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Nudging consumers towards energy efficiency through behavioural science

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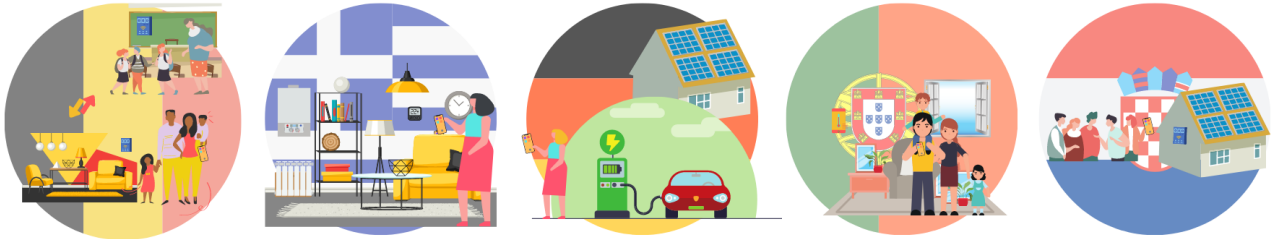

How to support efficient heating (& cooling) by profiling and nudging energy consumers

Filippos Anagnostopoulos, IEECP
NUDGE Project Coordinator

Users TCP Academy, 15 March 2023

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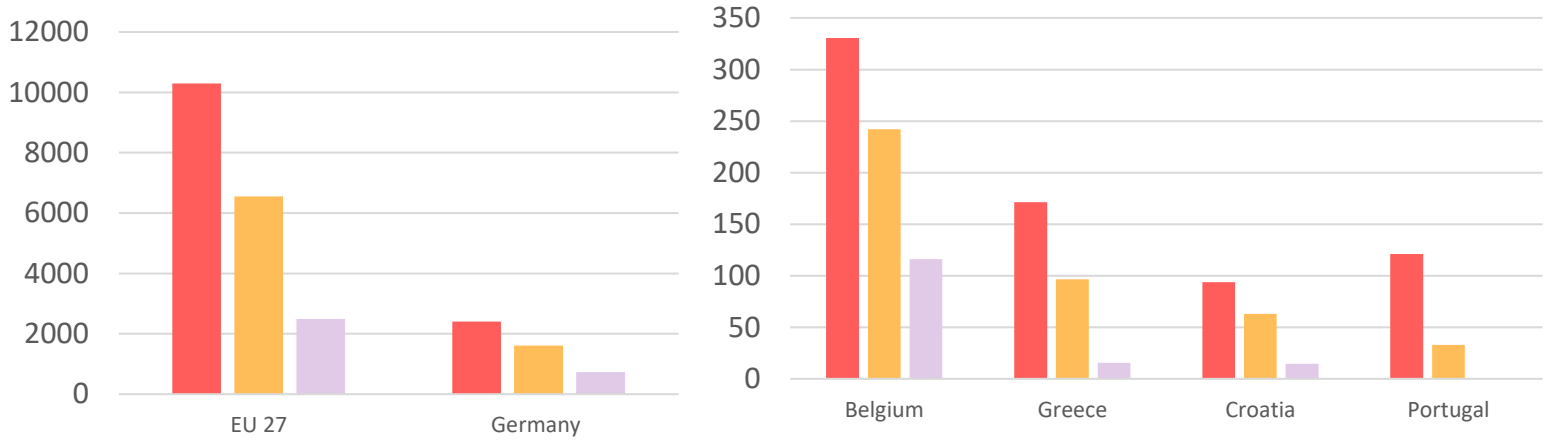
Context: Heating demand in the EU



Overview of the space heating related energy use in Europe and the NUDGE-Project countries (Eurostat, 2022): Final energy consumption in households 2019, final energy consumption for space heating and amount of natural gas in the final energy consumption for space heating [PJ], Further remarks: 75 % of natural gas in the EU residential sector used for space heating, 39 % of the extra-EU imports of natural gas in 2021 (share of trade in value) were from Russia (Eurostat, 2022).

