Notes from the Workshop on Subtask I Helicopter Overview in Brussels, Sept. 7 2012

IEA DSM TASK XXIV:
Closing the Loop - Behaviour Change in DSM:
From theory to practice

economie
FPS Economy, S.M.E.s, Self-employed and Energy

Agenda (adapted to what we did)

Morning:

• Coffee, 'registration' (15 mins), fill out the posters with your answers
• **Welcome and Intro on the task and the day;** Pecha Kucha by Sea on Task XXIV
• **Pecha Kucha's addressing country-specific relevant issues, needs, questions**
- Sylvia Breukers and Charlotte Kobus: the Netherlands
- Henrik Karlstrøm Norway
- Jonas Fricker: Switzerland
- Janet Stephenson: New Zealand

• **The Belgian story:**
- Hélène Joachain and Grégoire Wallenborn): with regards to DSM and behaviour change programmes in Belgium
- Frédéric Klopfert (Belgian National Expert): story of Belgian's specific contexts (political, geographic, cultural, legislative, infrastructural etc), drivers and needs. Included a discussion around definitions.

Wrap up of the morning session
- Lunch & some short interviews of participants telling their own 5-minute energy 'story'

Afternoon:

• Review of existing knowledge: presentation of draft positioning paper, Sylvia Breukers (15 mins; addressing the definitions, context, systems approach, 4 themes)

Model-in-a-minute:
• Sea Rotmann: Nudge and policy making
• Sylvia Breukers: MECHanisms
• Grégoire Wallenborn: Practice Theory
• Paul Upham : Attitude Theory
• Catherine Coormans: Business model
• Janet Stephenson: Energy Cultures

Discussion on the models themselves and their applicability on specific contexts
Next steps: collecting cases and theories
Drinks at Café Flamenco

We have had:

Great attendance: 24 people (from Belgium, Switzerland, Norway, Sweden, New Zealand, the Netherlands, United Kingdom, Spain)

Very informative and fun presentations and Pecha Kuchas

Constructive discussions addressing the basic definitions

Good points of departure for the next steps in:

- Collection of **case studies**
- Making the **models of understanding** useful in understanding these cases
- Clarifying the themes **SMEs, Households, Transport, Renovation/Retrofit, Smart Metering** and how (not) to address these

Attendance

François Brasseur (Belgian Federal Ministry of Economy - DG Energy, Belgium)
Xavier van Roy (Leefmilieu Brussel / Bruxelles Environnement (Brussels Region)
Grégoire Wallenborn (Free University of Brussels - Centre for Studies on Sustainable Development)
Benjamin Wilkin (APERe (Association pour la Promotion des Energies Renouvelables), Belgium)
Michel Huart (APERe (Association pour la Promotion des Energies Renouvelables), Belgium)
Hélène Joachain (Free University of Brussels – CEESE, Belgium)
Frédéric Klopfert (Free University of Brussels – BEAMS, Belgium)
Erik Laes (VITO)
Arnaud Latiers CORE - University of Louvain-la-Neuve, Belgium)
Benoit Mattles (Free University of Brussels – BEAMS, Belgium)

Catherine Cooremans (University of Geneva - Institute for Environmental Sciences, Switzerland)
Jonas Fricker(Zurich University of Applied Sciences (ZHAW), Switzerland)

Henrik Karlstrøm (Norwegian University of Science and Technology, Norway)

Sylvia Breukers (DuneWorks, Netherlands),
Charlotte Kobus (Enexis B.V., Netherlands)
Rob Kool (NL AGENCY, Netherlands/IEA DSM)
Tony Torn (Film Maker, Rotterdam)

Jenny Palm (Linköping University, Sweden)

Sea Rotmann (Sustainable Energy Advice, New Zealand)
Janet Stephenson (University of Otago - Centre for Sustainability)

Matthew Batey (Independent Carbon Consultant(Belgium/UK)
Richard Snape (De Montfort University - Institute of Energy and Sustainable Development, Uk)
Paul Upham (Centre for Integrated Energy Research and Sustainability Research Institute, University of Leeds)

Miguel Toledano (Cullen International, Spain)

Presentations

To see and hear the Pecha Kuchas and the Belgian powerpoint presentation, please go to the online community:
http://ieadsmtask24.ning.com/ (not yet invited? Ask us to do so)

Pecha Kuchas:

