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Participatory modelling

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ASCEND workshop

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EPSRC

Engineering and Physical Sciences
Research Council

1. What is participatory modelling?
2. What are the benefits of these methods?
3. What are the limitations?
4. How have these methods been used in energy systems modelling and decision-making?
5. *How could we use participatory modelling methods in future work?*





What is participatory modelling?

Participatory modelling is the method of incorporating stakeholders, including decision-makers at different scales, into the modelling process.

Objectives are to:

- Increase and share knowledge of a system, and,
- Identify and clarify the impacts of solutions to a given problem usually related to supporting decision making, policy, regulation or management
- PM must include development of model, though other participatory methods are available.
- Different modelling tools can be used.

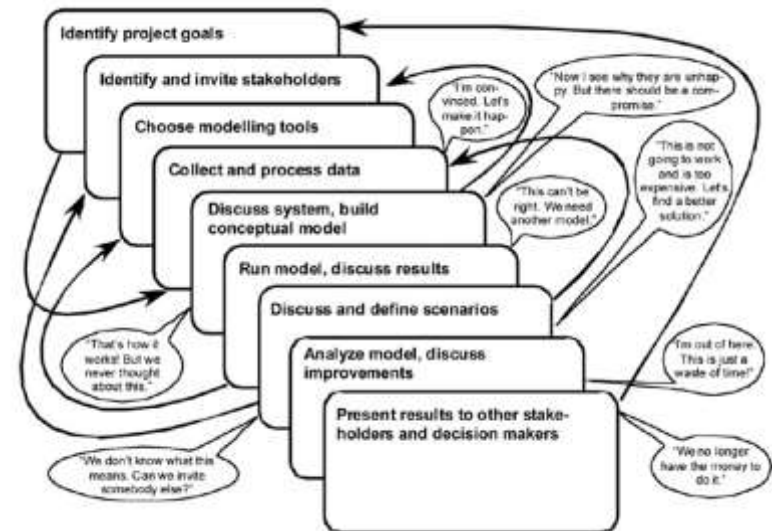
What are the benefits of these methods?



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- Reducing conflict
- Improving the legitimacy of a model
- Informing collective action
- Enhancing learning
- Gaining a common understanding of a complex system
- Enhancing out-of-discipline thinking
- Investigating interventions in a controlled environment
- Formulating strategy and policy.

An effective way to assist collective decision-making

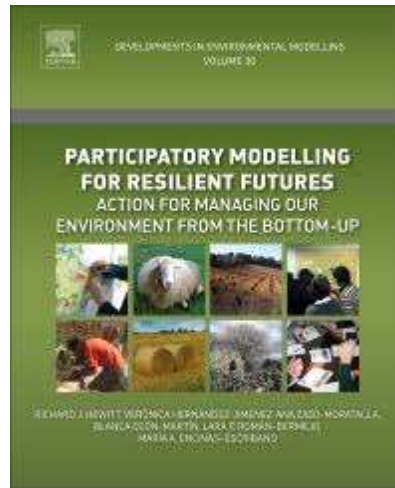


What are the limitations?

