

Supporting Inclusive Urban Energy Transitions with Living Labs

Prof.dr. Ellen van Bueren

PowerWeb Conference 2019
Delft, June 4



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What would you like to see developed in this area? Come in and join!

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Supporting inclusive urban energy transition

with living labs



Challenges urban energy transition

Multi-level:

Apartment

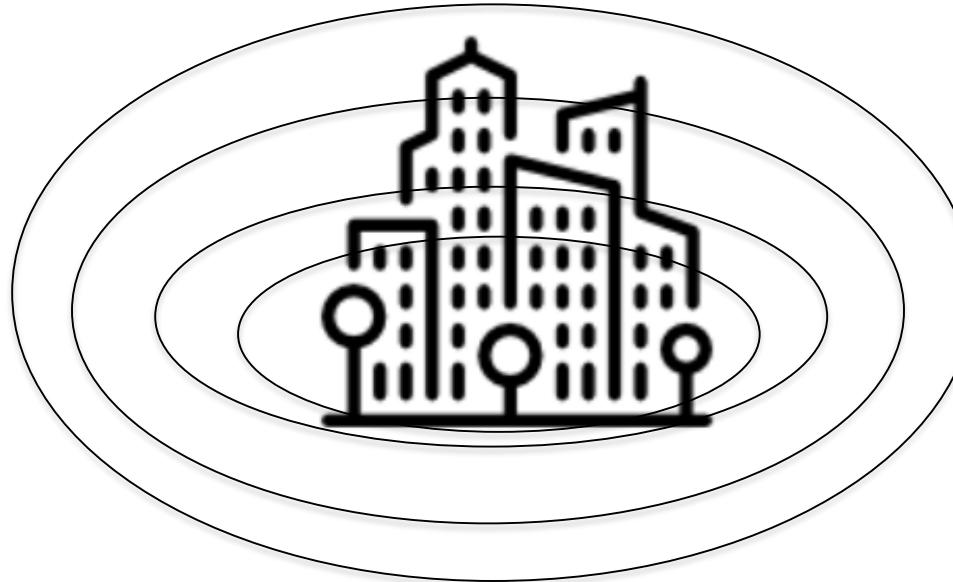
Building

Block

Neighbour-
hood

District

Region



Absence of central director

Fragmented decision- making power:

- Authority
- Ownership
- Split incentives

Technological uncertainty:

- Many possible technologies at different levels
- Many possible sources at different levels
- Uncertain costs and returns

Complexity: building / apartment level

- Many technological measures to choose from
- Uncertain performance & returns of measures
- High upfront investments, long payback period
- Each home is unique



