eTEACHER

D1.4: Applying "Enabling Change" to eTEACHER

WP , T 1.

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eTEACHER

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Technical References

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Executive summary

eTEACHER is a Horizon2020-funded project which aims to develop an Information and Communication Technology (ICT) -based tool to enable behavioural change to help save energy in buildings. The project aims to develop, pilot and evaluate eTEACHER over three years, via several Work Packages (WPs) of activity (see Appendix A). This report relates to WP1 of eTEACHER, which seeks to develop and propose effective ideas for a behaviour change intervention, based upon research evidence, consultation with residents in the buildings where eTEACHER will be piloted, and a pre-chosen structured framework for designing behavioural change initiatives, *Enabling Change*.

WP1 has focussed upon developing an evidence-based approach to intervention design. This has been done by engaging with literature on effective approaches to behaviour change (in general and in relation to ICT), engaging with users of pilot buildings and, via dialogue with other project partners, making linkages to other work packages. This had led to the development of a tailored approach to the *Enabling Change* framework for eTEACHER, which is set out in this report.

Enabling Change is an evidence-based approach for developing and delivering behaviour change interventions that was put forward by Les Robinson in the book Changeology (Robinson, 2011) and via articles on the Enabling Change website (Robinson, 2018). It advocates a participatory approach to project development, at both whole-programme level and with relation to specific interventions.

eTEACHER's Deliverable 1.1 (Morton, Reeves & Bull, 2018a), outlined how this approach could be embedded via, for example, involving building users as members of feedback forums and ensuring that "the right inviter" was used to invite users to take part in the project. This report builds upon the recommendations from WP1 to put forward roles, responsibilities and timelines for project partners (see Appendix A) to put the Enabling Change approach into practice.

Based upon the findings, and drawing upon Robinson's eTEACHER framework for project-level design, four recommended actions and associated tasks for eTEACHER implementation are put forward here, linked to each of the nine project planning principles within *Enabling Change*.

Table 0.1 Actions, Tasks and Responsibilities

Recommend Action	Tasks for Partners	Enabling Change Principles	Responsible Partners
A: Identify stakeholders and their role in engaging with eTEACHER	(i) Identify and maintain a list of users (both general roles and specific individuals) and their potential involvement in developing eTEACHER. (ii) Identify potential "Right Inviters" – users who can engage others in using eTEACHER. (iii) Establish a feedback forum for each pilot site, which is engaged with at least monthly in relation to the tasks below. This engagement should constitute at least three face-to-face group meetings per year and complementary informal feedback as required (e.g. via email or phone).	1. Establish your project brains trust 2. Identify Actors and Actions 7. Find the Right Inviter	**AGE, ICPE, NCC** for each respective pilot site **DMU** to provide mentoring support
B: Embed user feedback and	(i): Use behaviour change theory (i.e. COM-B, Robinson's principles for Enabling Change and	3. Design a doable behaviour.	(i), (ii) and (iii): **ASC** for WP3; **GRA** for WP2

behaviour change theory into eTEACHER development process.	recommended Behaviour Change Techniques) to inform eTEACHER design (ii): Develop a pretesting plan, specifying when and how users offer feedback (iii) Develop questions and pretest materials for users to engage with (iv) Consult with users at pilot sites using pretest materials	4. Create an enabling environment. 5. Use Enabling Tactics. 8. Pretest.	(iv): **AGE, ICPE, NCC** for each respective pilot site **DMU** to provide mentoring support
C: Secure participation of target users	(i) Develop engagement plan to secure participation by target users, using Enabling Change principles (ii) Develop materials/messages to engage users (iii) Consult with users at each pilot site to pretest messages	6. Frame a hopeful intervention. 7. Find the right inviter.	(i), (ii): **ICE** (iiii): **AGE, ICPE, NCC** for each respective pilot site **DMU** to provide mentoring support
D: Embed user feedback into evaluation process	(i) Develop plan to pretest user feedback into evaluation design (year 2) and to elicit feedback to enhance implementation (year 3) (ii) Develop materials to elicit feedback (iii) Consult with users at each pilot site	9. Learn	(i), (ii): **CEM** (iii): **AGE, ICPE, NCC** for each respective pilot site **DMU** to provide mentoring support

The above framework can be understood in terms of its alignment to three key aspects of eTEACHER:

- **Development**
  - o Via eTEACHER work packages 2 and 3, with support from work packages 1 and 7
  - o Enabling Change Recommended Actions A and B
- **Implementation and Evaluation**
  - o Via eTEACHER work package 4
  - o Enabling Change Recommended Actions C and D
- **Exploitation, Dissemination and Communication**
  - o Via eTEACHER work packages 5 and 6
  - o Enabling Change Recommended Action C

An outline timetable for developing the above recommended actions with suggested dates is shown below. However, specific plans should be confirmed **by the end of October 2018** through dialogue between leaders of Actions A, B, C and D to best align with the availability of Feedback Forum members, the timeline of development of eTEACHER and linkages to eTEACHER project meetings and milestones.

Table 0.2 Potential Timeline for Stakeholder Engagement

Year	Year 2: eTEACHER Development				Year 3: Implementation and Evaluation		
Stage	Planning	Scoping	Early Prototype	Late Prototype	Initial Feedback	Heating Season Feedback	Final Feedback
Task: Identify FF members and plan for engagement	By end Oct 18						

Task: Prepare resources and run Feedback Forums (FF)		FF1 (Dec18)	FF2 (Mar19)	FF3 (Jun19)	FF4 (Oct19)	FF5 (Jan20)	FF6 (May20)
Task: Informal Feedback		Ongoing as needed. Some engagement at least once per month.					
Task: Apply behaviour change theory to interventions	Ongoing as eTEACHER tool is developed in year 2						

Further details to aid implementation of the suggested actions and associated tasks are provided in this report, drawing upon findings from Tasks 1.2 and 1.3.

This report is structured in accordance with the concepts outlined above.

1. Introduction to Enabling Change and key findings from Tasks 1.1, 1.2 and 1.3
2. Development of eTEACHER
3. Implementation and Evaluation of eTEACHER
4. Summary
5. References

In particular, sections 2 and 3 provide specific recommendations for each of the three areas, including linkages to key tasks within each work package.

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1   Enabling Change Summary

This section reprises key principles for the design of behaviour change interventions using Les Robinson's (2012) "Enabling Change" framework, as introduced in D1.1 (Morton, Reeves & Bull, 2018a), making links to findings reported in D1.2 (Morton, Reeves & Bull, 2018b) and D1.3 (Preston, 2018).