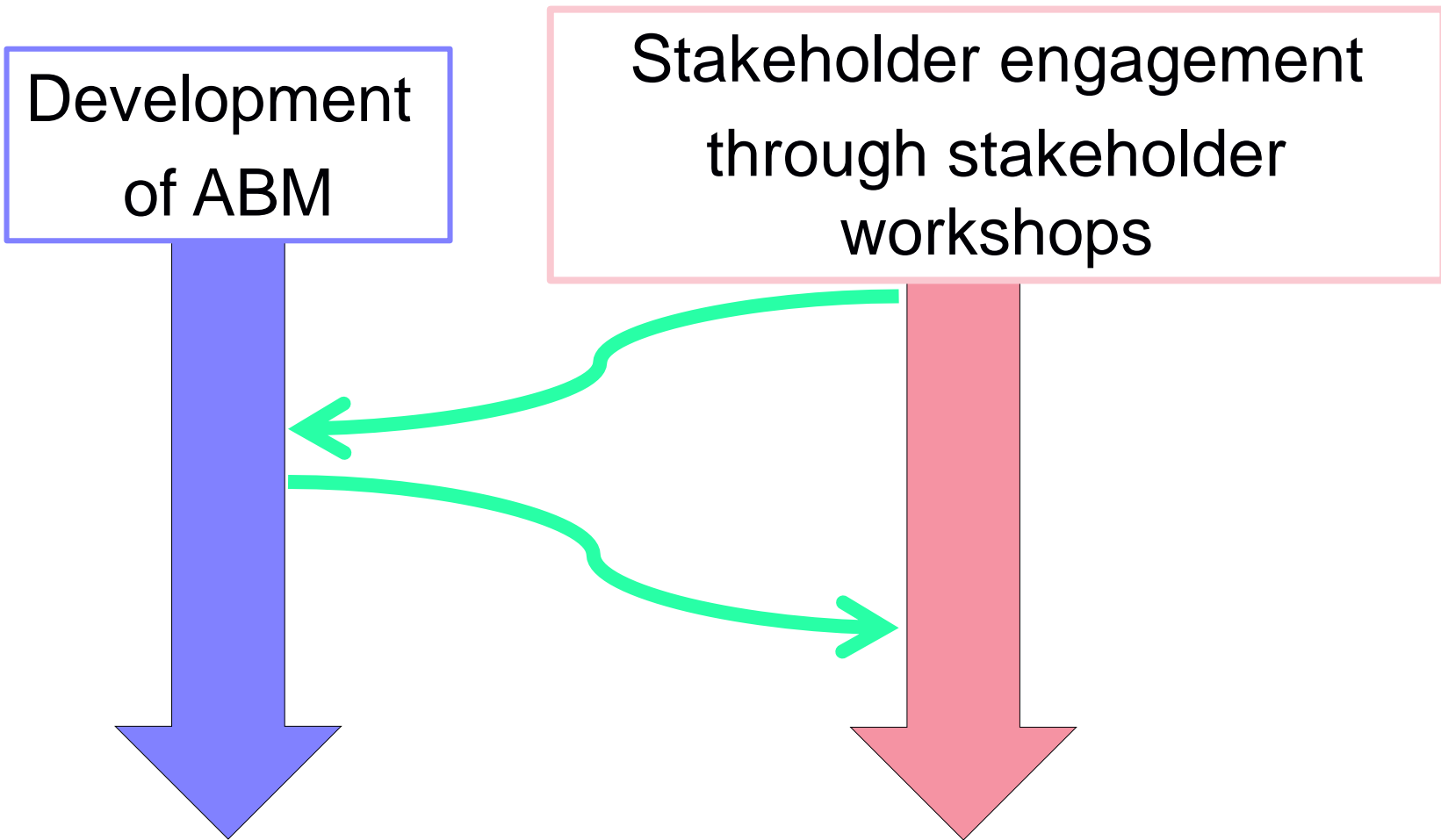


- Increased time and resource
- Making the models simple enough to use while complex enough to be useful
- Ensuring the models produced aren't too narrowly focussed
- Difficulty in changing beliefs, rather than “constructing unequivocal justification for policy decisions” that were already favoured

- Most applications of PM reside in socio-environmental systems literature, very few applications to energy, and fewer still related to whole-systems decision-making.
- Most modelling at local/regional scale.



- ***How could PM be usefully applied to support energy decision-making across scales?***



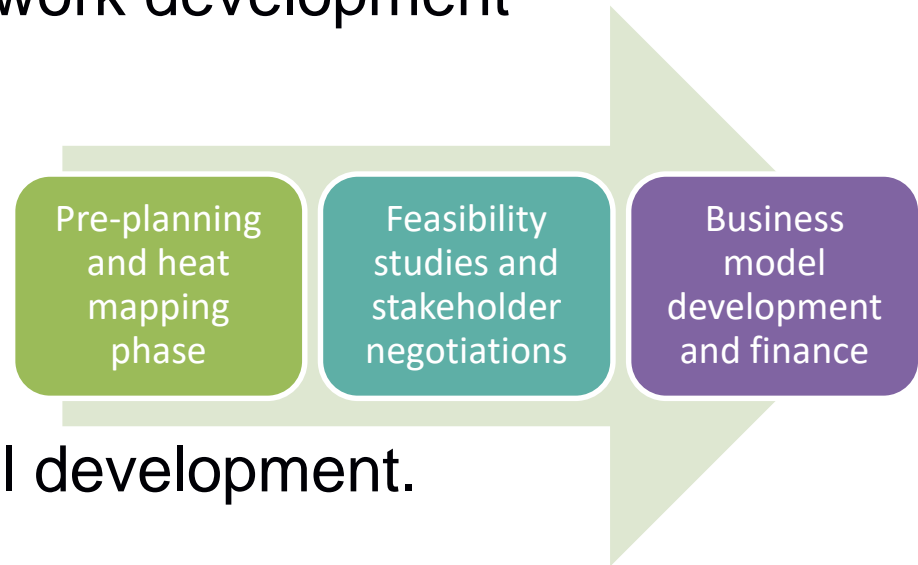
- Used to explore the heat network development process.

