition a...

Úna shares her story on the Citizen Innovation Lab Repository

# CommunityxChange

Observations from implementation



Energy citizens empowered through:

- Learning
- Collaboration and co-creation
- Using and prototyping digital tools
- Networks and network effects

Meaningful participation enabled:

- Flows of citizen-sourced data within the ecosystem to inform city decision making or policy development, policy change, or the design of new clean energy solutions
- Citizens engaging in further collaborations including as Energy Communities

Integrated operation of CommunityxChange – a collaborative platform?



# Discussion

How can [empowered] Energy Citizenship evolve from here?



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# Thank you!

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[dirk.ahlers@ntnu.no](mailto:dirk.ahlers@ntnu.no)



## 2. MAKING-CITY: Citizen engagement strategies and tools for district approaches in the energy transition

Cyril Tjahja (TNO) & Beril Alpagut (Demir Enerji)

# MAKING-CITY project overview

- **City transformation: Long-Term planning**  
**The City Vision**  
 Develop new Integrated Strategies to address the long-term urban energy system transformation towards low carbon cities, with the PED approach as the core of the urban energy transition pathway
- **PED concept: demonstration & Replication**  
 Demonstrate that the PED concept is realistic and replicable through large scale demonstrations in Groningen and Oulu as pioneers in PED implementation and maximize replicability from LIGHTHOUSES to FOLLOWER cities



# Methodology for Identifying Citizen Engagement Strategies in FWCs



## Citizens engagement activities definition

- January 2021: Citizen Engagement Strategies Webinar based on knowledge transfer from LHCs to FWCs
- February to March 2021: 1to1 conference calls with each FWC to define the possible activities to be performed



## Activities implementation

- March to May 2021 : Questionnaire elaboration with the support of LHC partners
- May to September 2021: Dissemination of the questionnaire (identified modules by each city) by the follower cities to their citizens
- Progress meetings were organized with each FWCs in July and August 2021



## Results analysis and exploitation

- October to December 2021 : General results analysis
- January to June 2022 : Deep dive into each follower cities results
- June 2022 : Results restitution
- Exploitation of the results for the PED design and report on the activities

# Citizens engagement activities definition



## Items determined in individual discussions with the cities

- Objectives: What do you want to ask to your citizens ?
- Barriers: What are the main barriers or bottlenecks ?
- Local actors: Mapping of the local actors
- Tools to be used: Define the tools to implement
- Agenda: Define the planning for the activities
- Support/material: What do you need?
- Contact point

## Activities selection

- Initially 2 options per follower cities were chosen according to their goals:
- neighbourhood meetings, physical focus group, hackathons, distributed questionnaires, online questionnaires
- Due to covid pandemic situation, we had to restrict the choice to the online questionnaire

# Activities implementation



## Questionnaire elaboration

- A questionnaire has been elaborated by the expert partners and adapted to each city context
- Questionnaire divided into 2 parts: one general part and 6 modules:
  1. Energy consumption
  2. Energy efficiency of the building
  3. Energy generation
  4. Energy flexibility
  5. Mobility
  6. (Local) Energy communities
- Each Follower city had to choose 1, 2 or 3 modules according their subjects of interest

## Questionnaires dissemination

- Questionnaires have been conducted on an online platform (Google Form) or with physical questionnaire depending on the municipality
- Progress meetings were organized with each Follower city in July and August 2021

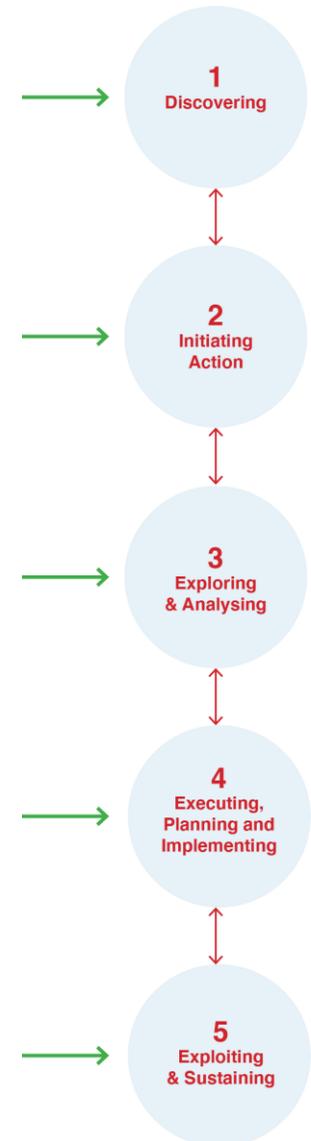
# Summary of findings

## **In several of the follower cities, respondents...**

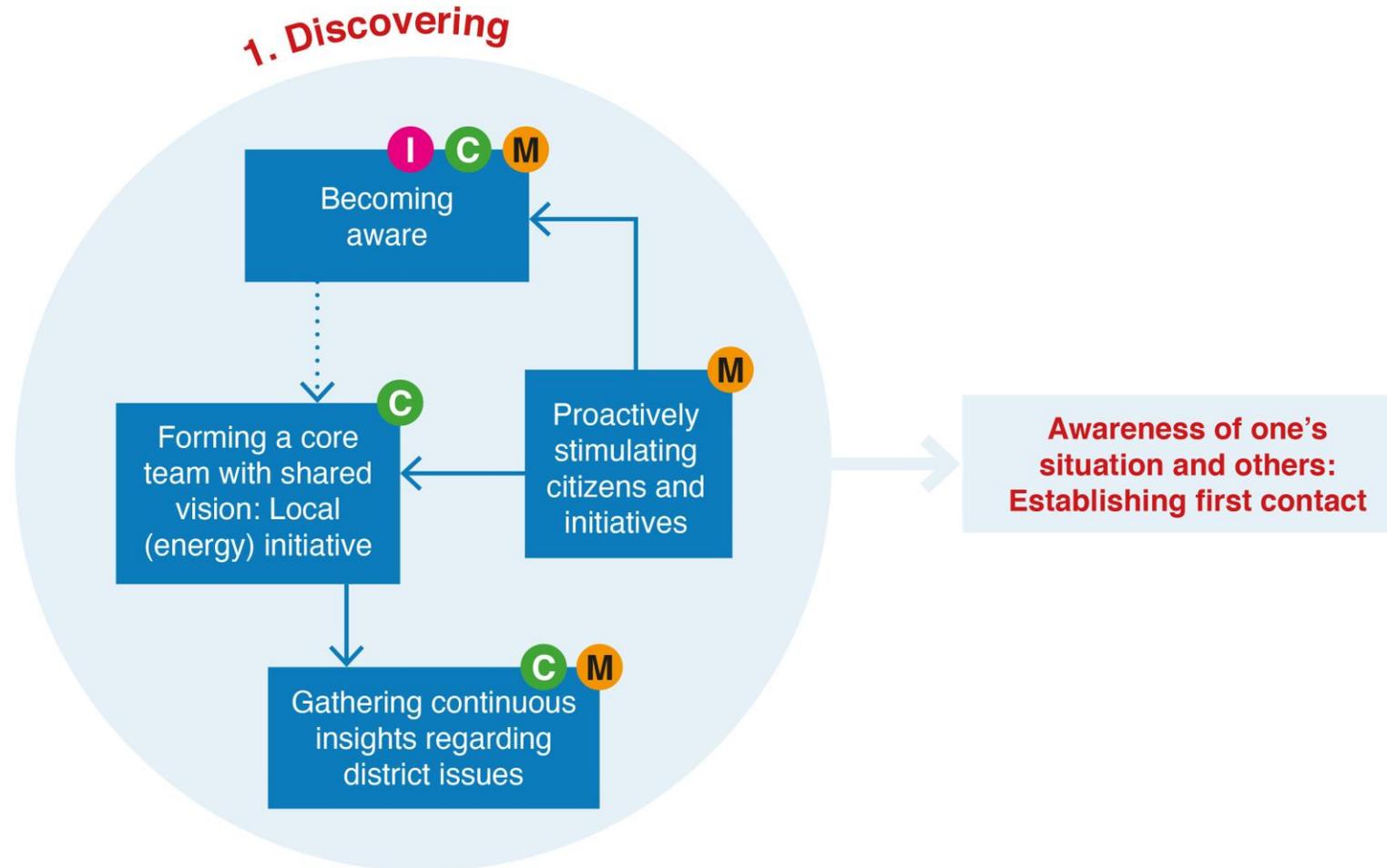
- would fall into the category of energy poverty (significant portion)
- have a high interest in energy saving measures
- expect their municipality to do more in terms of their well-being
- trust in the municipality is average to high
- knowledge of energy technology is relatively low, but interest is high
- membership of energy communities is very low

# The Unified Citizen Engagement Approach (UCEA)

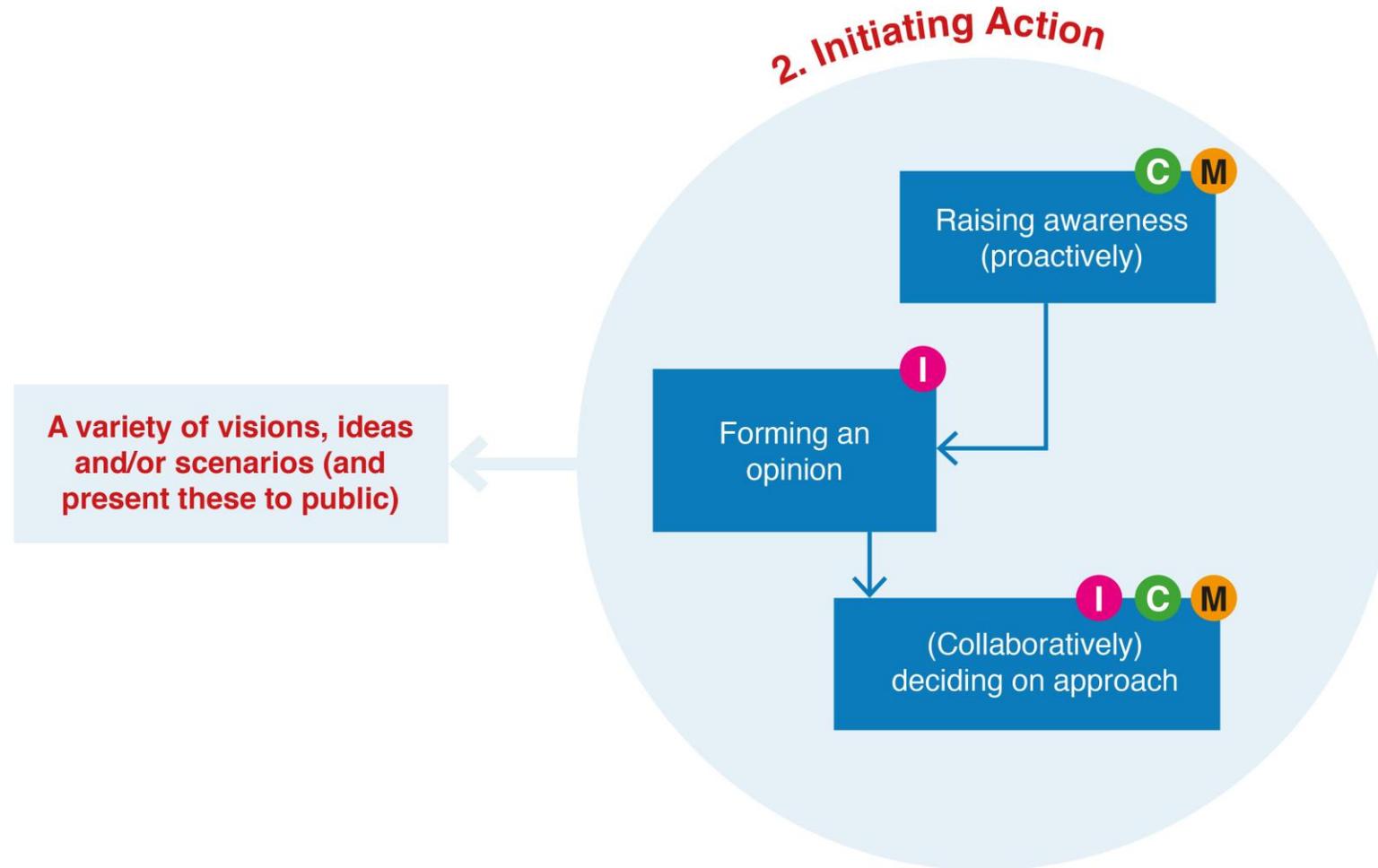
- Elements from existing approaches and citizen social research studies
- Five phases / spaces
- Three actors: Individual, Cooperative & Municipality
- Flexible, dynamic and iterative
- Tools and methods mapped onto each step