Sea Rotmann on Task XXIV
Sylvia Breukers and Charlotte Kobus: the Netherlands
Henrik Karlstrøm: Norway
Jonas Fricker: Switzerland
Janet Stephenson: New Zealand

The Belgian story:

- Hélène Joachain and Grégoire Wallenborn: DSM and behaviour change programmes and research in Belgium
-Frédéric Klopfert: story of Belgian contexts

Presentations

Models in a minute (or more...):

- Sea Rotmann: Nudge and policy making
- Grégoire Wallenborn: practice theory
- Sylvia Breukers: MECHanisms (make energy change happen-toolkit)
- Paul Upham: Attitude theory
- Catherine Cooremans: business decision-making on investments in energy efficiency
- Janet Stephenson: Energy Cultures

The models have been filmed and will also be available on the Expert Platform at a later stage...

The Belgian story:

Hélène Joachain and Grégoire Wallenborn from the Free University of Brussels (UBL): previous and ongoing research and initiatives in Belgium, e.g.:

- THESPI: study on policy instruments aimed at reducing energy consumption in various socio-economic groups in Belgium
- HECORE: study of rebound effects linked to the increased efficiency of energy use by Belgian households, and of policy instruments to attenuate, neutralize or possibly prevent rebound. This project focuses on dwelling energy consumption (heating, electricity) and household mobility (work, leisure).
- INESPO: new instruments that combine complementary currency systems with smart metering systems, in order to achieve energy savings at household level
- De E-Portemonnee (E-wallet): complementary currencies
- SmartCityBlock: block-level approach to renovation, efficiency and savings

Overall research aim: understanding implicit hypotheses of different models on behavioural change.
Policy analysis: articulation and coordination of different dimensions that are currently not integrated

The Belgian story: summary and conclusions

Frédéric Klopfert (UBL): "Belgian Context. Why make it simple if it can be complex?"

Main points summarised and conclusions:

Policies:

- Policies that encourage bottom-up approaches (social networks, participatory approaches)
- Linking up of policy at federal, regional, city and community level

Scientific:

- Are behaviour changes quantifiable and permanent?
(indicators and how to measure the proportion of savings related to behaviour; can efficiency be measured at the level of a city?
- How can human decisions (micro level) be used for global network regulation (macro level)? How can we arrive at quantifiable indicators to measure lasting behavioural change?

The Belgian story: summary and conclusions

Motivation to contribute to IEA DSM Task XXIV:

- Techno-economic reasons for aiming at DSM
- Crucial question: how to achieve DSM? How can smart metering contribute? How can we achieve changes in behaviour?

Expectations from IEA DSM Task XXIV:

Practical:

- Which DSM techniques can help in energy saving and shifting? (smart metering; new services and concepts (storage, V2G))
- Can technology be used to enable bottom-up initiatives?

Market:

- New model for integration of local generation and RE
- Valuation for flexibility for consumers and related incentive for behavioural change
- Transition to efficient energy system.
- Allocation of costs/benefits for maximizing social welfare
- What regulatory changes are required and effective?
- Legal frameworks regarding behaviour measurement and privacy issues

The Belgian story: summary and conclusions

Conclusion:

In Belgium, DSM is seen as a technico-economical solution for

- security of supply, energy prices
- nuclear exit
- increasing share of RE and DG in electricity production

Behavioural aspects are mainly based on:

- public authorities as an example
- information, energy challenge
- financial incentives (building, low carbon vehicles, ER)

Theoretical behavioural model based on ‘planned behaviour’ is dominant.

Need for models for the meso-level.

Constructive discussions on:

1. Discussions about the definitions of Demand Side Management (DSM) and behaviour change

2. Discussions between theoretical perspectives

3. Discussions regarding the usefulness of perspectives

4. Discussions on the collections of case studies

These 4 aspects and the discussion are summarised in the following slides.

1. Discussion on definitions: DSM

Definitions: Demand Side Management (DSM)

Working definition in Task XXIV so far: DSM refers to all changes that originate from the demand (energy user) side:
- reducing the demand for energy (conservation)
- shifting demand from peak periods to off-peak periods (load-management).

Goal: to achieve large-scale energy efficiency improvements and overall consumption reduction.

Suggestion for a different definition:

DSM refers to policies, mechanisms and techniques designed to influence energy behaviour. The intention of the influence may include
- **conservation** (reduction in energy use),
- **efficiency** (more efficient use of energy) and
- **load management** (shifting patterns of energy use).

