Editorial

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Biographical notes: Markus Schwaninger is Professor of Management at the University of St. Gallen, Switzerland. His research is focused on organisational cybernetics and system dynamics, applied to issues of organisational intelligence, management systems, and to the design, transformation, and learning of social systems.

José Pérez Ríos is Professor of Business Organization in the University of Valladolid, Spain. His research is focused on the application of System dynamics and management cybernetics to the study of complex systems, and to the development of software tools which can facilitate the application of different systemic approaches as well as knowledge capturing, communication and information exchange.

Since Stafford Beer established the foundations of Organisational Cybernetics, a number of innovative contributions have emerged. Therefore, it is important, at this stage, to compile a survey of the field, which provides evidence of the state-of-the-art.

This Special Issue, which contains 12 contributions, covers a wide spectrum of subjects in Organisational Cybernetics, which reach from theoretical considerations to accounts of developments in the practical domain. The aim is to enrich the discourse about and the practice of organising. The issue contains reflections by both academics and practitioners on the cybernetic approach to coping with complexity in organisations and society. They cover advanced approaches to organisational diagnosis and design, as well as ways of fostering organisational learning and of enhancing systemic thinking, along with examples of how to increase the power of cybernetics-based interventions by means of new methods and software. Finally, insights into empirical studies document the robustness of concepts and models of Organisational Cybernetics, in particular Stafford Beer's Viable System Model (VSM).

We are grateful to Professor Nikitas Assimakopoulos for giving us the opportunity to publish this Special Issue of the *International Journal of Applied Systemic Studies* and for inviting us to serve as guest editors.

The 12 papers that constitute the issue fall into three categories:

- Diagnosis and Design: five papers
- Observation, Learning, Evolution: four papers
- Reflections by Practitioners: three papers.

The first group of contributions deals with applications and new methodological developments related to Stafford Beer's Viable System Theory.

1 *Raúl Espejo*'s 'Observing organisations: the use of identity and structural archetypes' is an enquiry into the way organisations deal with their own complexity as they strive to maintain stability in a seemingly chaotic environment. This paper offers a set of conceptual instruments for overcoming deficiencies in the management of complexity. Espejo proposes a set of archetypes for the diagnosis of organisational identity and structural deficits. These provide new lenses for observation, which are apt to trigger critical reflection and increase the capabilities for constructing or reconstructing organisational realities. His poignant examples leave no doubt that the construction of identity and structure, not their representation, is crucial for the prosperity of an organisation.

2 Stafford Beer used to emphasise that his VSM is a model for diagnosis in the first place. The paper 'Pathological systems' by *Sebastian Hetzler* is focused on diagnosing deficits of viability in organisations. This focus is in line with the effort in Espejo's paper (see 1 above). The observation of pathologies is of particular usefulness because one can often learn more from failures than from successes. Hetzler concentrates on four typical organisational pathologies, the symptoms associated with them, and the possibilities for remedying dysfunctions.

3 'Organising for sustainability' by *Markus Schwaninger* includes an overview of the VSM, which sets the stage for the chapter but can also serve as a reference for readers who are not yet familiar with the model. The issue of ecological sustainability is vital for human society. The development of economies and societies in our world are, by and large, unsustainable. This article shows how the VSM can be used in the service of sustainability, providing an organisational framework for achieving progress in that domain. The VSM is a powerful conceptual device by which the current efforts to influence developments towards more sustainable forms can be moved ahead.

4 *José Pérez Ríos*' title 'Supporting organisational cybernetics by communication and information technologies (VSMod®)' is promising. The VSM has for a long time been devoid of powerful software support. This paper indeed provides a valuable contribution to closing this gap. The author has directed an important software development initiative since the beginning of the decade, which aims at an efficient support of VSM applications. The resulting information and communication technology, which facilitates both diagnosing and design, is described in this paper.

5 While the first three contributions were dedicated to questions of analysis and application, *Cristina Crisan Tran*'s paper, 'Assessing the Viable System Model: an empirical test of the viability-hypothesis', is dedicated to a theoretical issue of great actuality. The VSM has been claimed as specifying the necessary *and* sufficient preconditions for the viability of an organisation. This claim, which is a strong one, has never been refuted. Critics have observed, however, that no serious attempt had been made to falsify the model. Cristina Crisan Tran's merit is to have put the model to a falsification trial, on the basis of an empirical study of a sample of start-up firms. While her results do not lead to a strong support of the model, the point remains that the data analysis does not result in a refutation. For a first attempt, this is a highly valuable outcome, which establishes a landmark towards a more scientific discussion of the VSM.

The second group of contributions deals with issues, which are mostly rooted in second-order cybernetics, i.e., the cybernetics of observing systems. They are centred on questions of observation, communication, learning and the evolution of organisations.

6 Learning is a highly desirable property of an organisation and, as has been asserted, probably the most powerful force for the survival of an enterprise. Nevertheless, hardly anything has been said about how to observe whether a social system in fact learns, or if learning is hampered in such a system. In 'A practical tool to recognise individual and organisational learning obstacles', *Alfonso Reyes* presents a method for overcoming this deficit. By means of stimuli (via cartoons) to the episodic memory of organisation members, learning deficiencies are brought to the surface and thereby made susceptible to remedies.