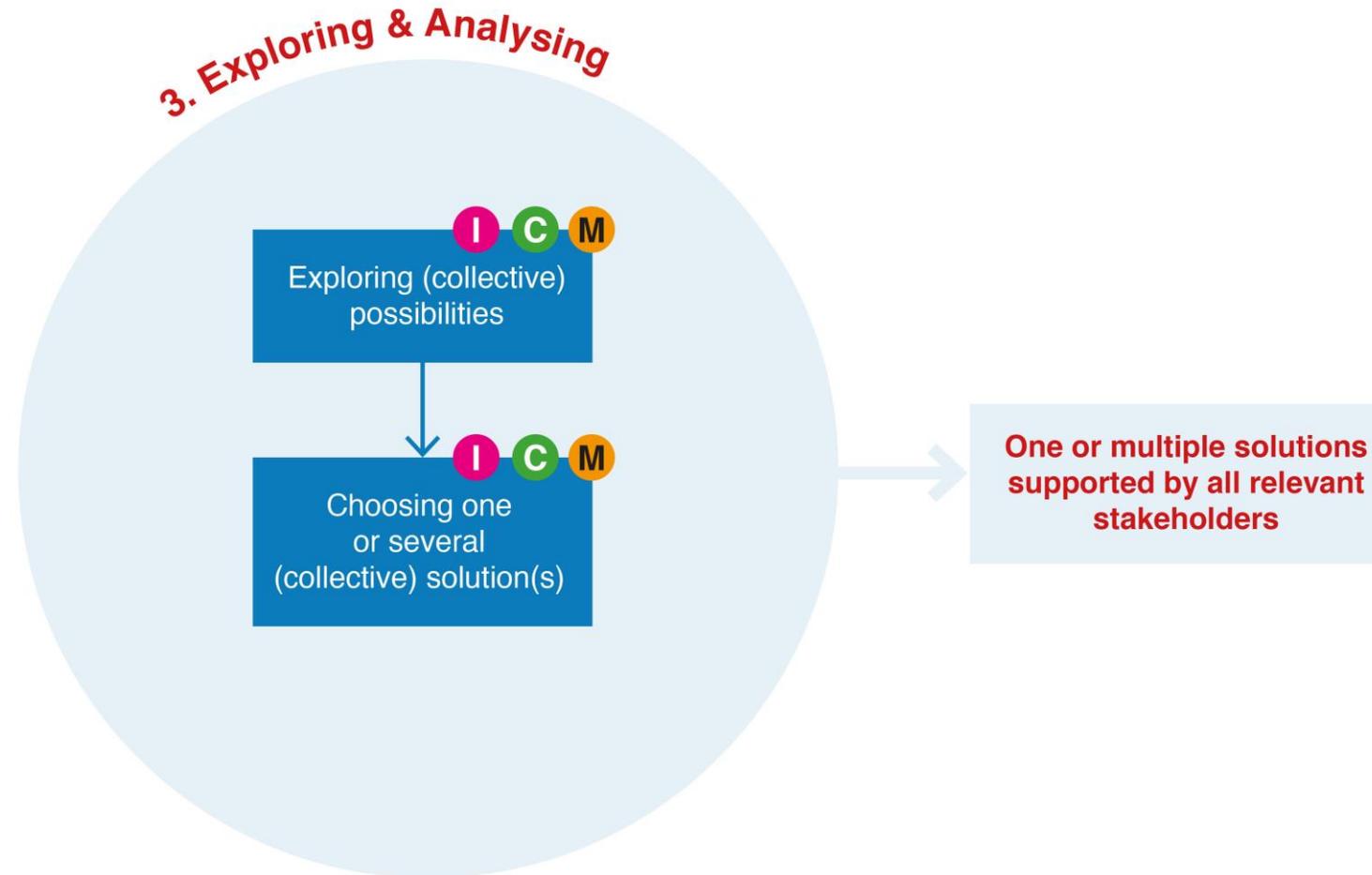
# Phase 1



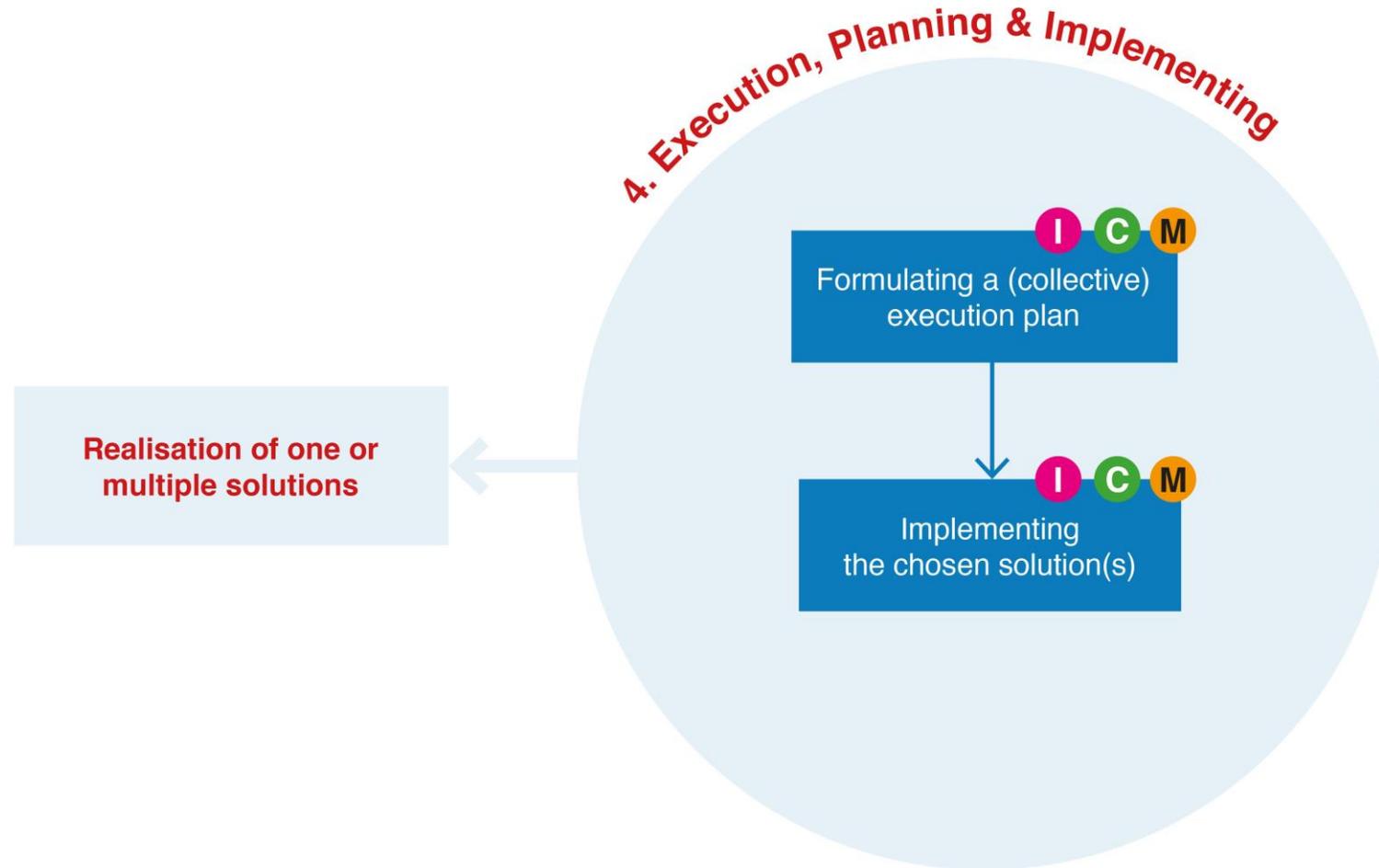
# Phase 2



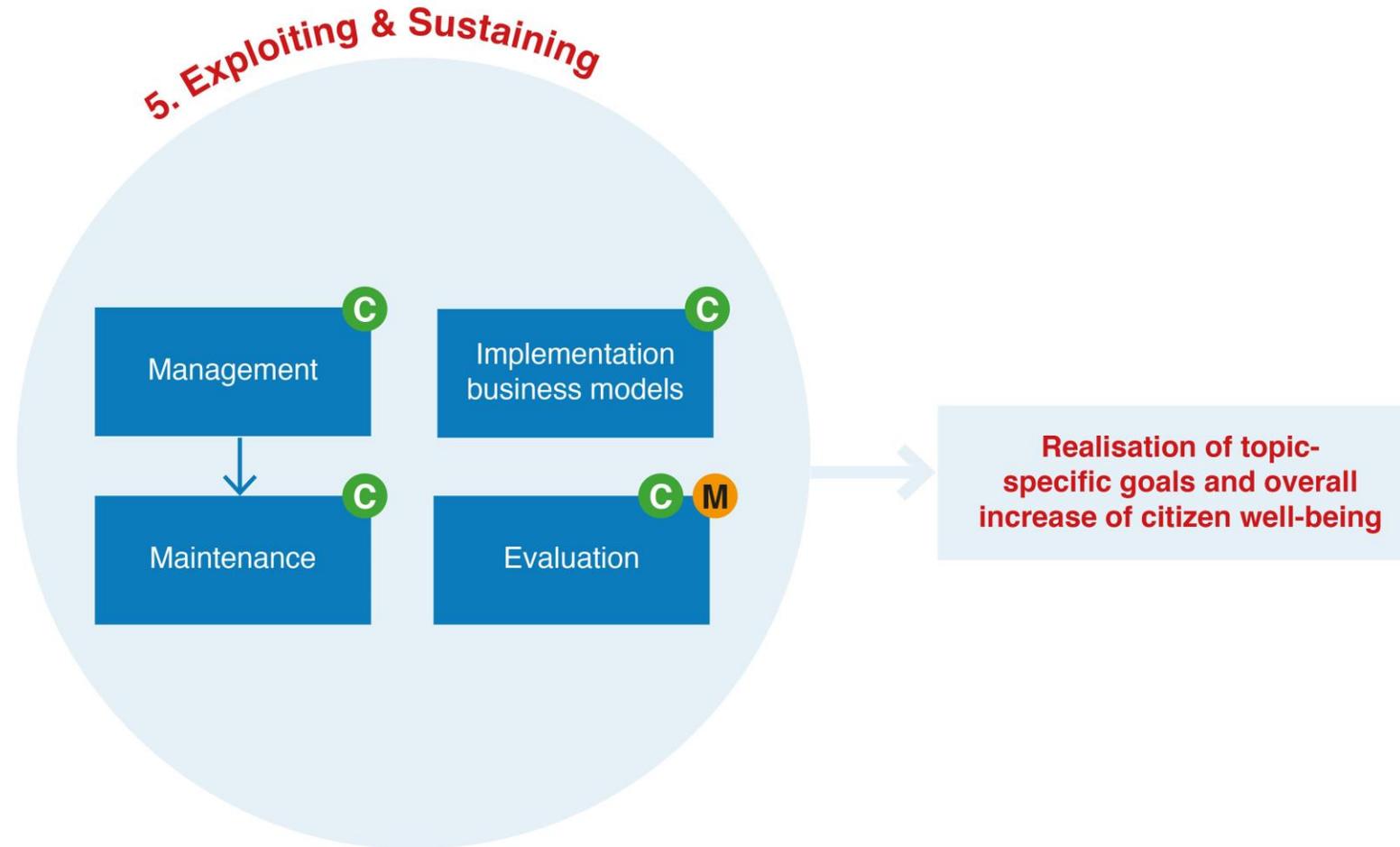
# Phase 3



# Phase 4



# Phase 5



# Current activities

- Finalising associated tools and methods
- Different pathways are being tested in neighbourhoods in Groningen (Hoogkerk, Oosterparkbuurt)
- Evaluation of what works and what doesn't



# Discussion 1

A neighbourhood's energy future (for example, constructing a heat grid) is too complex for 'ordinary' citizens. Decisions regarding these matters should be left to the municipality.

