Task 24: Co-creating behaviour change insights with behaviour changers from around the world

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Abstract

The International Energy Agency's Demand Side Management Programme's Task 24 engages a large number of global experts from many different countries, disciplines and sectors. We segment our target audience of so-called 'Behaviour Changers' into five main actors from: Government ('the Decisionmaker'), Industry ('the Provider'), Research ('the Expert'), Middle Actors ('the Doer' directly interacting with the 'End User') and the Third Sector ('the Conscience').

Each one of these Behaviour Changers has important tools at their disposal, but each also faces restrictions due to their specific mandates and stakeholders. Some of their relationships with each other, and 'the End User' whose behaviour they are trying to change, are strong whereas others have in-built systemic conflicts that need to be overcome. We designed a new 'Behaviour Changer Framework' of how to view the energy system from the human, rather than a technocratic perspective. It draws on various sociological and psychological models but adds its own unique flavour which is explored in participatory action field research settings on specific issues in each of our seven participating countries.

We run workshops on real-life behaviour change issues with relevant *Behaviour Changers* from each sector designing, implementing, evaluating and disseminating interventions, together. This Task is a truly collaborative effort, where co-creation, including from *the End User* perspective, is key. Our overarching 'language' uses narratives and storytelling and we are developing behaviour change evaluation methods that go beyond kWh and beyond energy by focusing on double-loop learning strategies and co-benefits.

This paper provides an overview of the various tools Task 24 has co-created with its global expert network, how they have been used in practice in real-life situations and pilots and what the future of a collaborative, human-centric energy system could look like.

Introduction

WHAT IS TASK 24?

The Demand-Side Management (DSM) Programme[1] is one of more than 40 Co-operative Energy Technology Initiatives within the framework of the International Energy Agency (IEA). The DSM Programme, which was initiated in 1993, deals with a variety of strategies to reduce and manage energy demand. To date, 25 research Tasks have been initiated to look at DSM issues from a variety of technological, political and behavioural perspectives. Task 24 is called *Behaviour Change in DSM* (Rotmann and Mourik 2013) and was initiated in early 2012. It was the first global research Task focusing solely on behaviour change. The Task is unique for several reasons: it is funded by (energy) agencies from several countries, yet receives in-kind support from hundreds of experts from 20+ countries. The overarching goal of this Task is to "provide a helicopter overview of best practice approaches to behaviour change interventions and practical, tailored guidelines and tools of how

1. www.ieadsm.org

to best design, implement, evaluate and disseminate them in real life". In Rotmann (2017a, forthcoming) the Task is visually described as a "multi-tool of energy behaviour change".

In addition to its global expert network, the Task has a wide-ranging, multi-stakeholder audience which includes so-called 'Behaviour Changers' from government (the Decisionmakers), industry (the Providers), research (the Experts), the third sector (the Conscience) and middle actors (the Doers). We use the term Behaviour Changers to denote those that can affect the conditions for energy saving and efficiency behaviours in energy end users (the End User). They may have expert knowledge needed for how to promote energy savings in the community; or have information about the occupancy and energy use of residential or commercial buildings; or are developers or distributors of energy-efficient appliances; or have influence on decision-making that affects current policies and practices; etc. These actor-types are the main behaviour change agents addressed in the Task, in addition to the End User whose behaviour they are ultimately trying to change. Each of these actors plays an important role, but none of them can create systemic change in isolation. The Behaviour Changers are interdependent on each other, on other stakeholders and they also operate in different and sometimes very complex contexts confronted with political, financial and social pressures. Their mandates may be insufficient to affect large-scale behaviour change, or in direct conflict to it. Hence, complex problems that include technical, organisational, social and behavioural dimensions ask for collectively addressing the challenges. In order to do so successfully and to enable shared learning, a trusted Facilitator and 'translator' is crucial (e.g. Measham 2009; Mackenzie et al 2012). Task 24 takes on this role.

WHAT ARE THE TOOLS DEVELOPED BY TASK 24?

