Parallel Session 12:15-13:00 on 17 September

CORPORATE STRUCTURE, ADAPTATION AND

PERSONANLITY TYPE

Philip V. Fellman, Professor of International Business,
Southern New Hampshire University
Lois Estabrook, Account Executive, Osram, Sylvania
Usha Dasari, Lecturer, Southern New Hampshire University

Historically, a substantial portion of economic theory has been devoted to models, which are essentially static in nature. Even where dynamics are studied, their investigation has frequently proceeded under fundamentally static paradigms thus creating a landscape too confined to explain or capitalize on deviations and complexities appearing in the normal play of events. In 1998, physicist Theodore Modis developed a refinement of the BCG Growth-Share matrix using a seasonal metaphor and sigmoid growth curves to describe multifaceted, non-static business environments. Meyers-Briggs and more recently David Keirsey, have attempted to qualify diverse human dynamics by tracking personality traits. By thus idetifying a dynamic non-geopolitically bounded business and social-biological environment or fitness landscape we can then use Stuart Kauffman's NK Boolean fitness landscape model to explore the relationship between personality, adaptation and corporate structure."

RE-CONCEPTUALISING PUBLIC-PRIVATE PARTNERSHIPS IN
THE WATER SECTOR AS A COEVOLVING SYSEM OF INNOVATION

Urooj Amjad, Complexity Research Programme, LSE

Water is central to all dimensions of life. In the 1990's, the public sector has not been able to manage the technical, administrative, and financial costs of water alone. Therefore the hypothesis emerged that partnerships between public and private water related organizations may be a solution. As a result, the responsibility of water management has taken the form of different shades of partnerships. Partnerships pool resources and reduce risks, building on core competencies (BPD 2003). However unconstructive competition among partners continues to be a constraint. In light of the potentials and constraints of partnerships, Calaguas (1999) proposes the need for defining and understanding the roles of partners. The paper's aim is to explore how two intertwined analytical concepts might clarify roles among partners in the water sector and how this case study might aid in further developing the two concepts: 1) a

system of innovation approach which means organizations interact in the generation, use, and diffusion of new – and economically useful – knowledge (Fischer and Frohlich 2001); and 2) the concept of coevolution -- a process in which each part of a system interacts with and influences the other parts, thereby stimulating their mutual development (Tasaka 1999). These two intertwined ways of thinking questions *how* and *why* a public and private organization mutually influence each other for desirable and/or undesirable coevolution. The benefit of using such conceptual approaches is that the *changing patterns of behavior* may be better explained to point towards processes that may be developed for greater flexibility.

Parallel Session 16:30-17:30 on 17 September

MODELING TERRORIST NETWORKS – COMPLEX SYSTEMS AT THE MID-RANGE

Philip Vos Fellman, Professor of International Business,
Southern New Hampshire University
Roxana Wright, Lecturer, Southern New Hampshire University

In this paper we explore the mid-range dynamics of terrorist networks. Starting from the joint premises of incomplete information, continually changing network configurations and limited resources, we explore how counter-terrorism resources can be optimized at the mid-range in order to disrupt the propagation of information, impede the efficient execution of terrorist agendas, and limit the scope of activities undertaken by terrorist organizations. Drawing on the work of Bruce Hoffman and the RAND Corporation we examine the purposive structure of terrorist activities. We then use Swedish Defence Institute analyst Valdis Krebs' network mapping of the 9/11 Terrorist organization in order to illustrate how the application of social network analysis can be used to develop a software based methodology from which maps of the dynamics of learning and adaptation in a terrorist network can be derived. Finally, we briefly explore how first principles of counter-intelligence and counter-terrorism (specifically: compartmentation, coverage and penetration) can be applied to such models and why very different operational responses are required in order to deal with the deeply differing social and communication structures possessed by different kinds of terrorist organizations.

SCANNING – A TOOL FOR EXPLORING THE IMPLICAITONS OF EMERGING PATTERNS OF CHANGE

Sheila Moorcroft, Business Futures and Kate Hopkinson, Inner Skills

The marketplace in which organisations compete is becoming more complex, less predictable and more uncertain. To survive, organisations need to be more sensitive to change, to be able to read the signs, identify and assess the emerging patterns of change, and to think through potential implications on an ongoing basis. Scanning is a powerful tool for doing this.