Agree or not?



## Discussion 2

Energy communities are not representative of neighbourhoods, as they only represent a small section of (highly-educated) residents.

Agree or not?



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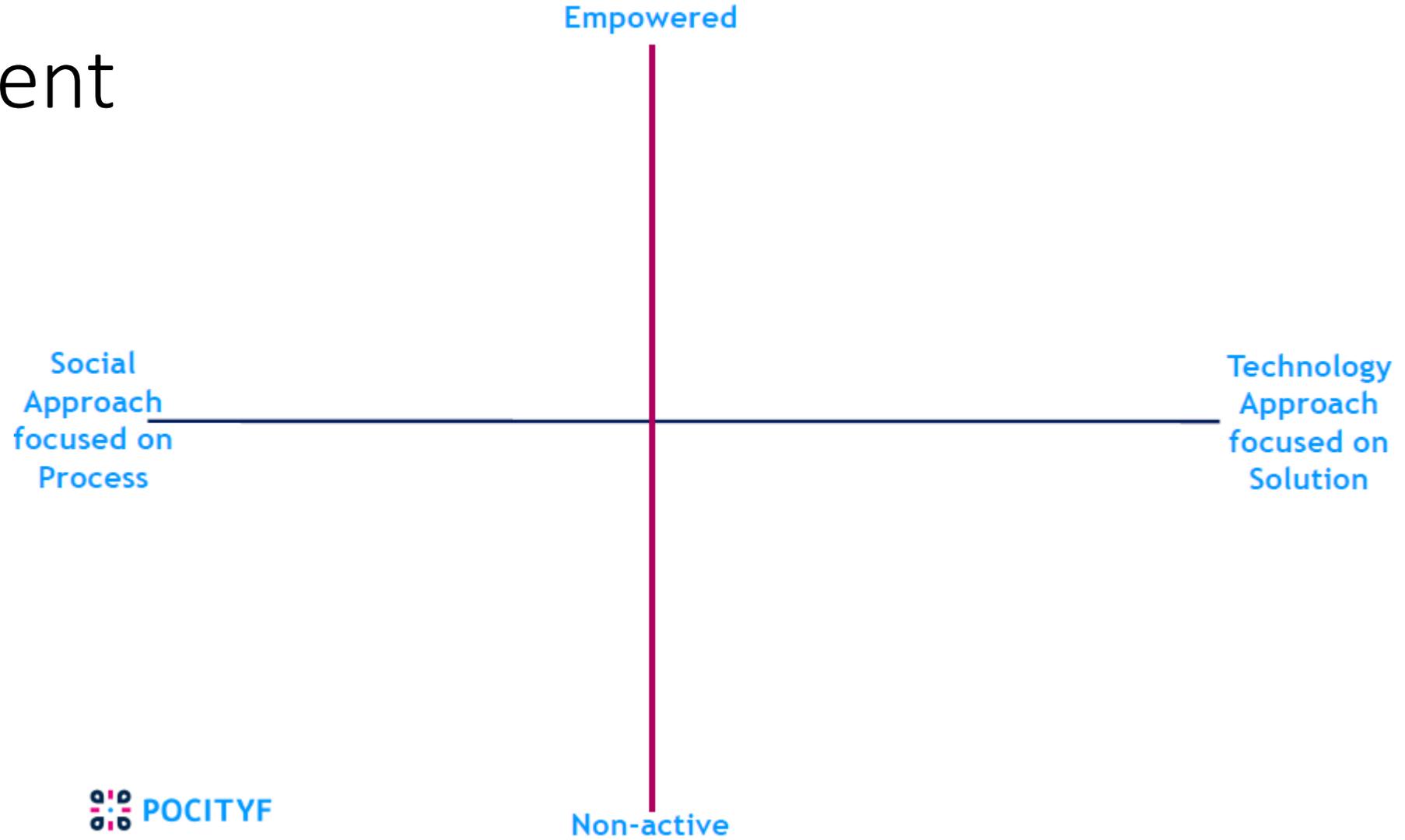


# Thank you!

# 3. Citizen Engagement approaches and the challenges of Engagement Monitoring

Bianca Bănică, Manuel Aires de Matos, Lia Patrício, INESC TEC, POCITYF

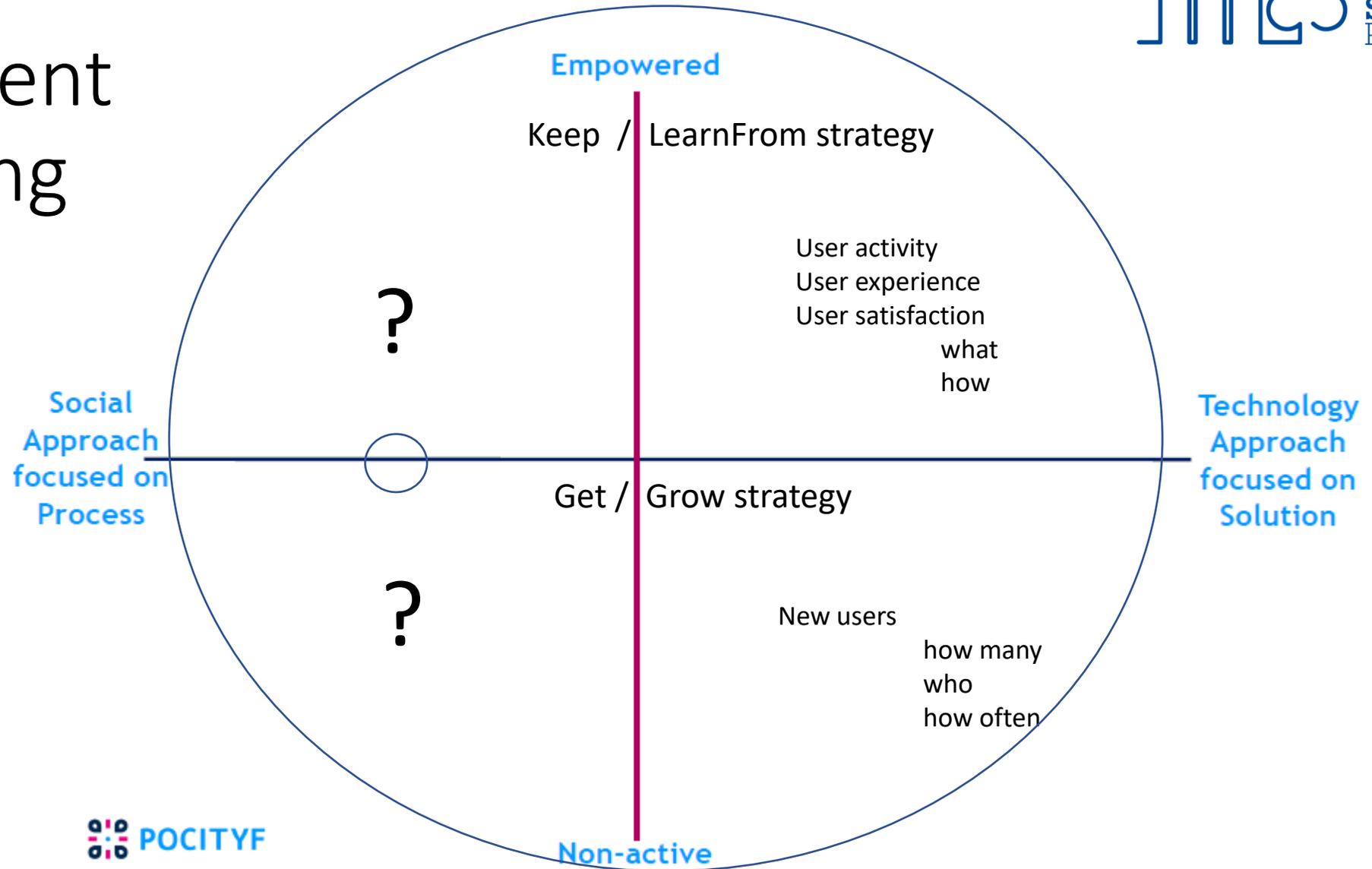
# POCITYF Engagement Matrix



# POCITYF Engagement Initiatives



# Engagement Monitoring



# Zoom in – One specific “Social Approach focused on the Process”



**Becoming sustainable together with residents**

—

Participation and communication manual for housing corporations

**TNO** innovation for life

woon  
waard

van alckmaer  
met hart voor wonen

# Overview of steps and tools

## Preparation



### Step 1. Identify the residents and context

- 1.1 Set out what you already know about the residents or the target group
- 1.2 Gather additional information
- 1.3 Evaluate this step

Resident information  
questionnaire

The Wishlist

The Chatting Tree

Wish tiles



### Step 2. Distinguish resident target group

- 2.1 Determine the resident target groups.
- 2.2 *Optional:* Create personas based on the different target groups.
- 2.3 Evaluate this step.

## Draw up an approach



### Step 3. Draw up the participation strategy

- 3.1 Define the level of participation, the 'what', 'when' and 'who'
- 3.2 Work out the participation strategy
- 3.3 Evaluate this step



### Step 4. Draw up the communication strategy

- 4.1 Draw up the basic communication strategy
- 4.2 Draw up the sub-strategy per resident target group
- 4.3 Evaluate this step

Resources matrix

## Execution



### Step 5. Monitor and evaluate

- 5.1 Monitor during the project.
- 5.2 Evaluate after the work is completed.

