Journal of Business and Economics, ISSN 2155-7950, USA
February 2014, Volume 5, No. 2, pp. 178-184
© Academic Star Publishing Company, 2014
http://www.academicstar.us

Evolutionary Concepts and Business Strategy

Ewa Stańczyk-Hugiet
(Wrocław University of Economics, Poland)

Abstract: Evolutionary economics is a promising economic theory, particularly from the viewpoint of strategic management. Since adoption of evolutionary mechanisms in the task of explaining problems of strategic nature is not self-evident, this paper presents arguments for employing the evolutionary paradigm in the area of strategic management. A model of normative strategies is presented, in the context of conditions accompanying weak and strong emergence. The results indicate that, in the face of strong emergence, organizations should foster more adaptive behaviours.

Key words: emergence; adaptation; strategy; evolution
JEL codes: B52, L

1. Introduction

"We live in a world of emergent evolution; of problems whose solutions, if they are solved, beget new and deeper problems" (Popper, 2002, p. 286). Different terms have been coined and used in parallel to describe the competitive changes, for instance: ''hypercompetition'' (Bogner, Barr, 2000, pp. 212-226), ''turbulent markets'' or ''high-velocity environments'' (Eisenhardt, Martin, 2000, pp. 1105-1121). However, the environment may also be described in evolutionary terms. In this approach, the environment is characterized by emergence, with business strategy adopted to conform to this contextual setting.

This article draws from evolutionary economics to conceptualize strategy as an adaptive construct in environments characterized by emergence. It is argued that the evolutionary perspective on the competitive structures in which strategic management is practiced has an essential role to play in the practice of strategy. In particular, we identify specific approaches to strategic management (and particularly to competitive strategy), which result from an acceptance of the evolutionary nature of the strategic environment.

2. Evolutionary Economics as a Framework for Business Strategy

According to evolutionary economists, competition is an evolutionary process focused on change, as opposed to equilibrium. The key role in this process is played by innovation, as a primal source of differentiation in company behaviour (Metcalfe, 2006). Competition is formed on the fundament of endemically varied behaviour and on the economic choice controlled by market mechanisms. This dynamic process explains the variability of behaviour brought about by the emergence of change patterns (Metcalfe, 2006, p. 6).

The evolutionary perspective in economics, despite lacking a precise and complete paradigm, offers promising

Ewa Stańczyk-Hugiet, Ph.D., Associate Professor, Wrocław University of Economics; research areas: strategic management in complex inter-organizational settings, action-theory in dynamic capabilities, and evolutionary approach in strategic management, coopetition, and research methodology. E-mail: ewa.stanczyk@ue.wroc.pl.

research potential, particularly in relation to strategic management, with its strong interest in the study of dynamic phenomena. The theory of evolution in natural sciences places an emphasis on the process of natural selection of behaviours. The fundaments of evolutionary economics utilize a similar set of premises. Evolution is change. Evolution is development, and development is invariably accompanied by entropy—a trend to shift from order to chaos, with the degree of chaos constantly growing and "surprisingly strong" (Tarajkowski, 2008, pp. 17-18).

The theory of complex adaptive systems, with its emphasis on the way the complex systems (this applies also to socio-economic systems) self-organize and adapt in time, has opened up a wealth of potential for discovering the role played by emergent processes in the evolutionary dynamics.

The wide array of evolutionary ideas, metaphors and analogies is used to explain the history of companies and their subsequent changes in terms of economic behaviours. Although the theoretical and empirical construction of the new paradigm is still under way, certain notions and approaches have already been defined. In particular, the majority of conceptual work on the evolutionary economics paradigm draws from Darwinism and the theory of path-dependent development (Boschma, Martin, 2007, pp. 537-548; Boschma, Martin, 2010; Martin, Sunley, 2006, pp. 395-438; Martin, 2010, pp. 1-27; Nelson, Winter, 1982).

Evolutionary economics is also influenced by the theory of complexity, although to a lesser extent. The theory of complex adaptive systems is a promising source of concepts and metaphors useful for construction of the evolutionary theory, and certainly more promising than Darwinism (Martin, Sunley, 2007, pp. 395-438; Martin, Sunley, 2012, pp. 338-351).

