

■ *Research Paper*

Business Ecosystem as a New Approach in Strategy

Saeed Fallah Tafti¹, Asadollah Kordnaeij^{2*}, Seyed Hamid Khodadad Hoseini³, and Majid Jamali⁴

1. PhD candidate in strategic management, Tarbiat Modares University

2. Assistance Professor, Department of Business management, Tarbiat Modares University, Tehran, Iran

3. Professor, Department of Business management, Tarbiat Modares University, Tehran, Iran

4. Assistance Professor, Department of Business management, Tarbiat Modares University, Tehran, Iran

Strategic planning and management is a three-stage process including design, execution, and control. In recent years, various models and instruments have been introduced to each of these stages. However, in today's businesses context, in addition to internal and external factors, organizations' success also depends on the engagement of other role players. The concept of business ecosystem is usually used in this regard. More precisely, nowadays, organizations are simultaneously influenced by their internal capabilities as well as the complicated interactions inside the ecosystem. As a result, their strategies should be designed in the light of both organizations' internal/external environment and the business ecosystem. The present research, therefore, made attempts to introduce new approach in strategy by applying business ecosystem called business ecosystem-based strategy (BES). This study was the first attempt to develop new approach in strategy by using business ecosystem and formulating strategy in to level: organizational level and business ecosystem level.

Keywords: Strategy, business ecosystem, business ecosystem-based Strategy (BES)

INTRODUCTION

Although the concept of strategy has existed since human creation, strategic management has found its way into management-based texts since around 1950 (Dess, et al., 2012; Henderson, 1989). Before the introduction of the term "strategic planning" into managerial discussions, organizations used annual planning for determining their goals (Aliahmadi, 2006). The term "strategic planning" was first introduced in the market-orientation era and reached puberty during the postindustrial era (Kohli, 1990). Strategic management and strategic thinking were introduced into planning

discussions in management in 1950 (David, 2011). Strategic planning became very popular in 1960s and 1970s. Due to the fact that in 1980s many firms, which had used strategic planning, failed to reach their desirable outcomes, this concept gradually became less popular and its decline period began.

Ten years later, in 1990s, Kaplan and Norton introduced the concept of balanced scorecard which led to the popularity of strategic planning again (Kaplan, et al., 2008; Kaplan, 2010). They believed that the main reason for the decline of

*Corresponding author: Asadollah Kordnaeij
Assistance Professor, Department of Business management, Tarbiat Modares University, Tehran, Iran
E-Mail: naej@modares.ac.ir

strategic planning was lack of a framework for the execution of developed strategies. Thus, they introduced balanced scorecard as an instrument for successful execution of strategies (Rong, Lin, Shi, & Yu, 2013). Entering the twenty-first century and accelerating technological change, the basic organizational challenge is to develop sustainable strategies in an environment of uncertainty and lack of confidence (Lempert et al., 2003). The most appropriate situation for applying robust decision making is "where experience and intuition are insufficient guides through the complexity of alternative policy decisions and impacts" (Lempert et al., 2007). Robust decision making is based on a new and quantitative approach for a long term analysis of strategies that combines abilities and capabilities of humans and machines (Lempert et al., 2003), while optimal decision making pursues "to maximize a utility function for the actual task parameters" (Zacksenhouse et al., 2008). In their book entitled "strategic management in innovation economy," Davenport has adopted a new perspective toward strategic management; they highlighted the transition of traditional economy to innovative one and introduced a new type of strategy, known as poised strategy (Kinnunen, Sahlman, Harkonen, & Haapasalo, 2013). They claimed that, in today's world, organizations need new business models. Also, in innovative economy, firms do not act in isolation, but mature as a result of interacting with each other within a network or ecosystem (Davenport et al., 2006). They have claimed that organizations in today business ecosystem need new business models. Organizations in innovation economy don't work individually, but they work together within the ecosystem to evolution (Iansiti, et al., 2004). Today. Organizations work within a network include different actors, so their strategies should be developed by new mindset, approach and tools. Thus, this research has introduced new approach in strategy by applying business ecosystem approach to develop strategy in to levels: organizational level and business ecosystem level.