1.1   Enabling Change: Overview

The 'Enabling Change' approach (Robinson, 2012) is a practitioner-oriented overview of principles for designing effective behavioural interventions. It has two different levels of planning: programme level (Fig. 1.1) and project level (Fig. 1.2). The *programme level* process defines the medium/long term objectives for the behaviour change intervention, in this case for eTEACHER as a whole, whereas the *project level* plan deals with the practicalities of engaging with end-users around specific behaviours, in this case for implementing eTEACHER at pilot sites.
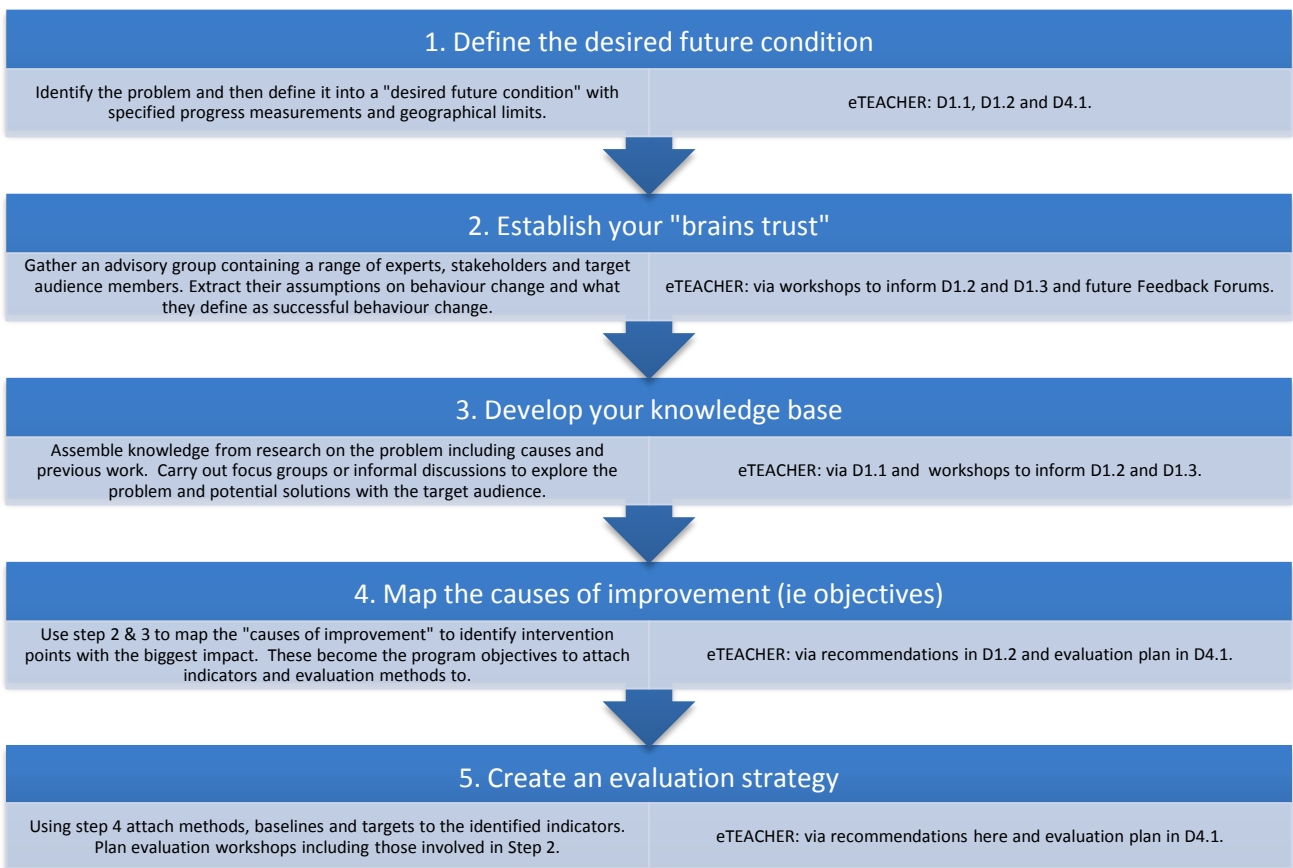
1. Define the desired future condition	
Identify the problem and then define it into a "desired future condition" with specified progress measurements and geographical limits.	eTEACHER: D1.1, D1.2 and D4.1.

2. Establish your "brains trust"	
Gather an advisory group containing a range of experts, stakeholders and target audience members. Extract their assumptions on behaviour change and what they define as successful behaviour change.	eTEACHER: via workshops to inform D1.2 and D1.3 and future Feedback Forums.

3. Develop your knowledge base	
Assemble knowledge from research on the problem including causes and previous work. Carry out focus groups or informal discussions to explore the problem and potential solutions with the target audience.	eTEACHER: via D1.1 and workshops to inform D1.2 and D1.3.

4. Map the causes of improvement (ie objectives)	
Use step 2 & 3 to map the "causes of improvement" to identify intervention points with the biggest impact. These become the program objectives to attach indicators and evaluation methods to.	eTEACHER: via recommendations in D1.2 and evaluation plan in D4.1.

5. Create an evaluation strategy	
Using step 4 attach methods, baselines and targets to the identified indicators. Plan evaluation workshops including those involved in Step 2.	eTEACHER: via recommendations here and evaluation plan in D4.1.

Figure 1.1 The Enabling Change process as applied at Programme level

At Programme level, Figure 1.1 highlights how eTEACHER has put the general Enabling Change principles into practice via Work Package 1 during the first year of the project. Initial user engagement and desk-based research has been used to implement steps 2 to 4. This has created

a platform for continued user engagement in years 2 and 3 (step 2) as specified in this report, and has informed eTEACHER's evaluation strategy, as described in D4.1 (Peralta et al, 2018).

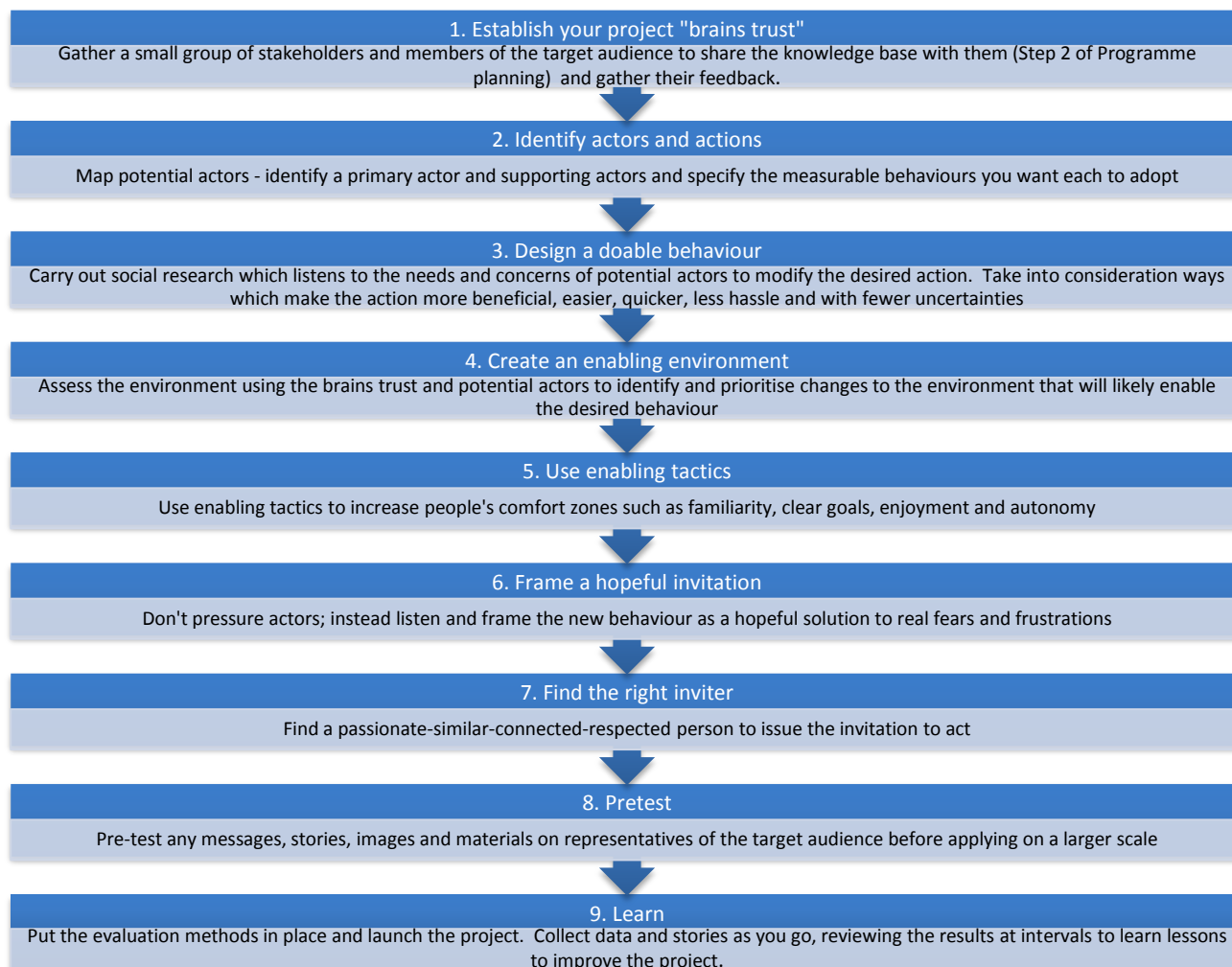The project level principles of employing Enabling Change are shown in Figure 1.2.

