International Journal of Economics, Commerce and Management
United Kingdom Vol. III, Issue 1, Jan 2015
http://ijecm.co.uk/ ISSN 2348 0386

NETWORK DYNAMICS AND BUSINESS MODEL DYNAMICS IN IMPROVING A COMPANY'S PERFORMANCE

Adam Jabłoński
Department of Management, University of Dąbrowa Górnicza, Poland
adam.jablonski@ottima-plus.com.pl

Abstract

Changeability, which is characteristic of the modern world, shapes the image of contemporary business. It is mainly associated with the dynamics of changes in the market. As the market in which business is done is a network environment, the dynamics is determined by the network. Business model dynamics is determined by the impact of the network on companies and vice versa. In any case, energy is exchanged between the network and companies. The purpose of this paper is to discuss key issues related to the use of network dynamics and business model dynamics to improve company's performance. The author argues that the combined use of network dynamics and business model dynamics increases the chances of the company embedded in the network to achieve high performance. In this paper, the interpretative approach has been applied. The Author presents the last conclusions. In this conclusions defines impact between the network dynamics and the dynamics of the business model. The author argues that the business model doesn't work without a network environment. Also notes that the combination of the network dynamics and the dynamics of the business model significant generate increase the efficiency of the enterprise. The author to the end claims that the innovation is specific generator of this dynamics.

Keywords: Business model, dynamics, network, company's performance, effectiveness, innovation

INTRODUCTION

Changeability, which is characteristic of the modern world, shapes the image of contemporary business. It is mainly associated with the dynamics of changes in market. As the market in which business is done is a network environment, the dynamics is determined by the network. If network dynamics overlaps with the dynamics associated with the management mechanisms of individual companies, the nature of the dynamics will have the geometric dimension. At the company level, business models dynamics will be of particular importance. When network dynamics is combined with the dynamics of business models embedded in a network, a kind of value accelerator is formed, whose beneficiaries include the companies that build the network. In this interpretation, the dynamics of the business models of companies whose part or the whole value chain is based on network attributes should be greater than of the models which are not part of the network. This is due to the fact that a network as a dynamic system, through the vibrating system of changes forced by various activities taken by its members, initiates the need to interact with other entities, which results from the specific nature of this network. Thus, business model dynamics is determined by the impact of the network on companies and vice versa. In any case, energy is exchanged between the network and companies.

The purpose of this paper is to discuss key issues related to the use of network dynamics and business model dynamics to improve company's performance. The author argues that the combined use of network dynamics and business model dynamics increases the chances of the company embedded in the network to achieve high performance. In this paper, the interpretative approach has been applied.

Network dynamics as a source of the performance of companies embedded in the network

One should assume that a network is "busy", i.e. changes constantly occur in various relationships, which make the network different and change dynamically. One participant in the network can force changes through his or her actions in the whole network in a given situation. It includes a mechanism that can be called a network effectiveness accelerator, which can be implemented through specific factors triggering network dynamics. Then network effectiveness becomes the primary attribute. Network effectiveness is defined here as the attainment of positive network level outcomes that could not normally be achieved by individual organizational participants acting independently. Although individual organizational participants may, and probably should benefit as well, effectiveness is viewed here at the network level (Provan, 2008).

According to Ingram and Simons (2008), organization groups are fundamental both for the functioning of their members and the competitive dynamics of their industries. Their longitudinal analysis of the profitability of kibbutz agriculture supports both these claims. Between 1954 and 1965 (the years of this study), almost all kibbutzim were part of organization groups. Kibbutzim became more profitable as a function of the experience of others in their group. Their profitability was reduced, however, as a function of experience of others outside their group. Network effectiveness may come at a cost that is too high to sustain the involvement of individual network members. A network is not simply one more community provider organization; it is a collection of programs and services that span a broad range of cooperating but legally autonomous organizations (Provan and Brinton Milward, 2001).

The function of the effectiveness accelerator is often played by a network coordinator, who, through his or her activity, stimulates and coordinates the activities of network members, thus leading to the effect of dynamics in the network. These activities usually have the characteristics of intellectual entrepreneurship, favourable to the creation of innovative solutions in the field of products, processes or organizations.

The coordination of the network primarily aims to achieve the expected effectiveness of value creation from the network and to manage the effectiveness of the division of value created from the relationship in the network. These two key elements determine the strength of network dynamics.

For example, W.W. Powell and D.R.White define a series of hypotheses:

Hypothesis 1.—Network expansion occurs through a process in which the most-connected nodes receive a disproportionate share of new ties (accumulative advantage).

