Programme Area: Smart Systems and Heat

Project: Consumer Response and Behaviour

Title: Pilot Research Methodology Presentation

Abstract:

This report was prepared for the ETI by the consortium that delivered the project in 2013 and whose contents may be out of date and may not represent current thinking. This presentation sets out the research questions and challenges, and proposes the methodology to be used in the pilot study.

Context:

The delivery of consumer energy requirements is a key focus of the Smart Systems and Heat Programme. The Consumer Response and Behavior Project will identify consumer requirements and predict consumer response to Smart Energy System proposals, providing a consumer focus for the other Work Areas. This project involved thousands of respondents providing insight into consumer requirements for heat and energy services, both now and in the future. Particular focus was given to identifying the behaviour that leads people to consume energy - in particular heat and hot water. This £3m project was led by PRP Architects, experts in the built environment. It involved a consortium of academia and industry - UCL Energy Institute, Frontier Economics, The Technology Partnership, The Peabody Trust, National Centre for Social Research and Hitachi Europe.

ETI CRaB Deliverable D5.2
Pilot Research Methodology Presentation

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Tuesday 20th November 2012

Agenda

- Aims of the presentation
- Research questions, parameters and challenges
- The research challenge
- Inputs so far
- Design options for WP5.4
- The pilot
- Timetable and next steps

Aims of the presentation

- Describe design and rationale for the pilot methodology
- Present a clear implementation plan and timetable

To achieve this we also need to:

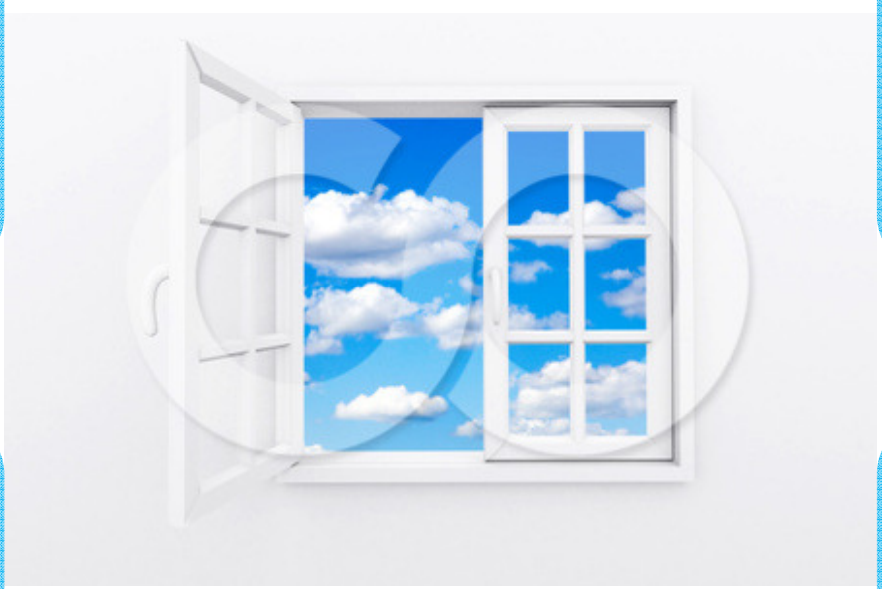
- Outline research questions, challenges and parameters
- Informed by WP5.1, WP5.3 and design of WP5.4
- Recommend what needs to be piloted

Research questions

RQ1 Consumer needs	- Mapping and measuring range of needs in relation to comfort, health, security, productivity, happiness, etc.. - Understanding priorities and dependent relationships - Identifying the role of norms, preferences and standards	Qual ➔ Quant
RQ2 Consumer behaviour	- Mapping and measuring specific energy behaviours that are day-to-day, routine and one-off - Understanding generic and specific behaviours, their interaction with technology and how these vary over time	Qual/Monitoring ➔ Quant
RQ3 Explaining behaviour	- Identifying why people adopt or change certain behaviour - Mapping and measuring factors influencing, enabling and constraining behaviour - Understanding awareness/knowledge and role of lifestyle	Qual/Monitoring ➔ Quant
RQ4 Variation across groups	- Demographics of individuals, h/holds and dwellings - Geographical location and physical infrastructure - Consumption patterns and broader attitudes	Qual, monitoring and Quant