REVIEW OF THE LITERATURE

Ecosystem: definitions and analogies

Ecosystem, which is rooted in biology, consists of two words: ecology and system. Therefore, ecosystem is a concept that integrates plant and

animal biology, population dynamics, and behavior and evolution (Sui, 2006). Biologists study natural ecosystems in order to discover interactions, behaviors, and reactions of their internal role players in the face of external shocks (Göthlich and Wenzek, 2004). Like business networks, biological ecosystems are characterized by a large number of loosely interconnected participants who depend on each other for their mutual effectiveness and survival and like business network participants; biological species in ecosystems share their fate with each other. In various sciences, different derivations of the word "ecosystem" have been introduced including biological ecosystem, industrial ecosystem, economics as an ecosystem, digital business ecosystem, and social ecosystem (Payet et al., 2013).

Ecological ecosystem: biological ecosystem is "a system of organisms occupying a habitat, together with those aspects of the physical environment with which they interact" (Oxford Dictionary, 1993). And ecosystem is "a community of living organisms with air, water and other resources" (The Merriam-Webster Third New, 1986). This definition highlights the community aspect of a biological ecosystem. World Resources Institute defines ecosystems in similar way, but adding that ecosystems do change (World Resources Institute, 2000). It claims that ecosystems are not just assemblages of species, they are systems combined of organic and inorganic matter and natural forces that interact and change. According to World Resources Institute, biological ecosystems are divided into five main types or categories. They are grasslands, forests, agro ecosystems, freshwater systems, and coastal ecosystems (WRI, 2000).

Industrial ecosystem: This type of ecosystem was originally presented in Scientific American by Frosch and Gallopou

los in 1989. Industrial ecosystem is an analogue of biological ecosystem, where all material is recycled infinitely and efficiently. Thus, the goal in industrial ecosystem analysis is to bring the principles of sustainable development into all kinds of industrial operations (Frosch & Gallopoulos 1989).

Economy as an ecosystem: a capitalist economy can best be comprehended as a living ecosystem

(Rothschild, 1990). Key phenomena observed in nature – competition, specialization, co-operation, exploitation, learning, growth, and several other – are also central at business life.” According to Rothschild the basic mechanisms of economic change are remarkably similar with those found in nature (Lu, Rong, You, & Shi, 2014). The main difference is speed, which is quite a lot faster within economic change. Rothschild’s view of economy as an ecosystem is an application of systems theory (Rong, Hu, Lin, Shi, & Guo, 2014).

The global economy is seen as a system, in which there is interaction among the participants.

Social ecosystem: organizations are always co-evolving within a social ecosystem. According to Milton statement, In social ecosystem “each organization is a fully participating agent which both influences and is influenced by the social ecosystem made up of all related businesses, consumers, and suppliers, as well as economic, cultural, and legal institutions. In defining a social ecosystem, the key point is interdependence among the entities within it. One important phenomenon within a social ecosystem is coevolution (Wei, Zhu, & Lin, 2013). Co-evolution cannot happen in isolation. But, it must happen within an ecosystem (Mitleton-Kelly, 2003).

