

Engineering Comes Home



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- Water-Energy-Food nexus
- Bottom-up infrastructure
- Ethnography of Water-Energy-Food practices
- Co-design of new technologies and infrastructure
- Lifecycle Assessment of Water-Energy-Food Impacts
- EPSRC Design the Future Programme
- UCL, University of Newcastle, iilab
- Leathermarket JMB, Meakin Estate residents, Decima St TRA



Co-design workshop 1

- Decima St Tenants and Residents Association
- 29 October, 2016
- 13 Residents participated
- Value elicitation
- Ideas for issues to work on
- Story-boards using tokens, whiteboards and photos
- Discussion
- Selection of key priorities for further development
- <https://www.youtube.com/watch?v=o7P2gxwwUG4>



After the workshop

- Long list of technology ideas
- Shortlisted based on feasibility and desirability
 - Wormery
 - Rubbish compactor
 - Automated rainwater harvesting and irrigation
 - Food sharing
 - Data and information tools



Co-design workshop 2

- 26 November, 2016
- Fact-sheets on each option
- LCA Calculator to analyse benefits and impacts
 - <https://ech.iilab.org/>
- Group selection of preferred technology
 - Rainwater harvesting
- Good interaction with the LCA Calculator
 - Did it change the outcome?
- https://www.youtube.com/watch?time_continue=3&v=JcF1VU5aCw0



Co-design workshop 3

- 11 March, 2017
- Rainwater harvesting
- Kloudkeeper installation
- Detailed introduction to rainwater and combined sewer overflows
- Mapping of downpipes and potential locations
- RWH Calculator
 - <https://ech.iilab.org/rwh/>
- Worksheet to size and locate new tanks
- https://www.youtube.com/watch?time_continue=5&v=PsaspQ3wBrE

