



The How and Why of Modelling Complexity

Prof. Peter M Allen

School of Management, Cranfield University
24th April 2008 (10 am – 12 noon)
Graham Wallas Room (Fifth Floor)
Old Building, LSE

Abstract:

In this presentation various models of complex systems demonstrating both qualitative and quantitative change over time - ecosystems, markets and organizations - will be explained and discussed showing precisely how such models can be built and run, and what they can and cannot tell us. We shall demonstrate how the freedoms and uncertainties that lie within them will always challenge and compromise any simple predictions of the future trajectory. Nevertheless, we shall also see that such models can be extremely useful in suggesting better positioning, portfolios and strategies at different time scales. These models are presented not as definitive representations of "reality" but as embodiments of our current beliefs about how it "works". Our models must therefore use mathematical mechanisms that reflect the mix of belief and ignorance that agents really have and which leads them to behave, and to change their behaviour, as they do. The models should be seen as part of our attempts to learn about the complex reality in which we are embedded. Instead of accepting pseudo-religious assumptions such as the idea that individuals, organizations and systems somehow (miraculously) optimize their behaviour, we come to a much richer, evolutionary view in which no complete philosophy is possible, as change is an on-going, unending process. Evolution in human systems is a continual, imperfect learning process driven by ignorance - differences between expectations and experience that rarely provide satisfactory understandings, and thus maintain the level of ignorance and freedom that drives a continuing evolution. Instead of starting from assumptions of perfect knowledge, and homogeneous reality, we find instead a much more interesting view of the world that starts from total ignorance and leads to some partial, local and changing knowledge relevant to an evolving heterogeneity.

About the speaker:

Peter Allen, B.Sc. Ph.D. is Head of the Complex Systems Research Centre in the School of Management at Cranfield University and is an Invited Professor on the PhD Programme in the Economics Department of the University of Paris I, as well as contributing to Masters and Doctoral programs at Warwick and Aston Business Schools. He is an Editor in Chief of the Journal, *Emergence: Complexity and Organization*. His research is directed towards the application of the new ideas concerning evolutionary complex systems to socio-economic sustainability, resilience and security. He has written and edited several books in the field of complexity and socio-economic modelling and published well over 200 articles in a range of fields including ecology, social science, urban and regional science, economics, systems theory, and physics and has been a consultant to several National and International institutions.

Please e-mail ComplexityGroup@lse.ac.uk as soon as possible and by 21st April at the latest to let us know you plan to attend.

Non-academics will be asked to contribute £20 on the day, to cover costs.