1. Establish your project "brains trust"
Gather a small group of stakeholders and members of the target audience to share the knowledge base with them (Step 2 of Programme planning) and gather their feedback.

2. Identify actors and actions
Map potential actors - identify a primary actor and supporting actors and specify the measurable behaviours you want each to adopt

3. Design a doable behaviour
Carry out social research which listens to the needs and concerns of potential actors to modify the desired action. Take into consideration ways which make the action more beneficial, easier, quicker, less hassle and with fewer uncertainties

4. Create an enabling environment
Assess the environment using the brains trust and potential actors to identify and prioritise changes to the environment that will likely enable the desired behaviour

5. Use enabling tactics
Use enabling tactics to increase people's comfort zones such as familiarity, clear goals, enjoyment and autonomy

6. Frame a hopeful invitation
Don't pressure actors; instead listen and frame the new behaviour as a hopeful solution to real fears and frustrations

7. Find the right inviter
Find a passionate-similar-connected-respected person to issue the invitation to act

8. Pretest
Pre-test any messages, stories, images and materials on representatives of the target audience before applying on a larger scale

9. Learn
Put the evaluation methods in place and launch the project. Collect data and stories as you go, reviewing the results at intervals to learn lessons to improve the project.

Figure 1.2 The Enabling Change process as applied at Project level

The above principles are clustered and addressed in this report according to two broad upcoming phases of the eTEACHER project (Table 1.1) and recommended actions for each. Each principle is explained in more detail in sections 2 and 3.

Table 1.1 Enabling Change Project level principles mapped to eTEACHER Actions

Phase	Recommend Action	Enabling Change Principles
Development (year 2)	A: Identify stakeholders and their role in engaging with eTEACHER.	1. Establish your project brains trust. 2. Identify Actors and Actions. 7. Find the Right Inviter.
	B: Embed user feedback and behaviour change theory into eTEACHER development process.	3. Design a doable behaviour. 4. Create an enabling environment. 5. Use Enabling Tactics. 8. Pretest.

Phase	Recommend Action	Enabling Change Principles
Implementation and Evaluation (year 3)	C: Secure participation of target users.	6. Frame a hopeful intervention. 7. Find the right inviter.
	D: Embed user feedback into evaluation process.	9. Learn.

1.2 Key Findings from Tasks 1.2 and 1.3

Task 1.2 involved a range of engagement activity with building users via site visits, dialogue between case study site managers and key stakeholders, and a questionnaire within workshops for building user workshops. Analysis of this data highlighted:

- a range of *building-specific issues*, such as challenges of achieving thermal comfort for all staff in office buildings and doors left open in school buildings
- a *categorisation of energy-related issues* on which eTEACHER could focus (i.e. lighting use, thermal comfort; appliance use) alongside *engagement* with the eTEACHER tool itself
- specific *target behaviours* for the eTEACHER intervention to aim to influence within the above areas
- issues affecting users' *capability, opportunity and motivation* to change behaviour

Through Task 1.3, existing practice around ICT-based interventions was reviewed and building users for each case study site were consulted to identify their current engagement with ICT and interest in various approaches to engagement.

These workshops and subsequent discussion within the eTEACHER partnership led to conclusions on how to deliver the eTEACHER tool, including developing a single web-based app for all users that could be accessed via multiple devices and using gamification principles to promote engagement rather than framing eTEACHER as a game for users to 'play'.

The analysis in relation to both Tasks generated recommendations for the design of eTEACHER, but in many cases these will rely upon further user engagement to develop a specific implementation. For example, app-based challenges may motivate behaviours to form daily habits to turn off appliances, but the specific wording in support of such challenges would benefit from testing with users. Likewise, as prototype software is developed, its compatibility with the IT systems at pilot sites can be checked with users.

1.3 Summary

This section has introduced the Enabling Change process, highlighting how it was applied at Programme level in the first year of the project and suggesting that Project-level principles can be clustered and put into practice to enhance the development and implementation of the eTEACHER tool. Specific ways of doing so are now introduced in sections 2 to 4 of the report.

2   Development of eTEACHER

As D1.1 (Morton, Reeves & Bull, 2018a) highlighted, the Enabling Change framework puts a strong focus on the involvement of stakeholders in developing behaviour change interventions. This feedback should be:

- *well-timed* (to feed into key stages of the project)
- from *diverse stakeholders*, including users and others that can offer constructive feedback
- focussed on *whether the proposals will work in practice*
- and exploring before, during and after *what success would look like.*

This approach has already been employed via the workshops that fed into D1.2 (Morton, Reeves & Bull, 2018b) and D1.3 (Preston, 2018) and will be sustained as the eTEACHER tool is further developed. This section summarises recommended approaches to support the Development of eTEACHER in Year 2 by combining seven of the Enabling Change principles into two suggested Actions for the Development phase (Table 2.1).

Table 2.1 Actions and Principles for eTEACHER Development

Phase	Recommend Action	Enabling Change Principles
Development (year 2)	A: Identify stakeholders and their role in engaging with eTEACHER.	1. Establish your project brains trust. 2. Identify Actors and Actions. 7. Find the Right Inviter.
	B: Embed user feedback and behaviour change theory into eTEACHER development process.	3. Design a doable behaviour. 4. Create an enabling environment. 5. Use Enabling Tactics. 8. Pretest.

2.1   Identify stakeholders and their role in engaging with eTEACHER

This task is to be led by each pilot site co-ordinator and will build upon the work and consultation activity undertaken in year one of the project. Aspects of the task are introduced below in relation to the corresponding principles of Enabling Change.

2.1.1   Develop a Feedback Forum ("Brains Trust")

Enabling Change Principle:

1. Establish your project's "Brains Trust". *Gather a small group of stakeholders and members of the target audience to share the knowledge base with them and gather their feedback.*

Robinson (2011, pg. 4) defines a "brains trust" as a group of people that draws on the "diversity of experts, stakeholders and members of the target audience." This approach is advocated based upon research evidence that many behaviour change projects fail due to inadequate consultation with those directly involved. A *Feedback Forum* (and equivalent accessible term in Spanish and Romanian) captures this idea of inviting motivated users to play a role in shaping eTEACHER, providing a vital reality check on the approaches developed by the project team and giving users a sense of ownership and buy-in of the final eTEACHER tool.

A platform to develop Feedback Forums for each pilot site has been established by running consultation events in year one. Inviting those who attended and other users with a stake in making eTEACHER work well at each pilot site to join a Feedback Forum is therefore a feasible next step.

We suggest a relatively low level of commitment for those that take part to make participation more likely, namely three face-to-face meetings per year, combined with around one informal interaction (e.g. an email update or phone conversation) a month.

Pilot sites should also make it feasible for interested users to join the Forum over time, for example by providing details of what is involved online and/or on posters/leaflets and inviting new users to get involved in advance of meetings.