A detailed description of the Task and its 60+ publications can be found on the IEA DSM website and in Rotmann (2017b, *under review*). Due to its multi-stakeholder audience from many sectors, disciplines and domains, the Task had to walk the tightrope of being practical and understandable by a highly variable audience whilst also having academic validity. The tools and reports that were developed for this Task thus had to incorporate the following criteria:

- Relevance to *Decisionmakers* in government agencies, energy agencies and policymakers on the international, national, and local level;
- Relevance to a *global audience* spanning largely OECD countries, but including developed and developing countries from northern and southern hemispheres, from five continents;
- *Country-context* had to be identified as it informed how tools were tailored and recommendations were provided. This included cross-cultural comparisons in several reports;
- Multiple sectors were target audiences for case studies and pilots in Task 24. They spanned a variety of sectors including *hospitals* (US and Canada); *DSOs* (NL and NZ); *smart technology in the residential sector* (SE, NL, NZ, IT, US, AT, IE); *transport* (SE); *higher education* (NL) etc.;
- Four domains were chosen to collect all case studies and pilots from: *transport, small to medium enterprises (SMEs), building retrofits* and *smart technology/feedback*;
- Models and theories from all research disciplines studying behaviour change in energy were included and theoretical analysis was grouped into three main disciplinary approaches: *psychology, economics* and *sociology*;
- There had to be some creative, entertaining and engaging aspect and *storytelling* was the overarching 'language' that was used.

It should be clear from this list of criteria that Task 24 had an almost impossible mandate, yet feedback to date (including continued funding from countries and non-state actors, new experts joining the expert network, being invited to become technical steering committee and panel members of key behaviour and energy efficiency conferences, having our main framework called "one of two of the leading frameworks for structuring behavioural research in energy" (Taylor and Janda 2015) and co-editing a special issue in *Energy Research and Social Science*, among others) has suggested that the Task has managed to achieve this difficult feat. It has become a global voice for *Behaviour Changers* and the importance to take a whole-system, collaborative approach to behaviour change, rather than hoping for a silver-bullet model that fits all criteria.

Task 24 subtasks and their outcomes

Each Phase of Task 24 had several, distinct *Subtasks*. *Subtasks 1–4* were finalised in Phase 1 and *Subtasks 5–11* in Phase 2. *Subtask 5* (Expert Platform) spanned both Phases. Reports for each Subtask can be found on the IEA DSM website but below is an overview of the main reports and tools that were developed by the international expert community of Task 24, over the course of the last 5+ years.

PHASE 1: CLOSING THE LOOP: FROM THEORY TO PRACTICE[2] (JAN 2012 TO APRIL 2015, 8 PARTICIPATING COUNTRIES)

Subtask 1 – A helicopter overview of models, theories and frameworks of behaviour change

The main objective of Subtask 1 was to identify the range of behavioural models, frameworks and disciplines that have relevant insight into human behaviour and energy demand-side management in the four end-use domains of *building retrofits, transport, SMEs* and *smart technology/feedback*. We realised that, rather than simply looking at theoretical models without context, we could instead build on the comprehensive work by Darnton (2008) and analyse how different models of understanding behaviour and theories of change have been utilised in real life programmes, policies and pilots. We called for, and received, over 40 case studies from experts from 15 countries (Mourik and Rotmann 2013a) that implicitly or explicitly used different models, theories or disciplines of behaviour change. The analysis and the synthesis of behavioural models have been realised by building on a compilation of real case studies. The result is nicknamed "the Monster". One can wonder

2. www.ieadsm.org/task/task-24-phase-1/

if this way of proceeding is more relevant than an academic review of various social sciences models. In fact, the number of various models of understanding behaviour is important but relatively small, whereas the number of case studies can be vast. Moreover, the synthesis of case studies tries to characterise and compare them following the theoretical model they rely on. Last, going back to theoretical basics may also help Behaviour Changers to better understand the levers they are trying to activate, their potential, their limits and their blind spots. We also created a summary document, 'the little Monster storybook' (Mourik and Rotmann 2013b) that outlines the main stories, cartoons and successful case studies from each participating country.