7 Cybernetics is an effective guideline for educational purposes. 'Towards teaching the management of complexity using complexity management tools' by *Nelson Lammoglia, Juan Camilo Bohórquez* and *Roberto Zarama* reports on a course design realised on cybernetic grounds. The course 'Introduction to Systems Thinking', due to its demanding layout, puts a workload on students, which is, in principle, greater than their working capacity. The solution to this dilemma is the creation of a context in which students relate to each other, create a social system and in this way learn to cope with the complexity faced. This idea is implemented by way of a game, which is driven by a strong purpose and the enforcement of elaborate rules, which amplify actors' variety and attenuate environmental complexity. The rules can be changed by the players, and controversies can be dissolved by defined instances. In the process, individual and collective learning is likely to occur, which can be ascertained and measured. Much as in Alfonso Reyes' contribution, diagnosis shows the way towards overcoming difficulties and shortages of learning.

8 While the foregoing contribution was about relationships in a laboratory setting, the next article deals with the way certain population groups relate to each other. The subject of *Leonie Solomons* and *Alfredo Moscardini* is 'Language homeostasis in race relations'. In Sri Lanka, as in certain other countries, language differences have triggered racial and regional conflicts. This country's language incorporates both Sinhalese and Tamil dialectal identities, and therefore each group strives to ensure the survival of its unique idiom. A cybernetic analysis identifies the 'relationship between various races and languages' as a critical variable in the system under study. A deep enquiry into the language requirements of the country

leads to a promising conclusion, that the vernacular languages will be used for intra-racial social communication. Therein lies a potential for both the survival of the vernacular languages and the mitigation or even dissolution of racial conflicts.

9 'The end of control' by *Camilo Olaya* concludes the second block of contributions. The provocative title of this article seems to announce the abolishment of control. However, the real issue raised by the author is *end* as aim or purpose, as well as the functioning of control. For him, the "ultimate aim of control" is in the generation of possibilities, successful learning and finally evolution. His analysis identifies a distinction between the characteristics of control in the cybernetic versus the evolutionist frameworks. In the first case, the end of control is the provision of conditions for adaptive behaviour, as enshrined in an invariant hierarchy of homeostats – the Viable System Model. In the second case, the end of control is to contribute to vicarious selection through non-random processes of error-elimination enabled by a hierarchical, multi-layered system of plastic controls. Although the author does not say it, by carrying out his comparison he already has built a bridge between the two camps.

In the third set of contributions, three experienced practitioners reflect on organisations and management from a cybernetic stance. These papers do not claim to be scientific. What they can convey are insights about the working of organisations and approaches towards their improvement.

10 At the outset, *Michael Ben-Eli* asks the question, 'Why is managing change difficult?' His paper rests on the crucial distinction between first-order and second-order change. It focuses on the latter, i.e., the fundamental kinds of change. The author identifies four factors that are at the heart of the difficulty of managing change: the Complexity factor, the Epistemic factor, the Structural factor, and the Inertia factor. These are also causal to conditions of crisis and make second-order change interventions a necessity. The impact of these factors is discussed, and organisational learning, conceived as a system's ability to amplify its variety (i.e., its repertory of behaviours), is proposed as the most powerful means of ensuring continued renewal. The arguments of Ben-Eli are clearly stamped by his long experience as a consultant and by his studies with Gordon Pask, one of the pioneers of systemic thinking.

11 Our next author, *Bill Christopher*, is a veteran executive who has made long-standing practical use of Beer's Viable System Model. Starting with a workshop directed by Stafford Beer, he took off into a 30-year experience of applying the VSM. He shares some of this experience in his chapter 'Stafford Beer's VSM: a model for holistic management of business operations'. Christopher makes the point that by using the model, corporate performance can be improved substantially. This is illustrated by means of an in-depth example. Finally, Christopher also ponders how the VSM could become part of mainstream management.

12 The circle of papers is closed by 'The usefulness of VSM-based representations in organisational work' from the pen of *Markus Brönnimann*. The reader is introduced to the application of the VSM in the context of a reorganisation project. The author serves as the administrative director of the University of St. Gallen, where this structural renewal took place. The organisational change process under study was the

response to a fundamental redesign of the study program, under new rules stipulated by the Bologna System of education. The approach taken is a pragmatic one, but it is reflective in that the case study is posed in relation to basic concepts of cybernetics, self-reference in particular. Even if Brönnimann's VSM diagrams may deviate in some details from those of the 'purists', the article shows that advanced practitioners can bring the theoretical concepts and models of Organisational Cybernetics into fruitful use. Brönnimann rounds off by linking the practice of VSM applications back to cybernetic theory.

Looking at the total of papers, it appears as a unity despite the variety of contributions. The purpose of the special edition – to document the state-of-the-art of Organisational Cybernetics – undoubtedly had a coordinating function, among those involved in the project.

The contributors make up an international band, and the editors also drew on the international scholarly community for the review process. We are delighted to present this special issue, and we thank all those who cooperated in bringing it about.