As outlined in D1.1 (Morton, Reeves & Bull, 2018a), the Feedback Forum is best suited for individuals who are broadly supportive of the goals of the project. Other forms of consultation are likely to be better suited to give a voice to questions or concerns around why and how eTEACHER is being implemented.

We recommend an initial step of pilot site co-ordinators combining a list of existing contacts with further outreach (e.g. via email, posters, word of mouth) to **develop (and then maintain) a list of contacts (by end of October 2018)** who are interested in offering feedback to develop eTEACHER. A potential template for this list is provided in Appendix B.

In terms of Data Protection, these individuals can be advised that their personal details will only be stored and used by the pilot site co-ordinators to contact them regarding feedback for eTEACHER. Any data shared with project partners regarding their ideas and input will be anonymised, only specifying their role within the case study site (e.g. Resident, Staff building user).

We would then suggest convening an initial Feedback Forum meeting in **December 2018** which can include:

- Introductions and introduction to the role of the Feedback Forum
- Summary of the aims and approach of eTEACHER – framed around the benefits to users (see section 3)
- Sharing of existing plans for feedback in relation to WP2, WP3 and WP4.

Where feedback is sought in relation to Work Packages, the leads for that WP would prepare materials in advance (e.g. slides, handouts, questions) for pilot site co-ordinators to put to members for specified feedback. A typical meeting might last for 1-2 hours, including a break for refreshments.

Subsequent Feedback Forums can be timed to best align with the developmental stages of the project. Although paying individuals for participation is beyond the scope of eTEACHER, we would strongly encourage pilot sites to incentivise attendance via providing refreshments (e.g. lunch and/or hot/cold drinks).

In practice it may often be beneficial to engage with users between these meetings for feedback to be timely and of most benefit. For this reason, where possible, we suggest ongoing informal contact with Feedback Forum members, in the most appropriate format for each individual (e.g. meetings with work colleagues; emails to residents) to elicit feedback as and when it would be most beneficial.

A possible timetable for developing the above recommended actions with suggested dates is provided in Table 2.2. However, specific plans should be confirmed through dialogue with leaders of work packages 1, 2, 3 and 4, so that meetings best align with the availability of Feedback Forum members, the timeline of development of eTEACHER and linkages to eTEACHER project meetings and milestones. We would suggest a deadline to confirm these plans of **end of October 2018.**

Table 2.2 Potential Timeline for Stakeholder Engagement

Year	Year 2: eTEACHER Development				Year 3: Implementation and Evaluation		
Stage	Planning	Scoping	Early Prototype	Late Prototype	Initial Feedback	Heating Season Feedback	Final Feedback
Task: Identify FF members and plan for engagement	By end Oct 18						
Task: Prepare resources and run Feedback Forums (FF)		FF1 (Dec18)	FF2 (Mar19)	FF3 (Jun19)	FF4 (Oct19)	FF5 (Jan20)	FF6 (May20)
Task: Informal Feedback		Ongoing as needed. Some engagement at least once per month.					

2.1.2 Stakeholder Analysis: Actors and Actions

> Enabling Change Priciple:
>
> **2. Identify Actors and Actions.** *Map potential actors - identify a primary actor and supporting actors and specify the measurable behaviours you want each to adopt.*

This principle involves *identifying* all relevant stakeholders and considering their *point of view and potential involvement* in an intervention. This has been developed and documented via D1.2 (Morton, Reeves & Bull, 2018b), through listing user types for each building (e.g. energy manager, visitor, student) and whether specific behavioural changes are being targeted for those users. A "primary" actor would be someone performing the target behaviour, whilst supporting actors may play a role in enabling this.

In terms of the Enabling Change process, this principle will be carried out using the Feedback Forum process introduced above, through which pilot site co-ordinators should aim to ensure that the points of view of all relevant building user roles are taken into account (see checklist table in Appendix B).

Where possible, this should be done via someone with each building user role taking part in the Forum. Where this isn't feasible, insight on views of people in that role can be developed via Forum members who are in contact with people in that role (e.g. an events co-ordinator might be able to feedback on behalf of people who book one-off events in a building).

2.1.3 Promote via Social Influence: Finding the Right Inviter(s)

> Enabling Change Principle:
>
> **7. Find the Right Inviter.** *Find a passionate-similar-connected-respected person to issue the invitation to act.*

This principle links with the Implementation phase of eTEACHER, where user participation is encouraged, but is reported here due to the strong links to the Feedback Forum process.

Alongside the content of any message promoting eTEACHER, a key factor that is likely to affect take-up is who this message comes from. Literature on behaviour change interventions highlights that where the 'right inviter' encourages participation, take-up and engagement can be much stronger.

"Enabling Change" highlights four qualities of a 'right inviter' which might be found within one person or a group of people that play a role in promoting participation:

- Passionate: having a commitment to what the initiative is trying to achieve and a motivation to encourage others to take part
- Similar: being similar to other potential users, in terms of their role, demographic background and/or motivations for engaging
- Connected: having good social networks within the community of building users, whether through formal roles/channels or informal friendship groups, so that others can be reached
- Respected: being someone whose view or endorsement will be respected by others within the community

In reality, all these attributes may not be found in a single person – it is most likely that a pool of people might take this role on, in relation to various types of user within a community of building stakeholders. A checklist is provided in Appendix C to help pilot site co-ordinators consider who could play this role, and which target audience(s) they might help to reach.

Identifying such individuals is best undertaken by pilot site co-ordinators via the Feedback Forum process. Such individuals are likely to either be Feedback Forum participants or known to those people. Discussion within Feedback Forum meetings during year two of the project about who could fulfil these criteria and help promote the project can be used to identify these individuals for each pilot site. A named role such as 'eTEACHER Champions' could be used to describe the activity that these people are being selected to take on.

The specific roles of these individuals can be agreed via feedback forum meetings, further informal discussions and through alignment with plans to promote user participation. Potential roles include:

- Being pictured and quoted on promotional materials such as leaflets, posters or emails
- Encouraging peers to take part in eTEACHER
- Being a point of contact to help users to get to grips with using the eTEACHER tool
- Initiating participation in challenges or activities using the eTEACHER platform

2.2 Embed user feedback and behaviour change theory into eTEACHER development process.

This section highlights the role that theories of behaviour change design can play in designing the specific eTEACHER interventions.

2.2.1 Design "doable" behaviours

Enabling Change Principle(s):

3. Design doable behaviours. *Carry out social research which listens to the needs and concerns of potential actors to modify the desired action. Take into consideration ways which make the action more beneficial, easier, quicker, less hassle and with fewer uncertainties.*

As was highlighted in D1.1 (Morton, Reeves & Bull, 2018a), a behaviour change intervention should identify **specific actions to be taken by specific people.** Further analysis and intervention design can then be used to ensure that individuals are *capable* of doing the intended action, are *motivated* to do so and that their *environment* makes the behaviour easy to perform. Michie et al.'s (2014) COM-B framework offers a structured approach to considering these factors.

D1.2 (Morton, Reeves & Bull, 2018b) has developed a list of target behaviours based upon user feedback, but further engagement will be beneficial to explore the *specific* behaviours that the eTEACHER tool will promote. For example, the list of potential behaviours to enable efficient use of lighting included turning off lights at the end of the day or using prompts so that lighting levels might be reduced during the day if all lights were not needed. eTEACHER might use approaches such as prompts, challenges or sharing comparative data on lighting use to motivate these behaviours. Testing the wording, visual approaches or layout on a screen of these strategies prior to developing the eTEACHER software could provide valuable feedback on whether these approaches are intelligible, motivating and engaging for users. Appendix C provides a template that could address one aspect of this pretesting (the wording of behaviours), but engagement around visual design and whether users are motivated to carry out suggested behaviours would also be of value.