The report's main outstanding features were:

1. It analysed the use of a **large variety of models of understanding behaviour, theories of change and behavioural disciplines** from economics, psychology and sociology using real-life case studies of policies, programmes and pilots that were informed by these theoretical frameworks.
2. It analysed **different cultural and country contexts** by comparing and contrasting how similar models were applied in different countries – this led to a much more in-depth investigation in *Subtask 2*.
3. It gave **clear recommendations as to which approaches were of most use, when and why**, in each of the four end-use domains. It provided questions for *Behaviour Changers* to ask when deciding which aspects to concentrate on when choosing the right model or framework. These questions were turned around in our recommendations for *Subtask 4*, in order to help *Behaviour Changers* when designing interventions.
4. It provided a **clear contrast of standard evaluation metrics (e.g. kWh, $ savings etc.) versus more unusual evaluation metrics** that went beyond kWh and sometimes even beyond energy (e.g. mental health improvements, macro-economic public health outcomes etc.). This initial work on evaluation metrics fed into *Subtasks 3, 8 and 9*.
5. **The use of a "Once upon a time…" story spine to improve legibility** in 'the Monster' report (Mourik and Rotmann, 2013a). The story spines summarised each case study and its main findings, often in flowery language or by using metaphors (Rotmann, 2017a *forthcoming*). The story spine is memorable and 'pre-digests' facts and the overall 'moral' of the case studies in a format we all know well from childhood. Thus, before delving into the in-depth analysis of each case study, readers had already familiarised themselves with an overview, background, intervention design, learning, and the main outcome of the case. Having this ready-made story in the front of their mind when reading the analysis, aided both recall and readability (based on anecdotal feedback, but see research by Oaks 1995).
6. The use of **storytelling when describing how a model or framework was mirrored by the End User** on whose behaviour it was applied on. We developed this kind of stories to demonstrate in which ways different disciplinary approaches depict and approach the role of energy end users and what the impact of a specific theory or model on energy behaviour was on an intervention.
7. The 'Monster' provided the **analytical and empirical foundation** that the rest of Task 24 was then built on. It was the largest, and possibly the most seminal piece of work in the Task to date.

Subtask 2 – In-depth case studies from participating countries

Most analyses of behavioural interventions do not explicitly focus on cultural differences between countries. This is a major reason why IEA research contracts between different countries were established. In *Subtask 2*, we focused explicitly on such cultural idiosyncrasies. These cultural differences and their origins (cultural traits or a particular cultural characteristic) do impact on the meaningfulness of recommendations for *Behaviour Changers*. Most case studies looked at *building retrofits* and *feedback/smart technology* applications in the residential sector (Mourik 2014, Rotmann 2014, Eberwein et al 2015, Lang 2015), some at *transport* (Nyström & Katzeff 2014) and some at *SMEs* (Karlstrøm 2015). These findings then fed into the (participating) country recommendations in *Subtask 4*.

Subtask 3 – Evaluating behavioural interventions

Task 24 also addresses the all-important question of how to best evaluate successful long-term behaviour change outcomes from the perspective of the various *Behaviour Changers* who are our target audience. It became clear very quickly that this was the most challenging aspect of Task 24 (see Karlin et al 2015). An in-depth positioning paper (Mourik et al 2015a and b) looked at the various disciplinary approaches to evaluating behaviour change interventions and discusses the many issues *Behaviour Changers* face when assessing successful outcomes for different stakeholders and end users. Factsheets of how to employ the recommended method to better evaluate behavioural interventions utilising *double-loop learning* approaches were developed for three specific intervention tools from the building retrofit area – *insulation subsidies, mass marketing campaigns* and *energy performance certificates* (Van Summeren et al 2015). In addition, Batey and Mourik (2015) proposed a methodology to engage energy users in Do-It-Yourself (DIY) data monitoring, suggesting that it offers a number of benefits for evaluation, participation and wider, long-term impacts. All these different evaluation tools will feed into *Subtask 8* (*Toolbox of interventions for Behaviour Changers*).