BUSINESS ECOSYSTEM AS A NEW APPROACH IN STRATEGY

Business ecosystem is one of the newest concepts in management that it has no particular definition. Several people have already commented on this concept but have not been able to define it precisely (Shang & Shi, 2013). Business ecosystem is a relatively new concept that has recently been introduced in business, with various studies being conducted in this area (Peltoniemi, 2005). The term “business ecosystem” was first used by Moore in 1993 and was subsequently developed by various researchers who studied it from different perspectives (Wan, et al., 2011; den Hartigh, et al., 2006; Anggraeni, et al., 2007). Moore defines business ecosystem as an economic community supported by a foundation of interacting organizations, individuals, and other components of the business world (Zhu, et al., 2009). According to this definition, ecosystem involves customers, lead producers, competitors, and other

stakeholders (Moore, 1993). Moore suggests that it is better to replace the term “industry” with “business ecosystem.” Nowadays, economic activities are not limited to certain industries. Like biological ecosystems, business ecosystems include huge, inter-connected networks that interact with each other. As a result, firms are simultaneously influenced by their internal capabilities as well as complicated interactions inside the ecosystem (Karhiniemi, 2009). However, it’s very hard to draw precise boundaries of each ecosystem. In fact, every business have related to hundreds or thousands of other business (Peltoniemi and Vuori, 2005). Therefore, in such cases, therefore, in such cases, dominant businesses will be considered as an ecosystem (Zhu and Zhang, 2009). Traditionally, organizations were considered to be rivals that competed for gaining more interests. In today’s increasingly competitive world, however, these organizations compete and interact with each other through innovative and unexpected ways and they need each other for survival (Wan et al., 2011). This definition is known as the new world of business ecosystems, which indicate interactions among various industries (Chesbrough, 2007). Ianisti and Levien used business ecosystem as a criterion to describe and understand particular subjects. Accordingly, in order to understand business networks, a biological ecosystem is perhaps a far better analogy than any other ecosystem (Iansiti, et al., 2004). Like species, role players of business networks share their fate. If the ecosystem is healthy, individual species will thrive; in contrast, if the ecosystem is unhealthy, individual species will be seriously damaged (Rong, Hu, Hou, Ma, & Shi, 2013). Business ecosystem has various characteristics. They include: the existence of numerous role players, inter-dependence of its components, cooperative evolution, dynamism and flexibility, simultaneous existence of competition and cooperation, shared fate, contribution to making innovations and achieving business successes (Hearn, et al., 2006; Peltoniemi, 2005). Based on Ianisti and Levien’s idea, three keyelements of business ecosystem are productivity, robustness, and niche creation (Davenport, et al., 2006; Den Hartigh, et al., 2006). Productivity is one of the basic factors in measuring performance and, sometimes, is regarded as the success factor of any type of

business. On the other hand, any business ecosystem should be robust. In natural ecosystems, robustness refers to viability of the ecosystems when internal and external shocks threaten their life. In the business world, robustness has to do with organizations' ability to achieve competitive advantage from various resources and renew themselves as a result of environmental changes. Furthermore, business ecosystem should have the ability to spot niches for new firms. This requires a change of approaches from protectionism to cooperation. So, new approach in strategy is introduced by integrating competitive and collaborative approach in three perspectives: productivity, robustness and niche creation. This new approach is called "business ecosystem based strategy (BES)". According to this approach, Strategies should be formulated in two levels in organizations: organization level strategies and business ecosystem levels strategies. Organization level strategies are formulated by applying classic tools such as SWOT matrix, SPACE matrix and so on. Business ecosystem level strategies are formulated in productivity, robustness and niche creation perspectives and in five themes.

FIGURE 1 HERE

TABLE 1 HERE

CONCLUSION

In today's complicated world, the transition from traditional to innovative economics requires the adoption of a new approach in which firms are not looked upon as independent businesses, but inter-connected and interacting entities. In accordance with Moore's viewpoint, these inter-connected and interacting firms function within an ecosystem. Successful development and execution of strategies depend on the business ecosystem and its numerous role players. Consequently, in developing strategic ecosystems, both levels of organizational and business ecosystem should be taken into account. Considering the concept of ecosystem, there seems to be a gap in the literature with regard to developing a new approach in developing strategy in the context of business ecosystem. As a result, the current study made attempts to develop a new strategy approach to develop strategies in organizational level and

business ecosystem level. Business ecosystem has various characteristics. They include: the existence of numerous role players, inter-dependence of its components, cooperative evolution, dynamism and flexibility, simultaneous existence of competition and cooperation, shared fate, contribution to making innovations and achieving business successes. Therefore, the organization can use the new approach to developing strategies (Mäkinen & Dedehayir, 2013). This paper introduces the concept of "business ecosystem" and BES to developing strategies in both organizational and business ecosystem level strategies in terms of the five themes introduced. Business ecosystem strategies must be given to the following themes:

Performance Theme

Business ecosystem players in addition to competing with each other must cooperate in some themes with each other; so that they can increase their efficiency and the other player's efficiency through improvement of each other's performance. So strategies of this theme with the purpose of "improving the performance of players of business ecosystem" should be formulated in order to increase the cooperation of business ecosystem players by the use of their mutual experience.

Flexibility Theme

Each industry has growth and recession periods. Each ecosystem has different players from different industries. So strategies of this theme with the goal of "increasing flexibility of business ecosystem toward changes and environmental shocks" in order to strengthen the ecosystem when environmental shocks happen, should be formulated. This strategy will lead to stability of ecosystem through cooperation and exchange of information of each player of ecosystem with others.

Predictability Theme

The more power of forecasting players of business ecosystem, the more stability the business ecosystem will have. So strategies with the theme of "increasing the predictability" must be formulated for stability and durability of ecosystem.

Ambidexterity Theme

Organizational innovations include open and end kind. Usually R&D is in the organizations for close innovations. Close innovation means that they are created by the inside abilities of organizations without any connection with outside of organization but all business players, inside and outside of organization can participate in open innovation. According to another classification, innovation can be grouped in tow incremental and disruptive .Incremental innovation means developing current innovation and disruptive innovation means creating new technologies which will change the basics of competition and will found new industries and markets. This kind of innovation in contrast to close innovation is not betterment of current technologies. An organization which simultaneously has the ability of "incremental and disruptive innovation" or "close and end innovation "is called ambidextrous organization. So strategies of this theme should be formulated with the goal of "creation of ambidextrous organization in players of business ecosystem" through changing the thinking of organization from "competition" or "cooperation" to "competition-coordination" at the same time with the usage of current potentials in business ecosystem and other ecosystems, in order to enable the creation of close and open innovation and also disruptive and incremental innovation.

Diversity Theme

By more diverse player of business ecosystem, various business models are shared which eventually will lead to new markets and opportunity in business ecosystem. So strategies of this theme should be formulated with the goal of "creation of diversity among players of business ecosystem" in order to create new markets and opportunities.

REFERENCES

- AliAhmadi, Alireza. Fotollah, Mahdi & Tajeddin, Iraj (2006), *A Comprehensive approach to strategic management*, Tehran: 1 Tolid Danesh Publication.
- Anggraeni, E., Den Hartigh, E., & Zegveld, M. (2007, October). Business ecosystem as a perspective for studying the relations between firms and their business networks. In *ECCON 2007 Annual meeting*.
- Chesbrough, H. W., & Appleyard, M. M. (2007). Open innovation and strategy.
- Davenport, T. H., Leibold, M., & Voelpel, S. C. (2007). *Strategic Management in the Innovation Economy: Strategic Approaches and Tools for Dynamic Innovation Capabilities*. John Wiley & Sons.
- David, F. R. (2012). *Strategic Management: A Competitive Advantage Approach, Concepts and Cases*. Pearson Higher Ed.
- Den Hartigh, E., Tol, M., & Visscher, W. (2006, October). The health measurement of a business ecosystem. In *Proceedings of the European Network on Chaos and Complexity Research and Management Practice Meeting* (1-39).
- Dess, G. G., Lumpkin, G. T., & Eisner, A. B. (2006). *Strategic management: text and cases*. Richard d Irwin.
- Frosch, R. A., & Gallopoulos, N. E. (1989). Strategies for manufacturing. *Scientific American*, 261(3), 144-152.
- Göthlich, S. E., & Wenzek, H. R. (2004). Underlying principles of business ecosystems. *Institute for Business Value*.
- Hearn, G., & Pace, C. (2006). Value-creating ecologies: understanding next generation business systems. *Foresight*, 8(1), 55-65.
- Henderson, B. D. (1989). The origin of strategy. *Harvard business review*, 67(6), 139-143.
- Iansiti, M., & Levien, R. (2004). Strategy as ecology. *Harvard business review*, 82(3), 68-81.
- Inoue, T., & Nagayama, S. (2011). Strategic Types and Performance of Niche-Firms

