

i-STUTE: WP1

Advisory Board

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David Elmes
david.elmes@wbs.ac.uk
+44 (0)782 4540 996

Daniel Read
daniel.read@wbs.ac.uk
+44(0)7713 355412

Victoria Haines
V.J.Haines@lboro.ac.uk
+44 (0)1509 226915

Rebecca Hafner
rebecca.hafner@wbs.ac.uk

WP1's Work Packages

- ◎ **WP1.1: Review and synthesis of existing activities.**
 - A review of how economic, policy and behavioural factors influence the adoption of new technologies relevant to heating/cooling technologies.
- ◎ **WP1.2: Business model typology.**
 - What are the existing business models adopted by energy service providers in the UK? What are the new alternatives are under consideration? How do they match the requirements for successful introduction identified in our review?
- ◎ **WP1.3: Behavioural Insights – Case studies.**
 - Case studies analysis of where business models succeed or fail to build their understanding of customer needs and behaviours, develop relationships with those customers and provide propositions that customers adopt.
- ◎ **WP1.4: Behavioural Insights – Experiments and focus groups.**
 - Experiments & focus groups to provide converging evidence on a range of value propositions, zeroing in on features likely to lead to success or failure.

WP1's Work Packages: Summary

- ⦿ **WP1.1: Review and synthesis of existing activities.**
 - Completed
- ⦿ **WP1.2: Business model typology.**
 - Resources reallocated to Nudgeathon work
- ⦿ **WP1.3: Behavioural Insights – Case studies.**
 - Nudgeathon completed
 - Ongoing programme of practical demonstration using Warwick Campus
 - Discussed reallocating WBS resources from WP1.4 when PDRA leaves with MC
 - LU: Two new RAs, one starting now and one in January
 - Perception Gap work presented at Teddinet conference; potential paper
- ⦿ **WP1.4: Behavioural Insights – Experiments and focus groups.**
 - Completed experiment set
 - 5 papers under review
 - PDRA leaving

WP1.4: Behavioural Insights

- ⦿ Programme of empirical work to explore the theoretical choice processes underpinning decisions made in the energy retail market

Updates since last MC meeting:

- ⦿ Experiments 1.4.1a & 1.4.1b – Alignability effects and preference formation
 - Status: Studies complete. Journal article under final review for publication in *Energy Efficiency*
- ⦿ Experiments 1.4.2a & 1.4.2b – Temporal Discounting effects
 - Status: **Studies complete, two study journal article under review at *Psychology & Marketing***
- ⦿ Experiment 1.4.3 – Norms and feedback frames
 - Status: **Study complete. Journal article has undergone substantial re-write following first review at *The Journal of Environmental Psychology*, and is currently awaiting second review decision**
- ⦿ Experiments 1.4.4a-c – Messenger Effects
 - Status: **Studies complete. Journal article has undergone substantial re-write following first review at *Current Psychology*. This involved re-running the two studies as one combined experiment in order to remove any potential time confound between previous two studies. Data collection & re-write is now complete, paper has been re-submitted & is currently under second review at *Current Psychology***
- ⦿ Experiment 1.4.4d – Follow up study into parameters of messenger effects in pro-environmental choice
 - Status: **Data collection complete, white paper in preparation**

So what have we demonstrated in WP1.4...

For the type of significant investments we consider...

- ⊙ Alignment effects
 - Be careful that people “write across” information
 - Priming can engage higher order thinking
- ⊙ Discounting & framing effects
 - ‘Patient’ people are more likely to select an energy-efficient technology with temporally distant benefits
 - Evidence for alternate financial framing techniques in guiding choice (reframing choice as investment with active ‘earning’ / ‘saving’ potential)
- ⊙ Norms & feedback effects
 - Normative information is highly effective in guiding choice behaviour
 - In absence of normative information, financial framing of benefits is more effective than environmental framing of benefits
- ⊙ Messenger effects
 - Not significant for the decision type and process we’ve considered
 - Further work ongoing into decisions with varying levels of initial financial outlay
- ⊙ And the *relative* impact....?

WP1.3: Behavioural Insights - Case studies.