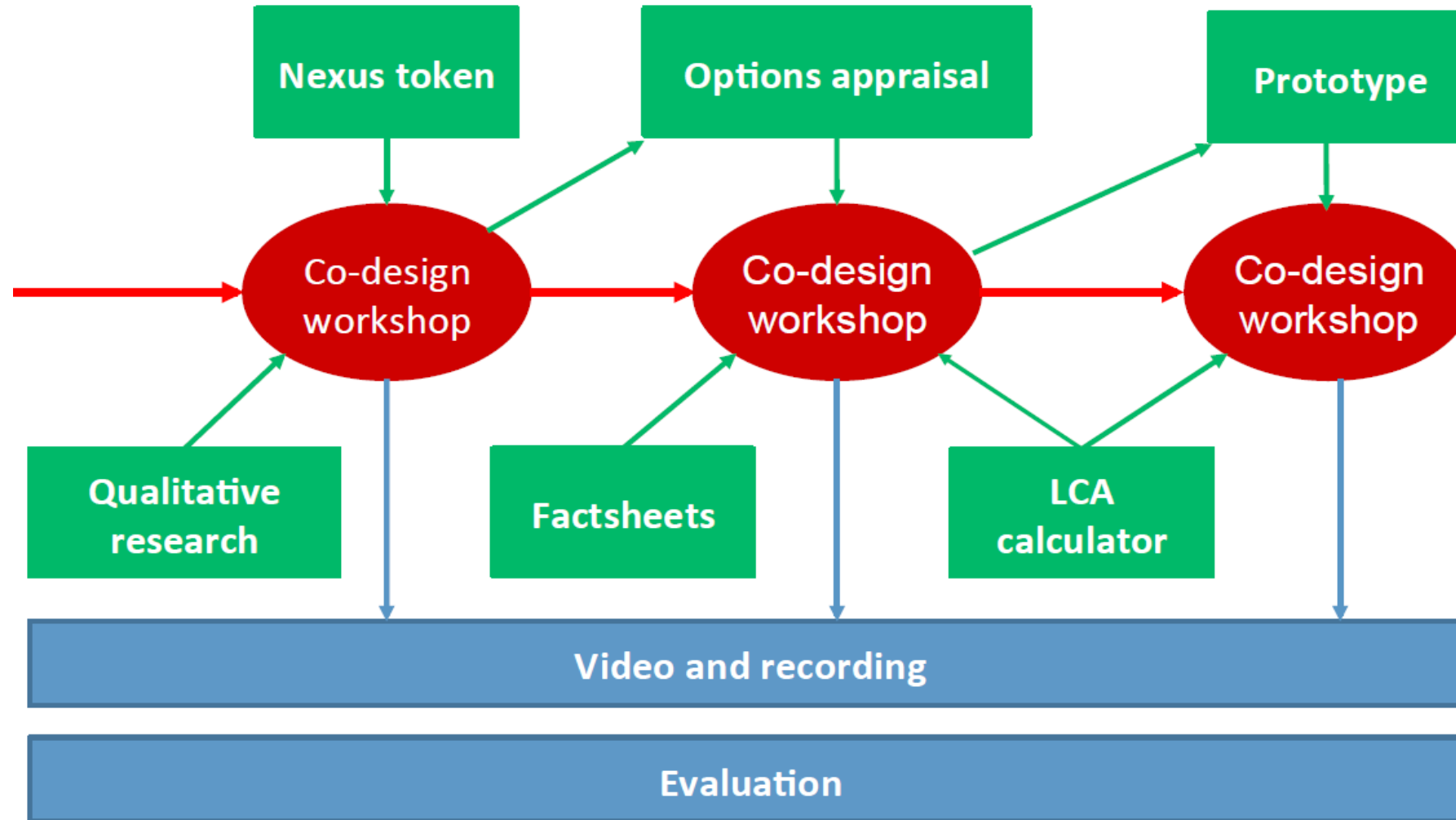


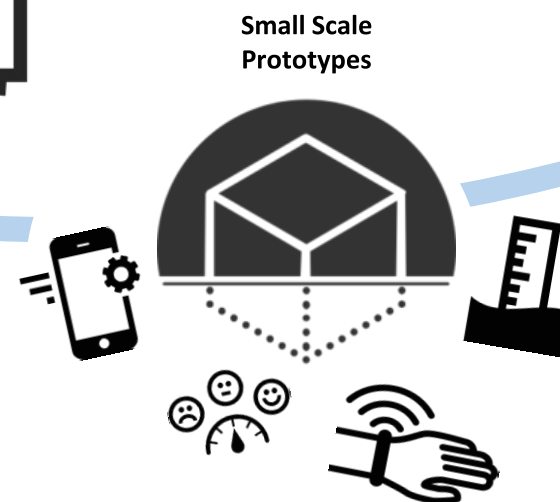
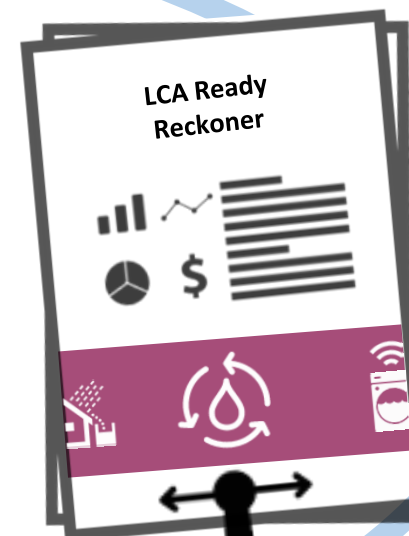
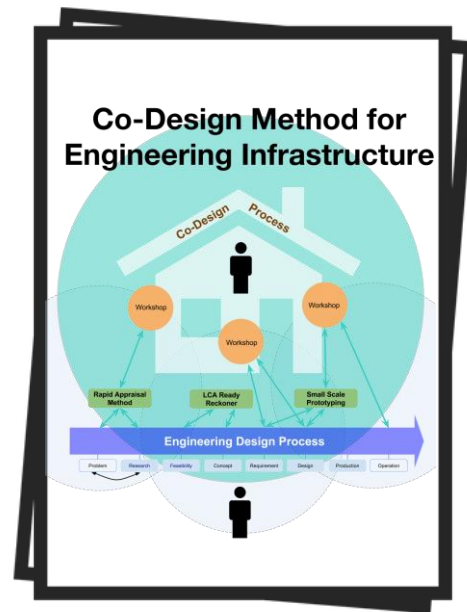
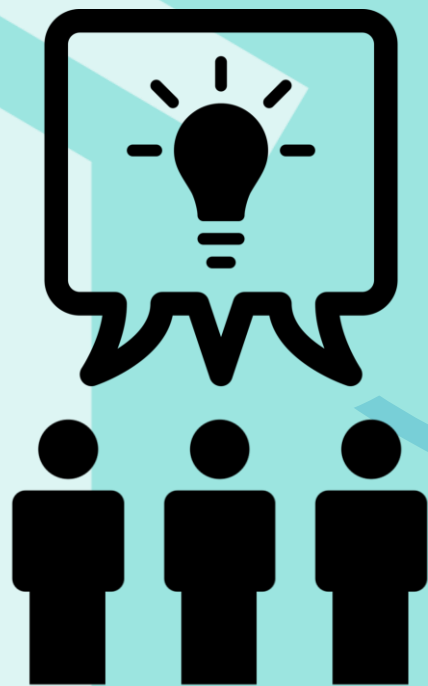
Evaluation

