Why is Policy Complex? Peter Allen

• No man is an island, entire of itself... But, what are the boundaries? Whose interests does the problem span?

• Policy is about intervening in the socio-cultural, economic and environmental system to achieve some aim. However, this contains many people - some participants, some stakeholders, some victims. Most will find ways of adapting and responding. Need models that capture responses.

• Traditional Science is based on repeatable experiments but these are NOT repeatable experiments. They are experiments however and MODELLING is even more important if we are improve our understanding and judgement
Two Rules for Complexity:

1. Something can only ‘happen’ if the current system is UNSTABLE to its appearance. We need to plan, design and prepare for contingencies with an idea of what ‘could’ occur.

2. If a system is to persist it must have parts or components that ‘fit’ (synergy) together and can get resources from the environment: An important principle for policy, design and intervention.
Policy: Modelling and Complexity

Policy

People

Infrastructure & Institutions

People

Technology

Education

Environment

Science & Technology

Doing – and Learning?

Possible Futures?

No Repeatable Experiments

Policy Issues:
Climate Change
Aviation
Freight
Spatial Planning
Sea Level Rise
Market Evolution
Innovation
Education
Health
Energy
Fisheries
Collaboration…

Doing – and Learning?

Some Repeatable experiments

Doing – and Learning?

No Repeatable Experiments

Doing – and Learning?

Some Repeatable experiments

Doing – and Learning?
OMEGA – A Complex System

Climate Change

Local Air Quality

Noise

Co2, NOx Emissions

Aviation

Sustainable Fuels

Demand Management

Mitigation Policy

Aircraft Systems

INNOVATIONS

Customer Demand

Rest of Economy

Environment

Long Term

Short Term

E3ME

ETS

Aviation

Environment

Long Term

Short Term

Rest of Economy

E3ME

ETS
Growth in Jobs and Working-Age Population, 2000-06

Working-age Population Growth Rates, 2000-06
- 4.3 to 9.9%
- 2.6 to 4.2%
- 1.5 to 2.5%
- 0.1 to 1.4%
- -5.0 to 0.0%

Total Growth Rates, 2000-06
- 1.9 to 4.1%
- 1.3 to 1.8%
- 0.8 to 1.0%
- 0.1 to 0.7%
- -1.2 to 0.0%

Dynamic Spatial Model
For the West Midlands
Can we ever learn?:

Our interpretive framework results from our experiences – which are guided by our interpretive framework!

Actions, Experiments (Noisy, Probabilistic)

Decision, Choice (not unique)

Beliefs, model “Knowledge”

Modify, Update (not unique)

Expectation Deny/Confirm

Aims, Goals Values

Ideas confirmed

Individually

Continue

Modify Beliefs

Values given By beliefs

Do our experiments stabilize or destabilize our understanding?
Emergence: Complexity and Organization

The Complexity Society
www.complexity-society.com

Emergence: Complexity and Organization
http://iscepublishing.com/

The Complex Systems Society
Europe Wide
http://cssociety.org

LSE Complexity Programme
http://www.psych.lse.ac.uk/complexity/

Cognitive Edge
www.cognitive-edge.com

Warwick Conference
September 09