# Monitor during the project

1. Take a note of **who** participates in activities

2. Keep an eye on **how different groups** participate

3. Organise informative evening **BEFORE the start of work**

4. Provide a **permanent person of contact**

5. **Continuously register** questions, concerns, complaints

# Evaluate after work is completed

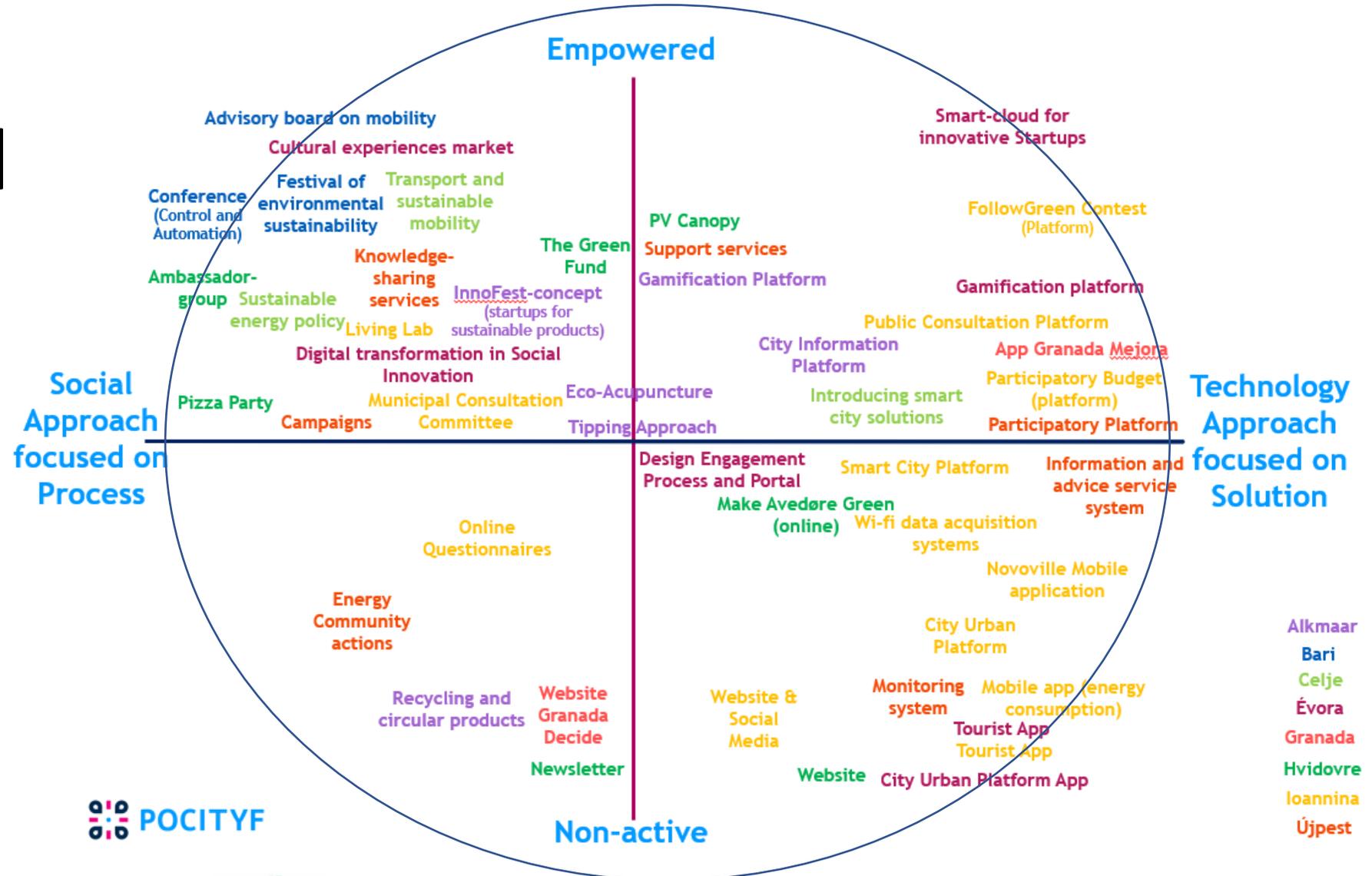
1. Make sure the contact person remains available

2. Organise informative evening AFTER completion of work

3. Periodically monitor maintenance

4. When renting, ensure that info is transferred to new tenants

# Zoom out – Project Level



 POCITYF

# Engagement Monitoring - Current challenges

Engagement is included in “Social” monitoring

No dedicated dimension

Social KPIs chosen to reflect the overall social objectives of the project

Risk of not being compatible with the engagement specific objectives

KPIs referring to participation numbers or Likert scales

Risk of not reflecting the engagement outcomes

Engagement in need of more diverse qualitative monitoring

Social KPIs POCITYF	
Focuses only on participation	People Reached
Vague, can include so many aspects, how to operationalize? Measured on Likert Scale	Local community involvement in planning and implementation
Online decision-making is in itself just one specific engagement initiative	Participation in online decision-making
For how many solutions can we really measure this from the pov of the end-user?	Degree of Satisfaction
Not engagement related	Connection to cultural heritage



# Discussion

Towards a better methodology for Engagement  
Monitoring and Evaluation

- **What could the Engagement KPIs be ?**
- How to choose them in a project like POCITYF ?
- How to operationalize them ?



# Discussion

## Towards a better methodology for Engagement Monitoring and Evaluation

- What could the Engagement KPIs be ?
- **How to choose them in a project like POCITYF ?**
- How to operationalize them ?



# Discussion

## Towards a better methodology for Engagement Monitoring and Evaluation

- What could the Engagement KPIs be ?
- How to choose them in a project like POCITYF ?
- **How to operationalize them ?**



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# Thank you!

The POCITYF project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 864400.

# Coffee break until 10:45



ENERGY CITIZENSHIP: MUST OR MYTH?

## The impact of citizen participation on local energy systems

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# Agenda block 2

1. **"Sustainable Energy Communities" A UNESCO outlook in SD programmes for the promotion of clean energy use and production** *introduced by Marco Raugi, Chair Holder of the UNESCO/UNITWIN Chair "Sustainable Energy Communities"*
2. **"Practical experiences with applied research on energy citizenship in positive energy districts"**, *Introduced by Socrates Schouten, ATELIER*
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# 1. Sustainable Energy Communities" A UNESCO outlook in SD programmes for the promotion of clean energy use and production

Marco Raugi, Chair Holder of the UNESCO/UNITWIN Chair “Sustainable Energy Communities”

# UNESCO Chair on Sustainable Energy Communities

Chair Holder: Marco Raugi, University of Pisa

# Introduction: UNESCO Chairs

- ▶ UNESCO Chairs are excellence centers developing advanced research and training activities on the themes identified by UNESCO's programmatic action plans and, since 2015, on the sustainability goals of the UN 2030 Agenda, to contribute to the development of society in priority areas for UNESCO.



# UNESCO's priorities and strategies

- ▶ The University of Pisa UNESCO Chairs on “Sustainable Energy Communities” powered only/mainly by locally produced renewable sources, adheres to the mission of UNESCO as it wants to contribute to the spread of sustainable development programmes through the promotion of Sustainable energy use and production.
- ▶ In particular it corresponds to the UNESCO Global Priority Africa because some African Partners of the project will be strongly involved in the design of sustainable energy structures specifically based on the features of their countries

# UNESCO's priorities and strategies

- ▶ Regarding the medium-term strategies for 2022-2029, the project addresses both the Strategic Objective 4 (SO4), aiming at strengthening science, technology and innovation systems and policies, and also the Strategic Objective 5 (SO5), that promotes international scientific cooperation on critical challenges to sustainable development.
- ▶ SO4 confirms the pivotal importance of science, technology and innovation (STI) for sustainable development in all its dimensions, including the environmental one.
- ▶ Likewise, the project addresses the integration of science and engineering approaches for SD, which is one of the main topics of SO5, under the name of “sustainability science”.

# Sustainable Energy Communities SDGs

- ▶ SDG 7 “Affordable and Clean Energy”: Build a distributed system of energy communities that yields more affordable and clean Energy for the people and society (only renewable sources);
- ▶ SDG 11 “Sustainable Cities and Communities”: Communities both into or outside cities that will be more easy-living and sustainable through a more affordable and clean energy;
- ▶ SDG 12 “Responsible Consumption”: the principles of the proposed Energy Communities are based on the citizen strong self-awareness of the circular economy principles with no waste of energy;
- ▶ SDG 16 “Peace and Justice”: the proposed solution of stable and autonomous Energy Communities to avoid possible critical scenarios caused by socio-political instabilities (lack of fossil fuels, political boycotts or cyber attacks).



# National and regional development

- ▶ The engagement of the Italian national oil and gas company (ENI) and relevant regional institution (Regional Energy District, and Toscana Regional Government) among the UNESCO Chair partners is an evidence of the attention to the project both at national and regional level.
- ▶ The possible contribution of the project's goals to increase the resilience of the energy system at both levels is recognized.

# National and regional development

- ▶ In Europe there is large number of secluded small cities which could benefit from the proposed solution to turn into an Energy Community both from the opportunity to reverse the people emigration into the returning of young and more “environmental” aware people, also having tax reductions.
- ▶ This could also simplify the supply of secluded villages reducing the costs for the big companies.

# SEC Chair programme

- ▶ Promoting an integrated system of research, training, information and documentation on sustainable energy communities. It will facilitate collaboration between high-level, internationally-recognized researchers and teaching staff of the University and other institutions in Italy, Europe and North America, Africa, Asia, and in other regions of the world.

# Partners

## Univ./Res. Inst.

- 9 Africa
- 8 Europe
- 7 America
- 6 Asia
- 2 Italy

## Non Academic

- EdF
- ENI
- 6 Regional



# SEC Chair objectives

- ▶ Set-up a Network of Research centers in developed and developing countries, which will focus of collaborative research, interpretation, and promotion activities aimed to enhance powerful living tools. The Network will be mainly dedicated to the inclusion of African partners;
- ▶ To promote and implement educational strategies for students to strengthen their knowledge of the SDGs related to the UNESCO Chair activities;

# SEC Chair objectives

- ▶ Provide Graduate, post-graduate, and Ph.D. dissertations focused on “Sustainable Energy Communities”;
- ▶ Disseminate the outputs of the International Summer School on “Sustainable and Energy Communities”, regarding the analysis of the possible renewable energy production adaptation to a local environment;

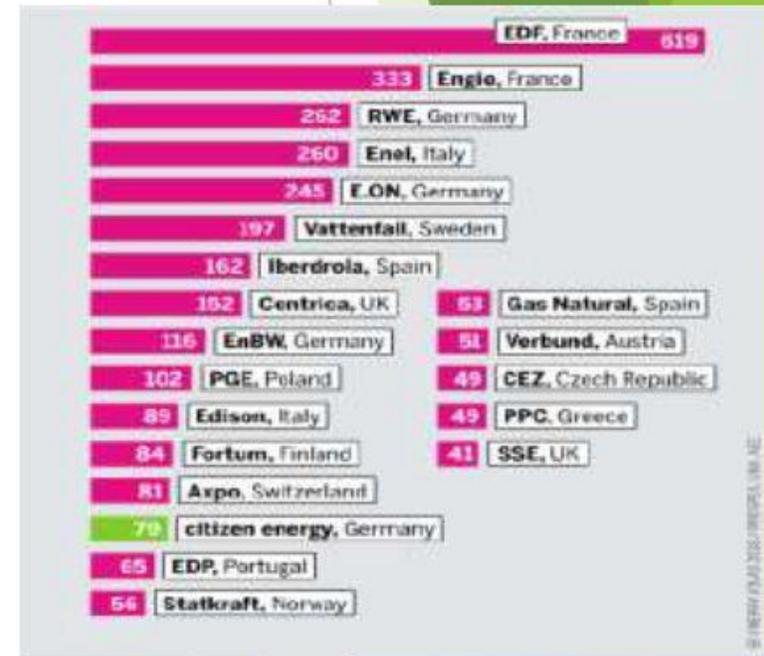
# SEC Chair objectives

- ▶ Promote a technologically driven integration of all the stakeholders involved in the energy scenario (e.g., technological, scientific, social, political stakeholders).
- ▶ Develop a software for the definition of “Sustainable Energy Communities”;

# Statements

- Need for Multidisciplinary cooperation/research
- ❖ Engineering, Law, Social Science, Economics, ICT...

- Citizen Energy vs Big Player Energy





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# Thank you!

## 2. RISE OF THE 'FLEXIBLE CITIZEN'?

### Energy citizenship and agency in positive energy districts

Socrates Schouten, Waag Futurelab  
ATELIER Project ([smartcity-atelier.eu](http://smartcity-atelier.eu))

# Research set-up

- **ATELIER** PED development
  - Citizen Engagement: understanding energy citizenship
  - Innovation Ateliers: fostering the local innovation ecosystem
- Parallel project on **Home Energy Management Systems**
  - Devices for enabling in-home flexibility
  - Driven by data and algorithms
- *Methodology*
  - Local engagement (e.g. art)
  - Co-creation
  - Behavioural analysis

# Question

Through which pathways can flexibility be leveraged to produce 'true' citizenship and agency?

