43   COMPLEXITY THEORY AND THE DIFFUSION OF INNOVATIONS

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In recent years, complexity theory has been shown to throw light on a number of issues related to the management of organizations. Examples include the use of complexity notions to help understand situations such as mergers and acquisitions and assist in the successful facilitation of these events by suggesting appropriate enabling infrastructures (Mitleton-Kelly 2004). Complexity theory has similarly helped in an understanding of information systems failures and perhaps goes some way to explaining perennial problems such as the alignment problem: a problem near the top of serious issues reported by researchers into concerns expressed by CIOs and business managers.

Complexity theory may also be useful in providing a framework for helping to understand the diffusion of innovations. An innovation can be regarded as a disturbance

of a system in some kind of equilibrium. Complexity theory shows how systems respond to such disturbances.

Frank Land will introduce and chair the panel. He was a research associate of the ESRC-funded ICOSS project at the London School of Economics, which explored complexity in the context of major initiatives such as mergers and acquisitions, so-called incubator projects, and new business directions by its research partners.

Tony Bryant will discuss the ways in which the concepts of complexity and chaos can be seen against a background of constant demands for innovation, novelty, and invention with specific reference to liquid modernity, auto-destructive art, and turbulence (Bryant 2007). These concepts have an impact on the ways in which technological development and innovation are understood, since innovation becomes seen as an end in itself, one that can never actually be fully realized.

Ken Eason will draw on his extensive research on the socio-technical issues of implementing information systems and his action research projects on change programs in order offer some insights into the value of complexity science principles in under-standing the responses of NHS Trusts to the National IT Programme that is now being rolled out.

Eve Mitleton-Kelly will highlight some of the relevant principles of complexity theory as applied to socio-technical systems.

Dave Wastell will address the dynamic interplay of human agency and social struc-ture in organisational change, combining ideas from evolutionary theory (e.g., colonial systems) and complexity science (e.g. dissipative structures). He will apply these ideas in a case study of strategic alignment and business process reengineering in a local authority.

References

Bryant, A. "Liquid Modernity, Complexity and Turbulence," *Theory, Culture and Society* (24:1), 2007, pp. 127-135.
Mitleton-Kelly, E. "An Integrated Methodology to Facilitate the Emergence of New Ways of Organising," in A. Minai and Y. Bar-Yam (eds.), *Proceedings of the Fifth International Conference on Complex Systems*, Boston, May 16-21, 2004 (available online at http://necsi.org/events/iccs/openconf/author/papers/f659.doc).