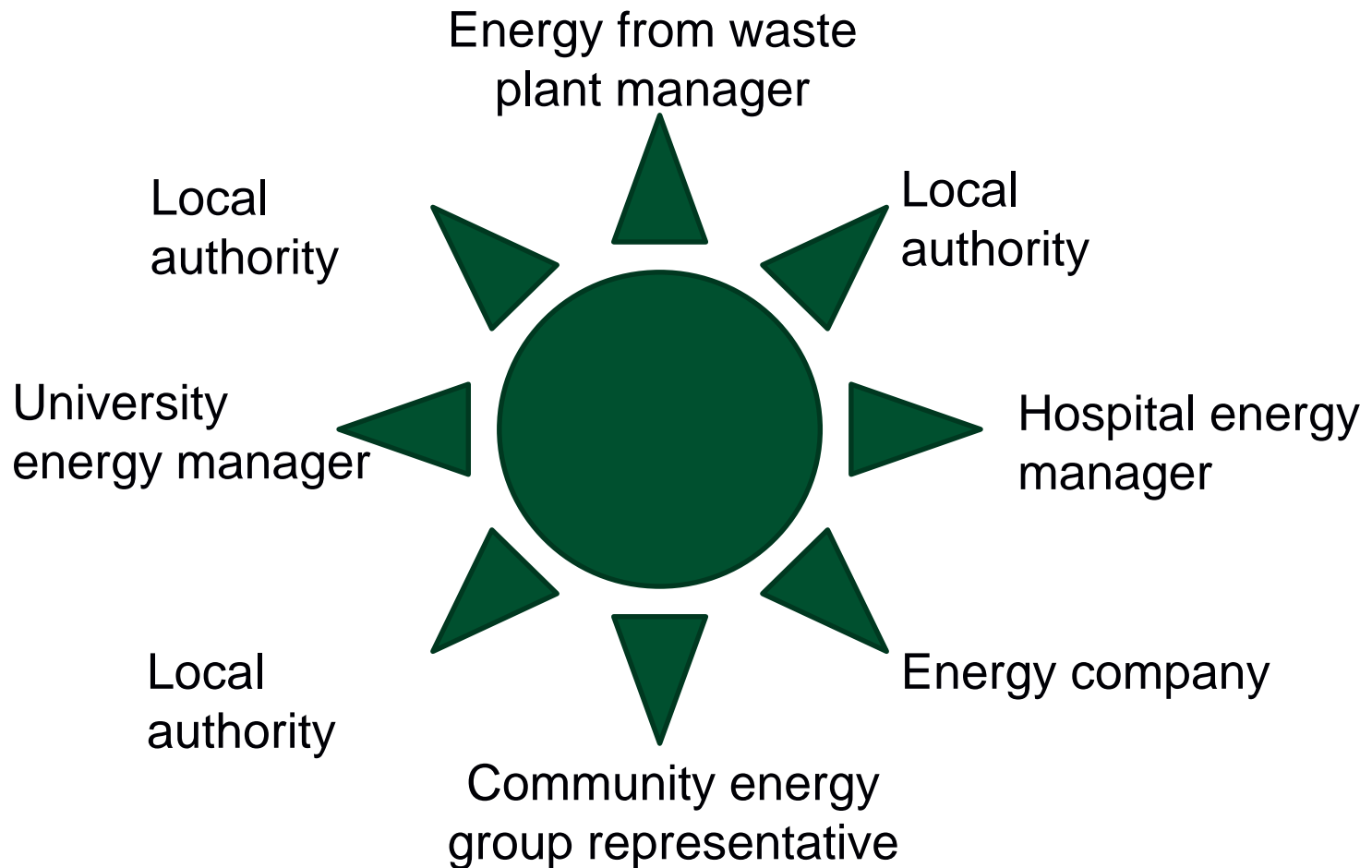
Workshop 1 – Oct 2014

- Identify actors and decision processes for model development.