# Potential pathways

- Strong neighbourhood?
    - Challenge-based commoning
  - Strong assets, such as DERs?
    - Asset-based community development ('ABCD')
  - Strong institutional context?
    - Co-design and co-innovation schemes
- E.g. locally run programs to combat energy poverty
  - E.g. setting up energy communities
  - E.g. designing data commons and local energy market



## Designing data commons and local energy market

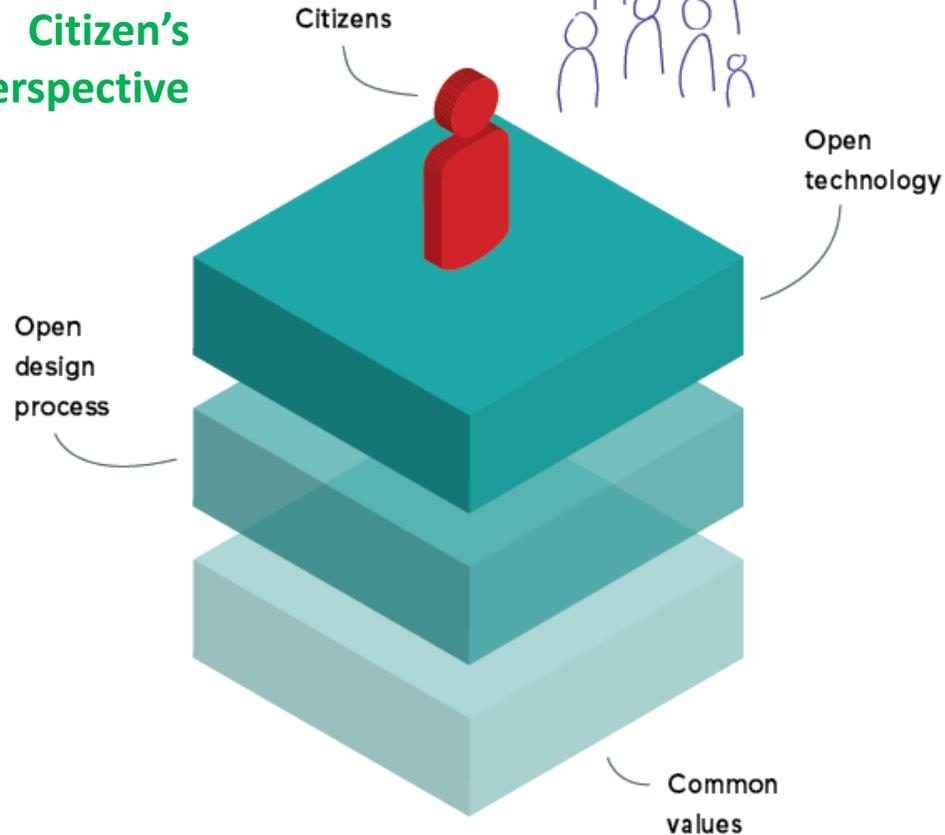
Step 1: inventorying questions,  
focus on public value

# Public Stack methodology

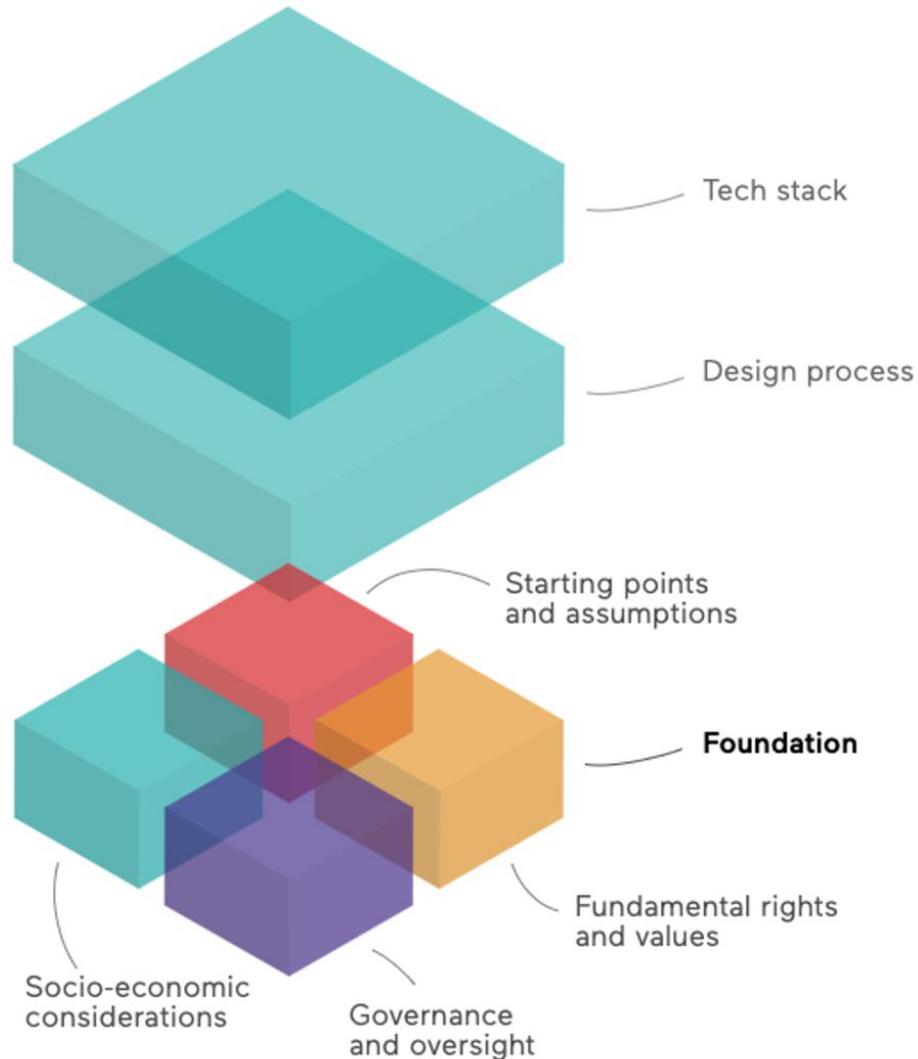
- Scrutinizing technology
- Citizen's perspective is leading
- Value-sensitive design
- Open and fair technologies

Site: [publicstack.net](https://publicstack.net)

Citizen's  
perspective



# Zooming in on the fundamentals



**1. All stakeholders are involved and it is clear why we optimise.**

By questioning starting points and assumptions, and by understanding the rationale and objectives of technological initiatives, we know who to involve in the design process.

**2. Human rights are guaranteed and public values respected.**

By complying with fundamental human rights and values we guarantee the rights of current and future humans.

**3. Society as a whole keeps a grip on digitalisation.**

Democratising the governance and supervision of digitalisation puts society back in control.

**4. The financial-economic model takes human and planet into account.**

Digitalisation must respect the boundaries of people and the planet, and must be financed sustainably.

# Key questions

- Are citizens really in control?
  - Is the information one receives actually ‘actionable’?
  - How will current developments (markets, propositions) pan out?
  - Is ‘passive citizenship’ a thing?
- To what extent can residents contribute to PED and HEMS design?
  - In ATELIER context, very little
  - Self-build communities can influence design, but are most concerned with ‘getting things off the ground’ and dealing with setbacks, operating envelopes

# Research focus 2022-23

- Behavioural & opinion research
- Artistic intervention to encourage discussion
- Co-design of data layer of local energy market / HEMS



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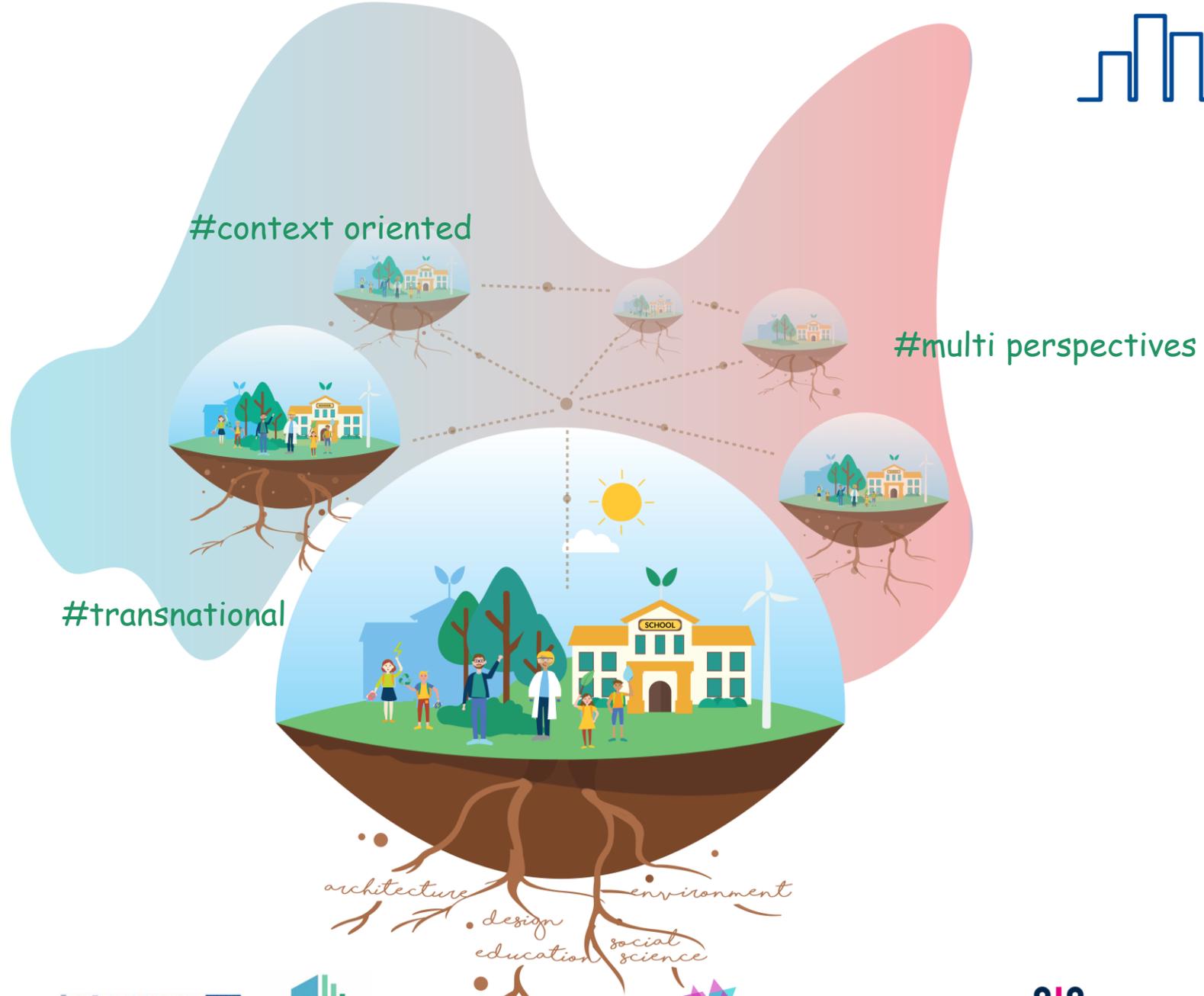
# Thank you!