In evolutionary economics, order and emergence are interlinked. This phenomenon is referred to as "the continuity hypothesis", meaning that evolutionary economics is not perceived in analogy to biological evolution, but as an evolutionary process with inherent order, built on biological fundaments, but manifestly carried over to the level of socio-economic phenomena. The above approach has resulted in formulation of a "naturalistic" concept, holding that if the social sphere were to be studied in its natural state, undisturbed by the act of observation, this is the way it should be addressed (Witt, 2008, pp. 493-511). Naturalism perceives the socio-economic development as emergent, as arising from our socio-biological past, but also subject to physical laws and consistent with its dissipative structures (Foster, 2011, pp. 88-100).

The process of constituting new sets of rules involves the aforementioned process of self-regulation, a process characterized by unpredictability of its emergent structures. In time, this unpredictability decreases through competitive selection, with selected combinations of technology, organization structures, institutions and procedures prevailing over others. Such dominant emergent structures are "irreducible" due to irreversible nature of dissipative economic systems present at the time.

Therefore, evolutionary economists perceive evolution in terms of a process fuelled by strong emergence. And, despite the natural concurrence of many complex processes, such as the incremental innovation or learning by approximating weak emergence, those processes may, to a great extent, be reduced to creative input of individuals in the production process. Following the reasoning presented by J. Schumpeter, evolutionary economists are (and have always been) interested in identification and study of such behaviours that result in strong economic emergence, i.e., those related to entrepreneurship, with its inherent strive for experimentation in new combinations of rule sets in order to arrive at new products or to reduce the cost of existing products by employing new methods of production (Potts, 2000). Evolutionary economists are also aware of the significance of universally adopted rules, referred to as "mezzo principles" (Dopfer et al., 2004, pp. 263-279), in the shape of—for example—institutions and cultural practices. These are regarded as critical for evaluating the degree of

impact affected by entrepreneurship on the economic evolution. However, since the major focus is placed on entrepreneurship, innovation and competitiveness, the resulting descriptions of economic emergence are often incomplete. For example, even though novelty is regarded an important factor, the sources of novelty are often disregarded. Although unpredictability is a factor commonly accepted by evolutionists, there is no in-depth discussion on the reasons behind individual decisions to engage in economically challenging endeavours in the face of high unpredictability. And even though the irreducibility is widely accepted and perceived as the cause of irreversibility in a given time, the systemic determinants of such state are not fully examined.

3. The Conceptual Framework

Research suggests that individuals, by nature, aspire for creativity and seek group support, particularly when faced with high uncertainty in their strife for success. Following this line of reasoning, Foster (2011, pp. 88-100) introduced a theoretical construct of *homo creativus* to take place of the traditional *homo oeconomicus* concept.

The main motives behind that strife, from the perspective of evolutionary economics, are ones that stimulate entrepreneurship. Creative destruction, a subject of many disputes in evolutionary economics, is perceived in terms of emotional predispositions accompanying the state of uncertainty and serving to, firstly, create strong emergence through entrepreneurship and, secondly, to create conditions stimulating the decline and fall of previously successful organizations.

For evolutionary economists, emergence and complexity are generally regarded as equivalent. Emergence is necessary for survival and growth in all dissipative structures. Emergence is a decisive factor in economic growth and development; thus, it cannot be perceived as exogenous, i.e., as an external factor for the purpose of economic analysis. This phenomenon stems from perception of entrepreneurship as the most economic of all human activities, and as endogenous factor of complex systems. Its endogeneity stems from the fact that it constitutes an inseparable part of the process, in which energy and knowledge combine for the purpose of forming structures. Since economic systems are, by nature, dissipative structures, entrepreneurship is manifested in those activities that aim at energy reduction.

Economic evolution describes a set of strong and weak emergences that can be interpreted in terms of complex adaptive systems theory. This interpretation puts economics in the interdisciplinary context.

Typically, two forms of emergence are distinguished: strong (ontological) and weak (epistemologic) (Kim, 2006; 1999; Robinson, 2005).

The former describes a relation which leads to emergence of qualitatively new levels of existence, characterized by units of emergence (properties, principles, structures). Proponents of ontological emergentism believe that we are unable to reduce emergent qualities to the level of microstructure, since the emergent complex entity is, in principle, a novel entity.