Hypothesis 2.—Network expansion follows a process in which new partners are chosen on the basis of their similarity to previous partners (homophily).

Hypothesis 3.—Network expansion entails herd like behaviour, with participants matching their choices with the dominant choices of others, either in mutual response to common exogenous pressures or through imitative behaviour (follow-the-trend).

Hypothesis 4.—Network expansion reflects a choice of partners that connect to one another through multiple independent paths, which increases reachability and the diversity of actors that are reachable- multiconnectivity (Powell and White, 2005).

Network dynamics is also influenced by its complex structure. However, it should be noted that an increase in the specific character of assets determines the growth of the transaction, its complexity and uncertainty. Opportunism grows with the specific character of resources, and at the same time, it increases uncertainty, complexity of the contract and the required level of security against fraudulent behaviour of the partner. The specific character of assets as a technological and technical factor and opportunism as a behavioural factor are thus the source determinants of transaction costs, and consequently, the determinants of choice of the management structure (Gancarczyk, 2010).

These factors strongly influence the shape and image of the network and its interactivity to create ever new relationships with new actors.

The dynamics of the business models of companies in the network as a key factor of their effectiveness

Business model dynamics is the capability of the model to shift or make significant changes in the configuration of the business model in the context of changes in the external environment. Business model dynamics is directly related to the dynamics of company management. A business model constantly changes as a result of both management decisions or instability resulting from the inside of the company and the external environment. Dynamic modifications of the business model are necessary to maintain business sustainability and the creation of value.

The principles of the system dynamics paradigm have been presented by Polowczyk (2012), based on the relevant literature:

1. The behaviour of the system is endogenous, i.e. it results primarily from its internal structure (the microstructure determines macro-behaviour).
2. The fundamental element of the system structure is feedback. There are two types of feedback: positive and negative.
3. Positive feedback destabilizes the system. It reinforces upward or downward trends.
4. Negative feedback brings stability. It offsets the effect of positive feedback and gives variables sinusoidal fluctuations.
5. The behaviour of systems is non-linear, which results from, inter alia, delays in reactions, and the so-called sensitivity thresholds.
6. Different systems may have a similar structure (isomorphism).
7. Systems of the similar structure behave similarly, i.e. they have similar dynamics and similar patterns of behaviour.
8. Decisions are made in the conditions of the so-called limited rationality.

9. The sources of information are: intuition (experience of experts), scientific theories and figures.
10. The complexity of systems makes it hard to predict their behaviour as they are anti-intuitive.

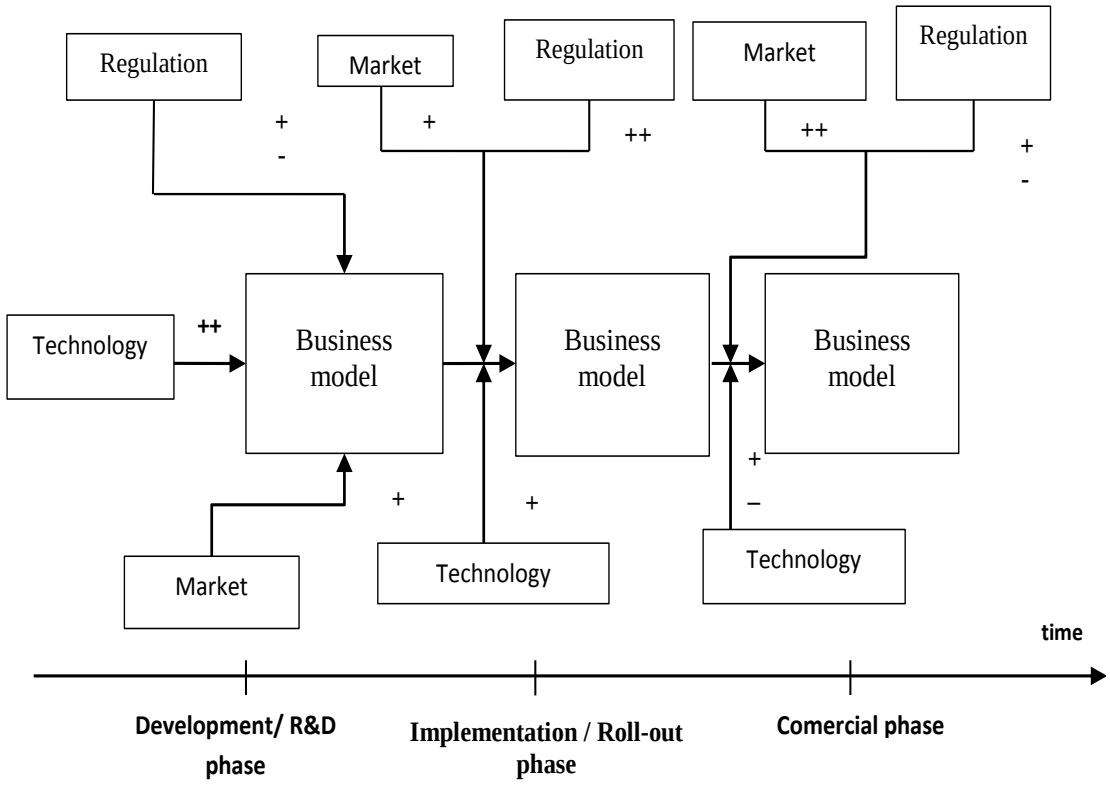
The principles of dynamic management can be used to ensure the proper dynamics of business models. Lozano Platonoff (2009) defines dynamic management as an integrated process based on the collections of synthetic knowledge of the company and its environment, and how to continually update and improve it, enabling decision-makers to orient the company at meeting the short-term, medium-term and long-term expectations of the stakeholders in the best way possible. The characteristics of a dynamic management approach include:

1. Collections of synthetic knowledge of the company and its environment.
2. The method of continuous updating of knowledge.
3. The method of continuous improvement of knowledge.
4. The integrated process that allows decision- makers to give direction to the company on a regular basis.
5. Meeting short-, medium- and long-term expectations of stakeholders in the best way possible.

Business models and particularly e-business models are dynamic. A key feature expressing this dynamics is the scalability of the business model. According to Afuah and Tucci (2003), an Internet business model is a method of generating income in the long term by using the Internet, adopted by a specific company. An Internet business model is a dynamic system; it consists of elements changing in time and the relationships between them, and enables the company to make profits from the Internet.

Changes in market factors, for instance competitors copying the service concept, and technology, i.e. the availability of more innovative or cheaper solutions, can affect the service and business model, but we expect them to be less conditional in nature than regulation, and assume their impact on the business model to be less pronounced in this phase (de Reuver et al. 2009).

Figure 1. Dynamic business model framework: Propositions



Source: De Reuver et al. 2009

Business models can be changed by modifying the value chain with the new rules of cooperation in the network. If a number of entities participate in the value chain (e.g. some operations require the participation of even a competitor), and it is standardized, we can talk about change in the model focusing on the potential of the network. This approach can be sustainable in its nature. The sustainability is, however, threatened by the occurrence of potential conflicts or disagreements between the value chain participants. Then the business model based on the network in the context of the value chain criterion may destroy very quickly, unless that cooperation is legally protected, which safeguards partners against unexpected and unpredictable behaviour of the network members. Then losses can be reduced. The condition is trust and a modern, co-operation- based approach to business. Business model dynamics can be also determined by innovation, which can also be a factor that transfers dynamics between the network and the business model.

Innovation as a factor transferring dynamics between the network and the business model

According to Schumpeter (1960), innovation is a combination of:

- Developing new products and introducing them to the market,
- Implementing new ways of production,
- Capturing and creating new markets,
- Obtaining new sources of supply,
- New organization.

According to the OSLO Manual, innovation is the implementation of a new or significantly improved product (good or service), or a process, a new marketing method, or a new organizational method in the business practices, workplace organization or external relations. Product innovation is the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses; including significant improvements in technical specifications, components and materials, software, user friendliness or other functional characteristics (Oslo Manual, 2005).

Closed and open types of innovation can be distinguished, as well as breakthrough and incremental types. The closed model of innovation is inside the company. It means that both research on new technology or a product, as well as their marketing are conducted inside the company by which they are strictly protected (Chesbrough, 2003). Therefore, the network used for the development of this type of innovation may also be closed. On the other hand, the open model of innovation assumes that valuable ideas (concepts) of innovative solutions can be found everywhere. A network appropriate for this type of innovation is an open network without borders.

Breakthrough or disruptive innovations have a different dimension in the interpretative approach to innovation. They consist in introducing new solutions, thwarting the current mode of the operation of the company, industry or sector, and often forcing their transformation. "Generally, disruptive innovations were technologically straightforward, consisting of off-the-shelf components put together in a product architecture that was often simpler than prior approaches. They offered less of what customers in established markets wanted and so could rarely be initially employed there. They offered a different package of attributes valued only in emerging markets remote from, and unimportant to, the mainstream (Christensen, 1997). Breakthrough innovation is most often the result of adopting the strategy of driving innovation through technology. A network, where innovation is created, is then dynamic in its nature, and permanent changes in network interconnections take place. Incremental innovation, also known

as continuous, means improving the existing solutions. Incremental innovation usually results from systematically taking the market signals into account. Thus, the network will be usually evolutionary in this case.