- ⦿ Work package started September 2014, as scheduled
- ⦿ Case Studies:
 - 1.3.1 Thermal stores (LU)
 - Data collected on current use of heating and future role of thermal stores
 - Publication in early stages of preparation, pending staff replacement
 - 1.3.2 Heat emitters (LU)
 - Completed; review report published
 - 1.3.3 Smart displays & Control (WBS, leveraging Innovate UK funded work)
 - Halted as supported company changed focus onto technical issues
 - 1.3.4 Perception Gaps (WBS, leveraging Innovate UK funded work)
 - Progress halted: PhD withdrew due to ill health
 - Existing RA (Rebecca Hafner) will try to pick up some of the work....
 - Abstract presented at the TEDDINET C-tech symposium on Managing Energy Use in Non-domestic Buildings, London UK, 26th June 2017
 - Journal article in preparation for special issue
 - 1.3.5 Nudgeathon

WP1.3.4: Behavioural Insights - Perception Gaps (WBS, leveraging Innovate UK funded work)

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**Perceptions and Behaviours of Energy Use in
Non-residential Buildings**

by Elmes, Hafner, Zheng & Elbilbaisi (2017)

TEDDINET-Ctech symposium: 26th June 2017

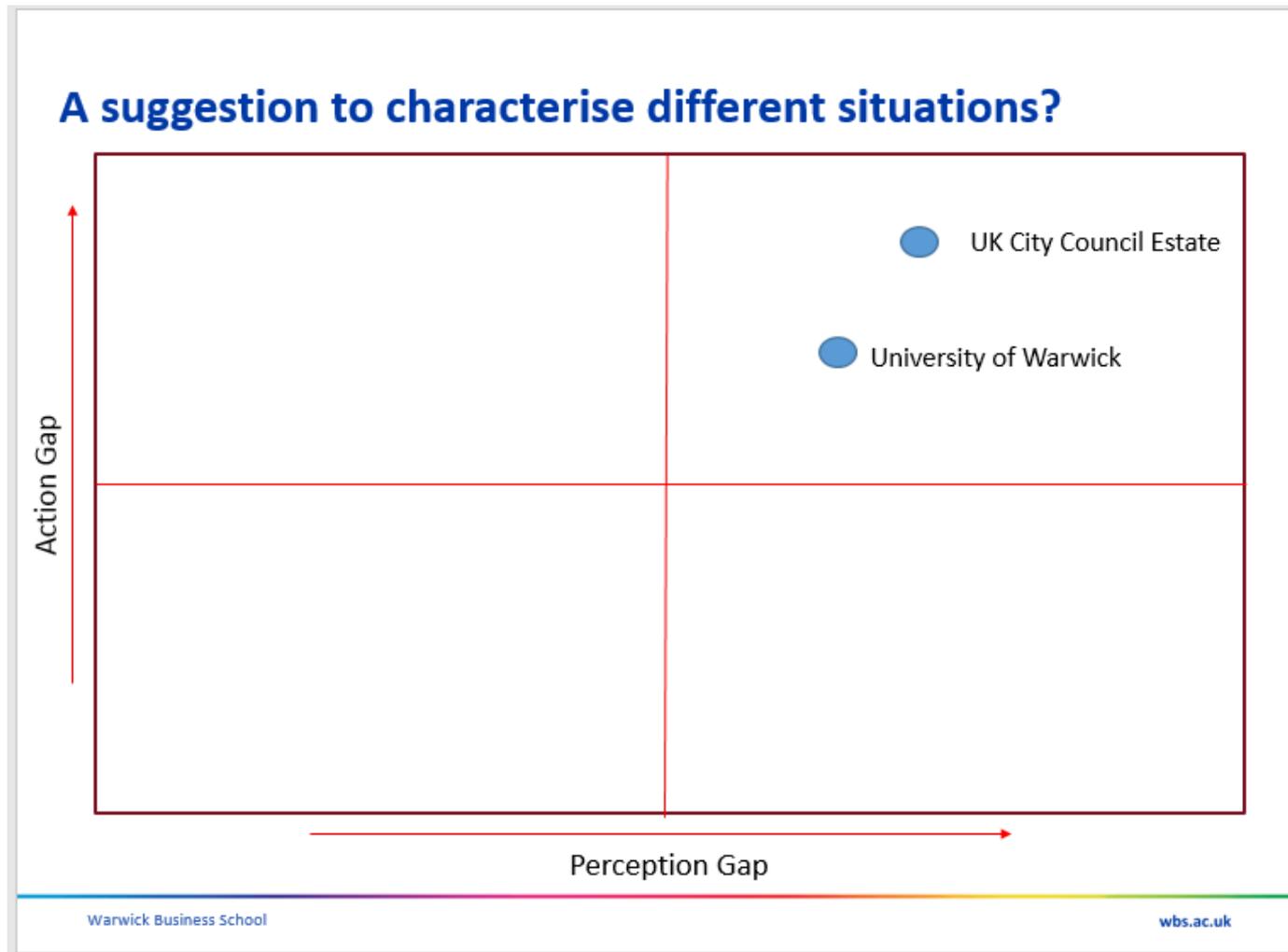
Managing energy use in non-domestic buildings:
Research insights