Weak emergence means that the novelty of units of emergence lies in the fact that we subjectively perceive the emergent levels of existence, although they remain unchanged at their most fundamental level. The lack of reducing capabilities is a result of natural limitations of human cognition; what is perceived as emergent today may as well be judged a reductive property in the light of future scientific advances.

The most desirable feature of emergence is its novelty (innovation), since it carries positive connotation and bears the element of inventiveness (Boogerd et al., 2005, p. 131; Harper, Endres, 2012, pp. 352-367).

On the other hand, it is assumed that the normative pattern of behaviour is determined by the general strategic approach. As such, it bears clear references to the concept of strategy.

Table 1 Conceptual Framework

Emergence	Weak	Adjust to keep status quo/minimal effort Inertial adaptation	Selected adjustment Anticipatory adaptation
	Strong	Defence strategy to survive Reactive adaptation	Adjust–adaptation strategy/evolution Creative adaptation
		Fit	Fitness
		Strategic orientation	

Professional literature on the subject of strategic management offers a multitude of divagations on the concept of strategic fit (Hughes, Morgan, 2008, pp. 323-331; Norqvist, Melin, 2008, pp. 326-344). This aspect is analyzed in the context of strategy realization potential and describes the need for adjustment between all elements of the organization and its surrounding. This type of adjustment was perceived as prerequisite for organization's effectiveness. Even today, adjustment criteria are often adopted in the process of evaluating the effectiveness of strategies, for example, by analysing the adjustment of strategy to general surrounding or sectoral environment, or by observing the use of trends in the strategy under study (Huffman, 2001, p. 14). Complexity and uncertainty of the surrounding, however, require a new perception of the organizational "fit" idea. At present, it may be more useful to focus on organizational "fitness", i.e., the ability to learn and adapt (Beer, Voelpel, M. Leibold, Tekie, 2005, pp. 445-447). The potential to meet the requirements of changing environment gains in significance. Changeability of environment requires us to shift our attention to the need of building a dynamic organization. The concept of organizational fitness can be adopted to good effect in the dispute on organizational flexibility from the organizational learning perspective. The analytical approach, typically employed in the process of strategic management, is no longer sufficient. The system of management should be geared towards exploiting and exploring future possibilities, and this task can only be facilitated by constant learning as a way to improve operation (Baird, D. Griffin, 2006, pp. 372-383). Consequently, the organization may develop the ability to change and react on the operational level (operational flexibility). However, a dynamic organizational system is characterized not only by operational flexibility, but also—and more so—by its strategic flexibility (de Toni, Tonchia, 2005, pp. 525-540; Matthyssens, Pauwels, Vandenbempt, 2005, pp. 550-552).

Assuming that strategy is a system of certain values which are used by companies to recognize and evaluate strong and weak emergences to be used as basis for action in their strife for long-term survival, adoption of the postulated two-dimensional method of strategy definition and clarification seems justified.

4. Theoretical Implications

A central focus of business strategy is to build and sustain competitive advantage. Competitive advantage, from the perspective of this deliberation, is largely determined by the intensity of adaptive actions. For evolutionists, adaptation is a particularly important concept. Furthermore, adaptation plays an important role in the process of restoring functional equilibrium. Adaptation is one of the methods used in maintaining balance between the organization and its surrounding, one that—in this author's opinion—should be perceived as the most fundamental instrument for the purpose of maintaining the balance. Adaptation is realized through dedicated strategy implementation processes. As such, it develops incrementally, in response to the emergence of new resources and elevating them to the status of strategic resources. In other words, adaptation is a response to emergence.

The postulated normative strategies are developed on the basis of reactive, inertial, anticipative and creative adaptation. The essence of adaptation is the reconfiguration of organizational resources on the basis of a strategy

to achieve congruence with environmental emergence. Organizations that can re-configure strategic resources in the face of market emergence are better suited to pursue opportunities, thus resulting in enhanced outcomes.

The form of adaptation is a result of the adaptive tension between general, institutionalized strategic orientation and the emergence it addresses. In other words, the tolerance of weak or strong emergence promotes strategic change.

4.1 Inertial Adaptation

Inertial adaptation results from the general principle of organizational operation, involving adherence to established patterns of behaviour—also in reaction to change. Change elicits only those reactions, which are already established within the organization. This leaves no margin for spectacular reactions nor significant changes. The prevailing attitudes are: passivity, submitting to fate, reluctance to act. This may also take on the form of retroactive adaptation or reverse action, i.e. adaptation to a stimulus after its effects have already been observed and registered by other systems. Such activities may lead to system imbalance.