- Positive experience
- Community building
- Improved knowledge
- Tangible outcome
- Timing and notification



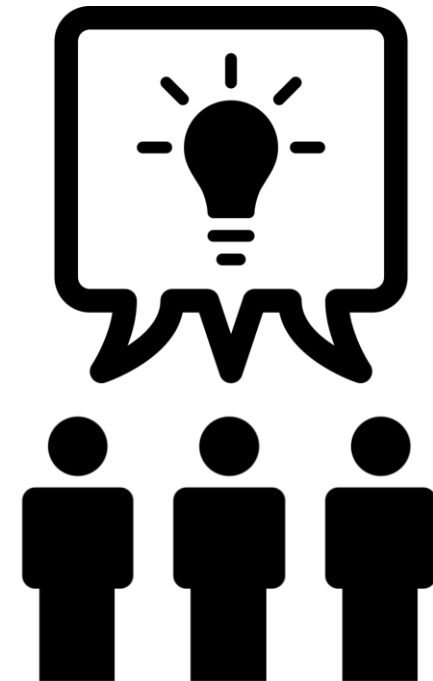
Co-design: overall approach





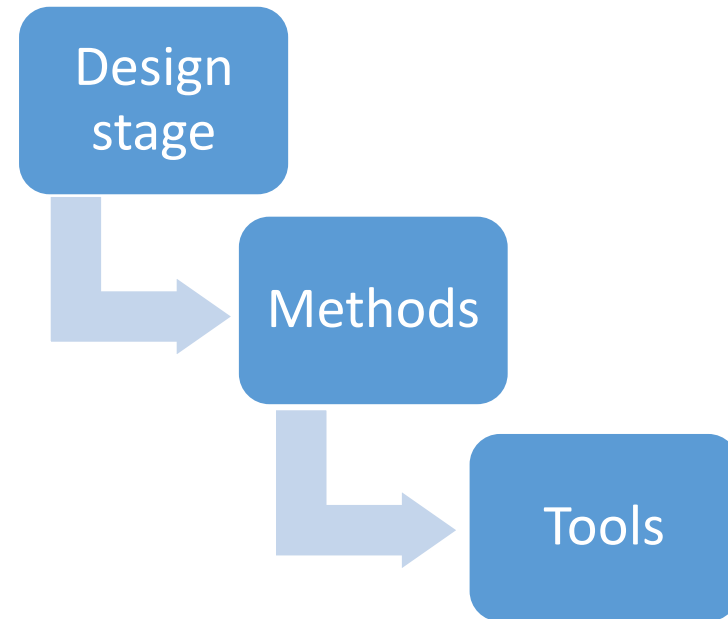
What's in our toolkit (so far...)?