Scanning

- enables organisations to identify and track emerging patterns of change
- provides a process for exploring the space of possibilities such changes create
- helps people see things differently and make new connections
- is an infrastructure for integrating dispersed and disconnected knowledge and ideas into a more cohesive and usable whole
- builds on, honours and benefits from diversity
- draws on and encourages creativity of thought and understanding of different perspectives
- captures intriguing ideas, insights and interesting items which we all see, but rarely capitalise on.

In this brief workshop, Sheila Moorcroft of Business Futures and Kate Hopkinson of Inner Skills will outline the scanning process and the thinking skills needed for exploring future possibilities. They will then lead a brief practical session on how to identify and explore emerging patterns of change within the competitive environment using a set of 'indicators of potential change' from the Business Futures' Scanning Knowledge Bank.

VIABLE SYSTEMS THEORY, ANTICIPATION, AND LOGICAL LEVELS OF MANAGEMENT

Maurice Yolles

In this paper we shall explore a cybernetic model of social communities. It is developed into a theory of viable systems. This provides a way of exploring organisations cybernetically by defining them in terms of epistemology and ontology. Viable systems theory is ontologically defined in terms of three validity claims to reality that are differentiated by boundaries into three domains. These domains are connected through ontological migrations that can be expressed in terms of autopoiesis and autogenesis. The theory links with Dubois's conceptualisations of strong and weak anticipation, and Schwaninger's theory of logical types of organisational management. The result is a powerful way of seeing organisational processes. Viable Systems Theory is able to explore social complexity. Its three domains model is designed to exploring the complexity of social communities. The domains are the cognitive, virtual and phenomenal domains, and each has its own set of properties that link to and extends beyond Habermas's theory of knowledge constitutive interests, and his theory of communicative action. The nature of the domains is such that they have recursive ontologies and boundaries that entail

ontological relationships and that explore the nature of automorphosis (self-organisation), autopoiesis (self-production), and autogenesis (self-reference). The theory proposes that each of the three domains have an ontological relationship that can be represented in general terms as a first and second order ontological, of which autopoiesis and autogenesis are respectively examples. The ontological domains also have epistemology that can be expressed in terms of properties, and these embrace cybernetic, rational, ethical and other aspects of social communities. The theory links to organisational politics, ethics, and knowledge management.

Parallel Session 12:15 – 13:00 on 18 September

USING VISUAL ART TO FACILITATE EMERGENT ORDER IN ORGANISATIONS (PART I)

Julian Burton, Strategic Artist, Delta7 and Artist in Residence, LSE Complexity Research Programme

"The biggest barrier to change is the way we talk about it"

The purpose of this session will be to show how the use of pictures can stimulate grounded conversations through an exercise using the facilitation process called *Visual Dialogue*. We will then discuss the exercise and how it embodied several principles from complexity theory.

Complexity thinking offers a different way of understanding how change happens. Complexity points to the view that new order emerges in and from the space between us when we make sense of things together. Creativity happens within the dynamics of our relationships, in the constant flux of intention and expectations, the way we interact, relate and organise our activities.

Alongside Complexity theory there is a growing interest in using the arts to enhance people's understanding and sense-making in organisational settings. The visual arts are a particularly powerful way of representing important or sensitive themes symbolically, non-verbally and aesthetically. Pictures are also useful artifacts that can be used to present difficult-to-discuss issues - a picture often breaks the tension and starts the dialogue.

New situations demand creative responses. At the heart of all successful organisational change are the Informal, honest and grounded conversations that create the context for new and creative action. Taking the risk and speaking openly is the key to making shared sense of what is going on, and this leads to the clarity that encourages the actions needed to make creative responses to change.

CO-CREATING A SELF-ORGANISING MANAGEMENT SYSTEM:

A BRAZILIAN EXPERIENCE

**Marcia Esteves Agostinho, D.Sc., University of Rio de Janeiro and
Gilberto Teixeira de Castro, M.Sc., American Beverage Co.**

Our intention in writing this paper is to share the experience of creating a managerial system based on the principles of complexity. It took place through an action-research project carried out in a Brazilian beverage company, during the installation of a new industrial plant. The project delivered two products, which correspond to academic interest and practical business demand, respectively: a conceptual framework to help understand organization through complexity, and a business-specific framework – entitled *'Autonomous Management System'* (AMS). The experience here described is one example of the possibilities of application of the complexity perspective to management that demonstrates, through tangible data, that self-organizing management can produce superior performance in comparison to conventional administration. However, AMS also shows that excellence is not enough to guarantee survival. The resulting organizational performance does not make a management system robust. So much so that, despite the exceptional performance it permitted, AMS died without leaving any heirs. As an emergent phenomenon, this management system vanished as soon as the key components were removed. And as a cultural product, a management system (self-organizing or autocratic) exists while people nurture it, collectively.

