

# Chapter 11

## Business Autopoiesis Through Process Referencing

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### ABSTRACT

*In this chapter, the concept of autopoietic system is assumed to stem from the theory of social communication systems, which reproduce all their specific structures and self-referential processes. This chapter aims at the analysis of business process development and management. The main goal is to present an original framework of business process management. Through this framework, business processes can be interpreted as autonomic artifacts which are created, discovered, explored, and disseminated within social communities of practice. This constant reproduction of processes and their dissemination allows the social organization to exist, cope with internal complexity, and achieve its operational goals. The chapter consists of three main parts. The first part covers the systematic literature review on business process mining and referencing. The second part includes the discussion on presented business process framework. The last part comprises a case study to present and discuss the application of the framework for the development of academic virtual education processes.*

### INTRODUCTION

Luhmann's social systems theory covers a comprehensive understanding of modern society as a system of communication (Luhmann, 1995). This internal exchange of information ensures the social organization's existence and self-production of these information components. In this chapter, business processes are considered as portions of information on sequences of activities for achieving the operational goals of a business. In general, a process is a set of interrelated or interacting activities, which transform inputs into outputs. According to Carlsen and Giersvik (1997), an autopoietic system is an information system which is a subsystem of a social system and as such, deals only with information and communication inside social communities. Bouncken argues that "autopoiesis is the joint birth of knowledge across actors of the system alliance" (Bouncken, 2008). For Luhmann, autopoiesis is formed by group cognition. Groups cover collections of actors with specific mental models that lead to organizational learning. Luhmann

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argues that these systems refer to themselves, so they are self-referential (Luhmann, 1995). Yolles (2006) states that an autopoietic system fulfills a condition of autonomy that defines its own boundaries relative to its environment and reproduces its own elements in a closed circuit. Yolles understands a system's self-organization as automorphosis, self-regulation as homeostasis, self-production as autopoiesis, self-reference as autoproforiasis, and self-creation as autogenesis.

In this chapter, the concept of autopoiesis is fundamental for a new paradigm of business development. Autopoiesis and other self-\* properties are interpreted as applicable for social communities as well as for computerized system development. Maturana understands the term "autopoiesis" as a combination of "auto", which is Greek for "self-" and "poiesis", which is Greek for "creation" or "production" (Thannhuber, 2005). Yolles (1999) emphasizes that autopoiesis is the ability of a system to generate its specific structure of components and their relationships. Luhmann's social theory is based on a biological self-reproduction processes, however for him, communication is fundamental and consists of three components: information, utterance (e.g., model), and understanding. He clearly prioritizes understanding, which can exist through relations within an autopoietic system structure (Gerim, 2017). Baxter (2013) adds that autopoietic systems produce themselves, i.e. their operations and their structures, through their own operations.

In this chapter, business organizations and social communities are perceived as consisting of processes. Autopoietic organizations continually create and organize themselves in a circular production of processes. If the dynamic circularity or network of processes are interrupted, they internally disintegrate. In an autopoietic process-oriented organization, the process components are designed to interact with each other. They are interconnected to continually produce and maintain themselves and the relationships between them. However, autopoietic organizations cannot be identified with self-replication systems, e.g., viruses. These organizations do not build simple replicas of themselves. They are self-referencing but not self-replicating. Teubner (1988) is a proponent of interpretation of legal systems as autopoietic systems. His work is perceived as an application of cybernetic principles to the debate among legal theorists on the status of law as both autonomous and self-referring or derivative of the socio-cultural setting in which legal acts are realized.

Dimitrov and Fell (2010) find that self-organization is the essential force of organizational autopoiesis. They argue that self-organization arises when independent individuals cooperate to solve a specific internal problem. Therefore, in this chapter, self-organization means that low-level interactions between individuals in hierarchical organizations spontaneously emerge to solve a given problem. The selfish actions of individuals support the achievement of benefits for the system as a whole. By example, the self-organizing systems are observed as the interconnections of web pages on the WWW (Flake et al., 2003, Skorin-Kapov & Puech, 2007).

Considerations of Truex et al. (1999) are also useful for this research work. Therein, self-organization is not deterministic, but rather a product of continuous social negotiations, and continuous change of work culture and decision processes, where result stages arise from history and context (Truex et al., 1999). Self-organizations are defined as continuously emerging. They are scalable and increase the volume of the components, e.g., processes. Social self-organization is assumed to be a formation of bottom-up initiatives and as such cannot be identified with anarchy, if anarchy is understood as a lack of order. However, anarchy can be understood as a positive style of management, as a lack of central authority, and as a way to cope with business organization complexity. Therefore, self-organization is defined as a process, where the system entropy decreases without the system being guided or externally managed. This phenomenon is ubiquitous in nature, particularly in natural forming swarms [Casadei

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