A System Dynamics Perspective Of Corporate Entrepreneurship

The Dynamics of Software Project SchedulingA System Dynamics PerspectiveThe Dynamics of Software Project SchedulingA System Dynamics PerspectiveTheories of Organizational Change--a System Dynamics PerspectiveAn Integrative System Dynamics Perspective of Software Project ManagementArguments for an Alternative Research ParadigmModelling the Value of the S&P 500 - a System Dynamics PerspectiveSystem Dynamics Modeling with RSpringer

The book investigates the role of artificial input delay in approximating unknown system dynamics, referred to as time-delayed control (TDC), and provides novel solutions to current design issues in TDC. Its central focus is on designing adaptive-switching gain-based robust control (ARC) for a class of Euler–Lagrange (EL) systems with minimal or no knowledge of the system dynamics parameters. The newly proposed TDC-based ARC tackles the commonly observed over- and under-estimation issues in switching gain. The consideration of EL systems lends a practical perspective on the proposed methods, and each chapter is supplemented by relevant experimental data. The book offers a unique resource for researchers in the areas of ARC and TDC alike, and covers the state of the art, new algorithms, and future directions.

Though the reduction of suicide-related deaths has been a national priority for over a decade (U.S. Department of Health and Human Services, 2001) and over $22 million per year (National Institutes of Health, 2015) have been invested to prevent suicide, rates of suicide have not declined (CDC, 2012). In fact, for some groups of adolescents, these rates seem to be on the ride (Wasserman, Cheng, & Jiang, 2005). The ineffectiveness in reducing deaths by suicide despite increased funding and coordinated efforts suggests the need for a new perspective on examining why and how adolescents begin to desire and attempt suicide and how to stop new attempts from occurring. Using an individual-level system dynamics model (Forrester, 1994; Sterman, 2000), this study answers the following research questions: 1. Is there a feedback relationship governing the experience of suicide attempts for adolescents into adulthood? 2. What types of interventions can be used to decrease suicidality across the lifespan? The goal of this study was to understand whether Thomas Joiners interpersonal theory of suicide (IPTS) (Joiner, 2005; Van Orden et al., 2010), when mathematically defined as a system dynamics model, could accurately simulate and predict suicide attempts across time. The model was specified with nationally representative data from the National Longitudinal Survey for Adolescent and Adult Health (Add Health) and tested for applicability in understanding differences in suicide attempts by gender and racial subgroups. Modifications to the structure of the model were made leading to a modified theory, the developmental systems model of the interpersonal theory of suicide. Results from experiments on the developmental systems model of IPTS suggest that reducing the duration of depression or increasing the time it takes to build capability to attempt suicide for adolescents can minimize attempts across adolescence and adulthood. Implications for research, policy, and practice are outlined, with an emphasis on future directions for suicide research.

The environmental and social impacts of resource extraction and processing, subsequent production processes, and logistics activities are becoming increasingly important for sustainable economies. Moreover, sustainability-related issues and related risks are addressed by supply chain-internal and -external stakeholders. Against this background, companies are driven to consider the sustainability of their business as well as their supply chains by sustainable supply chain management (SSCM).

This dissertation aims at furthering theory development at the nexus of stakeholder and risk management in SSCM by taking a systems

thinking perspective on sustainable supply chains with a methodological focus on system dynamics (SD) modeling. To this end, conceptual frameworks and a formal model are developed. In addition, several guidelines for future research are proposed based on the identified trends and gaps in extant related scientific literature. Finally, the presented SD model illustrates the interplay between dynamic capabilities and SSCM practices that result in overall SSCM performance, while multiple stakeholder influences are considered.

This book approaches economic problems from a systems thinking and feedback perspective. By introducing system dynamics methods (including qualitative and quantitative techniques) and computer simulation models, the respective contributions apply feedback analysis and dynamic simulation modeling to important local, national, and global economics issues and concerns. Topics covered include: an introduction to macro modeling using a system dynamics framework; a system dynamics translation of the Phillips machine; a re-examination of classical economic theories from a feedback perspective; analyses of important social, ecological, and resource issues; the development of a biophysical economics module for global modelling; contributions to monetary and financial economics; analyses of macroeconomic growth, income distribution and alternative theories of well-being; and a re-examination of scenario macro modeling. The contributions also examine the philosophical differences between the economics and system dynamics communities in an effort to bridge existing gaps and compare methods. Many models and other supporting information are provided as online supplementary files. Consequently, the book appeals to students and scholars in economics, as well as to practitioners and policy analysts interested in using systems thinking and system dynamics modeling to understand and improve economic systems around the world. "Clearly, there is much space for more collaboration between the advocates of post-Keynesian economics and system dynamics! More generally, I would like to recommend this book to all scholars and practitioners interested in exploring the interface and synergies between economics, system dynamics, and feedback thinking." Comments in the Foreword by Marc Lavoie, Emeritus Professor, University of Ottawa and University of Sorbonne Paris Nord