Addressing the research questions

RQ1 - needs
Cool, clean air
Remove odour
Relieve condensation
Feel 'less stuffy'



RQ2 – behaviour
What they do
When, for how long
Relation to other behaviour

RQ3 – why
Why the window
Why not alternatives
What needs are prioritised

RQ4 – who
Does behaviour differ for different groups?
Which groups, existing or emergent

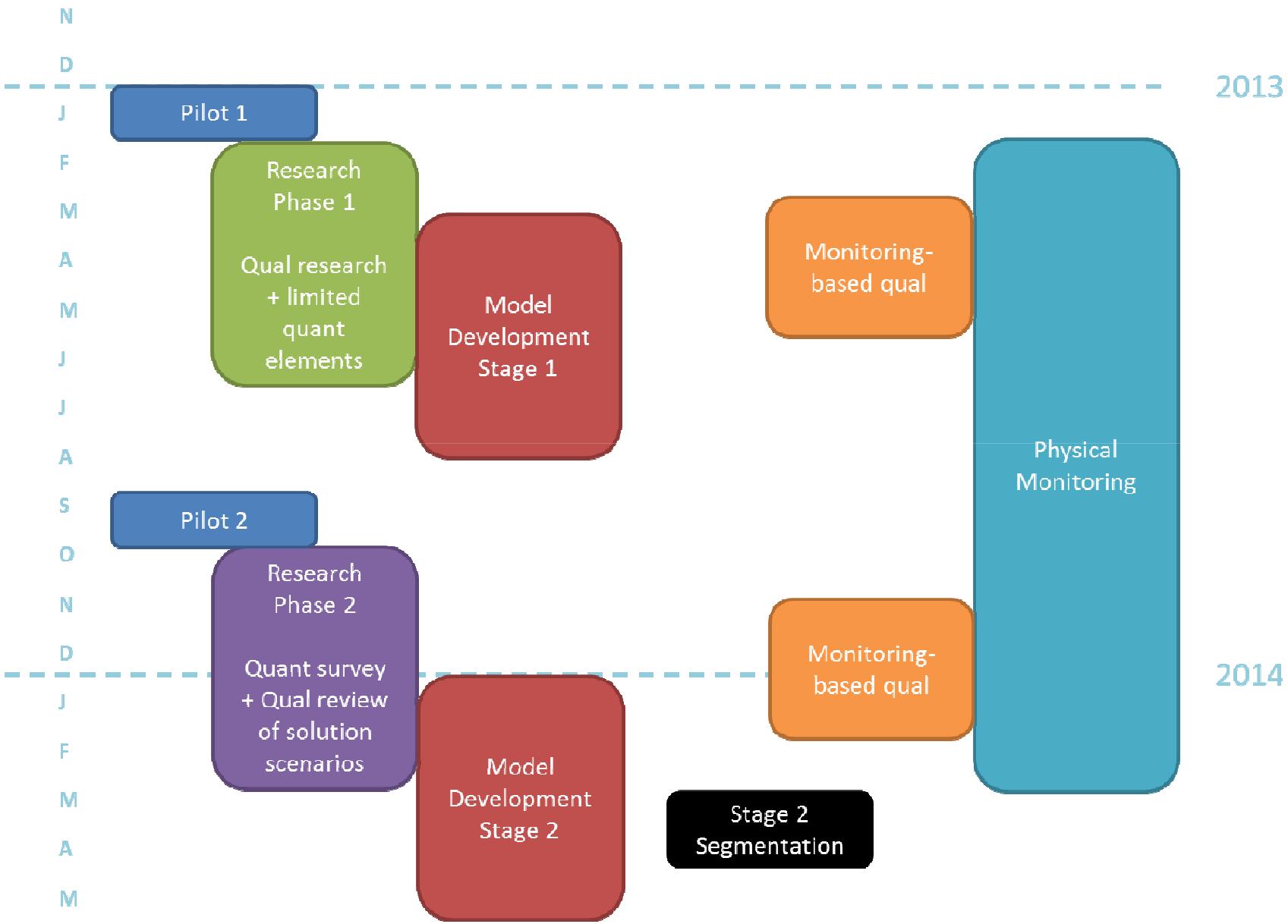
Research challenges

Challenge	Response
Reported and actual behaviour -How to identify actual behaviour -How to understand actual behaviour if participants unaware	-Integrated methods -Research materials to encourage reflection
Reported and un-conscious influencing factors -Do people know what influences their behaviour? -Can they articulate this?	-Test approaching this needs first and behaviour first