- within Business Ecosystems: A Study of the Japanese Video Game Industry.
- Karhiniemi, M. (2009). Creating and sustaining successful business ecosystems.
- Kolk, A. (2007). Developing dynamic capabilities and open innovation strategies for corporate growth.
- Kinnunen, T., Sahlman, K., Harkonen, J., & Haapasalo, H. (2013). Business Ecosystem Perspective to New Product Development. *International Journal of Business Development and Research*, 1(1), 5-20.
- Lempert, R. J. (2003). *Shaping the next one hundred years: new methods for quantitative, long-term policy analysis*. Rand Corporation.
- Lempert, R. J., & Collins, M. T. (2007). Managing the risk of uncertain threshold responses: comparison of robust, optimum, and precautionary approaches. *Risk analysis*, 27(4), 1009-1026.
- Lu, C., Rong, K., You, J., & Shi, Y. (2014). Business ecosystem and stakeholders' role transformation: Evidence from Chinese emerging electric vehicle industry. *Expert Systems with Applications*, 41(10), 4579-4595.
- Mäkinen, S. J., & Dedehayir, O. (2013). Business ecosystems' evolution—An ecosystem clockspeed perspective. *Advances in Strategic Management*, 30, 99-125.
- Moore, J. F. (1993). Predators and prey: a new ecology of competition. *Harvard business review*, 71(3), 75-86.
- Moore, J. F. (2006). Business ecosystems and the view from the firm. *Antitrust Bull.*, 51, 31.
- Payet, K., Rouget, M., Esler, K. J., Reyers, B., Rebelo, T., Thompson, M. W., & Vlok, J. H. (2013). Effect of Land Cover and Ecosystem Mapping on Ecosystem-Risk Assessment in the Little Karoo, South Africa. *Conservation Biology*, 27(3), 531-541.
- Peltoniemi, M., & Vuori, E. (2004, February). Business ecosystem as the new approach to complex adaptive business environments. *In Proceedings of eBusiness Research Forum* (267-281).
- Rong, K., Hu, G., Hou, J., Ma, R., & Shi, Y. (2013). Business ecosystem extension: facilitating the technology substitution. *International Journal of Technology Management*, 63(3), 268-294.
- Rong, K., Hu, G., Lin, Y., Shi, Y., & Guo, L. (2014). Understanding business ecosystem using a 6C framework in Internet-of-Things-based sectors. *International Journal of Production Economics*.
- Rong, K., Lin, Y., Shi, Y., & Yu, J. (2013). Linking business ecosystem lifecycle with platform strategy: a triple view of technology, application and organisation. *International Journal of Technology Management*, 62(1), 75-94.
- Shang, T., & Shi, Y. (2013). The emergence of the electric vehicle industry in Chinese Shandong Province: A research design for understanding business ecosystem capabilities. *Journal of Chinese Entrepreneurship*, 5(1), 61-75.
- Sui, D. Z. (2007). Geographic information systems and medical geography: Toward a new synergy. *Geography Compass*, 1(3), 556-582.
- Wan, J., Zhang, H., Wan, X., & Luo, W. (2011). The Business Ecosystem of the Chinese Software Industry. *iBusiness*, 3, 123.
- Watts, R. G. (Ed.). (2002). *Innovative energy strategies for CO2 stabilization*. Cambridge University Press.