1. Discussion on definitions: DSM

Further suggestions and comments:

- Should we distinguish explicitly between different fuels at the load level (e.g. DSM targeting electricity usage is very different from DSM targeting transport fuels).

- Is load shifting mainly an electricity issue and about time-of-use? Or could it also apply to transport, eg when heavy freight traffic is using the highways at night?

- What about location load shifting (e.g. taking the shower at work instead of at home) and problems this poses if do not measuring this too? (rebound)

- What about energy fuel shifting?

- The issue is not so much how to define DSM, but how to define consumers/producers – in light of prosumers who may conserve energy through shifting use based on the availability of self-generated energy (similarities here with EV to shift load over time)

1. Discussion on definitions: DSM

- Demand Side *Management* does not imply reduction or conservation per se. *Management* refers to change, which can also be an increase in the use of energy to improve health (e.g. the case in New Zealand). So a reduction need not always be the aim of DSM. The aim is rather to provide ways to maintain or improve the environmental and social quality of the services.

- General DSM definition of IEA *does* imply an overall reduction.

- Definitions may also distinguish between shorter and longer term (whereby long-term aim is overall reduction, while leaving room for short-term increases in use of energy if that is necessary from a health perspective)

….We acknowledge diversity in definitions and expect that this discussion will be continued on the next IEA meeting in Oxford (October 9-10, 2012)

If you want to add to this debate, please start a discussion on the Expert Platform: www.ieadsmtask24.ning.com

1. Discussion on definitions: Energy Behaviour

Definitions for energy behaviour

Working definition in Task XXIV so far:

Behaviour: the externalisation of a complex combination of our emotions, morals, habits, social and normative factors.

- Curtailment/routine behaviours: habitual energy practices - eg turning the lights off

- Investment/intentional behaviours: purchasing and installing energy efficient technology - eg installing energy efficient lightbulbs

There is also a distinction between behaviours that involve:

- *a shift* in demand
- a direct *reduction* in demand

1. Discussion on definitions: Energy Behaviour

Suggestion for a different definition:

Energy behaviour:
refers to all human actions that relate to the use of externally acquired energy. It includes:
- the **acquisition** of energy-related technologies and materials
- the **maintenance** of these,
- and all energy-consuming **practices**.

Further suggestions and comments:

Rather distinguish between:

- Efficiency behaviour: more efficient use of same amount of energy, maintaining (or improving) the service – usually involves technology purchase
- Conservation behaviour: overall reduction without regard for the service – refers usually to changes in habits

OR:

- Energy practices WHAT WE DO
- Material culture WHAT WE DO IT WITH

1. Discussion on definitions: Energy Behaviour

Or distinguish between:

- Investment behaviour – conscious decision making
- General purchasing behaviour – less conscious
- Lifestyles – routines, habits

- Important to distinguish between consumers and prosumers when addressing ‘segments’ and their behaviours. Raising interest for smart meters among prosumers works very differently in terms of e.g. timing.

Afternoon discussions also problematised the focus on behaviours – rather than focusing on practices.

…this discussion will be continued on the next IEA meeting in Oxford (Oct 2012)

If you want to add to this debate, please start a discussion on the Expert Platform: www.ieadsmtask24.ning.com

2. Discussions: different theoretical perspectives

- Practice Theory also appears to be at odds with the current terminology used in this Task XXIV with the focus on behaviour rather than practice.

- In fact, the current Draft Position paper presents contradictions in this sense, referring to practice theory while also addressing behavioural change in a way that assumes choice and preference. Practice theory, however, is not based on individuals but on how things are done. It uses different units of analysis. Attitudes are only one element, and follow from practices.

- There criticism on Attitude Theory, but it goes too far to do away with a theoretical approach that is based on many years of work and thought.

3. Discussion: usefulness of perspectives

Practice theory uses units of analysis that are not so useful for policy makers.

It looks at policy making as a part of the process; policy as doing experiments; learning & doing.

Attitude theory places the individual centrally. It looks at personality traits and how society looks at these; norms, values, attitudes and behaviour and how these relate to each other. Efficacy and self-efficacy are important. Attitude theory is clear and can be applied, that is what makes it so attractive to use.

However, it is very different from sociological perspectives which argue that change in behaviours only can happen when you change the world around that behaviour.

However, changing the world is a political act and that poses yet other challenges (note: need for attention to politics of energy consumption and DSM).