Retaining focus -Needs will be broad and interrelated -Research objectives need to be feasible, achievable	-Use what we know -Agree and reference objectives
Getting the right people -Wide variety of sample criteria -Making energy interesting! -Ethics and the research burden	-Flexible methods -Engaging materials, suitable incentive -NatCen REC

Inputs so far

- **WP5.2 Kick-off workshop:** and other meetings with partners to refine research design
- **WP5.1 Literature review:** what methods have worked, what do we already know about behaviour
- **WP5.1(b) Segmentation:** use of categorisation of needs and drivers
- Limited input from work on external factors and expert consultation due to contractual delay

WP5.4 possible design



Qualitative research and physical monitoring

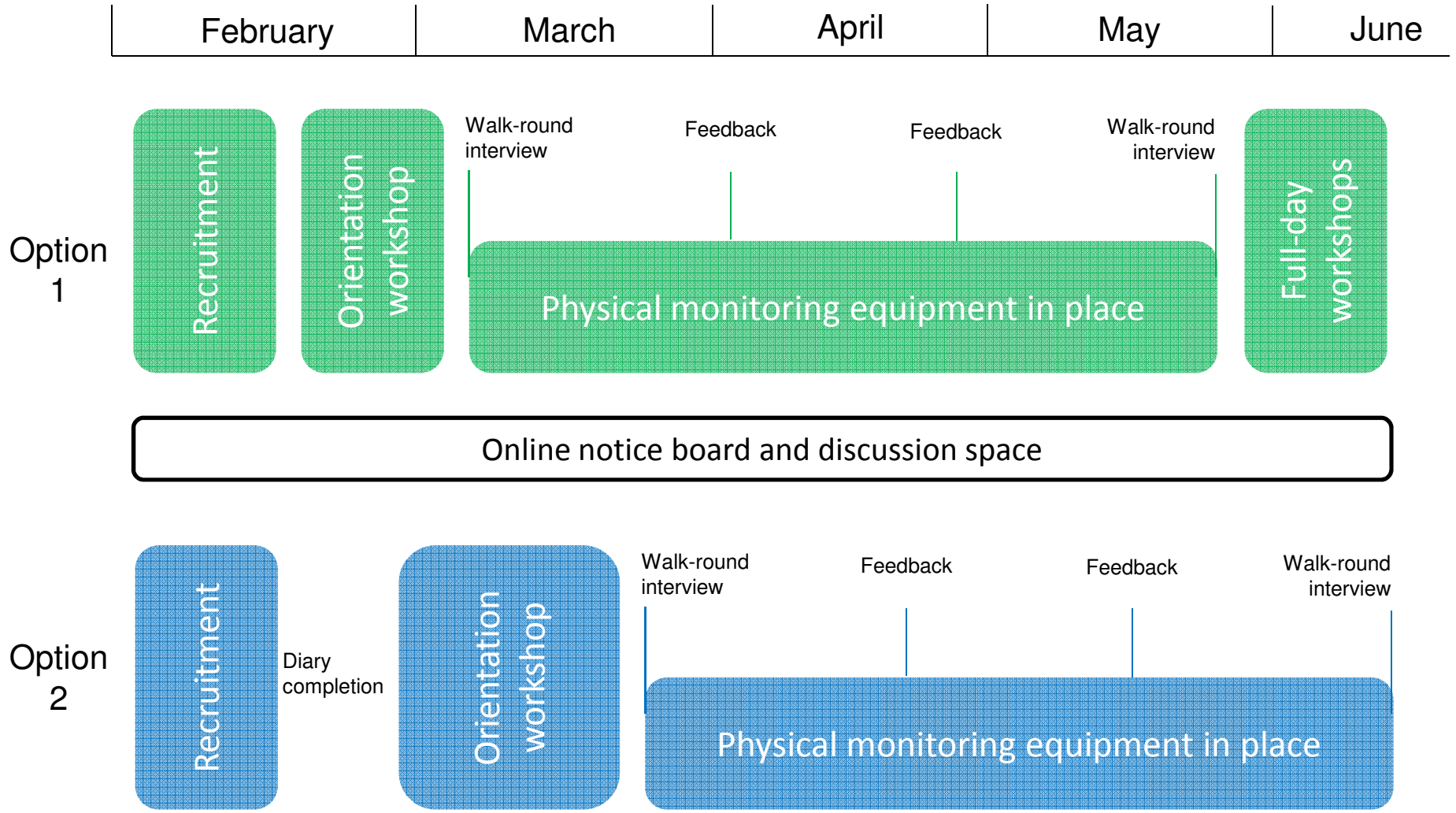
WP5.4 faces two key challenges:

- Difficult for participants to articulate needs and for researchers to detect actual behaviour
- Given this, how do we categorise and prioritise need and behaviour for this study?

Both challenges best addressed by qualitative methods, but require different approaches…

Addition of integrated physical monitoring can also help overcome…

Integrating qual and monitoring



Implications for piloting

We need a pilot design that helps us determine:

- Recruitment approach and materials
- Whether we approach the question with participants needs-first or behaviour-first
- Sequencing of diary, workshops and monitoring
- Format and content of workshops
- Type of monitoring equipment – what to monitor and where
- Sample design: general population or targeting specific groups

The quantitative survey

Role of the survey to quantify:

- What people do in their homes that needs energy
- What needs consumer are aiming to meet when using energy
- The motivations and influencing factors on behaviour

Key elements of the survey:

- f2f survey with key consumer segments
- CAPI questionnaire, most structured questions, some interviewer observation
- 60 minute interviews with adult permanently living at address

Survey content

- Needs, energy systems and use, attitudes and behaviours
- Analysis variables (household, property, area)
- Consent for follow-up

The pilot methodology

Discussion groups

Physical monitoring

Online portal

Testing recruitment and engagement

Testing recruitment and engagement

Across each of the strands we will to gather feedback on:

- How well our materials engage participants
- Whether recruiters are able to explain diary completion
- Whether the information we provide is well understood

- Reasons for refusals
- Whether the research is seen as too burdensome
- Level of incentive

- Appetite for online elements and monitoring
- Potential concerns with monitoring

