

Policymaking, economics and FuturITC

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The limits to the standard model

- **Vernon Smith:** ‘I urge students to read narrowly within economics, but widely in science. Within economics there is essentially only one model to be adapted to every application: optimization subject to constraints due to resource limitations, institutional rules and /or the behaviour of others, as in Cournot-Nash equilibria. *The economic literature is not the best place to find new inspiration beyond these traditional technical methods of modelling*’
- **Friedrich Hayek:** ‘ An economist who is only an economist cannot be a good economist’
- *The standard model has probably already been applied almost anywhere it might be useful*
- **FuturITC is needed to develop approaches to policy making which are relevant to the complex, networked world of the 21st century**

Networks

- ‘Humans reason poorly and act intuitively’: Daniel Kahneman, Nobel lecture, *American Economic Review*, 2003
- ‘We need to invent and craft new methods and tools to tackle upcoming opportunities and challenges’ : Dirk Helbing, FuturITC
- **The fundamental feature of networks is that they offer the basis for a different model of rational agent behaviour**
- The ‘rational’ agent in economics may have been relevant to the world of the late 19th century
- We need to define a new model of rationality for the 21st century

Copying/Social Learning is the New Rationality

- Herb Simon's 1955 vision 'A behavioral model of rational choice' – how do agents reduce the dimensions of the problems we face?
- FuturITC can realise this vision in practical, policy related ways
- 'Social learning (learning through observation or interaction with other individuals) is widespread in nature and is central to the remarkable success of humans'; Rendell et.al. 'Insights from the Social Learning Strategies Tournament', *Science*, 9 April 2010
- Who/when/where do agents copy? What is the relevant network structure? Do they also innovate?

Policy making: the challenge

- Incentives still matter
- But their impact can often be – and is! – swamped by network effects
- Haldane and May, *Nature*, 2011
- Most outcomes in human social and economic systems are heavily right-skewed, not Gaussian: the signature of highly correlated agents
- Bentley, Ormerod, Batty, *Behavioral Ecology and Sociobiology*, 2011
- This is the policy challenge for FuturICT: policy making in a complex, networked world