Workshop 2 – Mar 2015

- Use the model with stakeholders to identify policy interventions.

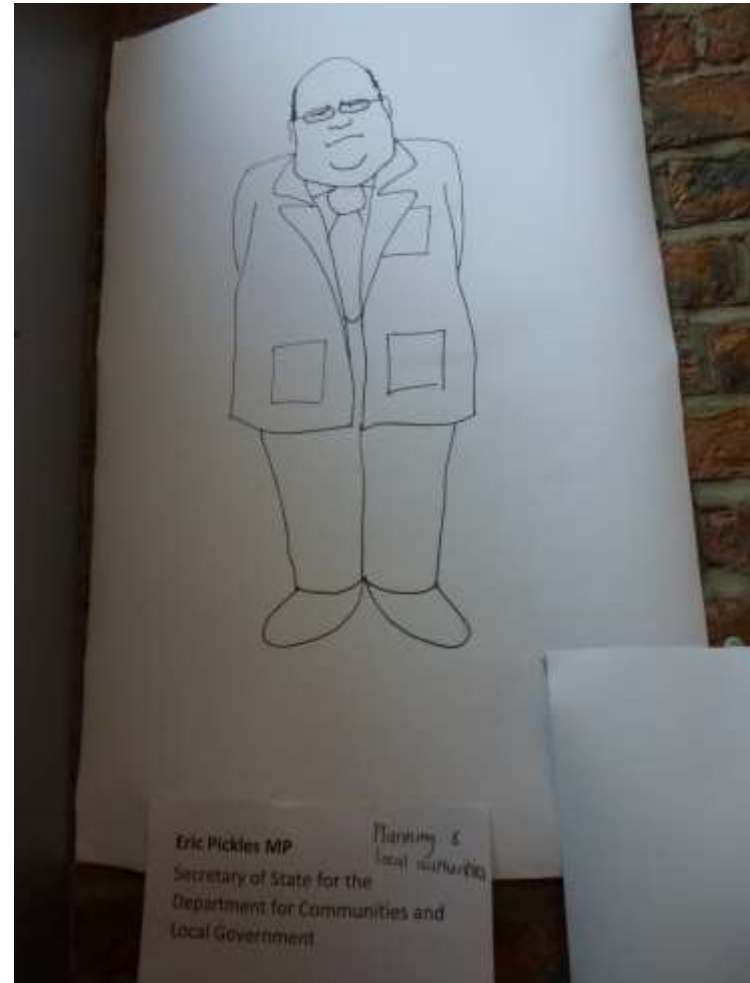




'Virtual' participants



