Towards holistic approaches – starting with a common ground

Carmel Lindkvist carmel.lindkvist@ntnu.no
Brita Fladvad Nielsen brita.nielsen@ntnu.no
Hans-Martin Neumann hans-martin.neumann@ait.ac.at
Content

Why are holistic planning approaches important?

What is meant by common ground?

Results from cases

Next steps
Why are holistic design approaches important in urban environments?

- **People**
  - Urban population is increasing

- **Industry**
  - Buildings account for the main source of energy use in Europe

- **Policy**
  - European Union 2020, 2030 and 2050 goals
Planning occurs in a multi-criteria context

Noise and emissions; outdoor quality; green area and transportation.

Energy use and supply; indoor climate; common waste treatment.
Multiple stakeholders, disconnected agendas

Smart cities require more integrated strategies. More integrated strategies require increased and collaborative capacity building.
Our experience...

Nearly Zero Energy Neighborhoods (ZenN)

Realising energy reduction on a neighborhood scale
ZenN challenges

New concepts
- “... When you introduce something new it reveals a communication demand and a lot of confusion and worries that need to be addressed.”

Need for new and current knowledge to merge
“It is necessary (for energy experts) to talk to the building guys to make sure that they don’t create any trouble for each other”

Misconceptions
Installation of solar thermal panels for heating water was difficult to understand by residents. They thought “the first that wakes up in the morning will be the one that will consume the hot water”.

Our experience...
Our experience...

Knowledge transfer (ZenN)

- Ongoing communications
  - Project to users
  - User to projects

- Building consensus
  - Steering group
  - Liaison person

- Mutually accepted decisions
  - Problem solving
  - Ownership

Knowledge building

- Skill training
  - Identifying gaps in established practices

- Stable referents
  - Guides, manuals

- Learning by doing
  - Adjustment period
  - Experimenting
  - Calculated risks

NTNU
Norwegian University of Science and Technology
"It has to be about more than how thick the walls are" (A need to move from building to larger impact)

"I want my building to encourage me to behave sustainably, for example by making it possible for me to wash my bike at the ground floor of my apartment building" (Sustainable behaviour)
«Mrs. Hansen will sit in her apartment and tell her TV that she needs to go to the doctor and then an electric car will be booked for her in the basement of her building» (User-centred)

«We want citizens to be able to see that their hockey club is powered by local energy sources and what that does to global warming» (the Engaging City)

«Soon, the washing machine will turn on automatically when the energy prices are low»
«When you fly over Norway, it looks as if someone has been throwing Smart Houses from the sky» (Aesthetics)
«We need to require the evaluation and comparison of different alternatives in city plans and their [environmental] cost/benefit» (Scenario building and visual tools)

«We do not have the regulatory tools to set high enough requirements»

«Project owners need to see the impact of each step, the [climate gas] objections are too difficult to break down»

«There is a strong need for incentives to ensure first-movers»
"We need to learn how to plan for incremental learning when building larger housing projects" (Knowledge)

"We need to require the evaluation and comparison of different alternatives in city plans and their [environmental] cost/benefit" (Scenario building and visual tools)
«How will we know, how the creation of a Smart Energy Community of Smart City thinking in Bergen effects building plans and mobility in neighborhoods municipalities?»

«My job is to create good living environments / gode bomiljø. Energy is irrelevant»

«Energy resources will bring industries and jobs to the region with more Renewable Energy»
Austrian Case

- „Smart ItzGoeS“, project funded by the Austrian Fund for Climate and Energy
- Evaluation of different options for a low- to zero carbon refurbishment of an existing social housing complex in Salzburg
- The neighborhood was built in the 1970ies and has currently about 2,500 inhabitants.
- The study looked at several for increasing the energy efficiency and provide renewable from locally available sources

Our experience...
A city-wide analysis had identified the Goethesiedlung as a potentially suitable showcase for achieving carbon neutrality by refurbishment measures.

The SmartItzGoes project showed however, that carbon neutrality will be hard to achieve in this neighborhood in the short and medium term.

=> This is not due to technical issues, but to economics, the legal framework and social requirements.

Local politicians, planners and other stakeholders considered aspects like improving the quality, affordability of housing, providing new transport options and designing of open spaces as equally important as reaching ambitious energy and climate targets

=> Integrated scenarios were developed.

Also, it became apparent that there was no way to finance an “energy only”-scenario. It will only be possible to carry out ambitious refurbishment scenarios when a certain number of additional new apartments can be built in the districts.

=> Need for an integrated urban design concept for the district.
Austrian Case
Conclusions

• Energy efficiency decisions impact all stakeholders – Need for inclusiveness.
• Power dynamics of current status quo
• Ambitious energy measures but difficult in practice – integrated urban design thinking
• A need for strategies to facilitate smart energy community development and implementation of visionary projects
• A need to find tools to approach non-technical / hard to measure issues (the human factor)

• Next steps: forecasting and analysis of current tools and needs