Presentation Abstracts

Value and Acceptance of System Dynamics in Business: Business Owner as SD Practitioner Perspective

This paper was written by a mid size business owner and practicing System Dynamics modeler. Using a specific example, this paper describes the acceptance and usefulness of an SD modeling process in business. In the author’s experience, using rigorous SD modeling, especially careful use of stock and flow concepts, to describe and gain insight into dynamic business issues is an effective and valuable business tool. These modeling efforts generated several critical insights that were used to alter policy to the advantage of the business. However, communicating these insights beyond a few involved employees was met with significant resistance, especially when “System Dynamics” or “Computer Modeling” was central to the discussion of insight generation and policy formation.

Using System Dynamics to Inform Scenario Planning: A Case Study

Developing strategy and policy requires some understanding of both the present and the future, but operational environmental change can make these two vastly different. Defining that which is predetermined and that which is not about the future can provide clarity and decrease the space along which the present system might evolve into its future state. Scenario planning is an approach for exploring these different possible futures. The development of scenarios is about surfacing mental models, testing them, and learning. However, the literature on scenario planning offers little in the way of guidance about how this can be done. System dynamics offers a formal process for surfacing, testing and informing mental models. This paper presents and investigates the use of system dynamics to inform scenario planning. It did this by applying the two approaches to a not-for-profit organisation. While scenarios and a dynamic model were developed, the effectiveness of this application of the approaches is questionable. The dynamic model did address issues that remained unanswered by the scenario planning approach. However, it only addressed one small part of the system explored by the scenarios. System dynamics has the ability to explore systems on a range of different scales, suggesting that this particular application may not have reaped the full benefit from integrating these approaches.

Global Models from Malthus to C-Roads and Beyond

The World’s economy and environment are complex dynamical systems driven by multiple feedback processes, accumulations, time delays and nonlinearities, but research shows that poor understanding of these processes is widespread, even amongst experts in the field. To illustrate this point, we will consider a few historical examples and then present a more recent example from the United States military’s approach to national security. Our goal is to provide an example of a model that is both simple to develop and employs a structured approach to developing complex models.