As D1.2 (Morton, Reeves & Bull, 2018b) stressed, the menu of energy-related behaviours is likely to include both *pre-determined behaviours* that are within the agency of building users within a specified role (e.g. residents switching off lights when not in rooms; energy managers changing defaults for heating systems) and site-specific *user-entered* behaviours (e.g. turn off lights in staff kitchen area) that respond to energy-related issues in a particular location.

The issue of "Doable" behaviours also applies to the eTEACHER tool itself, which is where pre-testing with users has value to ensure it is straightforward to use and understand for a range of users (e.g. roles and age, as discussed in D1.2, (Morton, Reeves & Bull, 2018b)) and works on a range of devices (see section 2.2.4).

2.2.2 Create an "Enabling Environment"

> Enabling Change Principle:
>
> **4. Create an "Enabling Environment".** *Assess the environment using the brains trust and potential actors to identify and prioritise changes to the environment that will likely enable the desired behaviour.*

This principle emphasises the strong influence that an individual's context plays upon the behaviours they are able to carry out. Robinson (2012) stresses that for sustained behaviour change, an individual's environment should be modified to make the desired behaviour *safe, comfortable, pleasant and rewarding*.

For eTEACHER this principle has applicability in two ways:

1. Identifying contextual issues at pilot sites that may influence if and how a target behaviour can be carried out
2. Designing eTEACHER so that the tool itself becomes an environmental factor that supports the target behaviour.

The first factor can be explored via Feedback Forums. User feedback on proposed behaviours or activities put forward via the eTEACHER app can elicit qualitative feedback on their viability. This feedback can either be used to inform the development of eTEACHER (in year 2) or to contribute to evaluation of factors affecting its impact (in year 3). The template in Appendix D can assist with this.

The second factor can be explored by employing a checklist framework put forward by Robinson for intervention design (example in Table 2.3, blank version in Appendix D). Robinson's (2012) checklist for creating an Enabling Environment has three strategies to enable the desired behaviour (**building a community**; **creating ease**; and **lowering costs**) and three strategies to discourage the undesired behaviour (**raising the cost**; **thwarting** the undesired behaviour; and **regulation**).

Robinson recommends *focussing predominantly on enabling strategies*, as approaches to prevent undesired behaviours frequently trigger resistance – these should only be employed where broad support exists and where alternatives to the undesired behaviour are practical for all stakeholders concerned. We recommend using the checklist to structure idea-generation for interventions, alongside other structured approaches such as using principles of Gamification.

Table 2.3 A checklist for developing an enabling environment: example putting PCs on sleep

Desired behaviour	PCs are put on sleep when not in use for up to an hour	Undesired behaviour	PCs are left switched on when not in use
How to Build a Community *i.e. how to enable social interaction around a sense of common purpose*	- PC 'Sleep Challenge Week': users share results in league table - Discussion thread enables knowledge sharing (e.g. where to find and edit sleep settings)	How to Regulate *i.e. how to use rules and their enforcement to prevent or reduce the undesired behaviour*	- In schools, students are not permitted to leave rooms with computers on. eTEACHER is used to log behaviour.

How to Create Ease *i.e. how to make the behaviour easy to perform*	- eTEACHER Champions show colleagues how to change settings	How to Thwart *i.e. how to make it harder to perform the undesired behaviour*	- In workplaces, default settings are changed to sleep after 10 minutes of inactivity
How to Lower Costs *i.e. how to reduce the cost in terms of money, resources or social esteem*	- Keyboard shortcuts make activating sleep easy	How to Raise Costs *i.e. how to increase the cost in terms of money, resources or social esteem*	-

2.2.3 Use "Enabling tactics" (evidence-based Behaviour Change Techniques)

Enabling Change Principle(s):

5. Use Enabling Tactics. *Use enabling tactics to increase people's comfort zones such as familiarity, clear goals, enjoyment and autonomy.*

On a project level, "Enabling Tactics" are essentially the range of evidence-based behaviour change techniques that can be combined to form an effective intervention. As discussed in D1.1 (Morton, Reeves & Bull, 2018a), commonly used Behaviour Change Techniques (BCTs) include goal setting, self-monitoring of behaviour, provision of feedback and information provision, and each can have value when chosen carefully to achieve a specific function (Michie, van Stralen and West, 2014).

Literature on behaviour change frequently highlights that using a **package of techniques together**, rather than one in isolation, is more likely to lead to an effective intervention. eTEACHER already has committed to Gamification as a broad strategy and provision of information and feedback as techniques.

The Behaviour Change Wheel (2014) lists commonly used effective techniques in relation to nine potential *Functions* (such as modelling, training and education) that each function could be looking to achieve. Within this framework, the core Functions of eTEACHER are Enablement, Persuasion and Education (Table 2.4).

Table 2.4 Functions of the eTEACHER tool

Function	Description
Enablement	Increasing means and/or reducing barriers to increase capability (beyond Education and Training) or opportunity (beyond environmental restructuring)
Persuasion	Using communication to induce positive or negative feelings or stimulate action
Education	Increasing knowledge or understanding

Each Function within the Behaviour Change Wheel is associated with several frequently used BCTs, along with further less frequently used BCTs. To identify BCTs to consider employing for eTEACHER we have:

- Identified those BCTs that are frequently used for the above three functions
- Added BCTs which are less frequently used, but which align with eTEACHER's Gamification approach (*Social Comparison* and *Information about others' approval*).
- Removed any which are not applicable for eTEACHER if they do not fit with existing plans for the capability of the tool (*Social Support – Practical*; *Action Planning; Introducing Objects into the Environment*)

The resultant list of BCTs is shown in Table 2.5. A description of each technique with an example is provided in Appendix E.

Table 2.5 Functions of behaviour change initiatives and commonly associated techniques

Behaviour Change Technique	Associated Function(s)
Information about social/environmental consequences	Education, Persuasion
Information about health consequences	Education, Persuasion
Feedback on behaviour	Education, Persuasion
Feedback on outcome(s)	Education, Persuasion
Prompts/cues	Education
Self-monitoring	Education, Enablement
Credible Source	Persuasion
Social Comparison	Persuasion
Information about others' approval	Education, Persuasion, Enablement
Restructuring the physical environment	Enablement
Social support (unspecified)	Enablement
Goal setting and review (behaviour)	Enablement
Goal setting and review (outcome)	Enablement
Problem solving	Enablement

Our recommendation is that as specific aspects of eTEACHER are developed via Work Packages 2 and 3, this list of techniques is used as a checklist to provide ideas to enhance the effectiveness of each intervention (within the constraints of the project and software). A worksheet to aid this process is provided in Appendix F. As ideas are developed, they can be pretested and piloted via Feedback Forums, as discussed elsewhere in this report. An example of a completed worksheet is provided in Table 2.6.

Table 2.6 Example of consideration of BCTs to enhance an intervention

Intervention Encouraging managing thermal comfort by adding/removing layers of clothing in hot/cold weather.			
Behaviour Change Technique	**Planned before?**	**Planned after?**	**Comments**
Information about social/environmental consequences		YES	Can add brief info on environmental benefits of avoiding extra energy used by heating/cooling
Information about health consequences			
Feedback on behaviour			

Feedback on outcome(s)			
Prompts/cues	YES		Can send reminder via App on hot/cold days
Self-monitoring			
Credible Source			
Social Comparison			
Information about others' approval		YES	Users can log when they perform the behaviour. Others users can see this and click a button to 'like', visible to original user
Restructuring the physical environment			
Social support (unspecified)			
Goal setting and review (behaviour)		YES	eTEACHER can challenge users to not use Aircon or personal heaters for a week, logging progress each day.
Goal setting and review (outcome)			
Problem solving		YES	Discussion forum can enable users to discuss practicalities of this approach.
COMMENTS Before analysis, the plan was to provide a daily prompt/cue via eTEACHER on hot or cold days to dress to suit the temperature. The further ideas generated can make the behaviour more salient to users and enhance motivation to perform the behaviour.			