Solar



Heating & Cooling



Windows & Doors



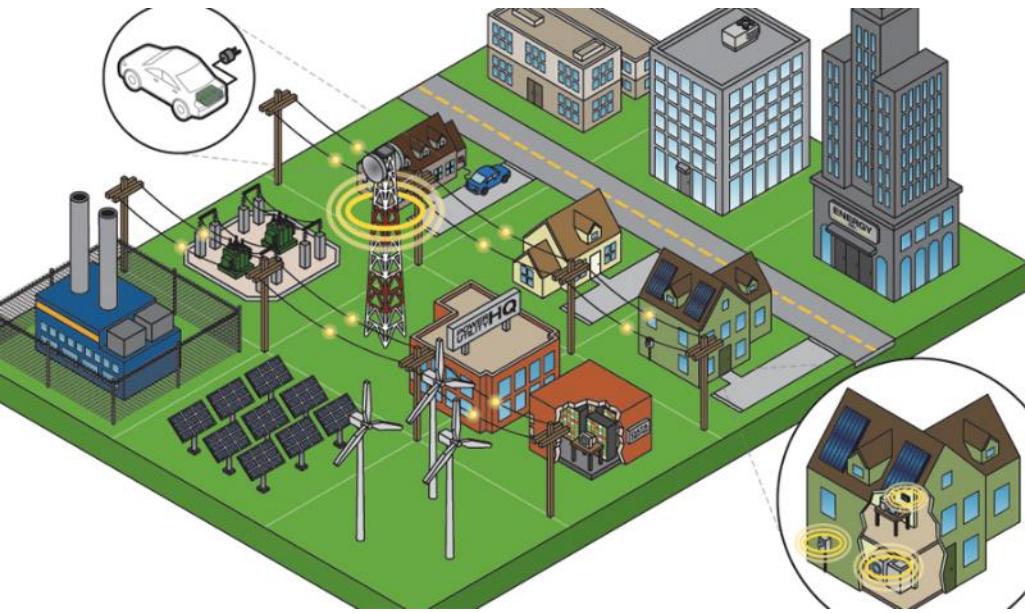
Roofing



Landscaping



Complexity: district/city level



- Space requirements
- Planning requirements
- Grid capacity
- Position incumbents
- Existing infrastructures
- Sunk investments

Challenges inclusive urban energy transition

Empowerment: right to produce, facilitated by decentralized and web-based technologies



- Energy poverty
- Inequal access
- Democratic accountability

Inclusive = ?

- Citizen representation?
- Representation of citizens' interests?
- Direct democracy?
- ...

Challenges “inclusiveness”: residents' consent

Example:
Wegener Sleeswijk
neighbourhood
Amsterdam, owned
by housing
association
EigenHaard



Renovated flats without gas connection

Unrenovated flats with gas connection

Shows need for inclusion

Shows technological complexity

Shows institutional complexity

Why urban living labs? Experimental, bottom-up turn in policymaking



- Institutional inertness.
- Implementation gap.
- Decentralisation and hollowing out of state tasks
- Technology enabling decentralised action

What are urban living labs?



Definition:

- 'user-centered, open innovation ecosystems'
- based on a systematic
- user co-creation approach
- in public–private-people partnerships,
- integrating research and innovation processes in real life communities and settings'

(ENoLL, 2006)

LIVING LABS DIMENSIONS & CRITERIA

Why?



Aimed at
innovation

Aimed at
increasing **urban
sustainability**



The LL-activities take
place in the **real-life
use context**



Where?



All participants have
decision power

Who?

Aimed at
learning for
replication



Development
takes place



What?