Financial panics and crashes have become an item of familiarity to many nations around the world over more than several centuries. If history has taught us nothing else, it has taught us that we can learn from the past with the aim of improving the future. In 1997 a chain of events was set off in Asia that culminated in financial panic and crisis for many of the East Asian countries. The research in this paper focuses on the economic environment in South Korea in the years immediately preceding the 1997 financial crisis. The financial liberalization policy of interest rate de-regulation is modeled using system dynamics and the resultant economic behavior is explored. The feedback structure of the model is used to explain the asset bubble that formed during the height of the build-up. The national reliance on short-term commercial paper to finance long-term investments is explored and its relationship to the crisis is discussed. System dynamics is

used to model the policy decisions that were made and explore different policy decisions and scenarios to provide insight into the resulting economic behavior.

This book is a social—ecological system description and feedback analysis of the Lake Tana Basin, the headwater catchment of the Upper Blue Nile River. This basin is an important local, national, and international resource, and concern about its sustainable development is growing at many levels. Lake Tana Basin outflows of water, sediments, nutrients, and contaminants affect water that flows downstream in the Blue Nile across international boundaries into the Nile River; the lake and surrounding land have recently been proposed as a UNESCO Biosphere Reserve; the basin has been designated as a key national economic growth corridor in the Ethiopian Growth and Transformation Plan. In spite of the Lake Tana Basin's importance, there is no comprehensive, integrated, system-wide description of its characteristics and dynamics that can serve as a basis for its sustainable development. This book presents both the social and ecological characteristics of the region and an integrated, system-wide perspective of the feedback links that shape social and ecological change in the basin. Finally, it summarizes key research needs for sustainable development.

System Dynamics is a component of Encyclopedia of Technology, Information, and Systems Management Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The world is facing a wide range of increasingly complex, dynamic problems in the public and private arenas alike. System dynamics discipline is an attempt to address such dynamic, long-term policy problems. Applications cover a very wide spectrum, including national economic problems, supply chains, project management, educational problems, energy systems, sustainable development, politics, psychology, medical sciences, health care, and many other areas. This theme provides a comprehensive overview of system dynamics methodology, including its conceptual / philosophical framework, as well as the technical aspects of modeling and analysis. System dynamics can address the fundamental structural causes of the long-term dynamic contemporary socio-economic problems. Its "systems" perspective challenges the barriers that separate disciplines. The interdisciplinary and systemic approach of system dynamics could be critical in dealing with the increasingly complex problems of our modern world in this new century. These two volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

This book presents some of the most important papers published in Palgrave's Journal of Operational Research relating to the use of System Dynamics (SD) in the context of Operational Research (OR). Giving the reader an in-depth understanding of significant features of the research area which have grown over the last 20 years: applications in the management field; methodologies; policies at industry level; and healthcare, this book is an invaluable read for those who do not have any prior expertise in the field. Split into four parts, the collection