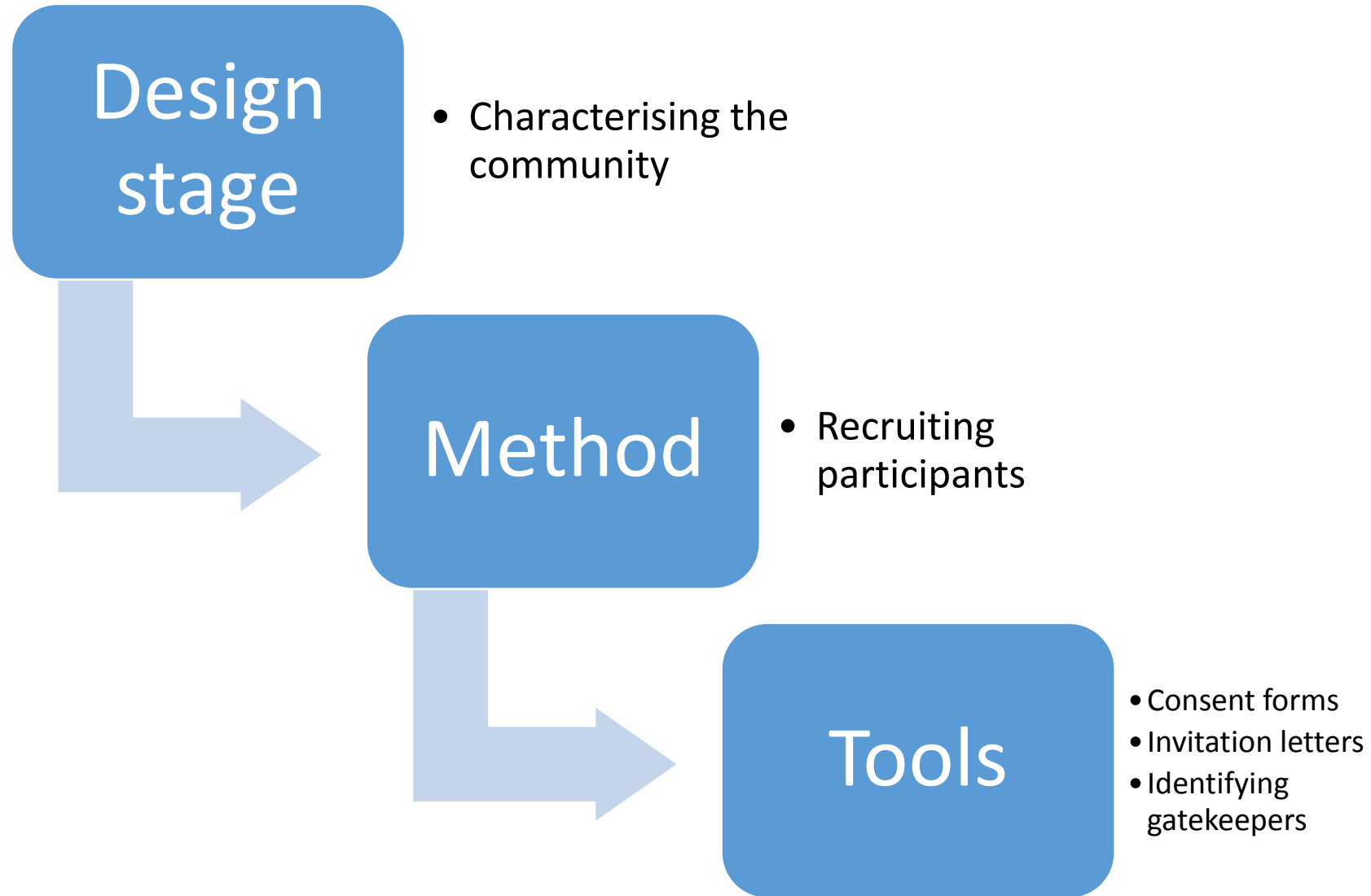
- Social practice methods
- Co-design methodology (tools, processing outcomes)
- 2-4-8 value elicitation
- Tokens and equipment for building and discussing systems ideas
- Video documentation and sound recording
- Field observation template
- Formalised method for analysing workshop outcomes
- Options appraisal (feasibility, desirability)
- LCA calculator
- Fact sheets and photos for selected technology options
- Rainwater calculator
- Rainwater design specification worksheets
- Community infrastructure mapping
- Evaluation template



