

Overview of research on multiple benefits, case studies, methodologies & stakeholders

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Research work

- Several background literature reviews
- Linked multiple benefits to the theories of change which are used, consciously or unconsciously, by decision makers
- Nine case studies highlighting multiple benefits
- Developed two new methodologies for assessing a non-energy benefit
- Discussed multiple benefits with a variety of stakeholders
- Investigated how NGOs promoting energy efficiency use multiple benefits arguments
- Deepened our understanding of what a multiple benefits framework means and how it can be used & what tools and evidence may be required



There is not much academic literature on multiple benefits

Number of academic journal articles in two databases by search criteria

Search terms	SCOPUS	Web of Science
"multiple benefits" AND "energy efficiency"	13	7
"intangible benefits" AND "energy efficiency"	0	1
"multiple impacts" AND "energy efficiency"	3	2
"co benefits" AND "energy efficiency"	73	56
"non energy benefits" AND "energy efficiency"	22	8
"energy efficiency"	58,689	25,935

There are many theories of change

Theoretical model	Framing of decision-making
Rational choice theory	Optimisation by benefit- cost analysis
Socio-psychological & behavioural theories	Multiple factors in individual choices; multiple barriers
Social learning, communities of practice, social network theory	Social norms moderated by personal agency, routines, skills
Organisational & policy change models	Organisational norms and competencies
Cultural theories	Decisions reflect cultural beliefs
Socio-economic theories	Different socio-economic groups have different frames
Power theories	Individuals and groups have varying degrees of power
Policy change theories	Level of concern and capability among policy-makers
Socio technical theories	Co-evolution of technology and behaviour

Case studies 1: Regional & sectoral

Regional / local focus

- **Austrian Energy Regions**
- Kirklees Warm Zone
- Improving energy efficiency of public buildings in Warsaw and historic buildings in Krakow
- Emden energy education programme

Industrial / commercial

- L'Oreal Italy: Zero emissions
- Green building research: health, well-being and productivity in retail

Financing

- Financing energy efficiency programme: JESSICA & FIDAE



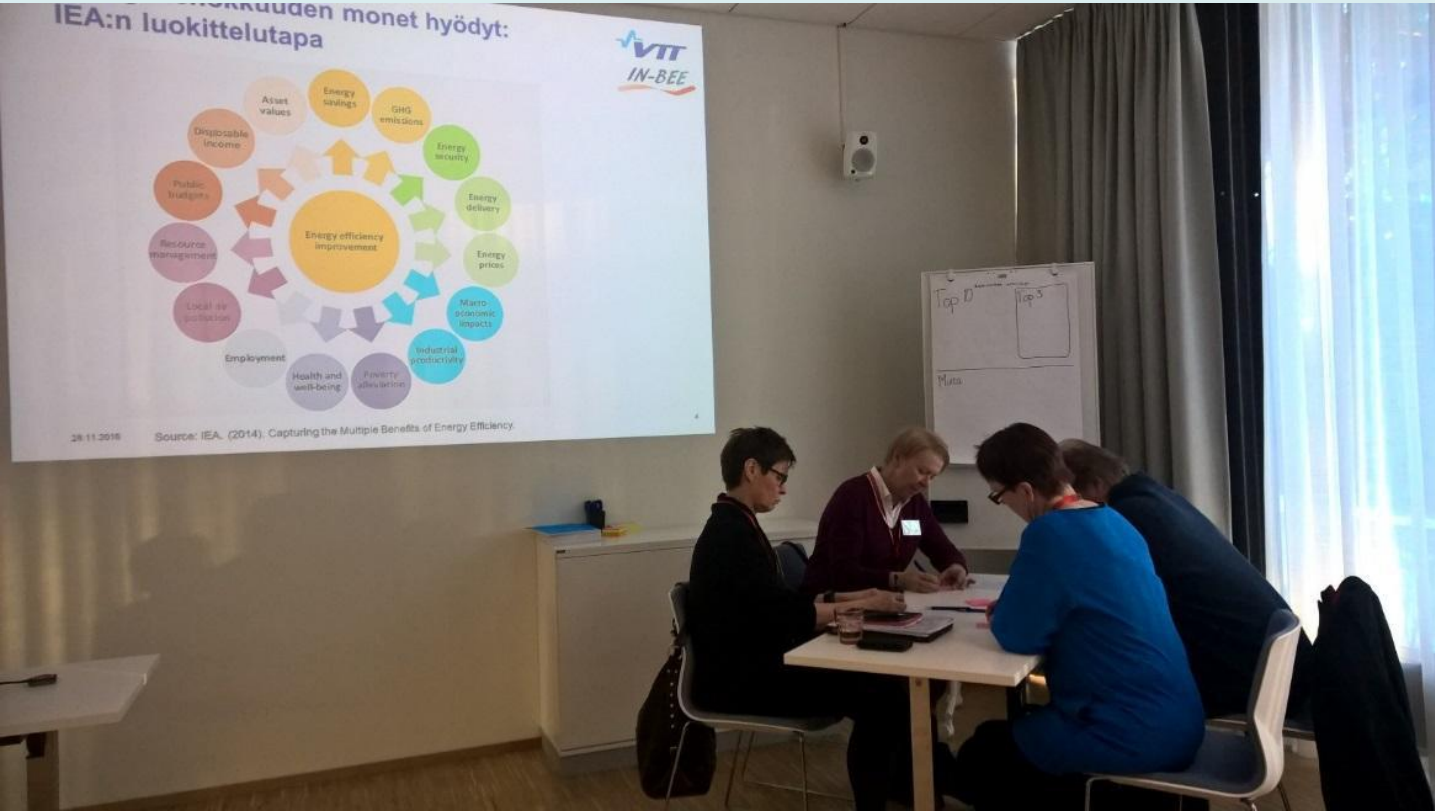
Case studies 2: New methodologies have been explored and tested

We have developed

- A model for estimating the monetary value of different perceptions of energy price risk (ie the risk of future energy price rises, rather than the price differential per se);
- **A model for estimating both indoor comfort and labour productivity using the principle of human exergy** (rather than more conventional methods based on internal temperature and comfort votes of building users).



