

Preface

In the last few decades the world has changed dramatically. The diverse factors that have played their role in this change, together with their inter-relationship, have also led to a formidable complexity implicit in such a situation. Some examples of aspects involved here are the high degree of inter-dependence among different world economies (let us consider the impact of North-American sub-prime mortgages on the rest of the, mainly Western, world), the globalisation phenomenon, increases in the price of oil, the increase in the use of fossil fuels, or the impact of economic growth in countries like India and China on both the supply of products as well as on the demand for raw materials, energy and other components, etc. To this we can add the as yet uncertain but all the same worrying effects of possible climate change, migratory pressure towards developed countries, and security problems (threats of biological or nuclear terrorism, etc.). To these far-reaching problems that are affecting both humanity in general as well as organisations and companies, obviously we could add many more. Also, the fact that many of these problems are inter-related adds a further difficulty in terms of their study and possible solution.

We may summarize this state of affairs by maintaining that we are facing highly complex problems. Consequently, if our aim is first of all to understand them and then endeavour to improve their diverse facets, we need the appropriate means for this purpose. Managers in companies or organisations, politicians in their different areas of responsibility and, in general, any person who has to take decisions, should have at their disposal the necessary tools for tackling the problem facing them. At the start of the seventies, Conant and Ashby had argued, in the famous theorem which bears their name, that “a good regulator of a system must be a model of the system”. But this model and, as a result, the regulating system with it, should possess a degree of variety (complexity) in accordance with that of the system they are trying to regulate (manage). For example, a light switch with only two positions (for instance, on and off) is unable to regulate multiple lighting intensity as it lacks sufficient variety, in this case, lighting options.

For this reason, we need models of problematic situations containing such corresponding variety, that is to say, ones that are able to give a response to the

diverse situations raised. Nevertheless, very often the models employed simply lack sufficient variety.

One of the aims of this book is to show some of the methodological and technical tools that so-called Systems Thinking has developed over several decades since its dissemination around the middle of the twentieth century. These tools provide us with the possibility of constructing models with sufficient variety (the capacity to deal with complexity) to attempt to deal with current problems.

Since the first studies by Betalanffy or Wiener, etc., in the middle of the last century, until nowadays, many schools and approaches have appeared within the general framework of Systems Thinking. Consequently, in this book I will limit myself to dealing mainly with the development of Cybernetics and, in particular, Organisational Cybernetics (OC) of S. Beer. OC offers a wealth of conceptual elements which are extremely useful in terms of their application in designing and managing any type of organisation (company, institution, etc.). In this book, we will look in detail at two of its most important components, namely, the Viable System Model (VSM) and Team Syntegrity (TS).

The number of applications of both methodologies is very large. Nevertheless, the knowledge that managers and academics have in relation to them is still inadequate. One of the reasons given, especially in the case of the VSM, is that it is difficult both to understand and to apply. A further reason put forward is the lack of support for facilitating its use, such as specialised software to act as a guide in its application. The wide dissemination of other systemic methodologies such as Forrester's Systems Dynamics, is attributed in part to the appearance of specialised software, which has helped enormously to construct and visualise the models designed with this methodology. Another purpose of this book is, in fact, to highlight the VSMo[®] software created with the specific intention of at least partly addressing these shortcomings.

In general, I hope that those who read this book find the following of use:

- Recognising the magnitude of the problems faced by managers of any organisation and the means of assessing it, albeit in an approximate way.
- Recognising the existence and utility of the systems approach for dealing with certain problems facing society and organisations.
- Gaining familiarity with the basic concepts of Organisational Cybernetics.
- A sufficient knowledge of the principal components of the Viable Systems Model for carrying out a preliminary diagnosis of an organisation's viability.
- The ability to recognise some of the pathologies commonly showing up in organisations, as a prior step to dealing with them (diagnosis) or preventing their appearance (design).
- Learning of the existence and basic elements of Team Syntegrity, in order to judge whether its deployment is worthwhile.
- Gaining familiarity with the main aspects of VSMo[®] software, thereby attaining a better understanding of the Viable System Model.
- Increasing awareness of conceptual approaches to dealing with complexity, and acknowledging the role of the manager as the person responsible for dealing with it.

Structure of the Book

One of the main aims of this book is to deal with those aspects referred to above, related to the difficulty of increasing the dissemination of OC and the VSM among managers and academics. Hence, I will first of all endeavour to clarify the concepts contained in OC and the VSM by taking a look at its main components, and then go on to provide guidelines for using them in both the diagnosis and design of organisations. The other aspect covered in the book is a description of the software created with the special aim of facilitating the application and understanding of the VSM.

The book consists of six chapters. In the first, beginning with an introduction concerning the need to apply the systems approach, a relatively detailed account is given of the essential content of OC and the VSM. Chapter 2 is devoted in its entirety to showing how the VSM can be applied in both diagnosing and designing any organisation. For this purpose, structured and systematic VSM operational procedures are described, and each and every one of its essential components is considered.

Once familiarised with the application of the methodology, in Chap. 3 we will see some of the pathologies which most commonly occur as a result of non-compliance with the necessary requirements proposed by VSM theory. A knowledge of these pathologies and certain of the recommendable elements for dealing with them may help managers to understand the problems affecting the organisations they are trying to run.

Chapter 4 deals with the second of the limitations mentioned above, concerning the availability of specialised software to facilitate the application of OC and the VSM. I present the VSM[®] software created for this purpose. This software is the result of over a decade's work for which I have been responsible at Valladolid University, aiming to develop software tools that could facilitate the application of various systemic methodologies, particularly OC and above all VSM. In this chapter we look at the principal components of VSM[®] software and the way it is used. I should add here that, besides the version described in the book (version 1.3), other variants of this software are currently being developed which cover aspects not dealt with in this particular version. Such is the case, for example, with a collaborative version of VSM[®] that allows several people to work on the same VSM study via Internet, and also an advanced version that includes additional design and diagnostic tools and methodological guides (both currently in the trial period).

Chapter 5 is concerned with the conceptual bases of the latest of S. Beer's innovations, termed Team Syntegrity. We show the main application protocols in its basic form and comment on the areas in which the use of TS might be recommended.

Chapter 6 makes a final reflection on the book as a whole and suggests some ideas for future work.

The book has two appendices. The first presents the complete version of the *laudatio* I had the honour of giving S. Beer during his investiture as *Honoris Causa*

by the University of Valladolid (October 26, 2001). The reason for its inclusion is the detailed account I give of the whole of Beer's work, which I believe may contribute to providing a wide and reasonably in-depth view of the scope of his intellectual production and activity. Appendix II includes the Aphorisms, Organization Principles, Theorem, Axioms and Law devised by Beer as a synthesis of the content of the VSM. Obviously, the complexity involved obliges the reader to consult the complete sources (Beer's own books) to find their justification.

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