Local authority interventions in the domestic sector and the role of social networks: a case study from the city of Leeds

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Background and Project Aims

- Local authorities (LAs) currently take an opportunistic approach to implementation of energy interventions.
- Aim to develop a methodology using techniques from complexity science to model and assess different strategies for roll-out of one city-level domestic energy intervention.
- Propose that LAs could harness the power of social networks to increase the success of interventions.
  - What factors are important?

Method

- Survey data incl. info on behaviours, attitudes, demographics and social network.
  - 1050 valid responses received from residents of Leeds.

- Simulations of technology uptake across the city of Leeds using a network model of simple dynamical systems where:
  - Households obeys certain rules (based on probabilities determined from the survey) regarding their threshold for technology uptake
  - Households can be influenced by 'neighbours' in their network of energy influences

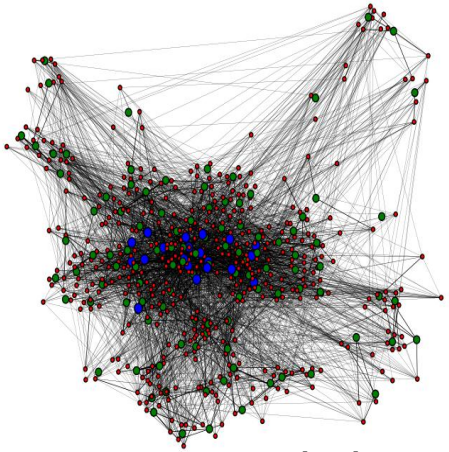
Scenario Analysis

- Three main parameters in the model can be varied:
  - initial seeding of adopters
  - network structure
  - thresholds or parameter weightings in the dynamical equations

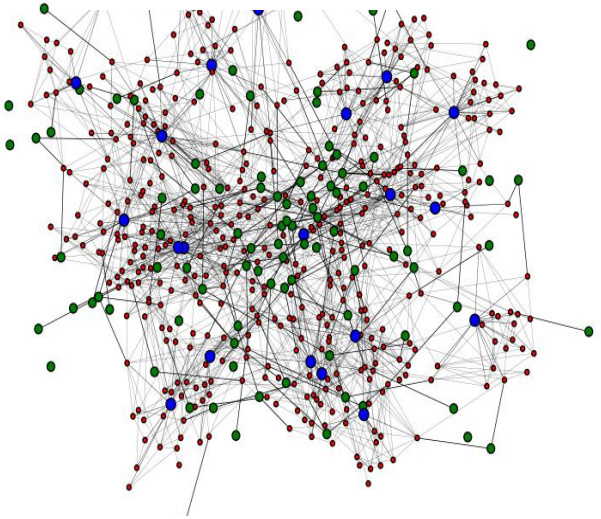
- Four different roll-out strategies related to installation of insulation measures will be simulated.
  - **Seeded**: Street-by-street free installation of insulation in certain geographic areas.
  - **Communities:** Use of influential community hubs to provide information and advice on insulation.
  - **Random**: City-wide incentive campaign.
  - **Snowball**: Incentive to recommend the scheme to a friend.

Initial Results

- Survey results give:
  - probabilities for connections to social groups
  - probabilities that energy information would be shared and/or trusted
- Example findings:
  - People are more likely to currently talk to work colleagues about energy (48%) than neighbours (16%)
  - People are more likely to trust their employer (37%) for information about energy than neighbours (22 %)