SELF-ORGANIZATION, EMERGENCE AND THE CREATION OF

NEW ORDER: THE CASE FOR SOCIAL SCIENCE RESEARCH

S. M. Nolas , Complexity Research Programme, London School of Economics

The study of social organizations using the framework offered by complexity is become widespread. However, so far research has tended to concentrate its gaze and report on phenomena as being 'out there' much in the same way as more traditional social science research. In this paper I will argue that the language of complexity lends itself well to the study and understanding of the social science research *process* 'in here'. In other words, the mutual construction of knowledge and the creation of a common language, which occurs between the researcher and the researched, or more aptly the 'researching'. To illustrate the case in point, I will use the concepts of 'self-organization' (Varela, 1984) and the notions of 'emergence' and 'creation of new order' (Kauffman, 1993 as cited in Mitleton-Kelly, 2003) applying them to examples from two different case studies. I will be looking to re-conceptualise the role of the

researcher and the research process from a more 'systemic' perspective.   As such, I will argue that the *research process can be conceptualised as a space* in which emergence and the creation of new order takes place.   This view has commonalities with the postulate of 'reflexivity' advocated by post-modernist approaches to social science research. I would like to develop the idea of *interviewing and focus group time as a space* in which meaningful symbols are exchanged through a process of co-operation and communication.   These spaces can be described as somewhere where participants can 'negotiate' meaning and through this unfolding 'rapport', negotiate a common language leading to action.

Parallel Session 15:30 – 16:30 on 18 September

WHAT WOULD AN ENABLING ENVIRONMENT FOR

CREATIVITY LOOK LIKE?

Kate Hopkinson, Inner Skills

This informal experiential session will build directly on the material covered in the preceding presentation on the same topic. ***It presupposes attendance at the presentation.***

It is primarily a chance to try applying selected ideas from the presentation to participants' own situations, as well as explore them further, and ask questions.

During the workshop, participants will have the opportunity to review a past experience, using the ideas from the presentation ; and then think about a future challenge, again using this perspective.

There will also be opportunities for discussion, interaction and experience –sharing with other participants.

FROM IMPROVISATION TO TAMING UNCERTAINTY:

CREATIVE RESPONSES TO DIFFERENT LEVELS OF

RISK AND FORMALIZATION

Barbara A. Misztal, Professor of Sociology, University of Leicester

The paper argues that accounts of different forms of creativity should incorporate the permanent reality of risk and of multiple relationships between the formal and the informal. It assumes that the combination of a balance between formality and informality and a low level of risk enhances the perception of a situation as a 'normal'. It asserts that such a definition of a situation assists cooperative relations as it ensures that participants in complex innovative endeavours have good reasons to trust each other. The paper suggests that normality secures both the short-term flexibility and the long-term consistency which together facilitate creativity. The two axes, the level of risk and the nature of the relationship between formality and informality generate a matrix with nine possible forms of creativity. The paper describes three

forms of creativity which are characterised by the same balance of formality and informality but by different levels of risk. These are 'making music together,' improvisation and the 'taming of chance'. The following section looks at formalized institutional frameworks plotted along the risk-comfort axis. Three forms of innovative actions described here are episodic innovation, the taming of anxiety and 'charismatic inspiration'. Finally, the paper discusses the three types of innovative action (the 'taming of uncertainty, the process of rationalization and 'creative insight' or 'intuition') which result from attempts to restore normality as people adjust to progressively higher levels of informality. The identification of nine types can help to suggest which form may offer an optimal solution for a specific situation.

COMPLEXITY AND THE NON-POSITIVE

Tim Gough, AWA Architects

Theories of complexity have developed from various strands of twentieth century scientific endeavour, including general systems theory, chaos theory, ecology, quantum mechanics, and economics. These disciplines, and their maturity into a set of theories around complexity, undoubtedly constitute one of the more fertile rhizomes of positive science.