2.2.4 Pre-test Interventions

> Enabling Change Principle(s):
>
> **8. Pretest.** *Pre-test any messages, stories, images and materials on representatives of the target audience before applying on a larger scale*

Pretesting is a commonly-used approach to software development to explore issues such as usability, accessibility and functionality. Within Enabling Change, pretesting includes both these technical aspects and a behavioural focus on how users engage with the eTEACHER tools and what behavioural response this engenders.

As highlighted previously in this report, we recommend a pre-testing approach throughout the development process to enable timely feedback on the approaches to user engagement embedded within the eTEACHER app. As outlined, Feedback Forums are the suggested means to achieve this, with members being consulted at three face-to-face meetings per year, along with further ad hoc consultation as and when required.

As previously mentioned we recommend that work package leaders for WP2, WP3, WP4 and WP6 (as described in Appendix A) prepare consultation materials in advance of each Feedback Forum meeting to elicit user feedback on their specific areas of activity.

3   Implementation and Evaluation of eTEACHER

User engagement does not stop once the eTEACHER tool is developed. At Programme level, a key aspect of Enabling Change is continued involvement of users to feedback on implementation and to support evaluation. This section highlights key issues to enable users to participate in implementation and evaluation.

3.1   Secure Participation: Framing a Hopeful Invitation

Enabling Change Principle(s):

6. Frame a Hopeful Intervention. *Don't pressure actors - instead listen and frame the new behaviour as a hopeful solution to real fears and frustrations.*

Framing is a key concept in communication and behaviour change and can have a significant impact on take-up of an idea or intervention. Robinson (2012) highlights that behaviour change interventions are most effective when they align with the pre-existing goals or motivations of those involved. Potential framings for eTEACHER include education (sharing facts on energy consumption with motivated users), fun (for example, team-based challenges in a work place) and aiding achievement of comfort or fuel bill savings.

Initial consultation with users via Tasks 1.2 and 1.3 has highlighted some issues affecting framing of eTEACHER:

- Most users did not wish to engage with eTEACHER *as a game to be played* (see D1.3 (Preston, 2018)). This was perceived as using time for a low-priority activity. Nonetheless, this does not exclude using Gamification principles to motivate use of eTEACHER for other reasons (e.g. to enhance comfort)
- Most users were not interested in feedback on the carbon footprint of their behaviour; rather data on energy use (in particular for energy managers) and money savings (in particular for householders) appeared more likely to be motivating and relevant for users
- A 'hopeful' intervention in most cases would be to achieve thermal comfort within the buildings. Highlighting the other uses for which any money saved could be used (for example on educational purposes within a school) is likely to be more motivating than cost savings alone.

Literature on motivating energy saving behaviour and engagement with ICT tools highlights that collective action and dialogue can create sustained motivation (Bull and Janda, 2018). Whilst extrinsic motivations such as rewards and incentives can prompt initial engagement, this should be founded upon intrinsic motivations (e.g. for health, comfort, contribution to social good) to be sustained (Crompton, 2010).

Thus, a framing that emphasises comfort and acting together, combined with implementation that provokes engagement via gamification (e.g. completing challenges) and making any financial savings visible and linked to aspirations is likely to be the most effective framing overall.

This principle of developing one or more messages can be combined with choosing appropriate messengers, using the Right Inviter principle, outlined previously in Section 2.1.3. We suggest that

the specific strategy for engagement is developed by the WP6 lead, in collaboration with each pilot site co-ordinator.

3.2 Embedding user feedback into evaluation process

> Enabling Change Principle(s):
>
> **9. Learn.** *Put the evaluation methods in place and launch the project. Collect data and stories as you go, reviewing the results at intervals to learn lessons to improve the project.*

As highlighted in D1.1 (Morton, Reeves & Bull, 2018a), effective evaluation of an intervention requires input from stakeholders before, during and afterwards, and data to be collected both on what happens (e.g. measured and self-reported behavioural changes) and why (e.g. user's accounts of their experience of eTEACHER).

The over-arching Theory of Change for eTEACHER is that:

- the design of the tool will motivate sustained use of the eTEACHER app
- use of the tool will trigger and sustain action on a range of energy-related issues such as lighting and appliance use

Thus, evaluation plans, as outlined in D4.1 (Peralta et al, 2018), need to focus on two types of behaviour: *engagement* with eTEACHER (that is, use of the eTEACHER web-based app) and *energy-related* actions (that is, actions that directly influence use of energy in buildings). D1.2 (Morton, Reeves & Bull, 2018b) recommends design of the tool to collect quantitative data on these issues as much as is feasible, for example via monitoring of lighting or logging users' interactions with the eTEACHER tool.

User participation in evaluation, as an aspect of Enabling Change, has two main facets:

1. Development Phase: Eliciting feedback on evaluation plans
2. Implementation and Evaluation Phase: Gathering evaluation evidence

The first facet is a reality-check with users during year two of the project to get further feedback on the proposed approach to evaluate eTEACHER. This can be implemented via Feedback Forums and informal discussions with users, as outlined previously.

The second facet should involve recorded semi-structured focus group sessions during which users are able to:

- *Qualitatively describe* their use to date of eTEACHER, observed use by others in their building and any changes in energy-related behaviour
- *Share evaluative feedback* on eTEACHER's effectiveness, including strengths and potential improvements
- *Collaboratively analyse* the factors influencing engagement with eTEACHER and its effectiveness in influencing changes in energy-related behaviour

3.3 Summary

This section has summarised how the Enabling Change process can be employed to aid Implementation and Evaluation of the eTEACHER tool. It highlights that how eTEACHER is framed

to users is likely to affect initial and ongoing engagement, and that involving users in evaluation is likely to provide a richer picture of how and why the tool has influenced energy-related behaviours.

4 Summary of Actions and Responsibilities

As discussed above, putting the Enabling Change approach into practice to further develop eTEACHER can be achieved through four recommended actions, as summarised in Table 1.1. Specific suggestions on how to put each Enabling Change principle into practice are set out above in sections 2 and 3. The tasks required and the partners responsible for leading with their implementation are summarised below in Table 4.1.

The general pattern is for pilot site co-ordinators to lead on identifying stakeholders to consult with and running feedback forums, and for work package leaders to prepare materials/questions associated with their tasks to put to building users via feedback forums (see Table 2.2). A checklist is provided in Appendix G for pilot building coordinators in relation to the actions requiring engagement with building users.

