Preface

During 1971–1973 the first author of this book was involved in Project Cybersyn in Chile. This was conceived by the cybernetician Stafford Beer for the recently elected government of Salvador Allende (Beer gives a vivid account of this work in the second edition of his book *Brain of the Firm*, 1981). This project was a holistic attempt to address issues of governance in Chile, with particular emphasis on the management of complexity. Far from the centralist approach characteristic of planned economies and the laissez-faire approach characteristic of the capitalist economies, Beer was offering a 'third way' that required the contribution of all stakeholders in the creation, regulation and production of the country's industrial economy. He made it clear that, since this economy was exceedingly complex, any attempt to 'represent' it in a plan was doomed to failure, and any attempt to rely exclusively on market forces naively assumed a fair distribution of information and decision capacity in society. This 'third way' was performative in the sense that all stakeholders required learning platforms to develop their capabilities for adaptation and change. The embodiment of this platform was his Viable System Model (Beer 1972), which is the main focus of this book. The emphasis of the work in Chile was creating communication and information networks to support distributed decision-making and to give stakeholders resources to coordinate their actions throughout the economy. Independent of the historical events that aborted Allende's government, the experience of being involved in the project made apparent that Beer's approach was bold but too optimistic; producing *effective relationships* between stakeholders and policy-makers was far more complex than building up communication networks and information systems.

Relationships became the main concern of the next large cybernetic project, this time with the contribution of both authors. In the mid 1990s both authors were involved in a large project aimed at improving the auditing practices of the National Audit Office of Colombia (Espejo 2001; Espejo et al. 2001; Espejo and Reyes 2001; Reyes 2001). The aim of this project was to support organizational learning and create effective structures at all levels of government with the support of the Viable System Model. We expected that an ongoing auditing of communication mechanisms in government and other public institutions could help diagnose necessary

improvements to reduce the misuse of resources and to improve their deployment. The thrust of this work was building up trust between stakeholders and reducing corruption. For 4 years we supported auditors of government institutions in this endeavour. Afterwards a post-graduate programme in systemic auditing was set up at the Universidad de Los Andes to continue the training of new generations of auditors. The emphasis of all this work was more appreciative of relationships than making information available. Its impact may take several years to get a fair assessment. However, its evolution has clearly confirmed that changing organizational structures, in particular the relationships that produce them, is a tall order that requires more research. This book is a contribution to this research. Hundreds of organizations were diagnosed and more organizations of all kinds continue to be diagnosed using the same method in varied contexts. No one should be surprised that many of our examples in this book come from this experience. However, our purpose here is not a report of this work; it is sharing our understanding of the Viable System Model and more specifically of the main tools underpinning the work in Colombia: the Viplan Method and the Viplan Methodology.

The book's aim is to clarify the application of cybernetic ideas to organizational design and problem solving in organizational systems. In Part I the reader goes through a journey that starts with making a simple distinction in a background and ends up with a model of the organization structure of any viable system. This journey continues in Part II, with a method to model these structures and to braid business, organizational and information processes, which opens the space for a detailed management of complexity in organizations. Finally in Part III we acknowledge that often people in organizations experience problematic situations that can be ameliorated or dissolved by improving the structures in which they emerge. This part offers methodological support and highlights how to think systemically when experiencing these problematic situations. The three parts offer a comprehensive journey through which readers hopefully will learn to appreciate the complexity of organizational problem situations and the relevance of seeing the systemic coherence of the world. The book argues that many of the problems we experience in enterprises of all kinds are rooted in our practice of fragmenting what needs to be connected as a whole.

The scope of this book is the management of complexity in an uncertain world. It builds on Ashby's Law of Requisite Variety (Ashby 1964) and Stafford Beer's Viable System Model (Beer 1979, 1981, 1985). Its contributions are methodologies to deal with problem situations and a method to study, manage and engineer an organization's complexity.

Organizational cybernetics is capturing the imagination of many; unfortunately so far there has been limited *methodological* support to make effective use of this body of knowledge. Beer's work, in particular his book *Diagnosing the System for Organizations* (Beer 1985), offers a guide to apply the Viable System Model but not an epistemology to understand organizations. Several books have been published recently on organizational cybernetics (for instance Achterbergh and Vriers 2009; Schwaninger 2009; Christopher 2007) however, these publications have offered

limited methodological support. Our book attempts to fill this gap. It is the outcome of many years of working in projects such as Cybersyn and the project with the National Audit Office of Colombia, as well as work with all kinds of public and private enterprises throughout the world. At a more detailed level we offer an in depth discussion of *variety engineering* that is not available either in the primary or secondary literature. Variety engineering helps directly in the *design of organizational, business and information processes*.

Here we offer the Viable System Model (VSM) as a problem solving heuristic. This model is of increasing relevance in today's digital world. It is built using the concept of variety, a measurement of complexity, which helps to map the proliferating states of our day-to-day situations. Radical tools for this type of mapping were unavailable before the digital revolution. Today communications and computers make possible not only globalization but also dealing with business tasks beyond anything that was possible in the pre-digital world. Organizations are already achieving higher performance with fewer resources, but the scope for further improvements is indeed large; this is the scope for variety engineering in this book.

The VSM is used as a tool to study the systemic context of processes in organizations and to reconfigure the use of their resources with the support of new technologies. They offer the possibility to respond with ingenuity to challenging situations. The *Viplan Methodology* explained in Part III is used for this reconfiguration, which is supported by the Viplan Method developed in Part II. This method (Espejo 1989) helps to work out the boundaries of organizational systems, modelling organizational and environmental complexity, working out strategies to manage this complexity and distributing accountability and resources in the organization. It offers a framework to braid the organization's value chain with regulatory and informational processes. This framework, a detailed application of variety engineering, helps to work out strategic, structural and informational aspects of an organization.

This book should be particularly relevant to students of management, organizational/industrial engineering and information/knowledge management. Indeed not only students but managers, civil servants, policy-makers and community operators can benefit from a novel way of understanding relationships and organizational processes. Naturally, this book should also be of interest to academics carrying out research and teaching in the above topics. Last but not least, these topics should be of interest to consultants involved in managing change in organizations. The book offers many 'real world' examples and its emphasis is on diagrams rather than on mathematics, but requires the reader's maturity to relate abstract ideas to personal experience and practice.

November 2010

Raul Espejo
Alfonso Reyes

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