Parallel to the sciences of the twentieth century, one fertile rhizome of non-positive thought has been that represented by continental philosophy, more or less indebted to Husserl's phenomenology and the opening of fundamental ontological questioning by Heidegger. This tradition of thought regards the sciences as regional, in the sense that they are characterised as dealing with a limited field of calculable positive knowledge, this being precisely their strength - and also their danger.

This paper will argue that because of the potential and actual interrelations between these two rhizomes, theories of complex social systems are perhaps uniquely placed within the social sciences to take on board the critique of the positive intrinsic to the tradition of continental philosophy. The argument will be made that this is necessary if key questions which these theories face are to be given the required depth of complexity - such questions as how organisations can be effective and give space for essential human creativity; how to characterise the interrelations between the micro and macro levels of organisations, in particular recognising a to-and-fro movement which goes beyond cause-and-effect; and the possibility of justice within organisational and social systems.

APPLYING COMPLEXITY THEORY TO PERFORMANCE

APPRAISAL

Frances Storr, Sheppard Moscow

There is a growing interest in complexity theories as a lens through which to view businesses and organisations. At the same time people often struggle with what the practical application is and how this field of theory actually helps them in a business. This paper is a practical example of how complexity has been applied to a process used by most organisations, namely performance appraisal.

The dominant practise in performance appraisal is to improve performance by focusing on the behaviour of the individual in isolation and research in appraisal has been somewhat preoccupied with developing better, more objective measures of individuals. Viewing appraisal through the lens of complexity theory, with its emphasis on emergent order and interconnectivity, leads one to a very different kind of approach. Basing an appraisal process on complexity thinking acknowledges the reality of behaviour as dynamic and contextual and redefines the nature of performance appraisal in organisations. In this paper I will describe such an approach to appraisal which has now been applied in seven organisations and has produced very powerful results. This process is an organisational development as well as an individual development tool. Individuals experience more depth of feedback and more open, productive conversations that lead to real changes in behaviour. On an organisational level it leads much greater openness and transparency which in turn affect the culture of the organisation and stimulate learning at the system level.

The presentation will include: the theoretical basis and how complexity theory informs this process; a description of the process; and evaluation findings i.e. what impact it has on individuals and the organisation.

TOWARDS NEW MODES OF DECISION MAKING – COMPLEXITY

AND HUMAN FACTORS

Guy Bullen, BT and Lionel Sacks, University College London

The complexity of making investment decisions in new technologies is twofold. On the one hand, there is the complexity of the problem space confronting the decision making team, with the future success (or otherwise) of the investment highly uncertain. On the other hand, there is the complexity of the structure addressing that

problem space-the decision making team itself. The team, both individually and collectively, will often misperceive the complexity of the decision situation. In addition, each individual team member will go through a number of different emotional and mental modes, and will interact with other team members in what is, in effect, a complex adaptive system (or complex responsive process). We will discuss an approach to understanding these decision making processes through considering the combination of the learning brought to us by psychology, and insights brought to us by complexity theory. We will, in particular, consider the dynamics of a team of managers making a decision whether to invest in a new technology, and discuss some principles that are beginning to emerging from our research on decision making in an uncertain environment.

Parallel Session 16:30 – 17:30 on 18 September

USING VISUAL ART TO GROUND THE MEANING OF COMPLEXITY THEORY (Part II)

Julian Burton, Strategic Artist, Delta7 and Artist in Residence, LSE Complexity Research Programme

In this session we will explore the meaning of the ideas and themes that may emerge during the conference. We will draw out their meaning by creating visual representations of what significance the key complexity ideas have for us, by describing them in metaphorical terms. This process usually has the effect of eliciting personal descriptions of experience that ground the conversation in an empowering and stimulating way.

The language of change has lost its power -- diluted and exhausted by constant misuse. When intellectual abstractions are offered as useful knowledge, what words do we have left to make sense of our uncertainties or act with? People are now cynical about the jargon their leaders deliver to them, because their words don't have the meaning or energy needed to inspire. When we use abstract words, we start down a slippery slope, focusing attention on abstract ideas. The next thing that happens is that we lose the link between thought and action, between word and experience. Before long, we lose trust in our own judgement, thereby dis-empowering ourselves.

APPLYING COMPLEXITY THEORY TO PERFORMANCE APPRAISAL

Frances Storr, Sheppard Moscow

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