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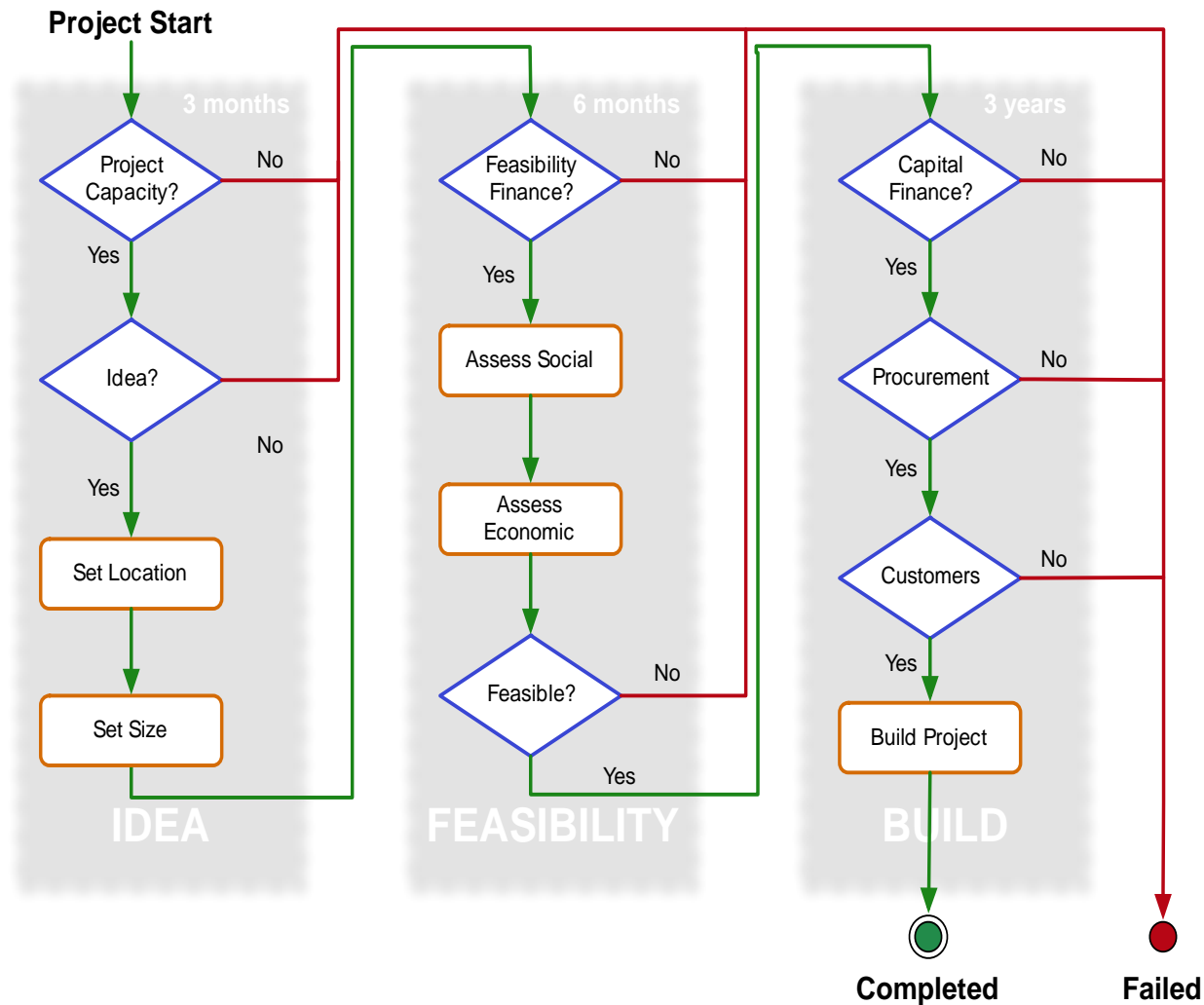
Workshop 1 - Activities



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ABM development: Decision framework