- Wei, W., Zhu, W., & Lin, G. (2013). Business Models, Symbionts and Business Ecosystem: A Case Study from E-commerce Industry in China *Digital Enterprise Design and Management 2013* (161-182): Springer.
- Zacksenhouse, M., Bogacz, R., & Holmes, P. (2010). Robust versus optimal strategies for two-alternative forced choice tasks. *Journal of mathematical psychology*, 54(2), 230-246.
- Zhu, X., & Zhang, J. (2009). Study on Niches of Enterprises and Strategy in E-business Ecosystem. In *The 2009 International Symposium on Web Information Systems and Applications (WISA 2009)* (p. 182).

APPENDIX

Fig.1. New approach in strategy in productivity, robustness and niche creation perspectives

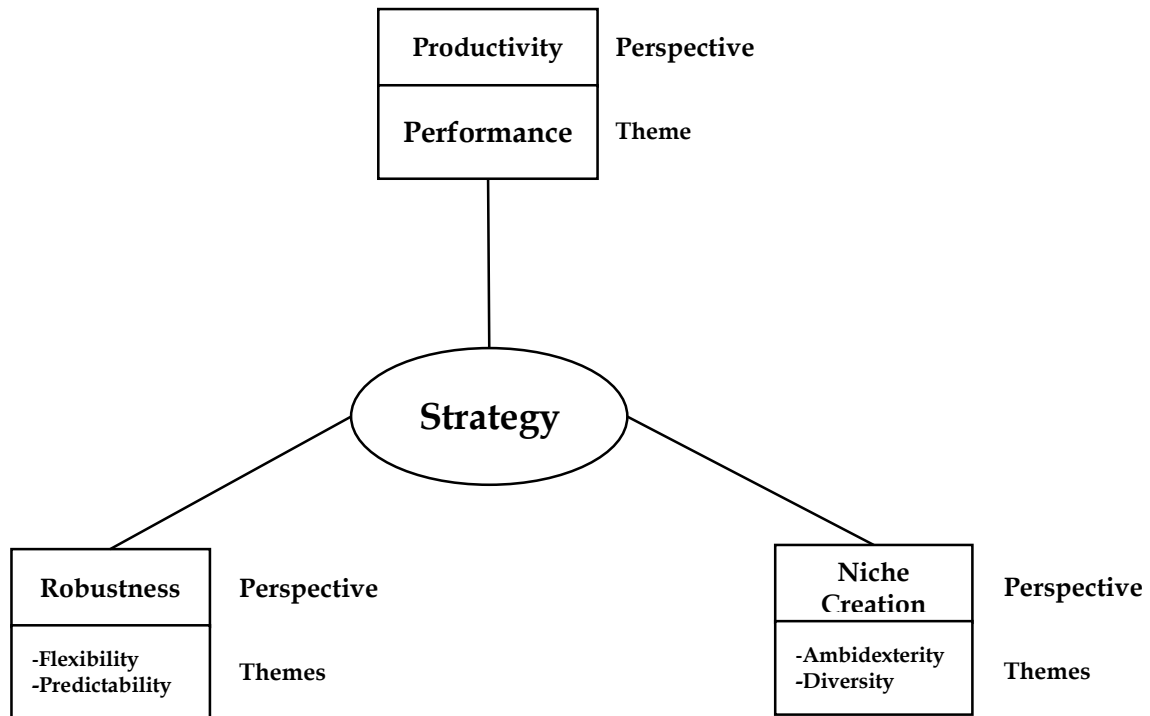


Table 1. New Strategy approach (BES)

Strategy Level	Strategy formulation approach
Organizational level	According to classic tools such as SWOT matrix, SPACE matrix and so on
Business ecosystem, level	According to productivity, robustness and niche creation perspectives and in five themes: 1- Performance 2- Flexibility 3- Predictability 4- Ambidexterity 5- diversity