Public actors,
Private actors,
Knowledge institutes
and **Users** participate



Co-creation
takes place

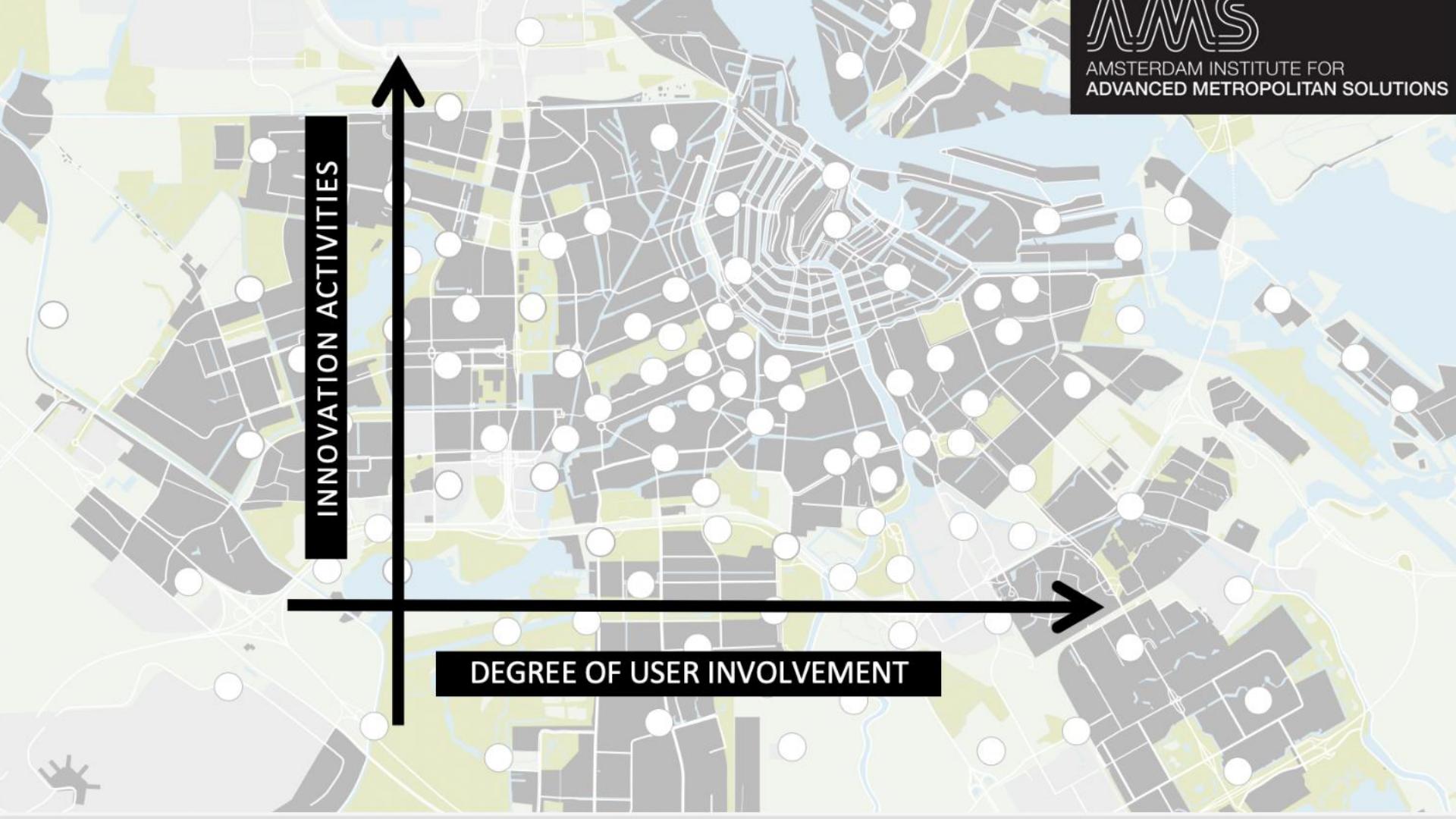


Iteration
takes place



AMSTERDAM INSTITUTE FOR
ADVANCED METROPOLITAN SOLUTIONS





INNOVATION ACTIVITIES

DEGREE OF USER INVOLVEMENT

RESEARCH

DEVELOPMENT

TESTING

IMPLEMENTATION

COMMERCIA-
LISATION



Process stage

no user participation in innovation



WITHOUT USER
(not user-oriented,
not user-sourced)

FOR USER
(user-oriented)

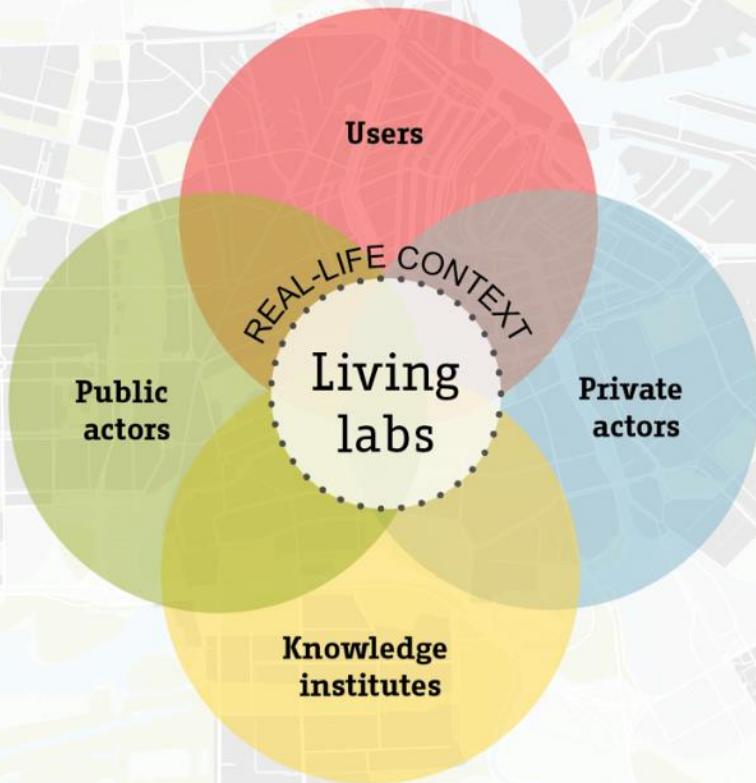
USING USER-DATA
(user-sourced)