4.2 Reactive Adaptation

Reactive adaptation involves repellent actions in direct reaction to strong emergence. In such cases, the decision-making process is shallow and often irrational. It lacks creativity and anticipation of the fact, that those decisions will be implemented under different conditions, affected by other systems. This is an example of acting under pressure. When emergence is believed to be lasting, passive response is perceived as detrimental to company interests.

4.3 Anticipative Adaptation

Anticipative adaptation is an effective form of action in the face of emergence. It involves anticipation of facts and readjustment of decisions in response to their own effects and those produced by other systems. Being ahead of time is a prerequisite of effective decision-making. Decisions are implemented under already changed conditions, so by anticipating, one can make decisions adequate to the challenge at hand. Anticipative adaptation, in general terms, can be described as reaction to forecasted or otherwise anticipated change of environmental demand. It is used in companies seeking lasting adaptability. It requires constant monitoring of conditions and the ability to anticipate future trends and events.

4.4 Creative Adaptation

The originally evolutionary economical concept of search routines provides a theoretical basis for the strategic dimension of proactiveness. Proactiveness is a strategy of continuous search for opportunities of improvement and early pursuit of those opportunities. Creative adaptation is a compromise between two polarities—that of active response and that of passivity. It involves filtering of environmental stimuli and search for the point of equilibrium between external and internal environment. In axiological context, this form of adaptation represents convergence of two different value systems. It involves formulation of new areas and standards of action—often independent of the original premises observed through historical analysis.

In general, inertial and reactive adaptation strategies represent conservative behaviour. Organization reaches for measures to protect its survival, expending minimal effort and employing only minimal resources and energy. The strategy is aimed at securing market position. Passive strategy—passive adaptation—soaks emergence stimuli, surrenders system boundaries, and yields to the environment by changing system operation and adjusting its functions to external influence, by adopting external objectives and patterns. In a modern world, passive adaptation is either a product of system deficiency or a result of preference for adaptability over organizational identity. The system accepts all external influence.

In anticipative and creative adaptation strategies, emergence is perceived in terms of opportunity. Resources and activities are concentrated on more optimal use of innovation-survival is still the main concern, but the concept of survival bears strong qualitative traits. Organizations are more aggressive, offensive in their actions. Active adaptation is a polar opposite of passive adaptation. As such, it is a function of a well-adjusted system or a result of preference for organizational identity over adaptability. It involves imposition of own values, objectives and interests on the environment, and subordination of other systems by forcing them into passive adaptation. The approach may be based on strong potential or a belief that own products are superior to others.

In both cases, access to external resources through cooperative arrangements seems to be an important factor in strategy success. Forms of co-operation may include bilateral arrangements (e.g., joint ventures and strategic alliances) as well as multilateral agreements (e.g., strategic networks.)

5. Conclusions

Evolutionary economics perceives competition between firms as a struggle for survival in an environment where the selection mechanism is driven by the existence of potential customers. Our findings have several implications for theory development in the literature on strategic management. The results clearly show that, in this context, strategy is neither a simple adoption of established strategies, nor do the results support the absence of strategy in favour of simple rules.

Instead, strategy in emergent environments, as our results show, is composed of elements from both adaptation approaches, as well as strategic orientation. Thus our work supports the thesis that those approaches are complementary rather than exclusive.

In order to develop an evolutionary support to strategy, substantial development work is now required.

Adaptation is a product of organizational learning and innovation. This is also supported by D. Teece et al., in their concept of dynamic capabilities (Teece, Pisano, Shuen, 1997, pp. 509-533).

References:

Baird L. and Griffin D. (2006). "Adaptability and responsiveness: the case for dynamic learning", *Organizational Dynamics*, Vol. 35, No. 4, pp. 372-383.

Beer M., Voelpel S., Leibold M. and Tekie E. (2005). "Strategic management as organizational learning: developing fit and alignment through a disciplined process", *Long Range Planning*, Vol. 38, No. 5, pp. 445-465.

Bogner W. C. and P. S. Barr (2000). "Making sense in hypercompetitive environments: A cognitive explanation for the persistence of high velocity competition", *Organization Science*, Vol. 11, No. 2, pp. 212-226.

