The Land of the MUSCos

Challenge being addressed

Current infrastructure operation is very inefficient, uneconomical and ultimately unsustainable. The demand of end-users is met by different actors and utilities, without the interface to understand where these demands arise or how they can be met more efficiently and cost-effectively. Infrastructure development is made in the absence of adaptive demand management and the understanding of the inter-linkages between services occurring at the end-user level.

Aim

In 20 years, the overwhelming majority of what are now separate demands on infrastructure will be transformed into a single point of service: the MUSCo, or Multi-Utility Service Company. These companies will enable customized service delivery (illumination, ambient comfort, cleanliness, food preservation, mobility, communication, etc) rather than electricity, heat, water, or transportation. Their profit motive will be the decrease in the full cost of service delivery: hence, at equivalent levels of service delivery, they will benefit from decreasing raw resource inputs. The added technical knowledge arising from the interconnection of utilities through services delivery will trigger cross-utility innovation leading to increased efficiency and savings.

What do you propose to achieve (Objectives)

This project will provide a clear framework for establishing a MUSCo infrastructure. It will

1. Deliver the technical and economic basis for standardized multi-utility contracts, applicable to firms as well as households, founded on measurable services;
2. Investigate the current economic, regulatory and governance landscapes, and the barriers and opportunities to achieving MUSCo transactions;
3. Examine scenarios of change in regulatory and economic incentives through socio-technical modelling, and their effect on the various stakeholders; and
4. Examine the potential for technical system development for more efficient service delivery.

We will use ongoing stakeholder and expert involvement in the project to ensure that the findings are robust and likely to be seriously considered for implementation. We have already received several suggestions from stakeholders regarding applications in their firms or projects. These include IBM and the Institute for Sustainability.

How you propose to achieve this (Methodology)?

The methodology is based on the combination of three complementary components:

1. The investigation of multi-utility service contracts (including technical challenge of defining integrated services with possible substitutability of utility streams to satisfy the service demand). Where examples exist, we will search for best practices;
2. The survey of the governance landscape, regulatory and incentive structures of the different utilities, producers, distributors and other connected actors, to map the drivers, motivations and constraints of the current entities; and
3. The combination of these two streams of information into an integrated socio-technical model using the rules and inter-linkages defined in the previous components and capable of exploring future governance and technical scenarios.
This methodology is intended to aggregate prior research outcomes along with expert and stakeholder knowledge. The outcomes of the model will be critically assessed at regular intervals, in order to reach agreement on its robustness.

Where is the novelty/adventure in this project?
This project represents a fundamental paradigm shift in the interactions between suppliers, providers and consumers of infrastructure services. The business model shifts resource use from a profit centre to a cost centre (and vice-versa for investments in efficiency), and enables infrastructure integration through the focus on the point of use. ESCos and other service providers who profit from reducing the utility bills of their clients have existed for decades, with predictions for the business model alternating between over-optimism and despair. This project will build on the existing body of knowledge of ESCO studies (Steinberger, van Niel and Bourg 2009) and go beyond them by:

- Most importantly, expanding the service concept to multiple utilities (electricity, gas, heating oil, water, communications, transportation), and thus identifying potential synergies at both the user and supplier levels;
- Modelling the key technical, economic and governance mechanisms which will either continue to hinder MUSCo development, or encourage the emergence of a truly resource efficient economy; and
- Deliver robust measures and estimates of the potential of MUSCo emergence, given the appropriate shift in incentives.

How will this help transform the lives of individuals, society or business (Impact)?
This project has tremendous transformational potential. If it is successful, firms, institutions and households will have a completely transformed relation to their surrounding infrastructure and service provision. The crucial service provision role of infrastructure will become visible through the establishing of explicit contracts, and the role of the end-user as an active participant in value co-creation and resource saving will become established.

If utilities transactions in the UK are conducted through MUSCos, the UK might become the first truly post-industrial economy: an economy where the full cost of resources is decreased through an integrated, adaptable, sustainable infrastructure.

Team members
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Duration and budget
£ 650’000 over three years, starting in September 2011.