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An eco-systemic framework for business sustainability

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Abstract This article introduces an eco-systemic framework to foster innovation for business sustainability. We emphasize the idea of systemic thinking in which the business operates as a system similar to a living organism. In this framework, businesses impact the environment in which they operate in a fluid, dynamic, and interdependent way. This approach contrasts with the linear approach commonly used in business and other disciplines, which tries to explain what might cause an action or reaction but ignores any feedback effect between the subsequent action and its cause. This article offers practical solutions and guidance for business leaders to incorporate complexity science into creating sustainable businesses.

1. Fostering innovation for business sustainability

Business theories often are based on linear deterministic assumptions: frameworks that seek to understand cause-and-effect actions. However, this deterministic approach often fails to account for the innumerable multiplicity of variables that affect businesses, the contexts in which they operate, and the effects of time on all those factors. Linear theory, commonly used within most disciplines, is mechanistic and attempts to explain what causes actions and reactions (Loftus, Oberg, & Dillon, 2004). Thus, it ignores any feedback between the subsequent action and its cause. There is an assumption, often validated in the historical applications of logical positivism (e.g., Newton's law of universal gravitation), that the effect is an expected outcome and has no further relationship with the cause. This type of linear focus has long been the cornerstone of scientific thinking. However, in the late 20th and early 21st century, an evolving study of business operations focused increasingly on systems that produce feedback loops rather than end points. In these cases, the effect feeds back to

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the cause, and these types of non-linear operations aggregate throughout business operations, producing complex systems.

The purpose of this article is to introduce a different way of thinking about business sustainability that emphasizes the notion of eco-systemic thinking, in which the business itself operates as a complex system similar to a living organism. In this context, businesses impact variables within the environment in which they operate in a fluid, dynamic, and interdependent way. Eco-systemic thinking encourages us to understand businesses as complex systems that have many variables, are sensitive to initial conditions, and are unpredictable. Additionally, an eco-systemic approach recognizes that businesses experience continual change, both internally and externally, depending on their environments, across time and space. As such, linear cause-and-effect approaches may not be adequate in fostering innovation to create sustainable businesses that survive new and unpredictable challenges. Taking these difficulties under consideration, in this article we argue that in order for businesses to survive, they must become adaptive, innovatory/emergent, self-determined and self-aware (without externalities), and resource-led.

This argument is necessary and significant for two primary reasons. First, we live in a moment in which the world needs, more than ever, businesses that are sustainable. In the past several decades, global financial crises—in addition to broader issues such as "climate change, ecosystem degradation, and poverty, embedded in globally interdependent social and economic institutions"—have become increasingly devastating, with long-range and little understood effects (Hahn, Kolk, & Winn, 2010, p. 386). In response, innovative understandings of business practices and sustainability are necessary in order to create novel and complex models for businesses to continue responding to contemporary and future challenges.

In addition, this article contributes to the literature on business sustainability not only from a theoretical point of view, but also from a practical one. For example, we explore business sustainability practices, including the triple bottom line—a framework involving three elements of performance: social, environmental, and financial (Slaper & Hall, 2011)—and life cycle management analysis as applied in industrial and service sectors aimed at improving products and enhancing the sustainability of the business (Pascual et al., 2010; Sonnemann, Gemechu, Remmen, Frydendal, & Jensen, 2015). Eco-systemic thinking provides managers insight into how to manage a balanced scorecard approach, which uses four elements (translating the vision, communicating and linking, business planning, and feedback and learning) to link short-term activities with long-term sustainability goals (Kaplan & Norton, 1996).

This article also contributes to efforts to introduce complex systems approaches into economics and business sustainability (e.g., Durlauf, 2005; Markose, 2005) and theorize on businesses as living organisms (e.g., Peltoniemi & Vuori, 2004; Robson, 2005; Rothschild, 1990), extending the nascent literature on complexity applications to businesses (Paraskevas, 2006). For example, eco-systemic thinking has been applied to a range of topics including competition-community ecosystems (Almirall, Lee, & Majchrzak, 2014); consumer ecosystems (Dass & Kumar, 2014) and financial profitability (Kumar, Dass, & Kumar, 2015); strategic thinking (Zahra & Nambisan, 2012); social media (Hanna, Rohm, & Crittenden, 2011); and other industries, including healthcare (Anderson & McDaniel, 2000; McDaniel & Driebe, 2001).Collectively, this research agenda provides an important blueprint for innovation, novelty, and nimble system responses to any number of rapid economic global shifts.

This article begins with a discussion of systems theory and a theoretical discussion of fostering innovation. We follow by offering actions for managers and business practitioners to consider taking an eco-systemic approach to fostering innovation and building business sustainability. Next, we discuss in detail the qualities of businesses as complex systems, comparing linear (or, bureaucratic) approaches to the one forwarded in this article, using a variety of examples on how this can be accomplished. The final section presents our conclusions and areas for future thinking and applications of eco-systemic thinking.

2. Introduction to systems theory

Systems theory is suited to enabling understanding of the complex interdependent relationships investigated in the natural and social sciences. In contrast to linear thinking, systems theory recognizes the interconnections and interventions between events or entities, as opposed to a singular view of these relationships as proceeding in a direct cause and effect pattern. Von Bertalanffy (1972) proposed a General Systems Theory, which describes systems as being open rather than closed. In other words, systems exchange matter with the environment, as any living system does. Notably, this wide-ranging philosophical explanation of systems theory was first published in the *Academy*