Energy & Complexity Research

RESEARCH METHODS

We deploy a range of qualitative and quantitative research methods including Expert Elucidation, Agent Based Simulation and System Dynamics. We have recently used System Dynamics to consider the future evolution of uranium resources in the face of a range of potential future scenarios affecting both the demand and supply of nuclear fuel.

We have used Agent Based Simulation to study gasoline panics and we have used System Dynamics to consider the evolution of electricity systems on isolated islands. Moderately sized isolated islands are well suited for studies of bounded complexity facing a range of potential future drivers. We are pleased to be collaborating with MIT, and IST Lisbon in research work focussed on the Azores Islands.

MK:SMART

MK:Smart (http://www.mksmart.org) is a large collaborative atia consortium of 14 partners, developing innovative solutions to support economic growth in Milton Keynes, acting as a national demonstrator. Central to the project is the state-of-the-art MK Data Hub which supports the acquisition and management of vast amounts of data relevant to city systems from a variety of sources. These will include data about **energy** and water consumption, transport data, data acquired through satellite technology, social and economic datasets, and crowd sourced data from social media or specialised apps.

GLOBAL SYSTEMS SCIENCE

GSS considers the complexity of large-scale integrated systems in which the system comprises diverse elements and interactions.

Global Systems Science:

- studies global systems like the internet, the global city system, and more,
- develops evidence, concepts and doubts concerning such systems,
- helps practitioners dealing with them to reflect on their experiences and to assess possible consequences of their actions,
- and it combines advanced computing technologies with conversations bridging the gap between science and society.

COLLABORATING ORGANISATIONS

DEPARTMENT OF ENGINEERING AND INNOVATION

The Open University
Walton Hall
Milton Keynes
MK7 6AA, UK

E-mail: jeff.johnson@open.ac.uk