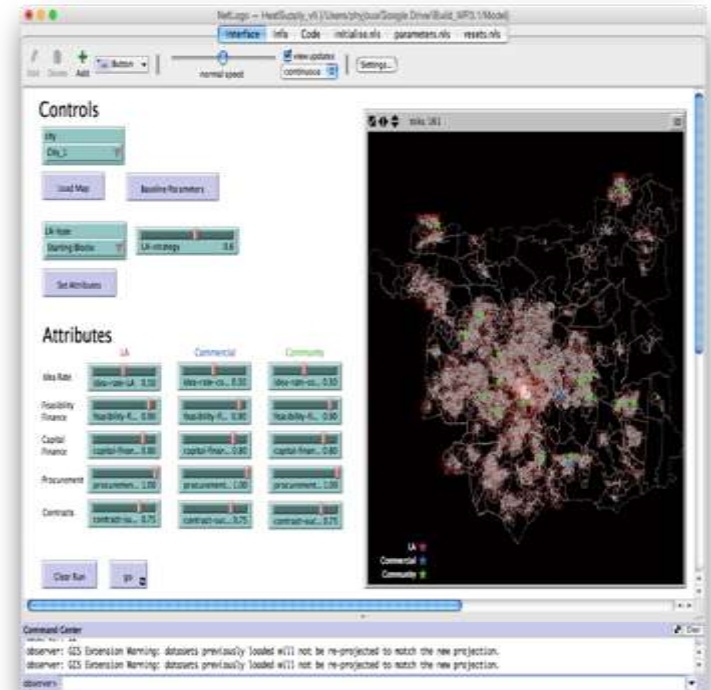


Workshop 2 – Hands on



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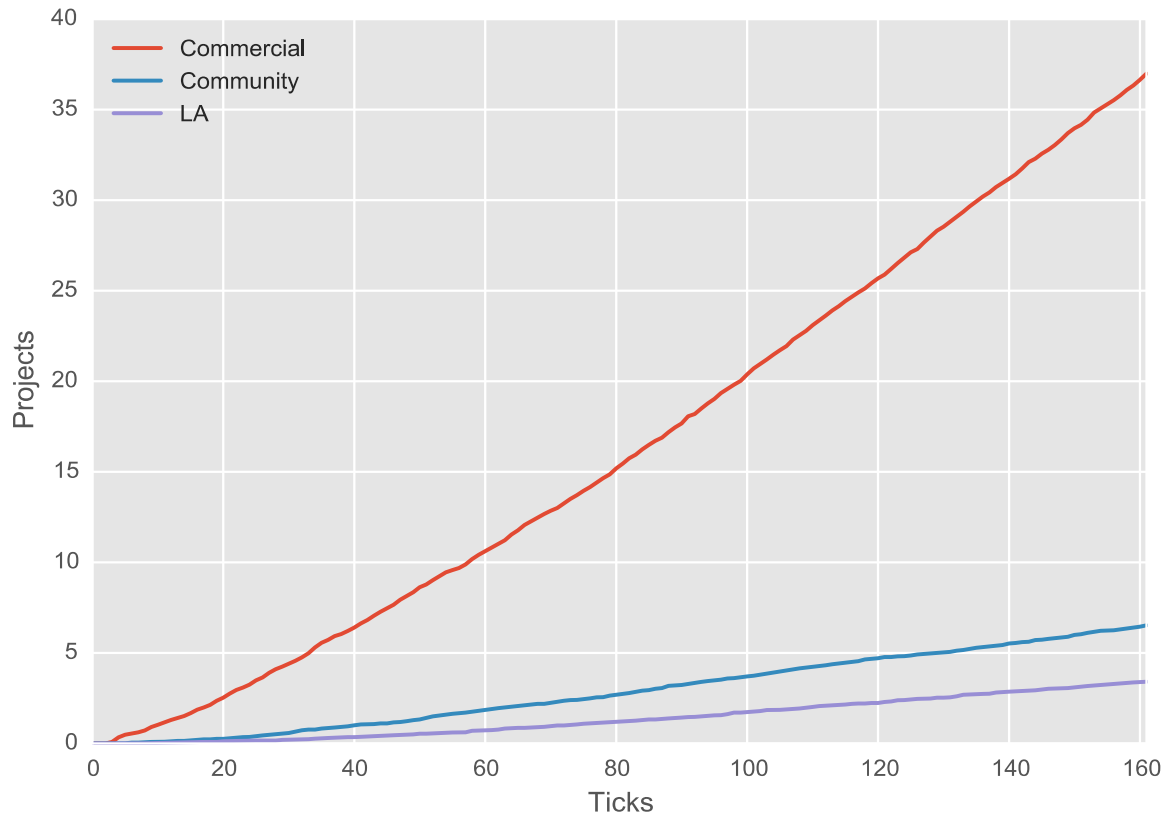
- New decision theatre suit as part of Newcastle University's Science Central.
- Participants used the ABM to explore their own policy interventions.