Boogerd F. C., Bruggeman F. J., Richardson R. C., Stephan A. and Westerhoff H. V. (2005). "Emergence and its place in nature: A case study of biochemical networks", *Synthese*, Vol. 145, No. 1, pp. 131-164.

Boschma R. and Martin R. (2007). "Editorial: Constructing an evolutionary economic geography", *Journal of Economic Geography*, Vol. 7, No. 5, pp. 537-548.

Boschma R. and Martin R. L. (red.) (2010). *Handbook of Evolutionary Economic Geography*, Edward Elgar, Chichester.

Dopfer K., Foster J. and Potts J. (2004). "Micro meso macro", *Journal of Evolutionary Economics*, Vol. 14, No. 3, pp. 263-279.

Eisenhardt K. M. and Martin J. A. (2000). "Dynamic capabilities: What are they", *Strategic Management Journal*, Vol. 21, No. 10-11, pp. 1105-1121.

Foster J. (2011). "Energy, aesthetics and knowledge in complex economic systems", *Journal of Economic Behaviour and Organization*, Vol. 80, No. 1, pp. 88-100.

Harper D. S. and Endres A. M. (2012). "The anatomy of emergence, with a focus upon capital formation", *Journal of Economic Behavior & Organization*, Vol. 82, No. 2-3, pp. 352-367.

Huffman B. (2001). "What makes a strategy brillant?", *Business Horizons*, Vol. 44, No. 4, pp. 13–20.

Hughes, Paul, Morgan and Robert E. (2008). "Fitting strategic resources with product-market strategy: Performance implications", *Journal of Business Research*, Vol. 61, No. 4, pp. 323-331.

Kim J. (2006). "Emergence: Core ideas and issues", *Synthese*, Vol. 151, No. 3, pp. 547-559.

Kim J. (1999). "Making sense of emergence", *Philosophical Studies*, Vol. 95, No. 1-2, pp. 3-36.

Martin R. L. (2010). "Roepke lecture in economic geography–Rethinking regional path dependence: Beyond lock-in to evolution", *Economic Geography*, Vol. 86, No. 1, pp. 1-27.

Martin R. L. and Sunley P. (2012). "*Forms of emergence and the evolution of economic landscapes*", *Journal of Economic Behavior & Organization*, Vol. 82, No. 2-3, pp. 338-351.

Martin R. L. and Sunley P. (2007). "Path dependence and regional economic evolution", *Journal of Economic Geography*, Vol. 6, No. 4, pp. 395-437.

Martin R. L. and Sunley P. (2006). "Path dependence and regional economic evolution", *Journal of Economic Geography*, Vol. 6.

Matthyssens P., Pauwels P. and Vandenbempt K. (2005). "Strategic flexibility, rigidity and barriers to the development of absorptive capacity in business markets: themes and research perspective", *Industrial Marketing Management*, Vol. 34, No. 6, pp. 547-554.

Metcalfe J. S. (2006). *Evolutionary Economics and Creative Destruction*, Routledge.

Nelson R. and Winter S. (1982). *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge.

Nordqvist Mattias and Melin Leif (2008). "Strategic planning champions: Social craftspersons, artful interpreters and known strangers", *Long Range Planning*, Vol. 41, No. 3, pp. 326-344.

Popper K. R. (2002). *Wiedza obiektywna: Ewolucyjna teoria epistemologiczna*, Wyd, Naukowe PWN, Warszawa.

Potts J. (2000). *The New Evolutionary Microeconomics: Complexity, Competence and Adaptive Behaviour*, Edward Elgar, Cheltenham.

Robinson W. S. (2005). "Zooming in on downward causation", *Biology and Philosophy*, Vol. 20, No. 1, pp. 117-136.

Tarajkowski J. (red.) (2008). *Elementy dynamiki systemów*, AE w Poznaniu, Poznań.

Toni de A. and Tonchia S. (2005). "Definitions and linkages between operational and strategic flexibilities", *The International Journal of Management Science*, Vol. 33, No. 6, pp. 525-540.

Witt U. (2008). "Evolutionary economics and psychology", in: Lewis A. (Ed.), *The Cambridge Handbook of Psychology and Economic Behaviour*, Cambridge University Press, Cambridge.