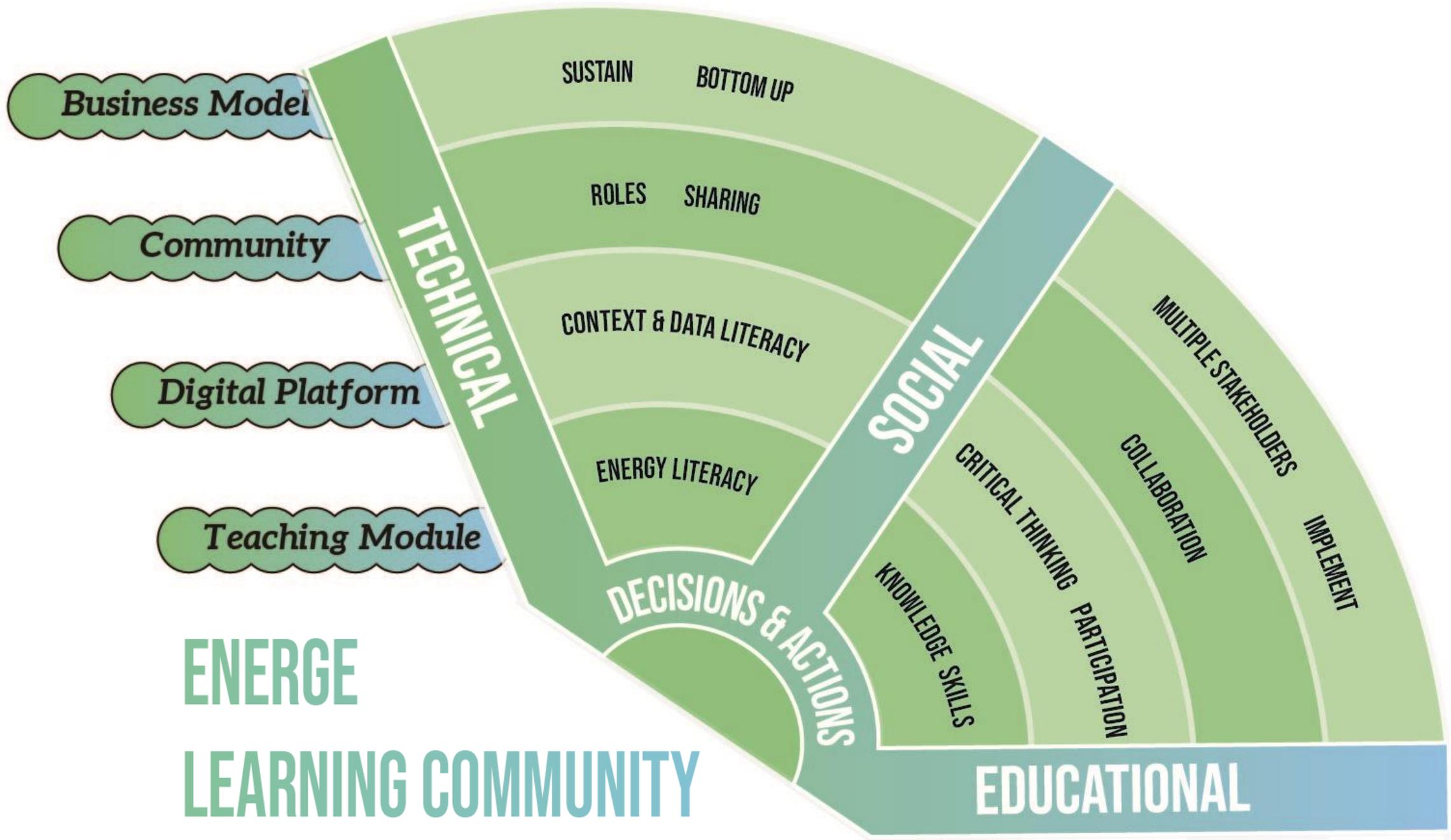
# 3. Energy learning community in secondary schools: Context literacy in taking personal and collective actions

Marina Wellink , Industrial Design Engineering at TU Delft, ENERGE

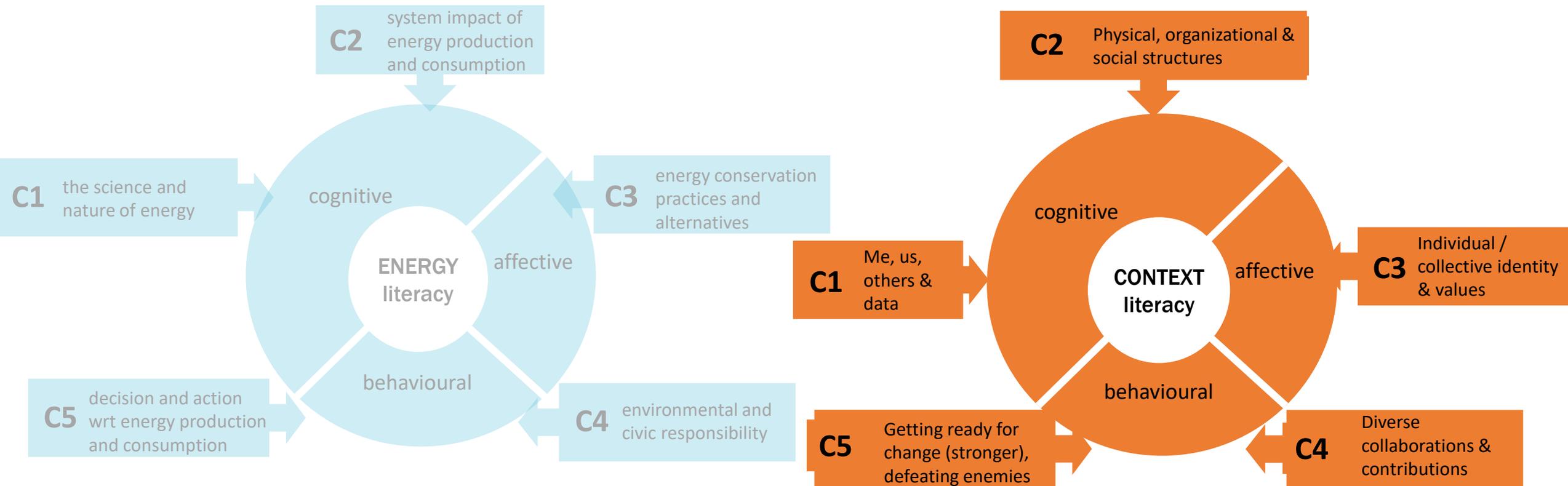
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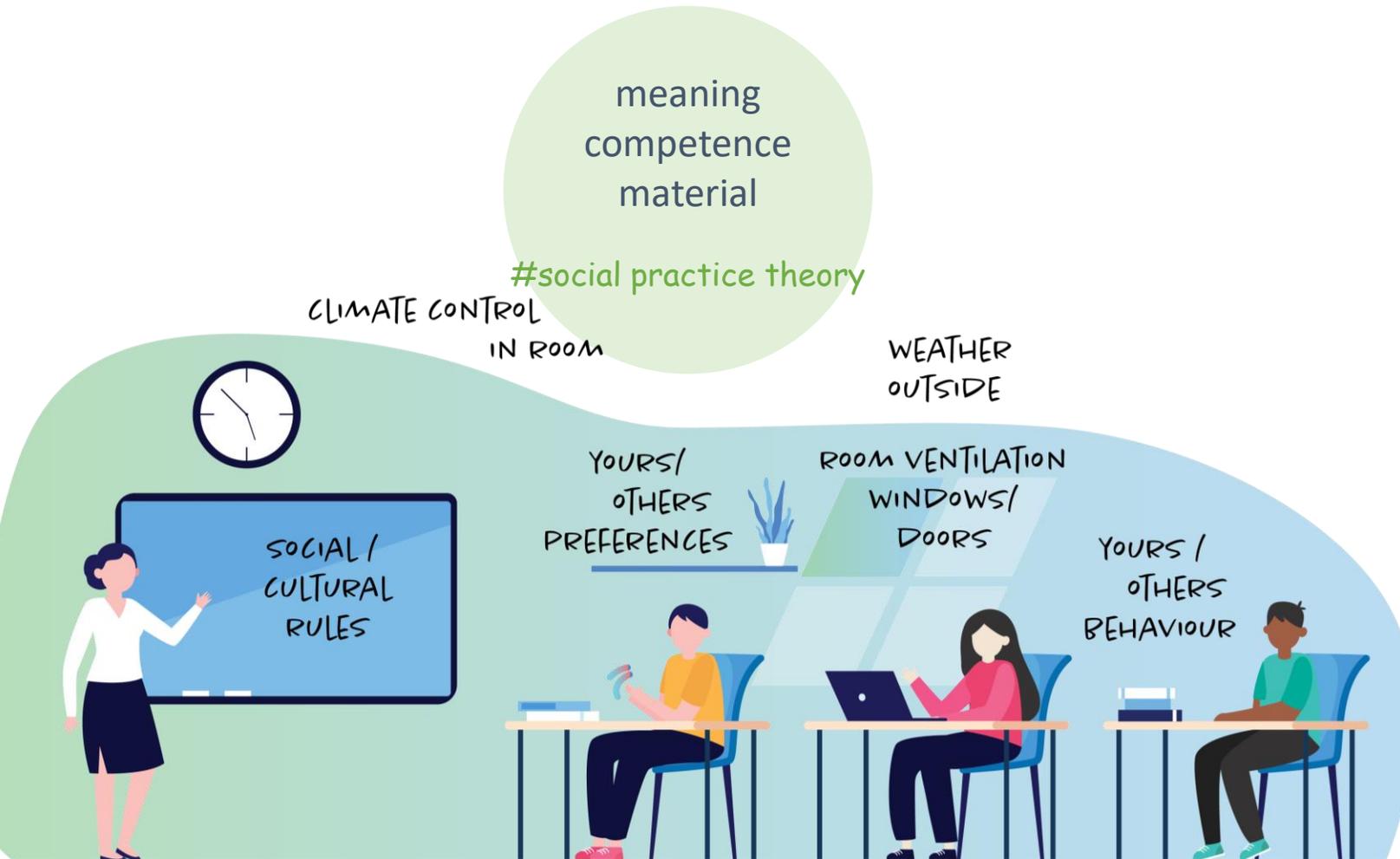




# Getting ready/stronger for change



# Getting stronger – soft knowledge



# Getting stronger – soft knowledge

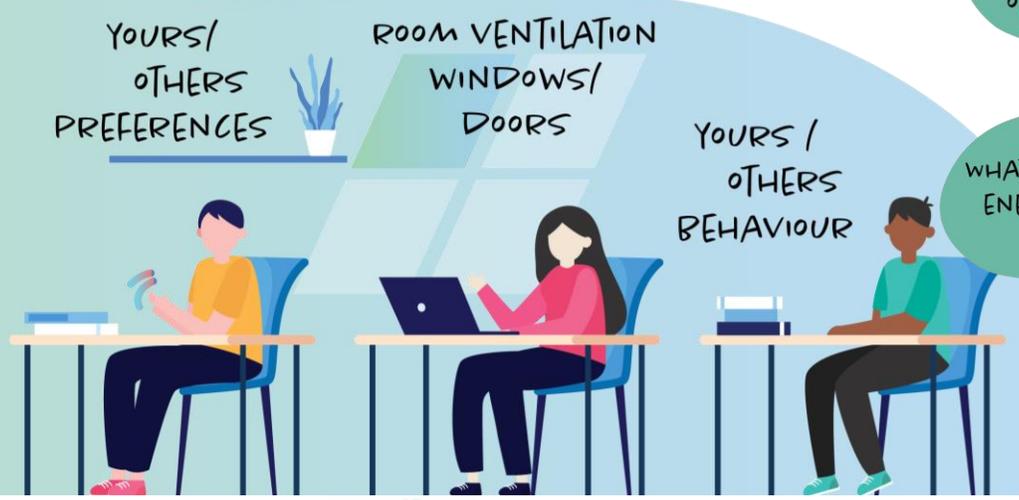
meaning  
competence  
material

#social practice theory

CLIMATE CONTROL  
IN ROOM

what is my/our context?  
how does it influence me/us?  
how do I/we influence it?

#sensitivity to context



WHAT'S COMFORTABLE FOR ME? AND FOR OTHERS? 

WHY SHOULD I / WE BOTHER? 

HOW COULD I / WE INFLUENCE COMFORT? 

WHAT'S OPTIMAL ENERGY USE? 

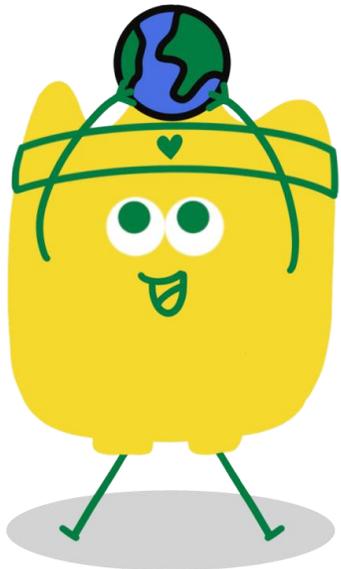
HOW COULD I / WE USE ENERGY OPTIMAL? 



# Getting stronger – unusual contribution

autonomy  
competence  
relatedness

#self-determination theory



I want to involve others in trying greener ways to deal with high temperatures, not enough sunlight, and stuffy air



I wonder whether to do something greener (like others) when bothered by heating or lack of fresh air



It doesn't seem worth or not in my hands to do anything greener when feeling uncomfortable

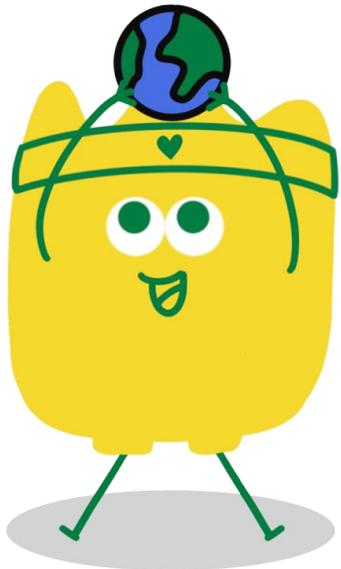
# Getting stronger – unusual contribution

autonomy  
competence  
relatedness

#self-determination theory

what are my values?  
what are my colleagues values?  
how can we have synergy?