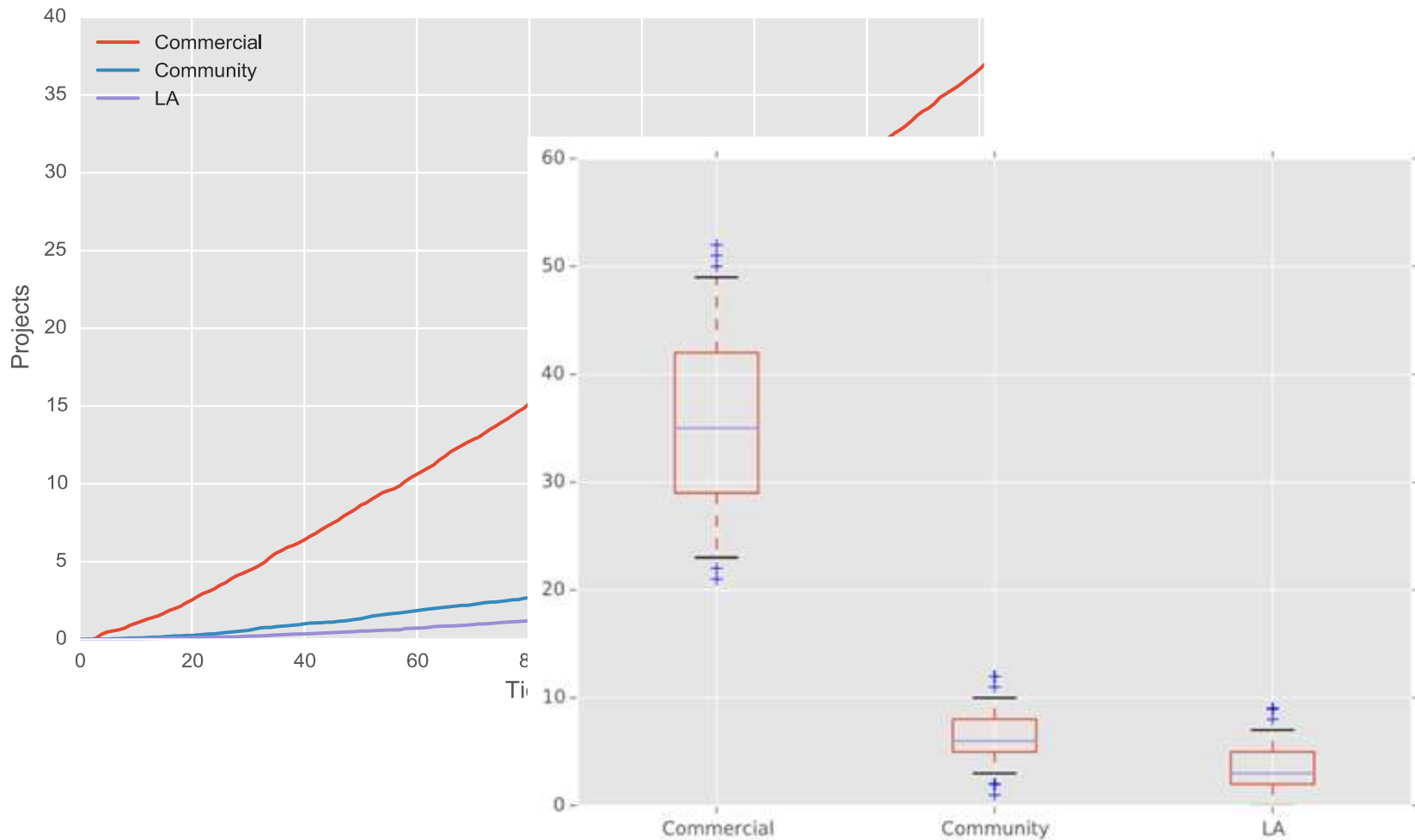
Model results



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Model results



Stakeholder feedback



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Methodology as a means of engaging stakeholders



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1. **Value to participants** as well as researchers – space to step back from day-to-day.
2. **Early and continued stakeholder engagement** in model development:
 - Test framework.
 - More confidence in the model having been through process?
3. Enabled participants to envisage system-wide interdependencies and possible holistic policy solutions => **options not answers.**

How could we use participatory modelling methods in future work?



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- Many questions remain when thinking about decision-making across scales including how to transfer knowledge and results from one scale to another?
- Main focus has been on support local or regional decision-making – would this work for national/international or between scales?
- Are there specific challenges in energy that lend themselves to PM?
- What types of models would most benefit from PM?

1. Does anyone have any experience of participatory modelling?
2. What kinds of models or questions would lend themselves to PM approaches?
3. What is the appetite from your organisation for this kind of activity?
4. Do you consider the investment might be worth the expected benefits? Or would you be more interested in other participatory processes (e.g. using models rather than developing new models)?

- Please get in touch if you would be interested in being a partner in future participatory energy systems research.
 - Topic
 - Decision-making angle
 - Other stakeholders who would need to be included

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