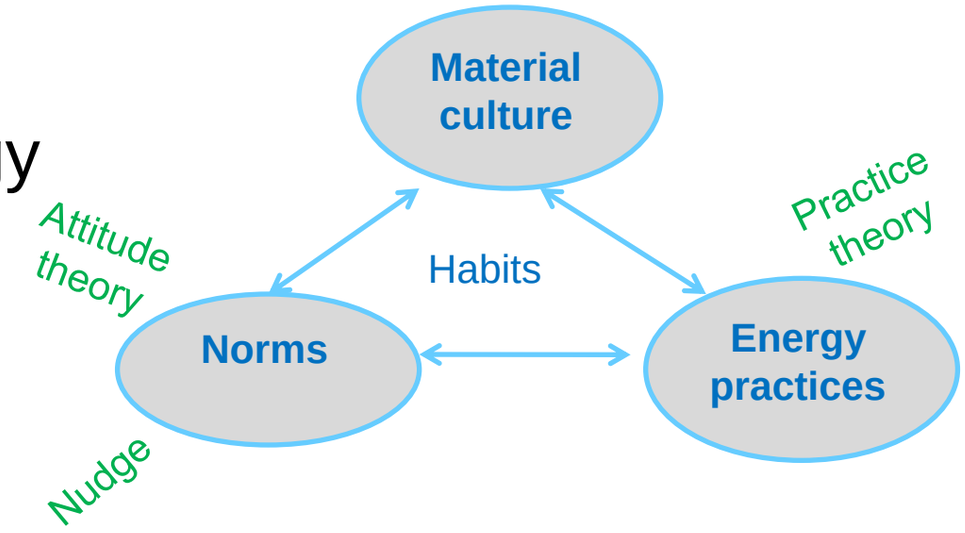
3. Discussion: usefulness of perspectives

Business decision making processes on energy efficiency investments:

- Research shows how long-term competitiveness and positioning are more important than a straightforward financial logic. Companies need to maintain a sustainable advantage, which relates to value, cost and risk.
- Rather than focusing on cost, we should target value and risk for that is what drives companies decision-making.

Energy Cultures Framework:

- High-level generalised understanding of energy behaviour and avenues for affecting change.
- Energy behaviour is the interaction between material culture, norms and practices and energy change starts with a shift in any of these



- This means that when change starts with a change in norms, insights from attitude theory or nudge may be of relevance.

3. Discussion: usefulness of perspectives

Nudge and policy making:

- Nudge is based on behavioural economics
- It's power lies in the attractiveness it has for policy makers, particularly the bi-partisan approach of *libertarian paternalism*.
- It uses ideas such as setting the best default settings, knowing that most people won't change from the default; anchoring; and altering the environment in which people choose (choice architecture)
- It definitely has its use, as it shifts policy makers understanding from humans being entirely economically rational to something more complex

MECHanism (Make Energy Change Happen toolkit)

- toolkit for organisations that design and implement energy DSM projects that target behavioural changes
- based on extensive and trans-disciplinary work, research, and piloting
- basics: it helps to design a project that is tailored to the particular context in which it is planned *and* that is tailored to the characteristics, competences and resources of the implementing organisation.
- step-by-step or pick-and-mix approach - online in 4 languages