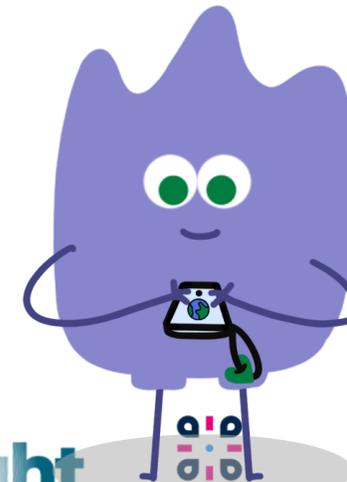
#participation



I want to involve others in trying greener ways to deal with high temperatures, not enough sunlight, and stuffy air



I wonder whether to do something greener (like others) when bothered by heating or lack of fresh air



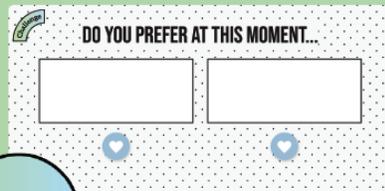
It doesn't seem worth or not in my hands to do anything greener when feeling uncomfortable

# Learning with others

## BEYOND THE SURFACE

## MASTERING THE TRUTH OF SENSING

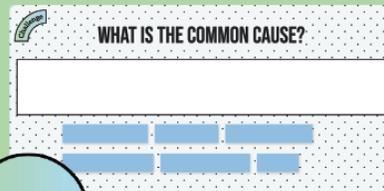
DO YOU PREFER AT THIS MOMENT...



Like?

How do my schoolmates and teachers experience energy and comfort at school?

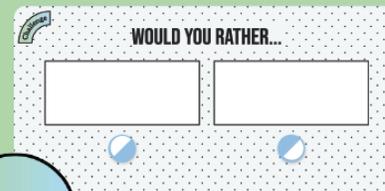
WHAT IS THE COMMON CAUSE?



Detective

How do our social and physical environment influence our practices of energy use and comfort?

WOULD YOU RATHER...



Dilemma

What personal and social sacrifices we are willing to take to reduce energy?

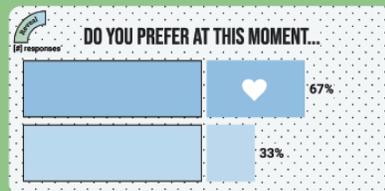
DO YOU AGREE OR DISAGREE?



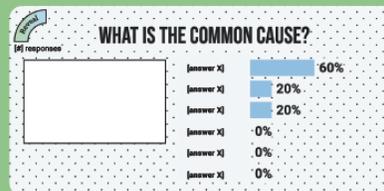
Myth

How does data help us to understand our current experiences and behaviour?

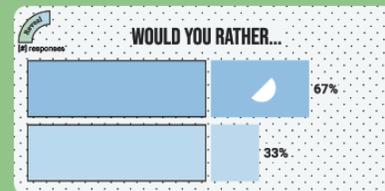
DO YOU PREFER AT THIS MOMENT...



WHAT IS THE COMMON CAUSE?



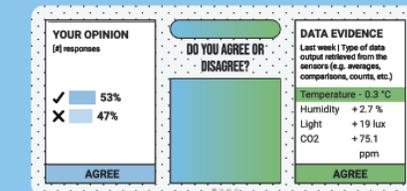
WOULD YOU RATHER...



YOUR OPINION

DO YOU AGREE OR DISAGREE?

DATA EVIDENCE



DATA EVIDENCE	
Last week   Type of data output retrieved from the sensors (e.g. averages, comparisons, counts, etc.)	
Temperature	- 0.3 °C
Humidity	+ 2.7 %
Light	+ 19 lux
CO2	+ 75.1 ppm



# Discussion

To develop resilient energy citizens the only way is  
to bring awareness on the physical and social contexts

Agree or not?



# Discussion

Every (unusual) contribution is valid contribution,  
there is no ideal energy citizen

Agree or not?



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# Thank you!

# 4. Citizen and consumer engagement in the development of Demand – Response instruments

Annemarie Mink , TNO, Bright

**CITIZEN & CONSUMER  
ENGAGEMENT IN THE  
DEVELOPMENT OF DEMAND –  
RESPONSE INSTRUMENTS**

**BRIGHT PROJECT**

**JOKE KORT**

**ANNEMARIE MINK**



# demand response

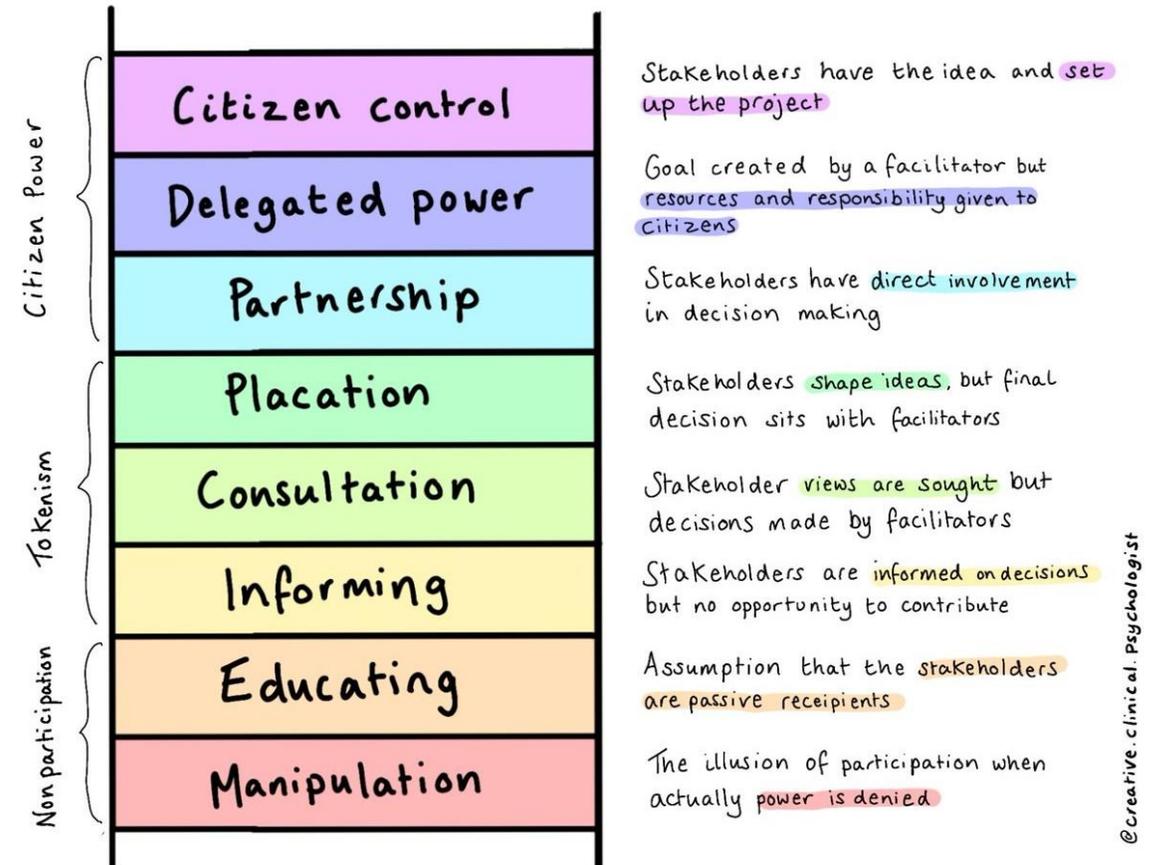
- Demand-Response (DR)
- DR requires engagement



# participation in the energy transition

- Citizen engagement
- Consumer engagement

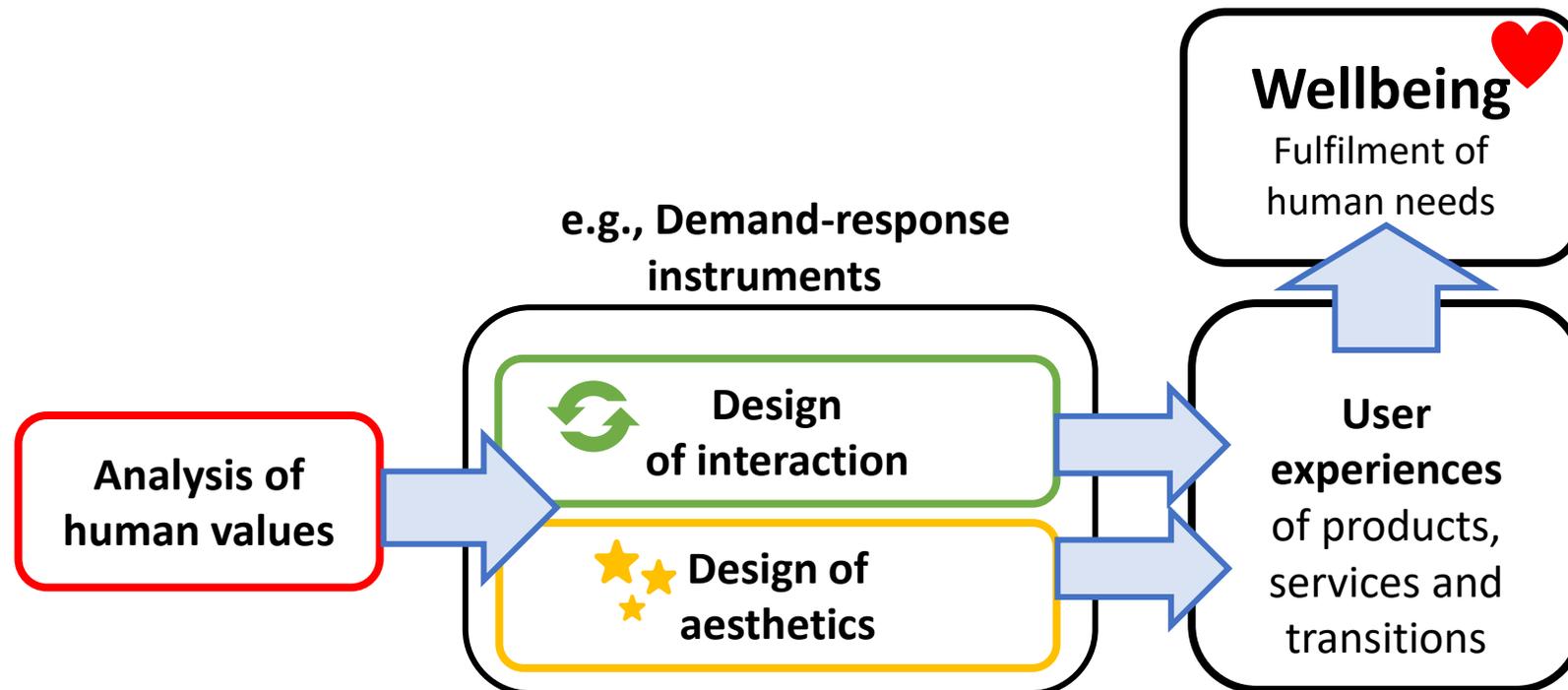
## Ladder of Participation (Arnstein, 1969)



# Value based design in demand response

## VUX (VALUE-BASED USER EXPERIENCE) FRAMEWORK

Exploring the psychological core values of people, their real drivers / motivators.  
And design Demand Response products and services that address these drivers / motivators