Subtask 4 – Country-specific recommendations

On finalising Phase 1 of the Task, we then provided country-specific recommendations for the different phases of behaviour change interventions (design, implementation, evaluation, re-iteration, dissemination) to each of our eight funding countries. We also re-envisaged all country case studies that were collected, through the lens of the main recommendations and findings of the Task, e.g. in Rotmann (2015). That meant taking the main recommendations for each domain created in 'the Monster' (*Subtask* 1) to assess what each case study did, versus what it could have done to potentially be more successful. This helped Task 24 *Behaviour Changers* re-iterate the policies and programmes that were still underway. The Task's findings and recommendations are feeding into each participating country's

policy and programme developments but also the wider IEA Secretariat's policy goals and reports (e.g. IEA, 2014).

Subtask 5 – Expert platform (ongoing)

Over 240 behaviour change experts from around the globe are participating in an invite-only Expert Platform. They form the backbone of Task 24 and support our Task *Operating Agent* with in-kind support. This in-kind support includes providing case studies, attending workshops, reviewing reports, sharing expertise, supporting pilots and supplying stories (see Rotmann 2017b, *under review*). One of the most successful outcomes based on the Task's global presence is its ability to network and 'match-make' our experts with each other and with *Behaviour Changers* in their respected fields of interest. Many successful relationships and collaborations have been established with Task 24 as the catalyst. These can extend far beyond the Task and its mandate.

PHASE 2: HELPING THE BEHAVIOUR CHANGERS[3] (APRIL 2015 TO APRIL 2018, 5 PARTICIPATING COUNTRIES PLUS 2 NON-STATE ACTORS)

Phase 2 of Task 24 started in April 2015 and was based on the insights of Phase 1, which are summarised in 'the moral of the story', below. The main goal is to take the theory which was analysed and explored in Phase 1 and turn it into actionable, practical solutions in Phase 2. Both *storytelling* and a *Collective Impact Approach* (based on Kania & Kramer 2011) fostering *multi-stakeholder collaboration*, are useful tools to overcome the abovementioned challenges and barriers and promote *social learning* among our *Behaviour Changers*.

The added value to having an International Energy Agency global Expert Platform (*Subtask 5*) is that we identify the top DSM issues in participating countries (*Subtask 6*) and create much more in-depth relationships with and between the *Behaviour Changers* (*Subtask 7*) in each country in *Participatory Action (Field) Research* (PAR) settings (Mackenzie et al 2012). Play also takes an important role in Task 24 – during the participatory workshops, when collecting and evaluating stories, when *Behaviour Changers* are 'playing' with the *Behaviour Changer Framework* to visualise the energy system (Rotmann, 2016) and co-design interventions and even by using our quirky Task 24 short-hand for describing 'Monsters', 'horror or love stories of energy efficiency' (see Janda and Tapouzi, 2015), 'magic carpets' (which is what the Behaviour Changer Framework was christened by a major US utility during a workshop; Rotmann, 2016) etc.