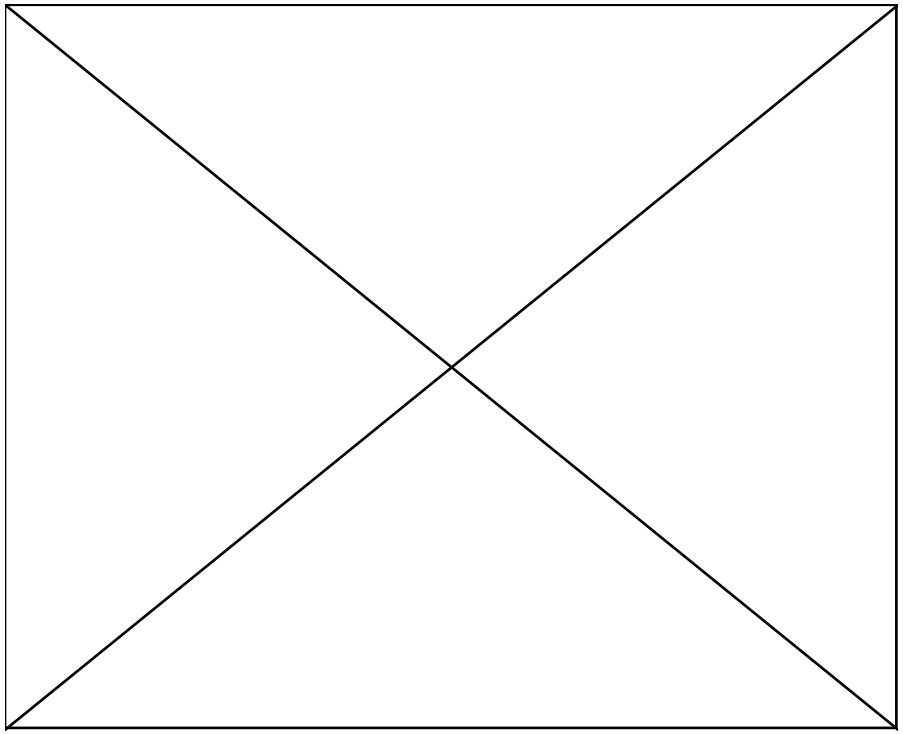


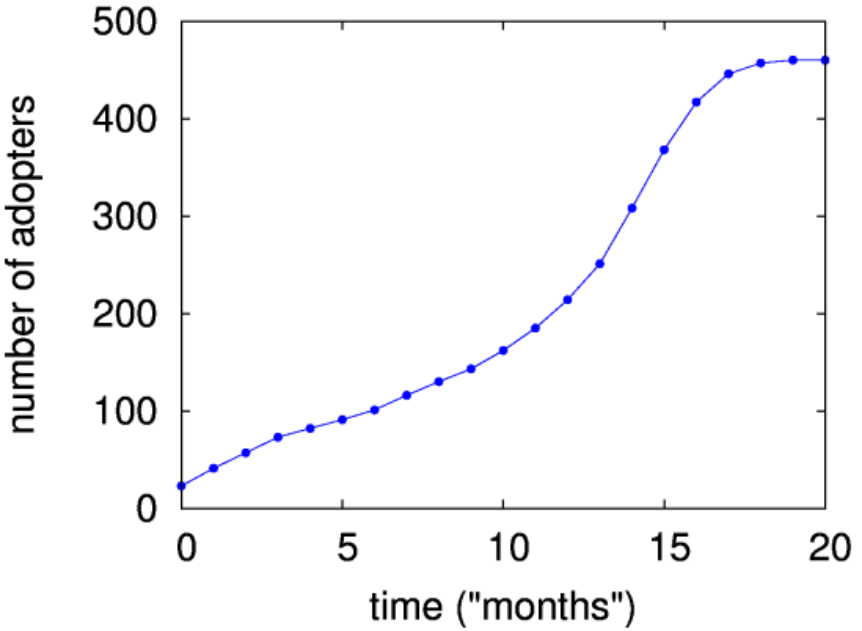
Groups & workplace



Potential network for energy info

Example Simulation





Implications for Policy

- Method allows the influence of social networks to be incorporated into the assessment of domestic energy interventions.

- Social networks could be harnessed by LAs to increase the uptake of energy-efficient measures.
  - Use of high degree groups who are trusted for information about energy e.g. workplaces.

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Thanks for your attention!