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NUDGE aims to ***systematically assess*** *and* ***unleash*** *the* ***potential of behavioral interventions*** *towards achieving higher energy efficiency;*

and to pave the way *to the* ***generalized use of behavioural interventions*** *as a worthy addition to the* ***policy-making toolbox.***

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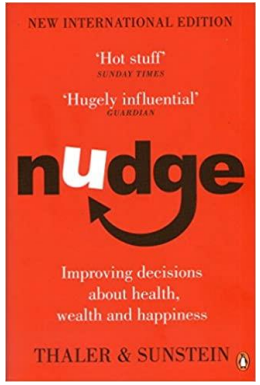
What is nudging?

- Facilitating Nudges
  - Positioning
  - Default
  - Anchoring & Adjustment
- Reinforcement Nudges
  - Feedback & Awareness
  - Instigating Empathy
  - Hedonic Goals
  - Just-in-Time Prompts
- Social Influence Nudges
  - Goal Setting & Commitment
  - Moral Norm
  - Enabling Social Comparison
- Fear Nudges
  - Make Recources Scarce
  - Reducing The Distance
- Confronting Nudges
  - Reminding of Consequences

Nudging is *any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any option or significantly changing their economic incentives*

R. Thaler, and C. Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness.* 2009



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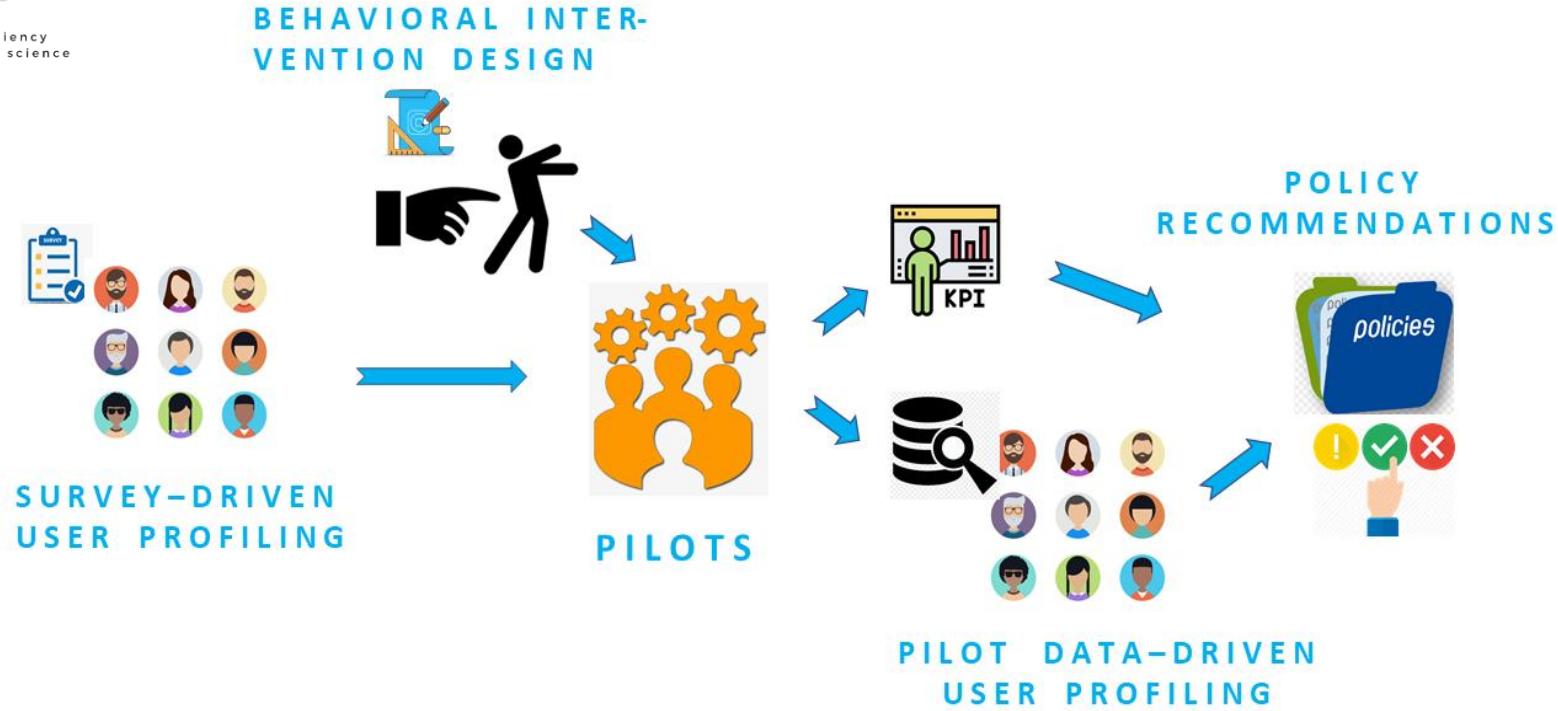