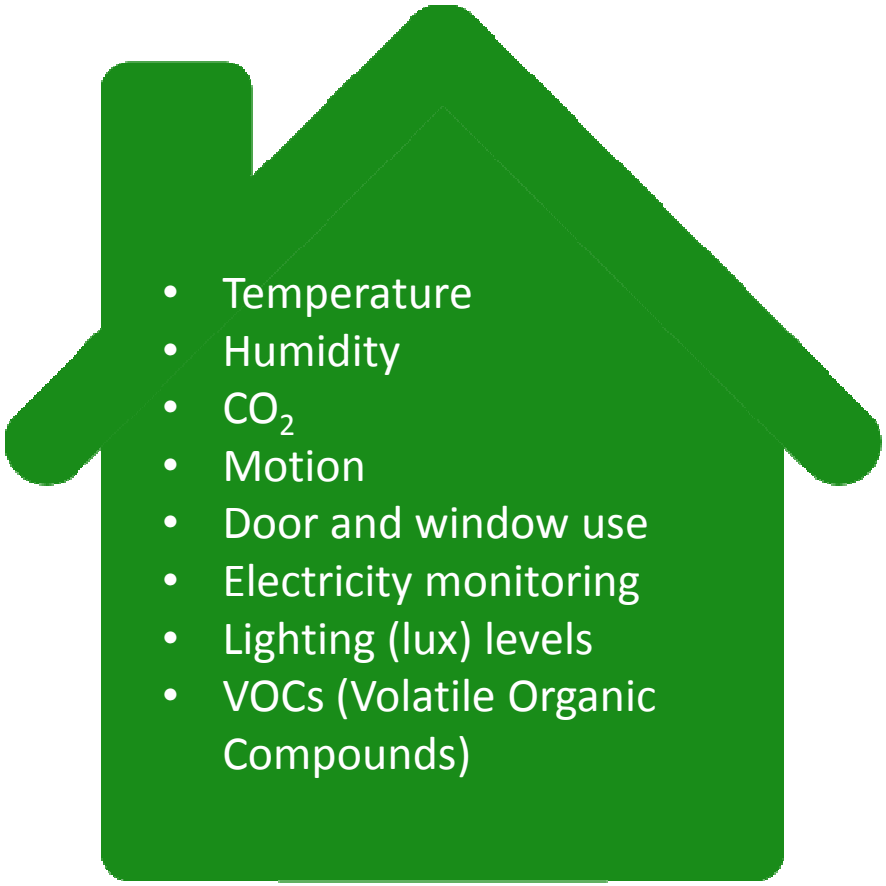
Discussion groups

Sample design:

	Needs-led approach	Behaviour-led approach
Diary before	1 (households with children)	1 (adult-only households)
Diary after	1 (adult-only households)	1 (households with children)

- Six to eight people per group, located in the south-east
- Two 1-hour substantive discussions, (diary/monitoring discussion)

Physical monitoring



Devices tested across three different dwellings. Important to test:

- Installation and removal
- Participant engagement and perception
- Protocols for managing equipment failure
- Retrieving the data
- Data communication between TTP and NatCen
- Consent procedures
- Walk round interview
- Using the data to inform qual

Online portal

An online portal to include:

- project information
- guidance on monitoring equipment
- space for formal data collection
- ad hoc discussion between participants

This can work really well with already engaged participants. We will test, using prototypes in discussion groups:

- Whether participants would find this useful
- What functions they would use
- How it could be more useful/engaging

Pilot survey

If we are to pilot the quantitative data collection, we would provide a full list of issues to be piloted, but this would include:

- Advance materials, recruitment approaches
- Questionnaire timing and question comprehension
- Whether questions are refused or that participants are unable to answer
- Interviewer observations – what information can be gathered on approach, what can be effectively gathered in the home.

Timetable

Activity	Date
Sign off monitoring device specifications	20th November
Circulate recruitment materials and diary (internal sign-off)	3rd December (comments by 6th)
Start recruitment	10th December
Circulate qualitative materials	10th December (comments by 17th)
Pilot online portal live	12th December
Sign off qualitative materials	4th January
Fieldwork	7th-18th January
Pilot report submitted	4th February
Begin main stage recruitment	11th February
Main stage fieldwork	25th February

Thank you

Questions and discussion

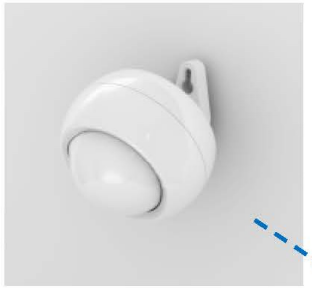
In-home monitoring kit

In-home monitoring kit

-Note there may be an option to locally store all data in a single device.
-This would not require a connection to the internet.
-Requires data collection at the end of the trial.
-If the device fails at any time or is damaged data may be lost.

-In home sensor wireless interface e.g.
-Zigbee
-Z-Wave
-.....

-Ethernet or Wi-Fi



Sensors

-Sensor wireless network co-ordinator / gateway

-Connects to sensors
-Connects to WAN gateway

-WAN gateway

-Internet

-Connects to sensor gateway
-Provides a 'bridge' to the Internet
-Could be:
-broadband modem
-cellular modem