user-participation in innovation



WITH USER
(potentially user-oriented,
potentially user-sourced)

User involvement





CO-CREATION

ITERATION

1. PLAN DEVELOPMENT

2. CONCEPT DEVELOPMENT

3. DESIGN

(4. PROTOTYPING)

5. IMPLEMENTATION

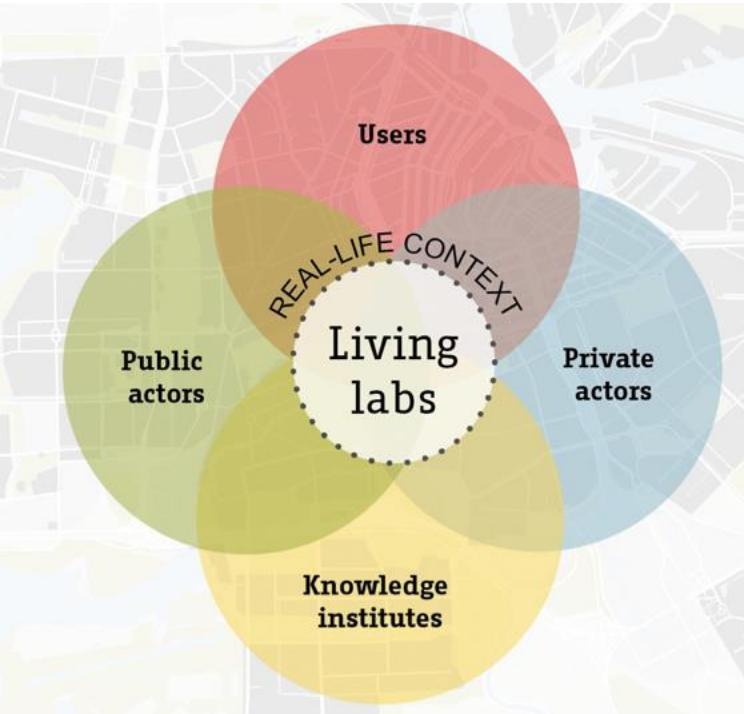
6. EVALUATION

7. DISSEMINATION

Some first experiences



Importance of inclusion of four groups of actors



- Knowledge institutes deliver crucial and convincing knowledge for project success.
- Inclusion of local authority (support) is crucial for long term existence of living labs.
- Participating users are not representative for all users / citizens.
- Private actors are crucial for implementation, dissemination & professionalisation

Lessons on replication

- Replication of the outcome requires replication of the ‘product’ and the process leading to it.
- Note: Outcomes will not be the same.
- Process requires institutional capacity: organisation & skills.
- Requires local entrepreneurship and local presence of actors.
- Requires practical conditions (funding, website, location, ...)





Lessons on scaling-up

- Formal recognition may reduce commitment of stakeholders.
- Professionalisation needed between start-up phase and production phase.
- Scaling-up cannot replace local building of network and trust: challenging for larger players.
- Include mechanisms to check goals and goal achievement (e.g. advisory board).

Conditions for learning

- Jointly define the innovation to be improved and adopted, including monitoring and evaluation scheme.
- Understand of the specific circumstances: geophysical, cultural, institutional, incl. project legacy.
- Learning infrastructure needed



Thank you!

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Almere Oosterwold: a large-scale urban experiment



Urban Living Labs

A living lab
way of working



Sources

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