

**ESRC Research Seminar Series, Seminar 3**

**Complexity: a Framework for Policy and Decision Support:  
Research, Adaptation and Learning in Social Systems**

**09:30-17:00, 10<sup>th</sup> June 2009, Cranfield Management Research Institute, Cranfield University**

**The purpose of the seminar is to review how complexity and complex systems thinking and modelling can provide a framework for policy and investment decisions. The OMEGA project concerning aviation and environment policy will be used as an example.**

Reality is complex. We inhabit a world of evolving, interconnected systems, structures and organizations which both affect and form us and are shaped and changed by us. In order to respond to threats and opportunities of this situation we must seek a basis upon which to build better policies and decisions. This requires us first to break a problem into its constituent elements, and to consider the underlying structures, mechanisms and technological possibilities that characterize them. It allows us to consider possible interventions and policies that may be applied to the different components of the whole problem separately, and then most importantly it forces us to return to the overall problem, and consider the collective, integrated behaviour of the whole system. Usually it is simply assumed that improving subsystems will automatically improve the whole system. However, a complex systems models tells us to consider the interactions between the components and the possible technological changes, policies and actions that might be taken, providing real information about the trade-offs involved in particular policy and investment choices. This provides a balanced and transparent way to examine problem, making it more difficult for lobbying and hidden interests to shape them. The basis for this societal collaboration must be models that attempt to bring together expert opinion and knowledge within different disciplines and technical specialities, and synthesize them into some holistic, collective outcomes that can genuinely help policy and decision makers. The establishment and provision of such tools has been my aim since around 1975. Peter M Allen

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**Business, Transport and the Environment: the Policy Challenge**

**Professor Brian Collins** – Details of Seminar to be announced



Professor Collins has been Departmental Chief Scientific Adviser at DfT since October 2006 and at BERR from May 2008. He is also Professor of Information Systems at the Defence College of Management and Technology (DCMT), Cranfield University. His role as a DCSA is to ensure that the department's technological activities are well directed and that where appropriate policy is based on good science and engineering. He advises CSIA and IPS on Security and Technology matters. He was Chief Scientist and Technical Director at GCHQ and Deputy Director at RSRE. He is a Fellow of IET, BCS, IOP and RSA. His early career was in the scientific civil service culminating as Chief Scientist at the Government Communication Headquarters. He then worked in the private sector at KPMG, Welcome Trust and finally as Chief Information Officer for Clifford Chance. Brian has been an adviser to several Government Departments particularly on information assurance and has been Vice President of the British Computer Society, Chair of the BCS Security Forum Strategic Panel, as well as Vice President of the Institute of Electrical Engineers.

**Collaboration in turbulent times: catalyst for integrating complexity and simplicity?**

**Lucian Hudson**, Convenor, Collaborative Strategies Network, and Special Assignment for HMG on collaboration and partnership, Lucian Hudson advises, develops and delivers on collaborative strategies to help organizations to deliver social change through partnerships. He is a senior communications and change director with experience of working in government, broadcasting and commercial sectors, and convenes a collaborative strategies network bringing together advisers and practitioners in private, public and voluntary sectors. Now back at the Ministry of Justice, he is implementing the findings of the report that he produced for the FCO on what makes for effective partnership and collaboration, especially between governments, business and non-government organisations (NGOs). He has worked closely with ambassadors in 25 countries, and involved more than 100 organizations globally, including 20 governments, and 10 international institutions, including UN, EU, NATO and the Global Fund.

From September 2006 until June last year, Lucian was the FCO Director of Communication. He created and led for the first time in the FCO's history a single communication directorate, and a global network of 200 communicators. This drew together strategic communication, public diplomacy, media, internal communication and stakeholder engagement. He led the first change programme to mainstream communication. Previously, Lucian led the UK government's Media Emergency Forum, and co-chaired a Cabinet Office working group involving government departments, emergency services and media representatives to agree and implement new rules of engagement after 9/11. He was the chief communications adviser to the government's Risk Group, and oversaw implementation of the Freedom of Information Act across government communications. Between 2004 and 2006, he was Director of Communications, DCA (now Ministry of Justice), a member of the National Criminal Justice Board, chaired the department's crisis management team and led its sustainable development strategy. Between 2001 and 2004, he was Director of Communications and Chief Knowledge Officer at the Department for Environment Food and Rural Affairs (DEFRA). Lucian was seconded to the Ministry of Agriculture, Forestry and Fisheries (MAFF) to run media operations at the height of the foot and mouth crisis in 2001 from his post as the government's first Director of e-Communications.

## OMEGA: Aviation and Environment Problem

### **Roger Gardner, Chief Executive, Omega** – Details of Seminar to be announced



Roger Gardner has an in-depth knowledge of the aviation industry and of aviation environmental research, developed over 20 years as a senior aviation executive. He has extensive experience in managing and delivering strategic and complex policy programmes. Roger began his career in the aviation industry at the Aviation Directorate in the Department for Transport, Local Government and the Regions, where he was responsible for developing and implementing policy on the limitation of aircraft noise and emissions. He represented the UK in the International Civil Aviation Organisation, advising senior management and ministers. He went on to work in the Propulsion Department at the Defence Evaluation Research Agency, advising the Government on aircraft emissions issues, and was principal environmental affairs manager in the Air Systems Combustion Group at QinetiQ, the leading international defence and security technology company. In 2002, Roger became head of air quality and environmental technology at the Department of Transport's Aviation Directorate. He became chief executive of Omega when the partnership was established

in January 2007.

### **Professor Ian Poll OBE, FEng, FCGI, FAIAA, FRAeS Cranfield University** – Details of Seminar to be announced



Ian Poll is Professor of Aerospace Engineering at Cranfield University and the Technical and Business Development Director of Cranfield Aerospace, a wholly owned subsidiary of Cranfield University. He founded Cranfield Aerospace in 1997 as the commercial arm of the College of Aeronautics and he has served as both Chairman and Managing Director. Ian was head of the College of Aeronautics from 1995 until 2001 and then served for a further three years as Director of the pan University Cranfield College of Aeronautics. The author of over 100 journal and conference papers on aerospace related topics, he has served on a number of Government committees. Ian was the 74th President of the Royal Aeronautical Society in 2001 and, in 2002, he was awarded the OBE in recognition of his services to the Cranfield College of Aeronautics. He was elected to the Council of the Royal Academy of Engineering in 2004 and, in 2008, he became President of the International Council of the Aeronautical Sciences.

## Convenors, Panellists & Discussants

### **Prof. Mark Savill, Prof. Peter Allen, Dr Jean Boulton: Pulling it all together – Complexity Modelling as Integrator**

Complexity Science tells us that we need to re-compose situations that we have decomposed and we need to study both the direct opportunities and innovations possible for the 'components' of the problem as well as the coupled effects and the co-evolution of these. In the end it is the synergetic bundle of actions, policies and changes that we need to consider as is the case for many examples

**Prof. Eve Mitleton-Kelly, London School of Economics, Jeff Johnson, Open University,  
Alex Paraskevas, Oxford Brookes University,  
plus others to be announced.**

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The support of the ESRC under its Research Seminars Competition Awards Scheme - 2008 and the infrastructural and financial support of Cranfield University and the London School of Economics is gratefully acknowledged.