Table 4.1 Actions, Tasks and Responsibilities

Recommend Action	Tasks	Enabling Change Principles	Responsible Partners
A: Identify stakeholders and their role in engaging with eTEACHER	(i) Identify and maintain a list of users (both general roles and specific individuals) and their potential involvement in developing eTEACHER. (ii) Identify potential "Right Inviters" – users who can engage others in using eTEACHER. (iii) Establish a feedback forum for each pilot site, which is engaged with at least monthly in relation to the tasks below. This engagement should constitute at least three face-to-face group meetings per year and complementary informal feedback as required (e.g. via email or phone).	1. Establish your project brains trust 2. Identify Actors and Actions 7. Find the Right Inviter	Lead: AGE, ICPE, NCC for each respective pilot site Mentoring support: DMU
B: Embed user feedback and behaviour change theory into eTEACHER development process.	(i): Use behaviour change theory (i.e. COM-B, Robinson's principles for Enabling Change and the Behaviour Change Techniques taxonomy) to inform eTEACHER design (ii): Develop a pretesting plan, specifying when and how users offer feedback (iii) Develop questions and pretest materials for users to engage with (iv) Consult with users at pilot sites using pretest materials	3. Design a doable behaviour. 4. Create an enabling environment. 5. Use Enabling Tactics. 8. Pretest.	Lead: ASC for WP3 and GRA for WP2 for Tasks (i), (ii) and (iii). Pilot site co-ordinators (AGE; ICPE; NCC) for (iv) Mentoring support: DMU
C: Secure participation of target users	(i) Develop engagement plan to secure participation by target users, using Enabling Change principles (ii) Develop materials/messages to engage users (iii) Consult with users at each pilot site to pretest messages	6. Frame a hopeful intervention. 7. Find the right inviter.	Lead: ICE ((i) and (ii). Pilot site co-ordinators (AGE; ICPE; NCC) lead task (iii). Mentoring support: DMU
D: Embed user feedback into evaluation process	(i) Develop plan to pretest user feedback into evaluation design (year 2) and to elicit feedback to enhance implementation (year 3) (ii) Develop materials to elicit feedback (iii) Consult with users at each pilot site	9. Learn	Lead: CEM (i) and (ii) Pilot site co-ordinators (AGE; ICPE; NCC) (iii) Mentoring support: DMU

4.1 Mentoring support

Within Work Package 1, DMU has a role in year 2 of eTEACHER to provide mentoring support to aid the implementation of the eTEACHER tool. This is envisaged as a flexible package of support to collaboratively develop ideas and resources to ensure that the recommended Actions and Tasks specified in this report can be carried out effectively.

At this stage we envisage a combination of:

- Bi-monthly online meetings with each partner specified in this report (pilot site co-ordinators AGE; ICPE; NCC and work package leaders CEM, ASC, GRA, ICE). The first meeting could take place in October 2018 to support the development of initial engagement plans as outlined above.
- Ad hoc support via phone/email or web-based meetings to provide guidance in relation to Enabling Change.
- Aiding development of user engagement resources (e.g. meeting plans, mock-ups for consultation) using any further time available for Task 1.5.

5   References

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Appendix A: eTEACHER Project Structure.

eTEACHER is a Horizon2020-funded project (Grant Agreement no. 768738) which aims to develop an Information and Communication Technology (ICT) -based tool to enable behavioural change to help save energy in buildings. The project aims to develop, pilot and evaluate eTEACHER over three years, via several Work Packages (WPs) of activity. Seven work packages organise the project activities and are coordinated by different partners according to their expertise fields (see figure below).

In this case, WP1 addresses the "Design for Behavioural Change for Energy End-users" and its outcomes and conclusions feed technical work packages (WP2 and WP3) and the demonstration and evaluation phase, which aggregates and coordinates generated knowledge and strategies to achieve project objectives.
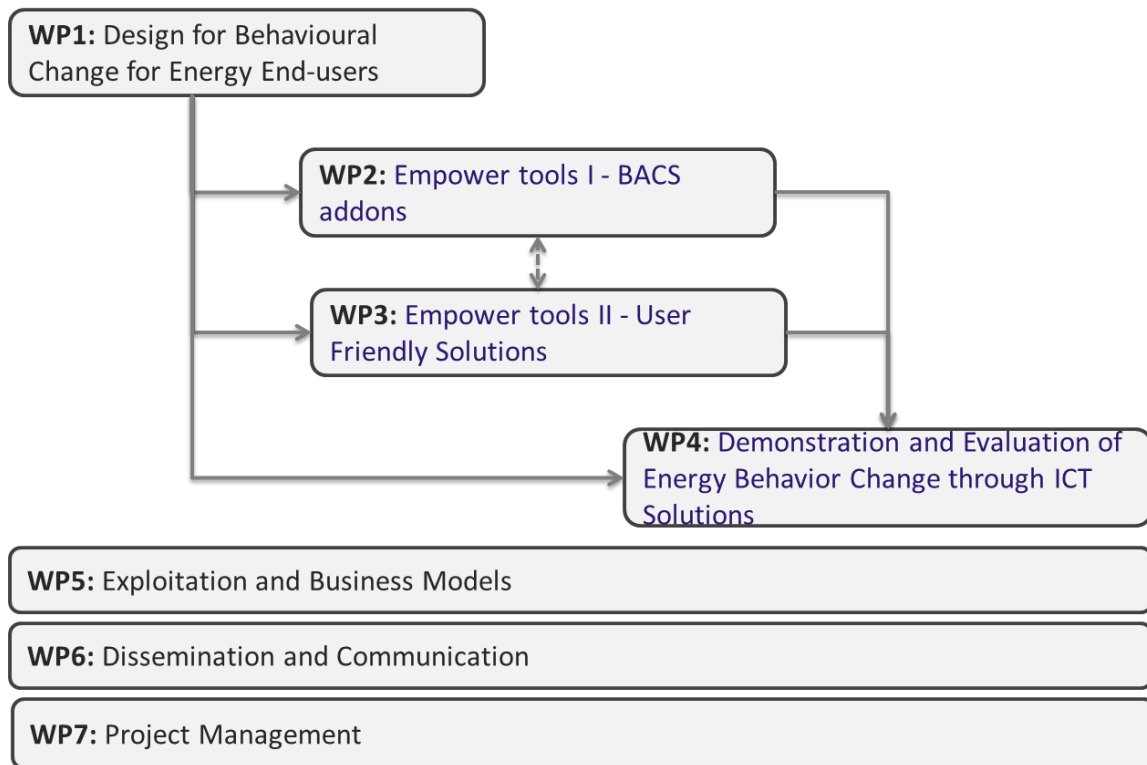
Figure A.1 eTEACHER Pert Diagram

Appendix B: Feedback Forum Template

Pilot Site: _____

Table of Feedback Forum contacts

Name	Role(s)	Email	Tel	Other Comments
Ann Example	*Resident; Chair of Residents' Association*	*annex@gmail.com*	*987-654-321*	*Can't attend meetings on Tuesday evenings.*

Checklist of representation of each relevant building user role

Building User Role	How many are taking Part in Feedback Forum?	Comments
e.g. Visitor	*0*	*Views represented via bookings co-ordinator*

Appendix C: Find the Right Inviter(s) Checklist

Find the Right Inviter checklist

Name	Passionate? Similar? Connected? Respected?	Target Group	Comments
e.g. Ann Example	*Seems well-connected and respected via residents' association role. Similar background to residents with young families. Passionate about affordable energy.*	*Residents with children*	*Ann could be the 'right inviter' for many residents.*

Appendix D: Designing Doable Behaviours

Example of questions to put to users to pilot descriptions of behaviours

Target Behaviour (as described in eTEACHER)	Do you understand specifically what this means?	Is it possible for you to perform this behaviour?	Further Comments and Suggestions
e.g. Turn off the lights.	*Unclear – which lights? And does it mean end-of-day or when I leave a room?*	*Depends on the room. Yes for some, but some have a motion sensitive control*	*Let me swipe to get rid of behaviours that eTEACHER suggests that I can't do so it doesn't keep coming up.*

Robinson's Checklist for an Enabling Environment – consider to inform design to influence key specific behaviours, focussing more on enabling the Desired Behaviour