Pre-pilot phase | Pilot phase | Post-pilot phase

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The NUDGE Pilots

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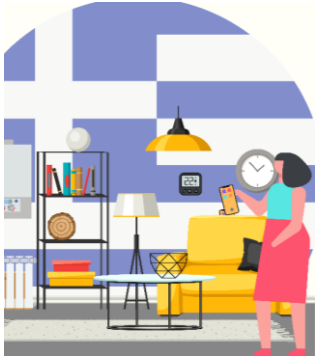
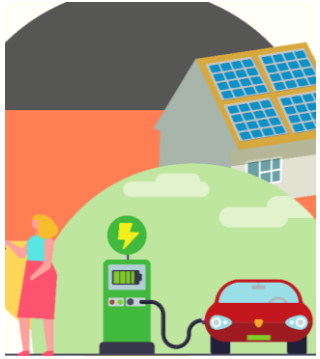
Croatia: Promoting distributed self-production for local Energy communities



Greece: Efficient control of heating and DHW preparation for Natural Gas boilers



Germany: Optimization of EV charging with self-produced PV power

Belgium: Interdisciplinary, project-based education on home energy consumption for children

Portugal: Healthy homes for long-lasting energy efficiency behavior

Energy monitoring and management tools

Digital user interfaces

Long-term energy efficiency behavior change potential

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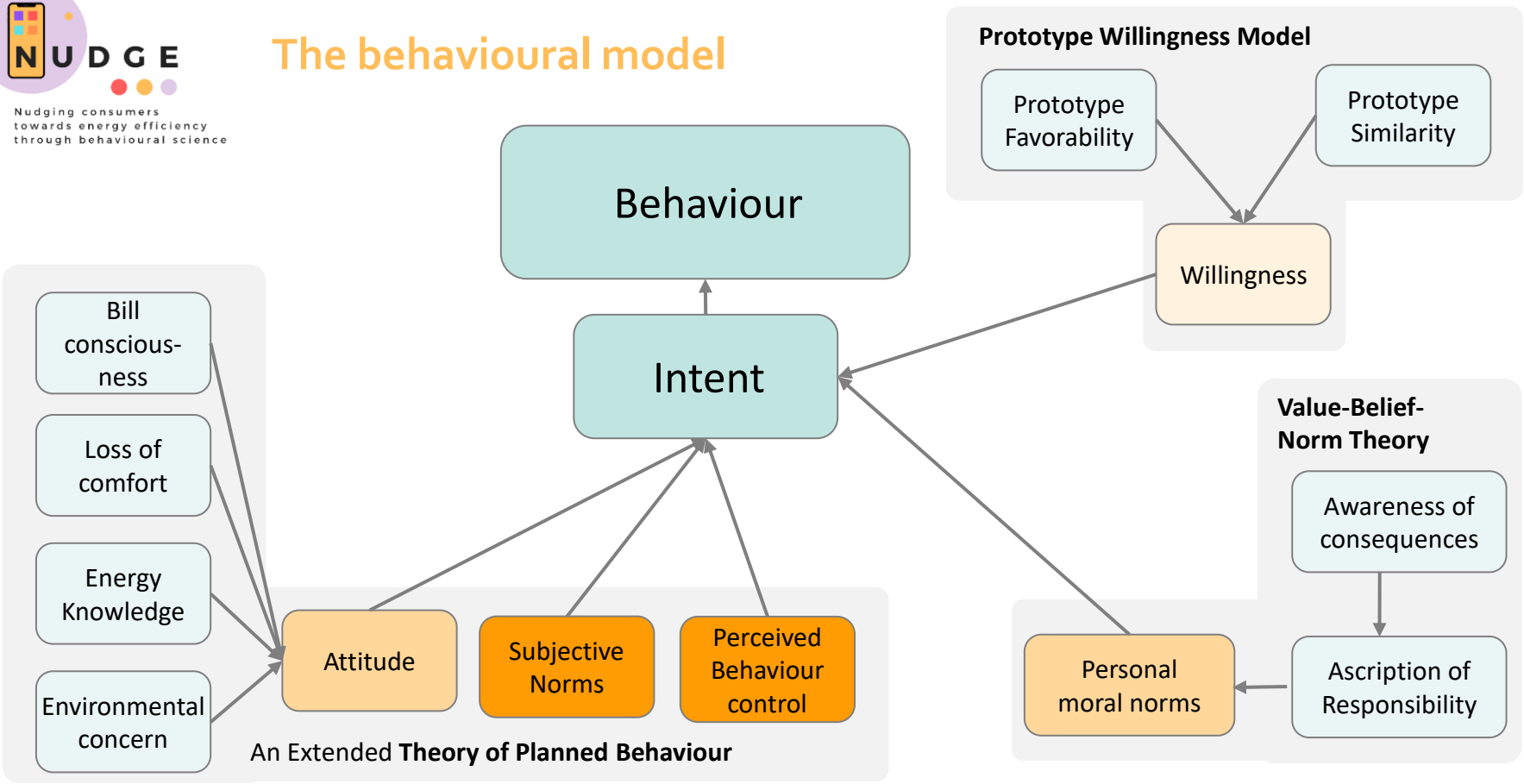
The behavioural model



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Perceived behaviour control

Perceived behavioral control refers to a**n individual's perception of their ability to control their behavior**.

How to improve perceived behavioral control and encourage households to reduce heating & cooling demand:

- **Information campaigns** directly targeting customers with practical measures and habit formation.
- Intermediary actors, such as energy companies, can be **obliged to promote** energy efficiency measures.
- Customers must have timely **access to consumption data** to make informed decisions.

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Subjective norms

Subjective norms: the **perceived social pressure to engage in a certain behavior**.

To improve their impact:

- **Highlight the behavior of others** to encourage individual consumption reduction (e.g. Use survey results, such as the percentage of people who think energy conservation is important,)
- **Connect** individual energy-saving behavior **with societal goals** (e.g. reducing energy dependency and high prices)

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Attitudes

Attitude: a psychological construct that refers to a person's evaluation, feelings, or **behavioral tendencies** towards an object, person, group, or situation

To positively impact attitudes towards reducing energy consumption

- Develop strategies that positively influence environmental and financial concerns
- Address potential concerns about a loss of comfort in reducing energy consumption
- Ensure that consumption reductions have minimal impact on comfort levels

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How to nudge consumer profiles for energy savings

Legend:

- Profile
- Key Points
- Intervention Type
- Description of Intervention

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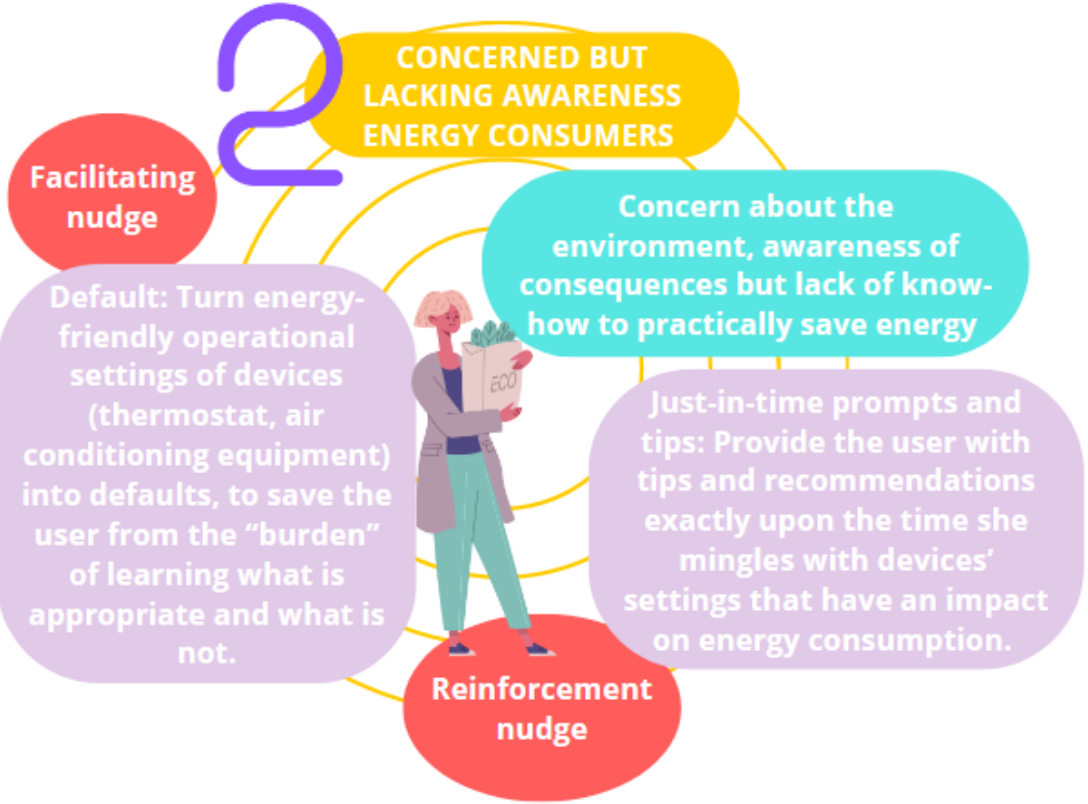
How to nudge consumer profiles for energy savings