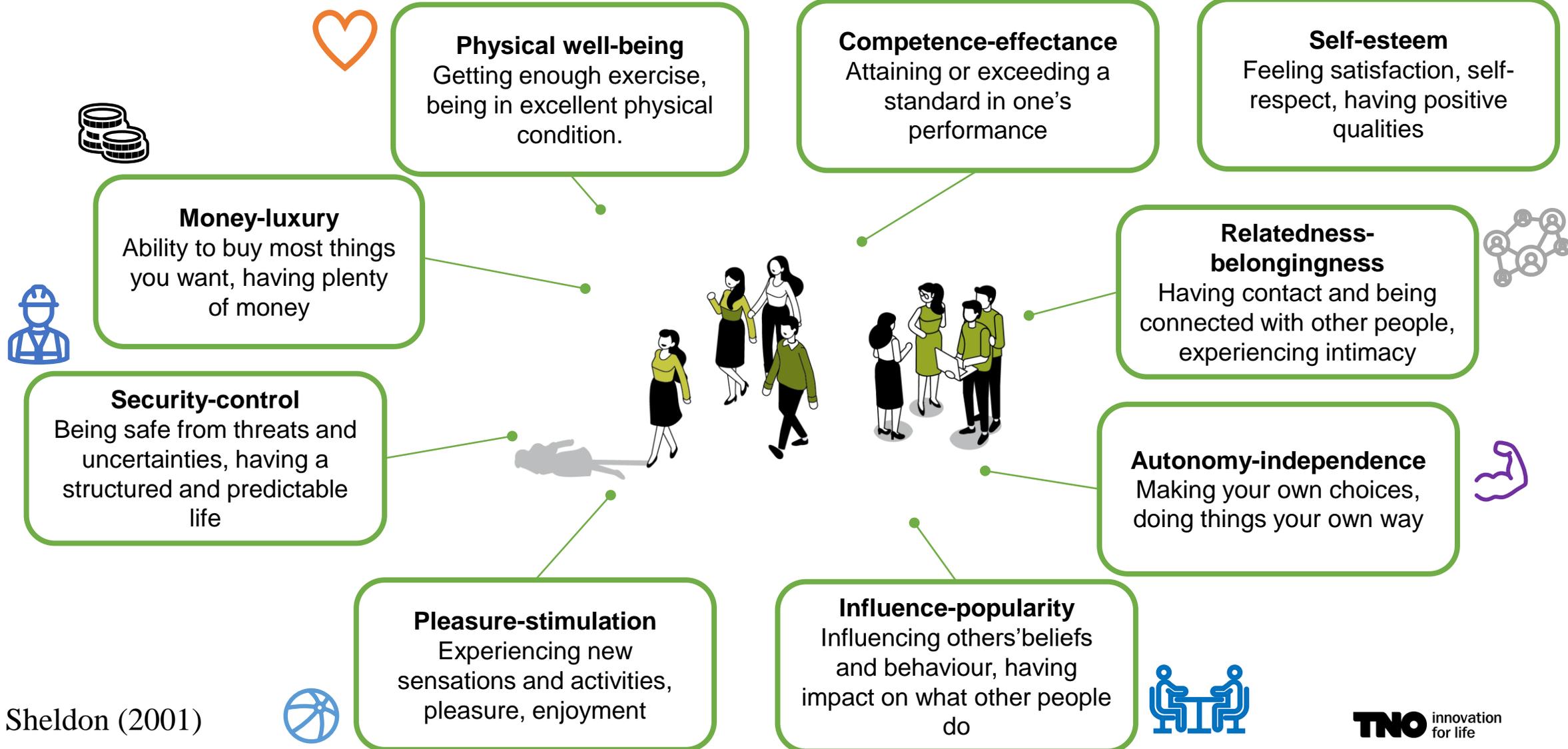


Gullström C, Kort J. Enabling sharing and resource efficiency among neighbours by comparing trust and social cohesion in Sweden and the Netherlands. In: *IWSE 2019.* ; 2019.

Kort J, Koning N de, Gullström C. Creating successful transitions in energy - By respecting stakeholder values and securing trust and cohesion. In: *Energy-Open 2017.* University of Twente; 2017

# value-based design

## HUMAN VALUES



Sheldon (2001)



# Addressing human and community values



## Money-luxury

Providing financial support (loans) or arranging subsidies/funding for project (also from own resources). Enable cheaper products / services, energy costs through joined purchases or ownership. Generate revenues to be spend by the energy community and/or within the energy community. Get financially reimbursed for providing flexibility.



## Safety-control

Being autonomous and in charge of funding own projects with revenues earned and with a governance structure depending on its members. Contributing to the safety and control of members in the long term (e.g. supporting or funding local facilities such as a supermarket or local informal care organizations). Also being independent (e.g. from Russian gas or other external parties) gives more control over budgeting tariffs, etc.



## Pleasure-stimulation

Additional services (cross-domain) could add to the experience of increased pleasure and stimulation in life (e.g. more green, mobility services, more enjoyable housing conditions and living environment, cleaner air, other additional facilities for which the energy community could decide to pay).



## Physical well-being

Improvement of living environment: more greenery, more comfort inside the house.



## Competence-effectance

Being advised on energy savings, having monitoring services, jointly owning or leasing energy assets without investing much time and effort, getting energy saving means installed as packages. Something complex is made easy to use and adopt. Being able to exchange 'energy' for other value (e.g. mobility).



## Relatedness-belongingness

Shared ownership, shared identity, shared independence, shared decision making processes/governance, shared profits, shared value creation, shared goals, shared problems/challenges. Citizens' desire for a sense of community.

## Autonomy-independence

Being more or largely independent from external energy suppliers or external energy sources by generating and storing your own energy. Citizens' desire for a decentralized energy production.

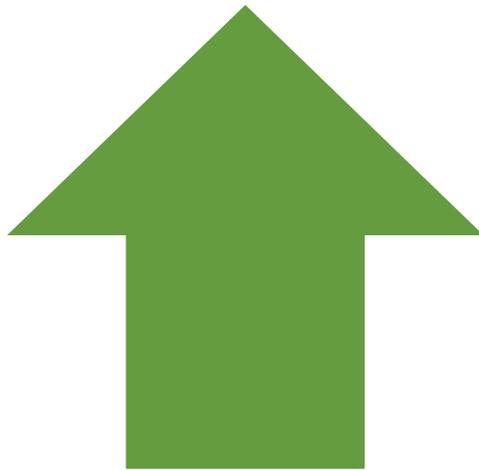
## Influence-popularity

Your knowledge, contributions are being valued, appreciated. As a member of the community providing input for governance or contributing in energy generation, for making it available to others. Working for the energy community (as coach, employee, etc). As a community you have more influence (on tariffs, but also in relation to other stakeholders with whom you have to collaborate



# Drivers and barriers in demand-response

- Drivers and barriers in the adoption and use of DR instruments for energy communities



## Drivers

- Decreasing costs
- Flexibility due to DR
- Technological advances (blockchain)
- Increasing climate awareness
- Energy communities
- Availability of intermediaries
- Ambitious policy objectives



## Barriers

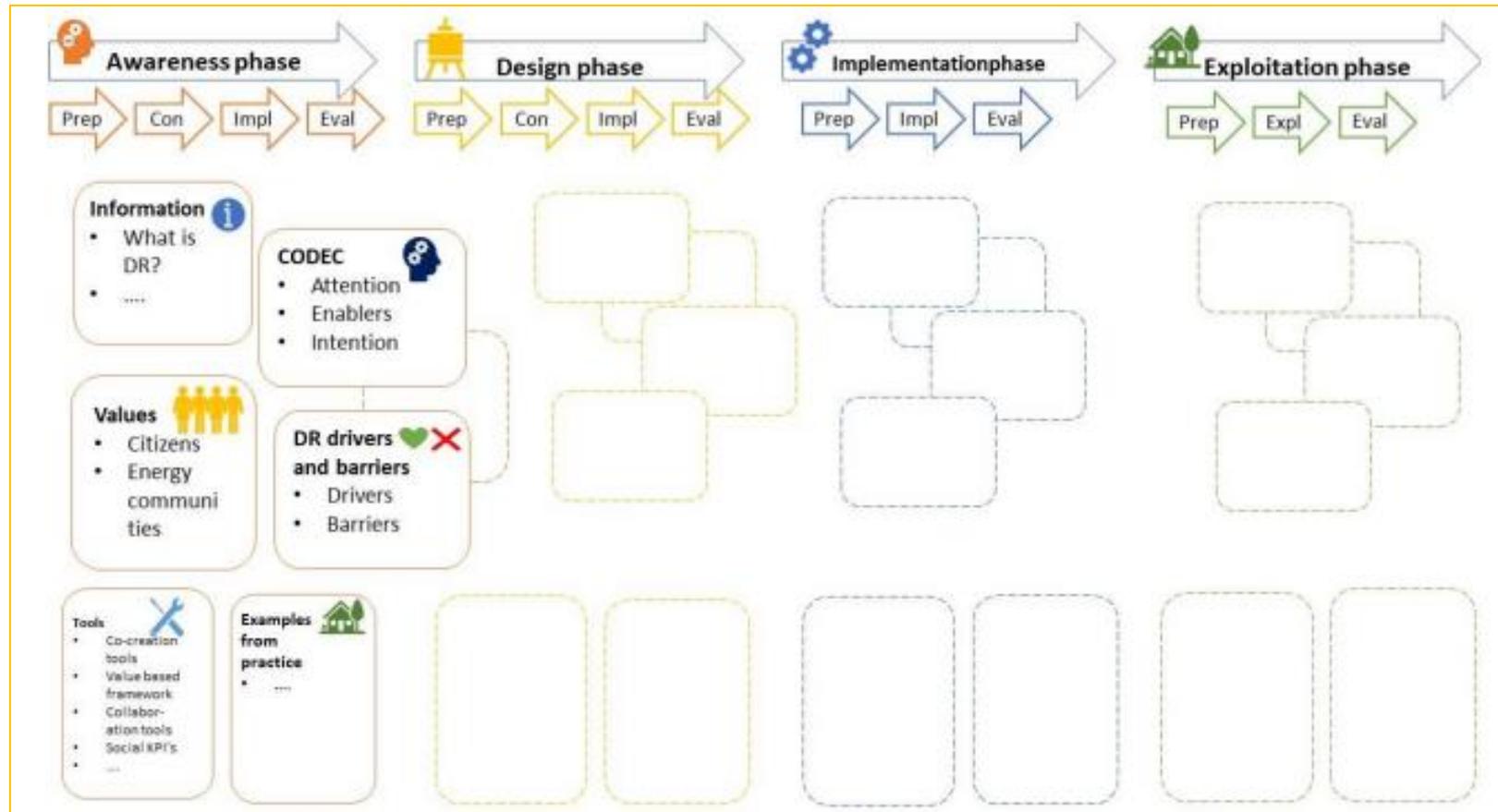
- Privacy and security
- Tricky estimation consumption
- Competition
- Cost-benefit allocation
- Trust, acceptance, reliability issues
- Lack of consumer participation

For a complete overview:

- › Deliverable D3.1 BRIGT  
<https://www.brightproject.eu>

# Citizen and consumer engagement framework

- › Four phases with steps and methods to develop DR instruments, with consumers
- New and existing methods will be applied and evaluated



Citizen and consumer engagement framework (concept), Bright



# Discussion

1. How can we achieve active participation or even co-creation in the development of energy products and services? And how to go about time and costs?
2. User segmentation is too much 'one size fits all': how to address individual citizen values?
3. 1+1=10



# Discussion

1. How can we achieve active participation or even co-creation in the development of energy products and services? And how to go about time and costs?
2. User segmentation is too much 'one size fits all': how to address individual citizen values?
3.  $1+1=10$



# Discussion

1. How can we achieve active participation or even co-creation in the development of energy products and services? And how to go about time and costs?
2. User segmentation is too much 'one size fits all': how to address individual citizen values?
3. **1+1=10**



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# Thank you for your kind attention!

Deliverable D3.1 Overview of barriers and drivers for consumer engagement in demand response

Available through the BRIGHT project website

<https://www.brightproject.eu>

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Joke Kort

[Joke.kort@tno.nl](mailto:Joke.kort@tno.nl)

# Closing remarks

Socrates Schouten , Waag, ATELIER



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# Thank you!