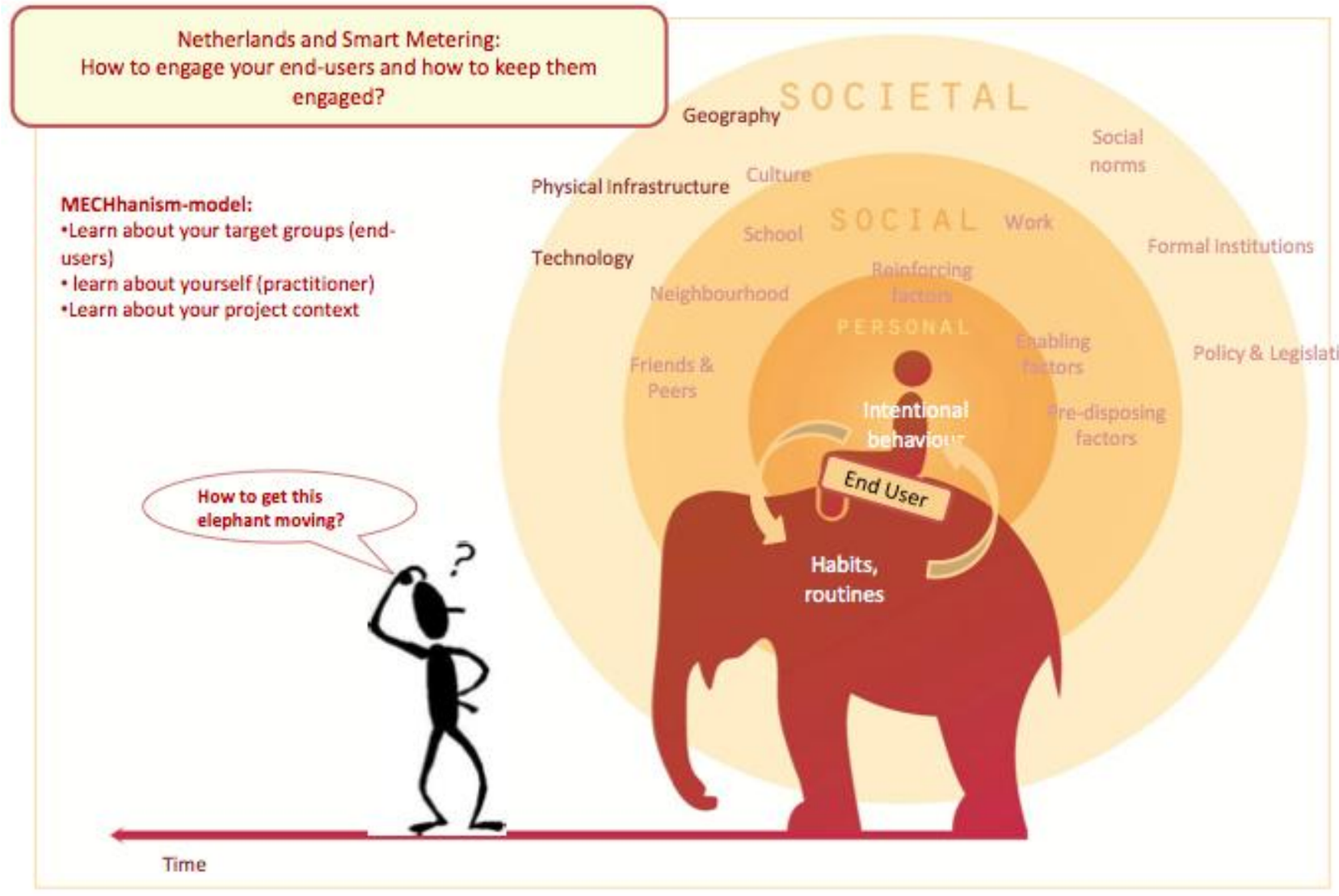
3. Discussion: usefulness of perspectives

The elephant

-From several theoretical perspectives, the separation of the various aspects in layers of context is problematic