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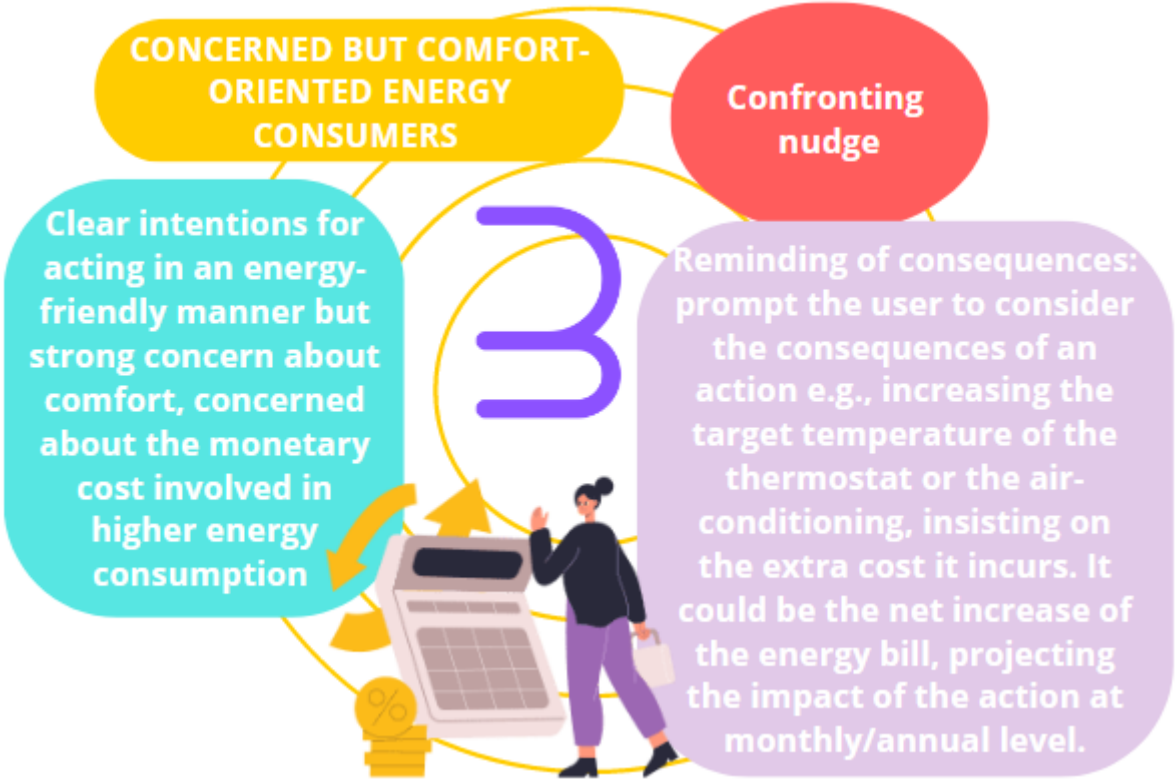

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How to nudge consumer profiles for energy savings

MATERIALISTIC ENERGY CONSUMERS ESCAPING PERSONAL RESPONSIBILITY

Combining lower than average energy-saving intentions with a low anticipation of personal responsibility to act and high concern for the financial implications of energy-saving activities

