Part 2: Reaching into the broad policy arena

Management attitudes, learning and scale in successful diversification: a dynamic and behavioural resource system view

JDW Morecroft

Deregulation in the electricity sector: understanding strategic and regulatory risk

ER Larsen and DW Bunn

System dynamics applications to European health care issues

BC Dangerfield

Dynamic visioning for dynamic environments

G Winch

System dynamics is applicable to a wide range of managerial problems at the level of the firm, industries, and other large social groups such as cities and nations. In the minds of some observers and critics however, it is most closely associated with the extremes of this range: at one end seminal applications to manufacturing policy and supply chain management; and at the other end influential interventions in environmental policy and global limits to growth. Between these extremes lies a vast territory of practical importance to policymakers and of theoretical interest to academics. The four papers in part 2 sample contemporary work from the broad policy arena.

John Morecroft looks at diversification policy. Diversification is an important branch of corporate strategy. Yet there have been few attempts to model the multi-business firm. Perhaps this is because a satisfactory feedback representation of a diversifying firm has been hard to achieve. How much detail about individual businesses is needed in a model to address policy issues facing the corporate centre? The paper focuses on the feedback structures that surround investment policy in a diversifying firm and corporate managerial perceptions of the performance of the core business relative to the non-core. The model draws on case material describing Goodyear's move out of its core tyre business into oil and gas in the late 1980s. Selected simulations illustrate the dynamics of multi-business investment and the sometimes puzzling changes in financial performance that result.

Erik Larsen and Derek Bunn examine national deregulation policy in the electricity sector. Industry level modelling is the natural approach here. But the topic raises interesting modelling challenges because regulatory change induces new industry competitive structure whose final form may not be clear ex-ante to industry stakeholders or modellers. Moreover, there is little or no history of the new industry's behaviour on which to base model conceptualisation. The authors argue that prototype models (models that explore imagined alternative industry competitive structures), are a useful way to gain insight into the strategic and regulatory uncertainties facing electricity producers.

Brian Dangerfield reviews system dynamics applications to the complex, political (and sometimes myopic) world of health care. Clearly health care is a vital dimension of public policy that consumes a large proportion of public finances. The paper illustrates the use of feedback systems thinking to address contemporary policy issues such as community care, patient management and waiting lists. In all these cases the author argues that a significant benefit of a feedback approach is to help decision makers visualise the broad social context of policy initiatives. Another health-related use of system dynamics is for modelling the epidemiology of infectious diseases. The author describes his own work in AIDS modelling and the evolution of the model in response to increased scientific understanding of the disease.

Graham Winch examines the contribution of system dynamics to scenario planning and visioning methods. There is much scope for mutual reinforcement of modelling and conventional scenario building: both pay attention to problem structuring, mapping and mindsets; both stress the possibility of alternative futures (rather than a single predictable future). The author explains how qualitative system dynamics helps management teams to visualise interdependencies that generate dynamic behaviour. Beyond mapping lies simulation as a vivid and engaging way for policy makers to experience internally consistent alternative futures.

Geoff Coyle and John Morecroft