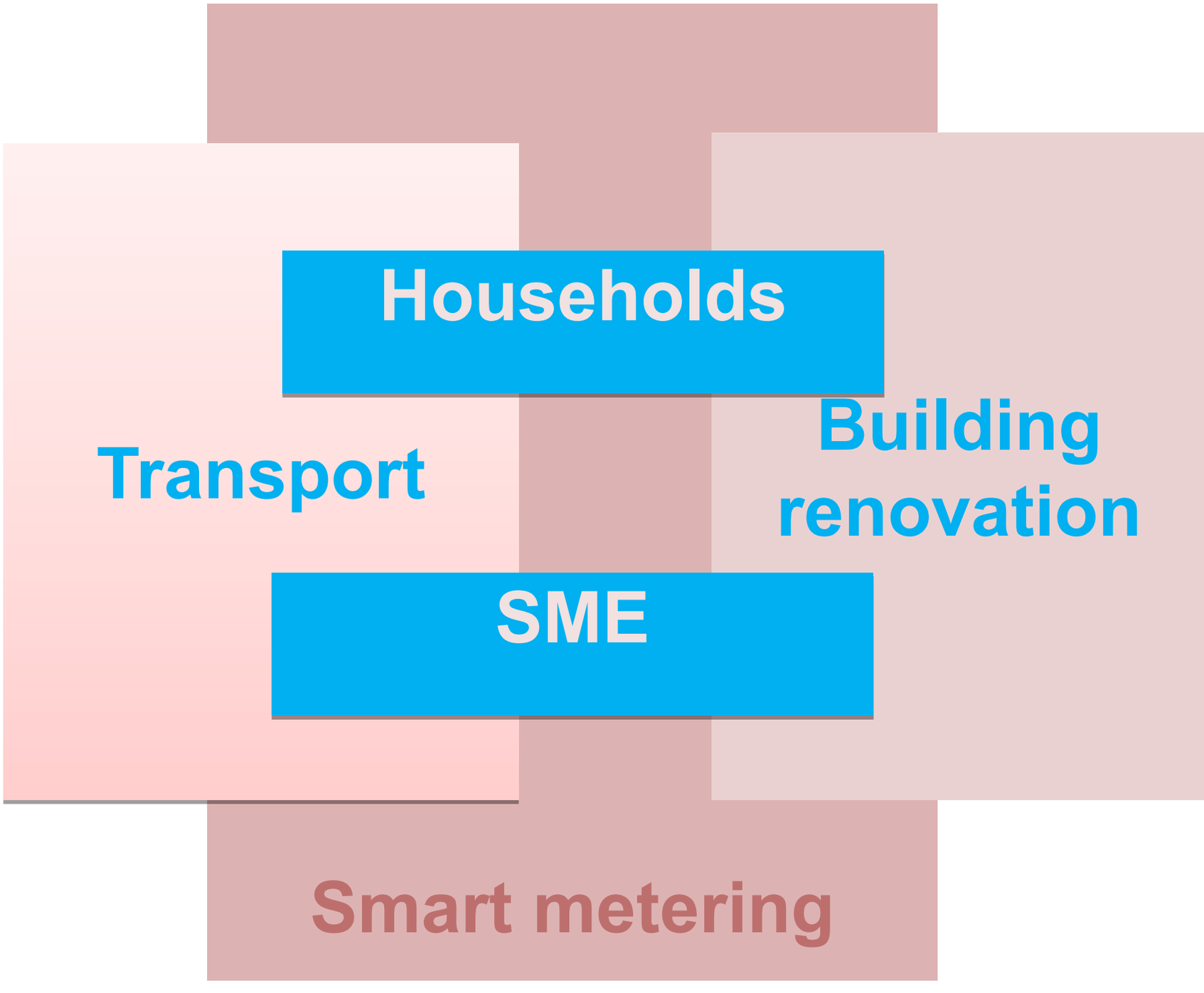
- However, it does provide a helpful tool to map the context in which a change is envisaged to take place

- It also provides opportunities to map a back-casting trajectory (whereby the pathway towards a desired behaviour change outcome is mapped backwards)