Confronting nudge

Reminding of consequences: prompt the user to consider the consequences of e.g., increasing the target temperature of the thermostat or the air-conditioning, insisting on the extra cost it incurs. It could be the net increase of the bill, projecting the impact of the action at monthly/annual level.

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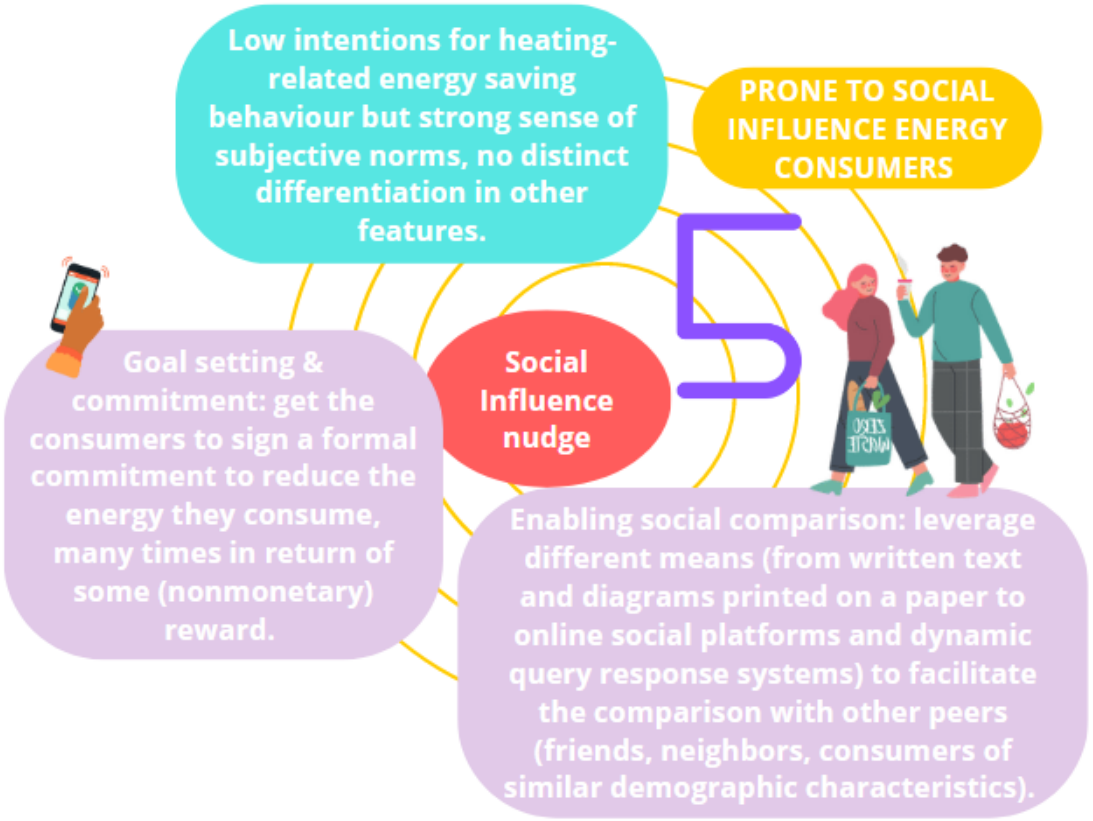