Structuring the toolkit

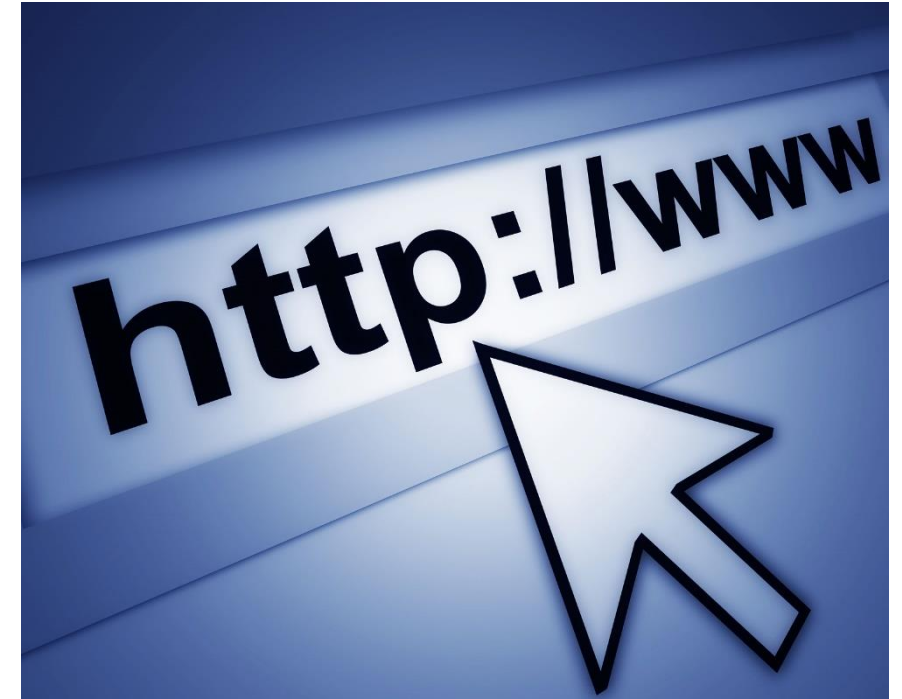
- Design stage
 - Characterising the community
 - Requirements capture (workshop 1)
 - Options evaluation (workshop 2)
 - Detailed design (workshop 3)
 - Evaluation
- Methods
 - Engineering method statement
- Tools
 - Templates, step-by-step
 - Implementation and reflections





Micro-site

- Professional audience
 - Designers
 - Community engagers
- Project overview
- Tools and methods
- Experience and reflections with ECH
- Beta version, for future full development



- How should we get input and feedback on the site and the toolkit?

Developing this research further

- Proposals awaiting decision
 - EPSRC
 - Joseph Rowntree
 - Innovate UK
- Bottom-Up Infrastructure
 - Case-studies
 - Document and test more methods and tools
 - Secondments (Repowering, Tideway)
 - Community of practice
 - Meetings to share case studies and provide feedback
 - Contribute to development of the research