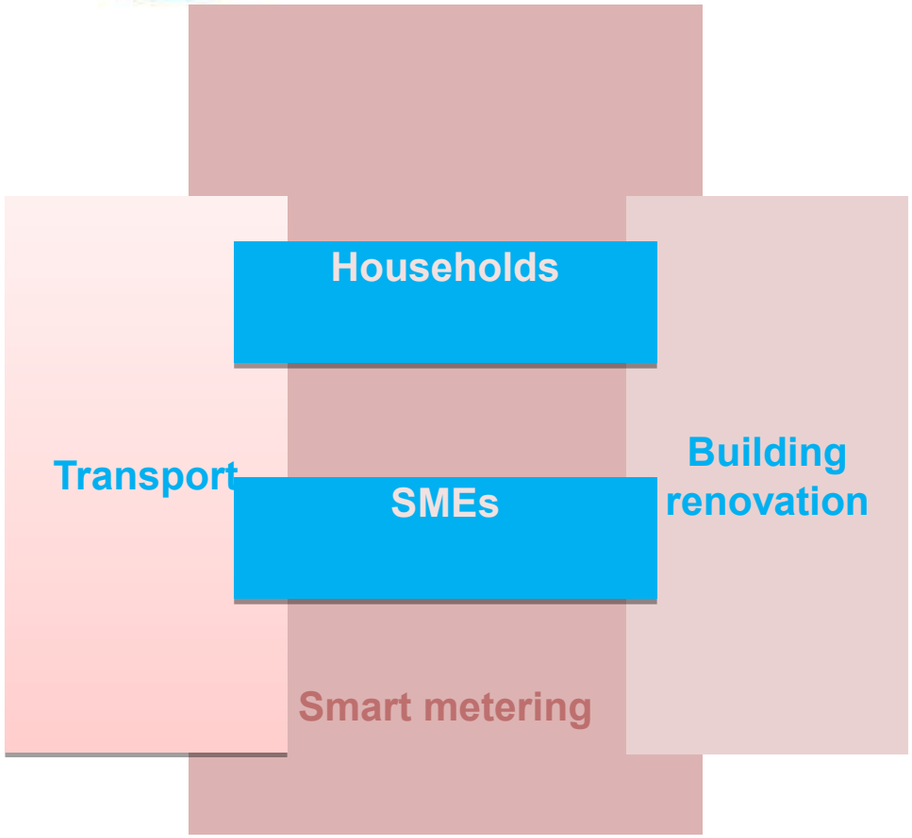


4. Collection of case studies

Crucial themes to address in Task XXIV according to the participating countries:



4. Collection of case studies



	Households Efficiency behaviour	Households Curtailment behaviours	SMEs Efficient behaviours	SMEs Curtailment behaviours
Transport	eg fuel efficient vehicles	eg switching to biking or walking	eg fuel efficient vehicles	eg switching to fewer trips, consolidating
Transport Smart Metering	eg EVs connecting into a smart grid, smart house with smart appliances	eg using fuel consumption feedback device to drive more effectively	eg EVs connecting into smart grid	eg using GPS and fuel consumption feedback to encourage smarter driving
Building renovation	eg installing insulation	eg removing the bathtub and installing a shower	eg Installing efficient HVAC system	eg removing number of lifts to encourage staff to use stairs
Building renovation Smart Metering	eg installing smart metering and feedback displays	eg ripple control	eg installing smart building management system	eg providing feedback clues to encourage conservation behaviour (eg green light when to open window)

- We hope to collect case studies in all relevant thematic fields
- One case study can address multiple themes and it can also address practices rather than behaviours
-The table is intended to keep track of whether we are collecting cases that cover all four themes and different behaviours (e.g. efficiency & curtailment; or investment & routine behaviours; or conservation & efficiency behaviours – still subject to discussion)
- We know they are sitting on a continuum, rather than being black & white delineations
- We do **not** expect each country to come up with 16 case studies!

Collecting case studies (with the templates)

- **There is a need for us to come up with clearer guidance as to:**

- **Aim of these case studies**, e.g.

- learning about country specific best-and worst practices in relation to the four themes
- learning about underlying perspectives of the approach adopted in these cases (e.g. interviews with the actors that undertook the programmes/projects the case studies are based on), or making ‘educated guesses’ of what models of understanding re underlying behavioural drivers and barriers were used when designing the interventions (eg straightforward financial incentives suggest a classical economic theory of human behaviour)
- how else to address the ‘models of understanding’ (e.g. also take one model to better understand this case-outcome)?
- do we aim at cross-comparison? (across themes, countries, and for what reasons?)
- how are these case studies best conducted (the current template may be a bit too rigid)?
- …….

- we are currently working on this! Please keep providing us feedback.

Further remarks

- on the writing of the codes by ESOI and the Smart Grid Taskforce (Miguel Toledano) in which no attention is being paid to behavioural aspects

- the importance of storytelling: why is it that our 'right' story on energy efficiency and the importance of understanding human behaviour is not being heard/understood by decision-makers? Why are the old and disproven stories on unlimited economic growth, technological silver bullets, and *Homo economicus* still so powerful? What can we do to tell our story better?

- Connecting top-down (policy/market) initiatives and bottom-up (grassroot, community) initiatives. How to better enable the latter and anchor it into policy making and programme design?

- How to use the power of open innovation, action research, crowdsourcing and shared learning practices better?

Further remarks

- Look at the city-level of governance rather that focusing on national policy making because at the city-level the most interesting things are currently happening. That is where alignment with bottom-up initiatives *is* successful. Here we can bring in practice theory and look at several examples and try to better understand these with practice theory – rather than trying to ‘translate’ practice theory into national level policy.

- Look at what is happening in US, Canada, UK

- Connect the micro, meso and macro levels

Good points of departure for the next steps

- We will provide you with clarification and feedback on:

- Collection of **case studies** including template with interview questions

- Making the **models of understanding** useful in understanding these cases

- Clarifying the themes **SMEs, Households, Transport, Renovation/Retrofit, Smart Metering** and how (not) to address these

And remember:

‘The difference between theory and practice is that

in theory it’s much easier than in practice!’

IEA DSM TASK XXIV

Closing the Loop - Behaviour Change in DSM: From Theory to Practice