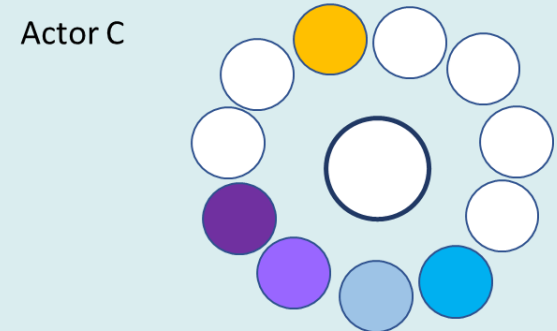
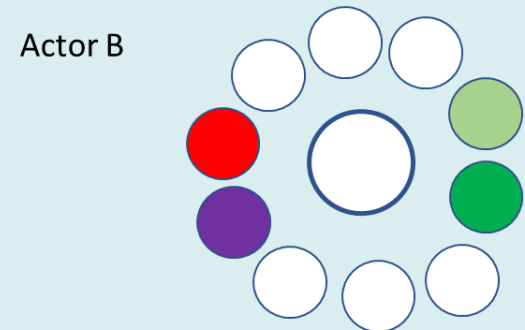
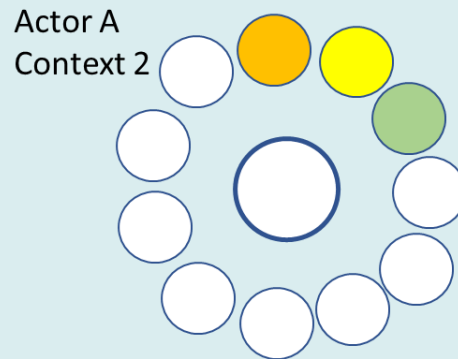
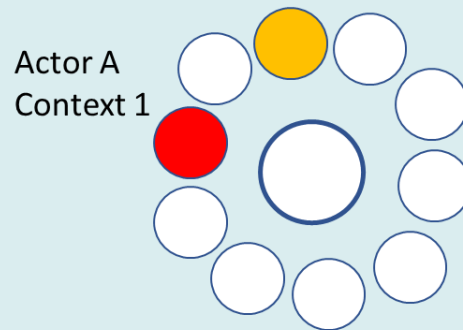
Stakeholder engagement has taken several forms



Research with NGOs

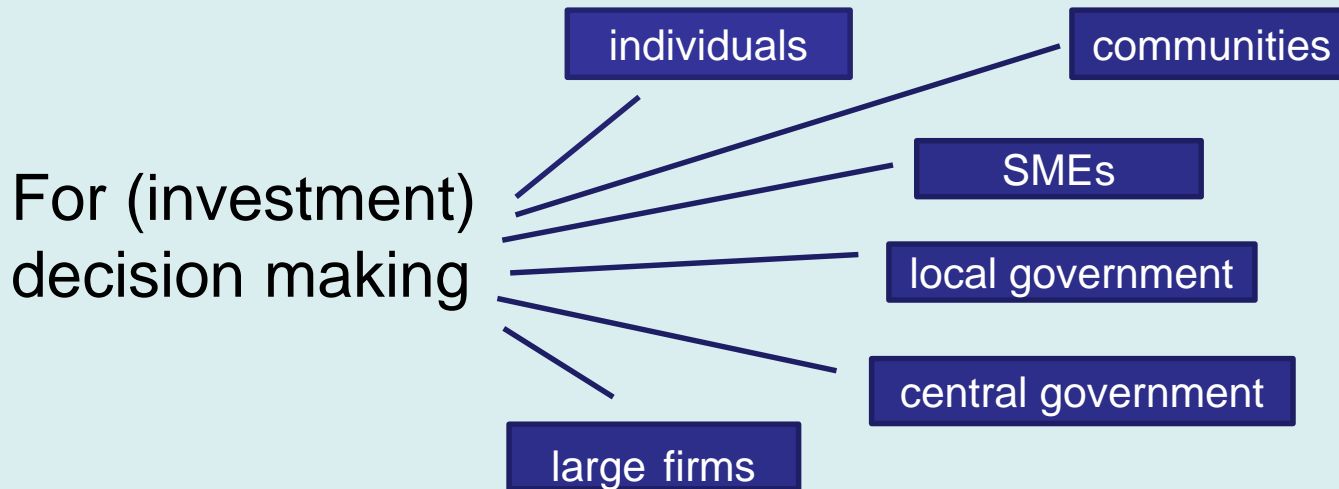
How are multiple benefits arguments used by those seeking to influence decision makers towards stronger support for energy efficiency?

One finding:
only salient
arguments
are used



Different roles for multiple benefits

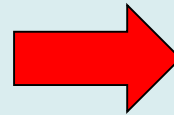
For enhanced cost-benefit analysis used for standard setting



For communication and engagement

For coalition building

Should energy efficiency always be at the centre?



From flowers to bicycle wheels