The Task's *Behaviour Changers* will also take part in evaluating the impact of storytelling and of narratives as a common language of the Task. Part of this analysis is based on Davis and Dart's (2005) *Most Significant Change* (MSC) Technique. This participatory, *double-loop learning* (Mourik et al 2015a) approach allows them to take an integral part in the development of the methodologies, guidelines and overarching 'language' to aid whole-system, societal change by improving the uptake of behavioural DSM interventions (*Subtask 8*). Karlin, Ford and McPherson-Frantz (2015) then developed a toolkit to evaluate behaviour change programmes 'beyond kWh' (*Subtask 9*). This toolkit is open to be tested by any interested countries or non-state actors so we can assess cultural and sectoral idiosyncrasies. It already underwent psychometric testing of a set of scales that can be used to collect self-reported data as a part of evaluation of behavioural interventions building on the preliminary instruments drafted for Task 24 (Karlin & Ford, 2015). This was done by refining and psychometrically validating the following scales for use in field studies within California: 1. *Norms* (e.g., efficacy, social norms); 2. *Practices* (e.g., one-time, habitual); 3. *Material culture* (e.g., appliance stock); 4. *Context* (e.g., demographics, housing); 5. *User experience* (e.g., ease of use, engagement; Southern California Edison 2015). The overarching, international 'story of Task 24' will finally be told in *Subtask 10*. A (voluntary) *Subtask 11* allows *Behaviour Changers* outside of participating countries to trial the toolbox developed by Task 24 on real-life problems and interventions. The Task is expected to finish by mid-2018, yet it is envisaged that the continuous trialling of the toolbox on a large variety of behavioural problems, sectors and countries will continue as a (modified) *Phase 3*.

Storytelling as the overarching 'language' of Task 24

The first, and to date, largest Task 24 workshop at Oxford University in 2012 (Churchhouse, Mahoney and Rotmann 2015) led to the realisation that not only did we need to be very careful in clearly defining our Task jargon and terminology, we also needed to find an overarching 'language' in order to bridge the many different disciplines, sectors and *Behaviour Changers* we were dealing with. It became clear that there was only one overarching 'language' that was easily understood by all sectors and disciplines: the use of *narratives and storytelling*. The Task thus embarked on a journey of using various narratives and storytelling tools to simplify learnings, bridge silos and 'translate' between different *Behaviour Changers*. Some of the approaches are discussed in Rotmann, Goodchild and Mourik (2015) and some will be detailed in a special edition on "Narratives and storytelling in Energy and Climate Change" in *Energy Research and Social Science* (Rotmann, 2017a, *under review*). The most extensive use of storytelling was by using a simple "*Once upon a time*" story spine (following prompts, see Rotmann 2016) to collect 145 case study stories, personal energy stories, stories from different *Behaviour Changer* perspectives and country stories from over 100 experts from 21 countries (detailed analysis in Rotmann 2017a, *forthcoming*). There is a great role in the solution-making process of storytelling. Here, storytelling as a shared language is considered to be the underpinning condition for the whole-system framework. The "once upon a time" format is considered to be the way to reach a common story made of such common language. However, from a sociological and philosophical point of view at least, it is well known that language is everything but neutral, no matter the form the story takes. Narration, by picking up certain "entities" and ranking them into stories, depends on points of view and therefore values, representations, specific interests etc. A common story and shared language might then be seen, before all, as a fragile, temporary result of a collective action process. However, like there is no such thing as a 'wrong story', there is a need for fostering storytelling in stakeholders un-used to this language in a professional setting. The usefulness of a story spine to do so was outlined in an "A to Z of why using a story spine in energy and behaviour research works" (Rotmann, 2017c).

3. www.ieadsm.org/task/task-24-phase-2/

The moral of the story of Task 24

To summarise the many learnings of taking such a high-level 'helicopter overview' of global best practice and cutting-edge theory of energy behaviour change interventions:

- There is no behavioural silver bullet.
- All models are wrong, but some of them are useful!
- *Homo economicus* rarely exists in humans[4]
- There is no such thing as purely individual energy use.
- Most energy use is habitual and routine.
- Habits are the most difficult thing to break.
- Individualistic, technocratic and rational approaches to behaviour change fit well into our current socio-economic and political models.
- We do need to look at affecting whole-system, societal change.
- This cannot be done in isolation by one sector.
- It is difficult to identify the right *Behaviour Changers* and break down the silos.
- Every *Behaviour Changer* has a different piece of the puzzle.
- We need a shared learning and collaboration framework that works in practice.
- Underpinning this whole-system framework is a shared language based on narratives.

In one sentence, the moral of this Task can be summed up as: "It's all about the people!"

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