WARWICK
THE UNIVERSITY OF WARWICK

WP1.3.4: Behavioural Insights - Perception Gaps (WBS, leveraging Innovate UK funded work)

- ◎ Studies provide insight into:
 - The extent of misperceptions of energy use in non-domestic buildings
 - Energy use associated with heating and cooling underestimated, whilst appliances overestimated
 - Key barriers to behaviour change in this context
 - Reduced motivation, lack of attention, habits, perceived lack of personal control
 - Areas to target in behaviour change intervention development
 - Knowledge of issues and knowledge of action strategies
 - Education on consumption to counter misperceptions
 - Increased personal control, but tension v increased automation
 - Community based social marketing techniques / office block competitions to establish new social norms
 - Alternate behavioural reinforcement techniques (feedback, prompts)
- ◎ **Journal article currently in preparation for publication in Teddinet / C-tech conference special issue**

WP1.3.4: Behavioural Insights - Perception Gaps (WBS, leveraging Innovate UK funded work)





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CELEBRATING
50
YEARS
1967-2017

The University of Warwick my.wbs



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Nudgeathon will tackle reducing energy use - Behavioural Science in action



NUDGEATHON
BEHAVIOUR / INSIGHT / CHANGE



What arose from the Nudgeathon?

- ⦿ Themes for research and demonstration
 - Signage
 - TRVs
 - Feedback & “shadow” bills
 - Communication
- ⦿ A two stage programme of implementation across Campus
 - Initial research within this AY as part of dissertations
 - Preparation for work in the next AY, including any summer actions
- ⦿ Contributions from the Energy Systems Catapult...
 - The language of comfort services
 - The standards set for buildings to offer & meet certain levels of comfort



Energy Feedback Reports:

Sherbourne RCT

Following the Nudgeathon in February 2017, we are looking to implement the idea of giving students feedback on their energy usage in campus residences, in an effort to encourage conservation.

Student focus groups have been carried out over the summer, testing various messages and getting feedback on how previous sustainability campaigns have been received.

Running a **pilot study in Sherbourne (47 flats, 527 residents) until Christmas**, reports will be published every **two weeks**, both as **individual emails AND posted in the kitchens** of each flat. Reports will show **energy used** and flat's **rank** compared to neighbours.

Once the pilot system has been set up and automated, continuing research can look to tweak delivery variables to identify most effective messaging strategy.

WP1: Publications and dissemination

- WP1.1 (Review paper) – Journal article under final review
 - Hafner, Elmes & Read. (2017). Promoting Behavioural Change to Reduce Thermal Energy Demand in Households. *Energy Efficiency (Under Review)*
- WP1.4.1 (Alignability effects) – Two study journal article under final review
 - Hafner, Elmes & Read. (2017). Exploring Alignability Effects and the Role of Information Structure in Promoting Uptake of Energy Efficient Technologies. *Energy Efficiency (Under Review)*
- WP1.4.2 (Discounting effects) – Two study journal article submitted to Psychology & Marketing
 - Hafner, Elmes & Read. (2017). Exploring the Role of Choice Framing and Patience (Willingness to Wait) in New Technology Adoption. *Psychology and Marketing (Under Review)*
- WP1.4.3 (Norms and feedback frames) – Journal article under review at The Journal of Environmental Psychology
 - Hafner, Elmes & Read. (2017). Exploring the Comparative Impact of Normative Information and Financial/Environmental Feedback Frames in Promoting Pro-Environmental Behaviour, and Increasing Uptake of Energy-Efficient Technologies. *Journal of Environmental Psychology (Under Review)*
- WP1.4.4 (Messenger effects) – Journal article under second review at Current Psychology, large-scale follow-up study white paper to follow
 - Hafner, Elmes & Read. (2017). Exploring the Role of Messenger Effects and Feedback Frames in Promoting Uptake of Energy-Efficient Technologies. *Current Psychology (Under Review)*
 - Hafner, Elmes & Read (2017). White paper report: Messenger effects within varying investment scales (*In Preparation*).
- WP1.3 Perception Gaps (WBS, leveraging Innovate UK funded work)
 - Elmes, Hafner, Zheng & Elbilbaisi. (2017). Perceptions and Behaviours of Energy Use in Non-Residential Buildings. *Teddinet / C-tech special issue journal (In Preparation)*