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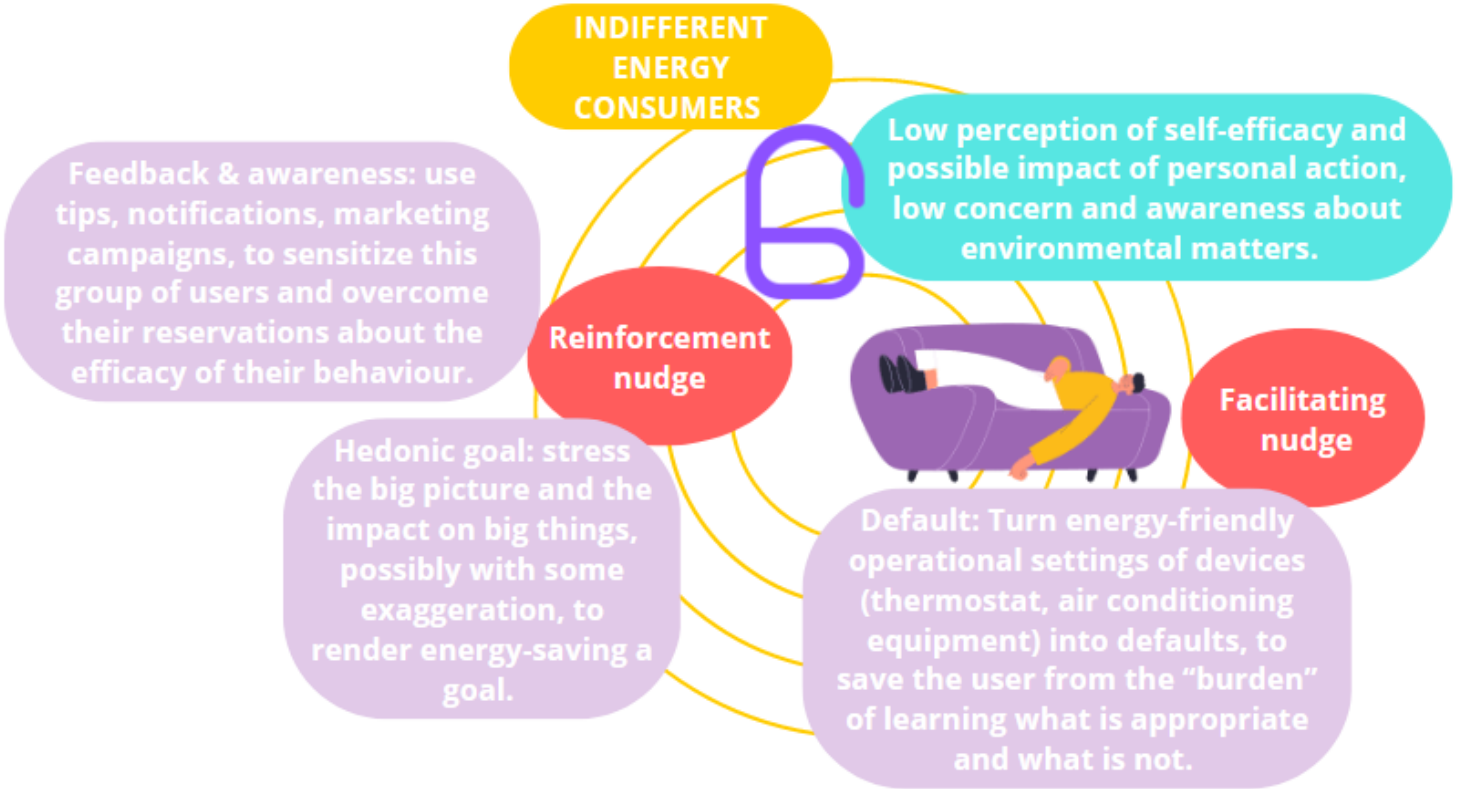

