Chapter 1

An Enterprise Complexity Model: Enterprises, Organizational Systems, and Dynamic Capabilities

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ABSTRACT

In this chapter, the author proposes an enterprise complexity model (ECM), which is visualized as a methodology to achieve the distributed governance of an ecology of evolving enterprises. Governance is understood as guiding the enterprises self-organization towards policies creating, regulating, and producing products and services for society. Self-organization is grounded in the communications and interactions of stakeholders. The purpose of an ECM model is not institutional development but guiding, enabling and facilitating interactions of all kinds with the support of current and disruptive technologies to increase society’s requisite variety to deal with social, ecological, and economic challenges. An enabling context helps the branching of the enterprises’ creativity into all kinds of innovations, forms of coordination, and operational alignment of their interests. Quality of life, fairness, and social justice are the values driving this ecology of enterprises towards a deeper and wider appreciation of issues of social concern.

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INTRODUCTION

This paper is a development of one published in IJSS, Vol 2, No1 pp.1-22 (Espejo, 2015a). This new version is the outcome of feedback coming from multiple talks and lectures delivered at conferences and courses in several parts of the world. In these interactions participants and students have made conceptual and methodological contributions to its ideas and have also illuminated instances of their application. Further research has followed for a couple of years. The new version offers a significant development of the Viplan Methodology (Espejo, 1993) and clarifies its relevance to the governance of ecologies of enterprises.

The core of this paper is methodological; it aims at exploring how to produce an ecology of enterprises in the context of a guiding enterprise. The integrating framework is an Enterprise Complexity Model (ECM), which is an extension of earlier work on the Viplan Method (Espejo, 1989b), Viplan Methodology, (Espejo, 1993), and is grounded in Beer’s Viable System Model (Beer, 1979, 1981, 1985). An ECM goes beyond individual enterprises and is used in the sense of an innovative undertaking in society; it offers a model of collaborative enterprises more than any particular institutional form. It is a model of an ecology of enterprises, guided by a leading one, dealing with the complexity of multiple environmental agents. It is in the nature of this enterprise to operate in a context of challenges and opportunities, which requires of its ingenuity and capabilities, since its complexity is significantly smaller than that of its environment. In other words, this environment’s complexity is much larger than the enterprise’s response variety. The challenge for the enterprise is to find ingenious strategies to bridge this complexity gap. Today’s digital economy and technology can play an increasingly important role in making this bridging more effective and socially acceptable. I offer responses to these challenges from the perspective of systems thinking and cybernetics.

How is it possible for an enterprise to perform effectively under increasing social, ecological and economic demands? How does it achieve viability in these challenging circumstances? These are questions for which Beer’s Viable System Model (Beer, 1979, 1981, 1985) gives powerful answers. In this contribution I offer a methodological extension of this model in the network economy as enabled by the digital society. The digital society shares with the Viable System Model (VSM) its focus on complexity as understood in this paper, that is, on the huge number of possible states, or variety, of any situation. The digital society, as we are witnessing it today, is enabling networking and is grounded in technologies with large capacity to create as well as map all kinds of situational states. Today enterprises can recognise and manage people’s relational variety at the most disaggregated levels; algorithms, artificial intelligence, 3D printing, engineering services and so forth are making this apparent all the time. Rather than dealing with aggregations and averages, enterprises
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