covers the broad use of SD in the field of management, focuses on the use of modelling in supply chains and at industry level, and presents an analysis of the use of SD in its most promising area, healthcare. Not only does this work provide a detailed overview of the field of SD, but it will also offer vital insights into potential research avenues for the future considering the use of SD as a soft OR and hard OR method.
System dynamics: future opportunities and a critical review; Modeling issues and decisions in system dynamics; Methods for enhancing refutability in system dynamics modeling; Time in system dynamics; Toward a pedagogy of system dynamics; The multiplier-accelerator model of business cycles interpreted from a system dynamics perspective; Parameter estimation in system dynamics modeling; Some effects of data error on econometric models; COLTS (continous long-term simulation); Integration method: euler or other for system dynamics; Including future events in system dynamics models; Tests for building confidence in system dynamics models; Modal analysis to aid system dynamics simulation; Which policy run is best, and who says so?
The Chinese government has recently reconfirmed its "going global" strategy. Beijing is currently constructing a global "New Silk Road," and has begun to engage in various transcontinental infrastructure projects. From the long-term perspective, the corridors of this New Silk Road might facilitate the exporting of Chinese governance paradigms and hence lead to the formation of institutions that pose a severe challenge to the existing liberal order. The essays in this volume thus take a closer look at recent governance innovations and domestic policy experimentations in China, and also discuss international and regional responses to China's active positioning as a global power. The book series East Asian Politics: Regional and Global Dynamics publishes cutting-edge research on dynamic changes in and recent development trends of East Asian politics. The series follows a multilevel framework of analysis: It examines the impact of global power shifts and the transformation of the international system on (domestic) politics in East Asia.
Complex systems are pervasive in many areas of science. With the increasing requirement for high levels of system performance, complex systems has become an important area of research due to its role in many industries. Advances in System Dynamics and Control provides emerging research on the applications in the field of control and analysis for complex systems, with a special emphasis on how to solve various control design and observer design problems, nonlinear systems, interconnected systems, and singular systems. Featuring coverage on a broad range of topics, such as adaptive control, artificial neural network, and synchronization, this book is an important resource for engineers, professionals, and researchers interested in applying new computational and mathematical tools for solving the complicated problems of mathematical modeling, simulation, and control.
This book is about increasing team performance. It focuses on building system dynamics models when tackling a mix of interrelated strategic problems to enhance team learning, foster consensus, and create commitment. The book is intended to be applied in the organizations of today. As the "command and control" organization evolves into one of decision-making teams, so these teams have become the critical building blocks upon which the performance of the organization depends. The team members face an increased complexity of decision making with the interrelation of several strategic problems. What this means is that people have different views of the situation and will define problems differently. However, research shows that this can in fact be very productive if and when people learn from each other in order to build a shared perspective. Learning in this way might prove to be the only sustainable competitive advantage for

organizations in the future. As a result, team leaders want to create "learning teams" and are confronted with issues such as how to: create a situation where people doubt their ideas rather than stubbornly cling to dearly held views create a learning atmosphere rather than trying to "win" the discussion create a shared understanding of a problem in a team foster consensus and create commitment with a strategic decision facilitate Group Model Building Those who will benefit most from Group Model Building: Facilitating Team Learning Using System Dynamics are those who are familiar with systems thinking or organizational learning, or those who are working in groups and are coming up against the common difficulties.

This new interdisciplinary work presents system dynamics as a powerful approach to enable analysts build simulation models of social systems, with a view toward enhancing decision making. Grounded in the feedback perspective of complex systems, the book provides a practical introduction to system dynamics, and covers key concepts such as stocks, flows, and feedback. Societal challenges such as predicting the impact of an emerging infectious disease, estimating population growth, and assessing the capacity of health services to cope with demographic change can all benefit from the application of computer simulation. This text explains important building blocks of the system dynamics approach, including material delays, stock management heuristics, and how to model effects between different systemic elements. Models from epidemiology, health systems, and economics are presented to illuminate important ideas, and the R programming language is used to provide an open-source and interoperable way to build system dynamics models. System Dynamics Modeling with R also describes hands-on techniques that can enhance client confidence in system dynamic models, including model testing, model analysis, and calibration. Developed from the author’s course in system dynamics, this book is written for undergraduate and postgraduate students of management, operations research, computer science, and applied mathematics. Its focus is on the fundamental building blocks of system dynamics models, and its choice of R as a modeling language make it an ideal reference text for those wishing to integrate system dynamics modeling with related data analytic methods and techniques.

In this paper, the system is viewed as a construction based on the actors cognitive and social interactions. The system is the result of multiple - actor sense making (Weick 1995), but at the same time it orients social sense making. In this process each actor point of view is a representation of both the system and the context perceived as pertinent by the actor. In other words, the actor defines a strategy which couples him/her with the system and with the context at the same time. We consider that system and context co-evolve through (and orient) the actors interactions. We approach System Dynamics (SD) as the grammar (Burke 1968) of these interactions. As a grammar, SD frames the actors social and cognitive interactions, and poses few limitations to the actors freedom (and creativity) in comprehending system -

context relationships. We demonstrate, in particular, that SD provides a simplistic representation of ago - antagonistic relationships. The paper addresses both the advantages and the limits of SD in building a multiple - actor approach to system - context coupling. The example of the strategic management model of an airport illustrates our position.
Written by a professor with extensive teaching experience, System Dynamics and Control with Bond Graph Modeling treats system dynamics from a bond graph perspective. Using an approach that combines bond graph concepts and traditional approaches, the author presents an integrated approach to system dynamics and automatic controls. The textbook guides students from the process of modeling using bond graphs, through dynamic systems analysis in the time and frequency domains, to classical and state-space controller design methods. Each chapter contains worked examples, review exercises, problems that assess students' grasp of concepts, and open-ended "challenges" that bring in real-world engineering practices. It also includes innovative vodcasts and animated examples, to motivate student learners and introduce new learning technologies.