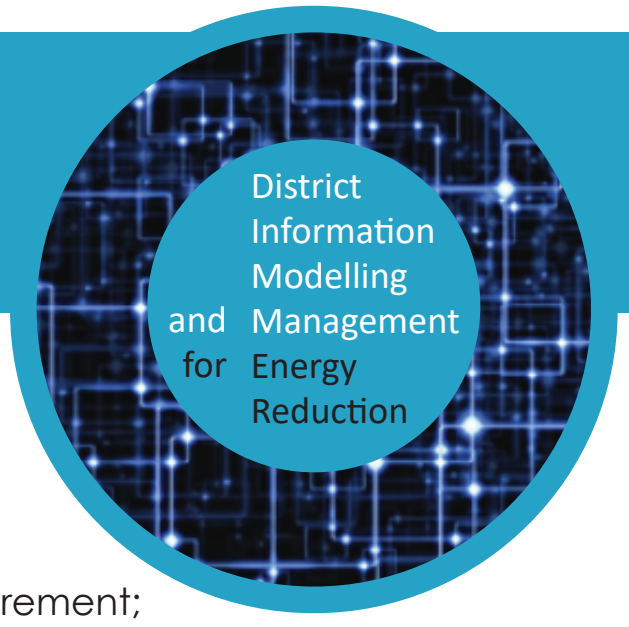
MAKING ENERGY GRIDS SMARTER. DECOMPOSING AND REASSEMBLING SOCIO-TECHNICAL APPARATUSES



Smart energy grids allow for savings, give smart information, connect providers and users. What is still lacking in this claim is an **ontological dimension** of both energy and grid.

In order to do that, we conceive energy grids as **technological zones** (Barry 2008). They take one or a mix of three forms:

- **metrological zones** associated with the development of common forms of measurement;
- **infrastructural zones** associated with the creation of common infrastructures and connection standards;
- **zones of qualification and improvement** that come into being when objects and practices are assessed according to common standards and criteria.

Energy grids are situated socio-technical systems that combine hard technical infrastructures and devices with expectations of ordinary and pre-established actions and behaviours from both distributors and final users. In this sense, they need of repetitive interactions among all human agents and technical devices involved and locally composing the grids.

CASE STUDY: DIMMER (FP7-SMARTCITIES)

DIMMER realized tools for the visualization and simulation of data about energy grids at urban district level in order to increase the efficiency of the heat and electricity distribution networks.

CARRIED OUT ACTIVITIES

Where: Turin and Manchester
When: 2014-2016
Interviews: 59
Focus groups: 5
Co-design meetings: 5
Validation workshops: 4
Participants: Energy utilities professionals, Building managers, Public administrators and planners, Building users.

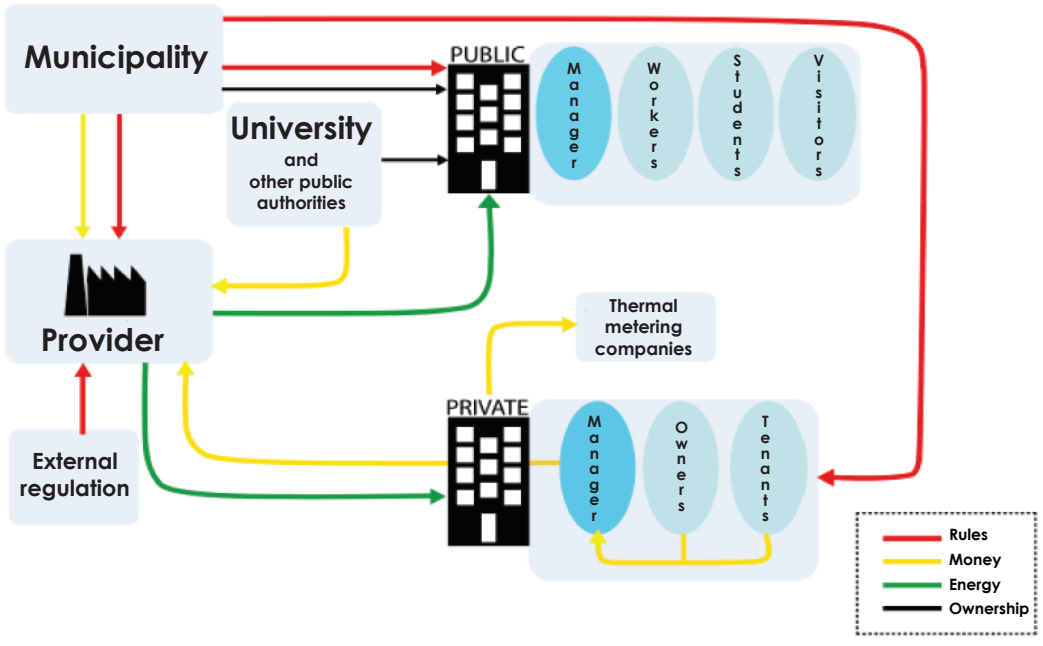
OUR OBJECTIVES

- Classifying **users** depending on their energy and building usage;
- Creating **tools** for involving users into energy-related decisions and collecting their feedback;
- Identifying strategies for the **visualization** of energy-related information.

TOOLS AND APPROACHES (of SSH practitioners within energy innovation projects)

1) **Social Research**: Understanding the "social" world linked to the energy grids.
2) **Social Accompaniment**: Remove barriers and conflicts, or act as mediators in case of conflicts.
3) **Co-design and participatory design**: Act as mediators or facilitators between users and engineers. Involve users into innovation processes.
4) **Interdisciplinary approach**: Act as mediators or facilitators among different expert spheres.

MAPPING OF THE SOCIO-TECHNICAL SYSTEMS



ASYMMETRIES IN ENERGY SYSTEMS: PUBLIC BUILDINGS

	Energy managers	Building managers	Building users
Interested in reducing costs	Yes, it is among their tasks	Generic interest	No
Possibility to reduce costs	Yes, depending on financial resources	Generic possibility	Limited possibility
Interested in reducing energy/environmental impacts	Yes, also for image purposes	Yes, for education and image purposes	Generic interest
Possiblity to verify the effectiveness of ecological practices	Yes, althougt with big margin of error	No	No
Interested in contributing to the efficiency of the grid	Yes, with incentives	No awareness	No awareness
Knowledge of the energy and thermal system of the building	Yes	Vague or wrong	Vague or wrong
Knowledge of the level of consumption of the building	Yes	No, or yearly and only in monetary terms	No
Knowledge of the building's consumption compared to other buildings	Yes, althougt with big margin of error	No	No
Control on other building users' energy behaviours	No	Yes/No	Informal roles

Authors: Dario Padovan, Osman Arrobbio.
University of Turin, Department of Culture, Politics and Society
SoLaRS – Social sciences Laboratory for Research on Sustainable Energy

Contact:
dario.padovan@unito.it
osman.arrobbio@unito.it
Website: www.unescochair.it