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Key Takeaways for behaviour change in energy consumption

The behaviour of households has a very significant impact on energy consumption, even more so than building features.

The motivation to change behavior is influenced by 6 factors, in order of importance: *Perceived behavioral control*, *subjective norms*, *attitudes*, *personal moral norms*, willingness, and age.

Individuals have different energy usage profiles, and require personalized approaches to encourage energy efficiency.

Policymakers should evaluate the effects of policies on various user profiles to ensure successful implementation.

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www.nudgeproject.eu

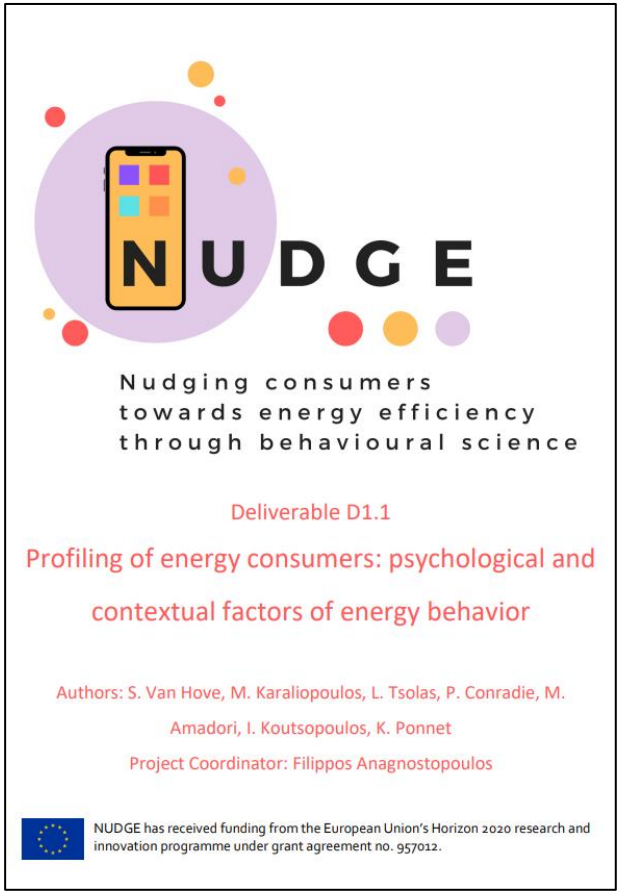
Profiling of energy consumers: psychological and contextual factors of energy behavior

- Report

Profiling and nudging energy consumers to heat efficiently

- Policy Brief
- Poster

Poster on NUDGE definitions and examples



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