

Preface

This book is the first in a series on “System Dynamics for Performance Management.” The purpose of the series is to bridge the gap between system dynamics and its applications in organizations, with a specific focus on performance management.

Most contributions to this series are expected to come from the research and teaching at the doctorate level program in “Model Based Public Planning, Policy Design and Management,” which was started in 2007 as a double degree collaboration between the Universities of Palermo and Bergen. The collaboration is further enhanced by the joint “European Master in System Dynamics,” which is delivered as an “Erasmus Mundus” EU-funded program with the Radboud University of Nijmegen and the University of Lisbon. The teaching work related to the Master in Public Management, recently started by the System Dynamics Group at the University of Palermo, also will contribute to such endeavor.

The purpose of the book is to support the reader’s understanding of how to design and implement planning and control (P&C) systems that can help organizations manage their growth and restructuring processes in a sustainability perspective. More specifically, the book shows how to develop system dynamics models that can better support an understanding of the following:

- What is organizational performance and how to frame and measure it;
- How to identify and map the processes underlying performance;
- How to design and implement a dynamic performance management system and link it to strategic planning;
- How to tie strategic resource dynamics to processes and performance indicators;
- How to link strategic resources and performance indicators to responsibility and incentive systems.

The book builds on my work over the last 20 years in research, teaching, and consulting in the field of system dynamics modeling applied to performance management, with a specific focus on public sector organizations and business.

It also includes numerous case studies and dynamic performance management models for providing examples of how such methods work in practice.

Reading the book is beneficial to: (1) graduate students in business and public management, (2) researchers in performance management and system dynamics modeling, and (3) managers in business and public sector organizations in the fields of performance management and planning.

The book is not designed to enable the reader to become an experienced system dynamics modeler; rather, it aims to develop the reader's capabilities to design and implement performance management systems by using a system dynamics approach. A literature review is included to provide a guideline for further improvements to those readers who wish to develop relevant, specific, and detailed system dynamics modeling skills and to establish the foundation for teaching system dynamics applied to performance management in organizational and inter-organizational contexts. This is particularly relevant for those graduate students who have taken system dynamics courses and need to apply their own skills to business and public management.

To this end, system dynamics students are often involved in case studies. In such endeavors, most of them are often inclined to "fit" the generic stock-and-flow feedback structures and the model examples they have previously learned in system dynamics classes to the issues framed by the cases. Based on such skills, they may immediately look for the dynamic problem to model and the data from which key-variables reference behavior modes could be identified. Though such structured approach can be useful to help students in implementing the methodological and technical skills they have previously acquired, there may be a risk to bound the "potential market" for such skills to only those organizations which have specific staff specialized in system dynamics.

The field of performance management provides a potentially much wider "market" for system dynamics skills, also in those organizations that do not have a "system dynamics" staff and culture. In such contexts, the design and implementation of a "dynamic" performance management system, and the identification (at a corporate and departmental level) of performance drivers may foster dynamic problem finding. A system dynamics model that "speaks" the same language as that of people in performance management is the next step of this process.

Such approaches also are beneficial to performance management analysts, enabling them frame their professional field within the broader context of the system. Using a dynamic performance management approach can improve an organization's capability to: (1) understand and manage the forces driving performance over time, (2) set goals and objectives that may properly and selectively gauge results and match them to the key responsibility areas in the planning process, (3) perceive the effect of physical and perception delays on organizational performance, (4) frame and measure the indirect effects of intangibles on performance, (5) detect and counteract possible unintended effects of performance measurement on group and individual behavior, and (6) foster a learning-oriented—rather than bureaucratic/incremental approach—to planning.

This overcomes the risk that P&C systems are designed and used according to a mechanistic and static perspective. Such risk may generate an *illusion of control*, rather than an enhanced capability of organizational decision-makers to manage sustainable development, to promptly detect symptoms of crisis, to look for the causes of financial results, to set sustainable restructuring policies, and to search for consistency in different subsystems, sectors, departments, or governmental functions.

The book consists of five chapters. The first chapter introduces the topic of dynamic performance management and the need for such approach. Basic system dynamics concepts are introduced and linked to the performance management field. Chapters 2 and 3 respectively frame the field of dynamic performance management and illustrate how to operationalize dynamic performance management. Chapters 4 and 5 respectively illustrate how to use dynamic performance management in the public sector and business.

I trust that this work will become a bridge between two fields of knowledge and practice (i.e., system dynamics and performance management) from whose interplay organizations can be better supported in their efforts toward sustainable growth and lifelong endurance. I would like to thank many friends and colleagues for the support they—either directly or indirectly—gave me in the process leading to this book.

I am indebted to Vittorio Coda and Carlo Sorci, respectively from Bocconi and Palermo University, whose ideas have strongly influenced, since the mid-80s, the way I could frame the linkages between performance, organizational development, and sustainability. I also am indebted to Elio Borgonovi, from Bocconi University: his scientific production has significantly affected my conceptual framework on performance and sustainable development in public sector organizations.

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