Desired behaviour		Undesired behaviour	
How to Build a Community *i.e. how to enable social interaction around a sense of common purpose*		**How to Regulate** *i.e. how to use rules and their enforcement to prevent or reduce the undesired behaviour*	
How to Create Ease *i.e. how to make the behaviour easy to perform*		**How to Thwart** *i.e. how to make it harder to perform the undesired behaviour*	
How to Lower Costs *i.e. how to reduce the cost in terms of money, resources or social esteem*		**How to Raise Costs** *i.e. how to increase the cost in terms of money, resources or social esteem*	

Appendix E: Behaviour Change Techniques

Behaviour Change Technique	Description	Example
Information about social/environmental consequences	Provide information about social/environmental consequences of performing the behaviour.	Highlight the resources that can be rediverted into education when saving spending on energy within a school.
Information about health consequences	Provide information about health consequences of performing the behaviour.	If suggesting a challenge to manage cooler indoor temperatures by hourly light activity, add brief information on benefits to health.
Feedback on behaviour	Monitor and provide informative or evaluative feedback on performance of the behaviour.	Use monitoring data to feedback to staff via a web-based app if they turn off their PC each night.
Feedback on outcome(s)	Monitor and provide feedback on the outcome(s) of the behaviour.	Via a web-based app, provide feedback on changes in energy use in a dwelling.
Prompts/cues	Introduce environmental/social stimulus to prompt or cue a behaviour, usually at the time or place of performance.	A daily alarm to remind PC users to switch off their computer, sent 5 minutes before they usually finish.
Self-monitoring	Establish a method for the person to monitor and record their behaviour(s) as part of a behaviour change strategy.	Enabling a user to log performance of a behaviour such as use of blinds.
Credible Source	Present verbal or visual communication from a credible source in favour of or against the behaviour.	Provide references to well-respected sources of data on environmental/financial impacts of energy saving actions.
Social Comparison	Draw attention to others' performance to allow comparison with a person's own performance.	Set up a league table to enable comparison of performance in a weekly energy saving challenge.
Information about others' approval	Provide information about what other people think about the behaviour.	Enable users of a discussion forum to 'like' actions or pledges made by other people/groups.
Restructuring the physical environment	Change (or advise to change) the physical environment to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour.	Advise energy managers to install improved heating controls to enable users to more efficiently control heating.
Social support (unspecified)	Enable social support (e.g. from family, friends, colleagues) or praise/reward/encouragement related to performance of the behaviour.	Enable users to pledge to attempt a behaviour via a self-selected 'challenges' tab, and for others to be able to add supportive comments.
Goal setting and review (behaviour)	Set or agree a goal defined in terms of the behaviour to be achieved. Then review goal and consider modifying in light of achievement.	Aim for all staff to turn off PCs at the end of a work day.
Goal setting and review (outcome)	Set or agree a goal defined in terms of the outcome to be achieved. Then review goal and consider modifying in light of achievement.	Aim to reduce electricity consumption in an office by 5%.
Problem solving	Analyse, or prompt a person to analyse, factors influencing the behaviour and generate or select strategies that overcome barriers and/or increase facilitators.	Start a discussion forum thread about ways to reduce lights being left on in communal spaces in an office building.

Appendix F: Worksheet for Behaviour Change Techniques

Intervention			
Behaviour Change Technique	**Planned before?**	**Planned after?**	**Comments**
Information about social/environmental consequences			
Information about health consequences			
Feedback on behaviour			
Feedback on outcome(s)			
Prompts/cues			
Self-monitoring			
Credible Source			
Social Comparison			
Information about others' approval			
Restructuring the physical environment			
Social support (unspecified)			
Goal setting and review (behaviour)			
Goal setting and review (outcome)			
Problem solving			
COMMENTS			

Appendix G: Checklist for building user engagement

This report has described various stages and actions for implementing the Enabling Change framework within the eTEACHER pilot buildings. The following checklist summarises all actions and corresponding timescale recommendations, relating to engagement with pilot building users.

Action	Description	Materials provided	Suggested timescale	Completed
Planning phase - Ai: Identify list of users and potential involvement in developing eTEACHER	Pilot site co-ordinators combine a list of existing contacts with further outreach (e.g. via email, posters, word of mouth) to develop a list of contacts who are interested in offering feedback to develop eTEACHER	Appendix B	End of October 2018	
Planning phase - Ai: Maintain list of users and potential involvement in developing eTEACHER	Pilot site co-ordinators maintain (and add to, as needed) a list of contacts who are interested in offering feedback to develop eTEACHER	Appendix B	Throughout Year 2 & Year 3	
Scoping phase - Aii, Aiii & Biv Aii: Identify potential "right inviters" Aiii: Establish feedback forum Biv: Consult with users at each pilot site to pretest materials	An initial Feedback Forum meeting including: •Introductions and introduction to the role of the Feedback Forum •Summary of the aims and approach of eTEACHER – framed around the benefits to users •Discussion on identifying potential "right inviters" •Sharing of existing plans for feedback in relation to WP2, WP3 and WP4.	Where feedback is sought in relation to Work Packages, the leads for that WP should prepare materials in advance (e.g. slides, handouts, questions) for pilot site co-ordinators to put to members for specified feedback.	December 2018	
Early prototype phase – Aii & Biv Aiii: Establish feedback forum Biv: Consult with users at each pilot site to pretest materials	Feedback Forum meeting •Focus on feedback to aid initial tool design – pretest materials	Where feedback is sought in relation to Work Packages, the leads for that WP should prepare materials in advance (e.g. slides, handouts, questions) for pilot site co-ordinators to put to members for specified feedback.	March 2019	
Late prototype phase – Aiii & Ciii Aiii: Establish feedback forum Biv: Consult with users at each pilot site to pretest message	Feedback Forum meeting •Focus on feedback to aid initial tool design – pretest messages	Where feedback is sought in relation to Work Packages, the leads for that WP should prepare materials in advance (e.g. slides, handouts, questions) for pilot site co-ordinators to put to members for specified feedback.	June 2019	
Initial feedback phase – Diii: Consult with users at each pilot site (user feedback)	Feedback Forum meeting involving recorded semi-structured focus group sessions during which users are able to: • Qualitatively describe their use to date of eTEACHER, observed use by others in their building and any changes in energy-related behaviour • Share evaluative feedback on eTEACHER's effectiveness, including strengths and potential improvements • Collaboratively analyse the factors influencing engagement with	Materials should be available based on the evaluation plan described in D4.1 (Peralta et al, 2018) to evaluate the impact of the eTEACHER tool.	October 2019	

	eTEACHER and its effectiveness in influencing changes in energy-related behaviour			
Heating season feedback phase – Diii: Consult with users at each pilot site (user feedback)	Feedback Forum meeting involving recorded semi-structured focus group sessions during which users are able to: • Qualitatively describe their use to date of eTEACHER, observed use by others in their building and any changes in energy-related behaviour • Share evaluative feedback on eTEACHER's effectiveness, including strengths and potential improvements • Collaboratively analyse the factors influencing engagement with eTEACHER and its effectiveness in influencing changes in energy-related behaviour	Materials should be available based on the evaluation plan described in D4.1 (Peralta et al, 2018) to evaluate the impact of the eTEACHER tool.	January 2020	
Final feedback phase - Diii: Consult with users at each pilot site (user feedback)	Feedback Forum meeting involving recorded semi-structured focus group sessions during which users are able to: • Qualitatively describe their use to date of eTEACHER, observed use by others in their building and any changes in energy-related behaviour • Share evaluative feedback on eTEACHER's effectiveness, including strengths and potential improvements • Collaboratively analyse the factors influencing engagement with eTEACHER and its effectiveness in influencing changes in energy-related behaviour	Materials should be available based on the evaluation plan described in D4.1 (Peralta et al, 2018) to evaluate the impact of the eTEACHER tool.	May 2020	