Therefore, the network enables the implementation of joint initiatives of companies embedded in the network aimed to create new technologies.

With respect to business model innovation, it is important to define the fundamental activities related to its dynamics. Table 1 contains the key subjects and questions concerning business model innovation.

Table 1. Subjects and questions about business model innovation

Definition and characteristics of business model innovation	
1.	Business model innovation –What is it and how does the model differ from other activities?
2.	How common is business model innovation and how difficult is it to imitate (time and cost consuming factors)?
3.	Do customers react to different types of business model innovation? How do these reactions affect the company?
4.	What concepts, models and theories are necessary to explain business model innovation and why?
5.	What is the relationship between the innovation of products, services and processes on the one hand and a business model on the other hand?
Business model management	
1.	How to organize the work of the company that has an innovative business model?
2.	effective and efficient are business processes?
3.	How should the organization overcome organizational inertia in the implementation of business model innovation?
4.	How to reduce uncertainty in the implementation of a new business model?
5.	How to organize work in a company for the needs of a new innovative business model when the current one is still used?
6.	How to implement an innovative business model when there is no strong pressure?
7.	How should the company work with different users in relation to the creation of a new business model?
8.	Under what circumstances can several business models coexist and how can it be successful?
New business model experimenting, testing and implementation	
1.	How should the company experiment with new business models? What are the "best" processes?
2.	How should the company test new business models in an efficient and cost-effective way?
3.	Are there any standards to implement business model innovation?
4.	How should companies implement changes in the current business model?
5.	What is the role of users in conducting experiments on and testing the business model?
Business model scalability	
1.	How to approach the design of scalable business models?
2.	What are the most critical elements of the business model required to achieve its scalability?
3.	Where are the characteristics that affect the scalability of the business model?
4.	How does the company "know" whether it has a scalable business model?

The benefits of business model innovation	
1.	In what circumstances is it possible to copy a business model and why?
2.	Is there a first-mover advantage in relation to business model innovation? When and why?
3.	What makes business model innovation profitable?
4.	What business models are most likely to fend off competitive business models or imitators?
5.	Does any element of the business model change more than others in the context of the criterion of profitability?
A model of innovation in business and changes in the ecosystem	
1.	What types of business model innovation affect the ecosystem? In what way?
2.	How do ecosystems affect the patterns of business model innovation?
3.	What business models are the most cost-effective for the specific type of ecosystem?
Business model productivity	
1.	What is the role of business model productivity and an innovation criterion?
2.	How does innovation affect the potential of the company through the business model and why?
3.	How do changes in opportunities influence the commitment of the company to implementing innovation in the business model?
4.	How can literature help to understand business model innovation?

Source: Björkdahl and Holmén, 2013

Analyzing the table 1, it can be clearly stated that business model dynamics should be correlated with the company's capability to scale a business model appropriately. Then innovation is a factor enabling the scalability, which allows the full use of the potential of the business model in the network.

CONCLUSION

A key factor determining company's performance is the functioning in a network environment. The network environment, through its dynamics, creates new development spaces for companies where innovation is a platform for creating this dynamics. Company business models are also appropriately dynamic. This dynamics allows companies to remain active in the network and to be capable of continuously scaling the business model. The combined use of network dynamics and business model dynamics increases the chances of the company embedded in the network to achieve high performance. This look at the enterprise management in the network environment allows for the adoption of the following findings:

1. The business model does not exist without the network environment.
2. The business model should have a certain dynamics.
3. The dynamics of the business model should be linked to the dynamics of the network.
4. The effectiveness of the business model should be achieved through the use of network effects.

These findings open the way to new, further research towards enhancing the efficiency of enterprises operating in the network. These researches may include:

1. The role of the network environment to increase of dynamic business models.
2. The role of the network environment in improving business efficiency.
3. The impact of network effects on the efficiency of business models.

REFERENCES

Afuah, A., Tucci, C.L. (2003). Biznes internetowy strategie i modele. Oficyna Ekonomiczna, Kraków.

Björkdahl, J., Holmén, M. (2013). Business Model Innovation – The Challenges Ahead. International Journal of Product Development 18(3/4): 213-225.

Chesbrough, H. (2003). Open innovation. The New imperative for Creating and Profiting From Technology. Harvard Business School Press, Boston.

Christensen, C.M. (1997). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Harvard Business School Press, Boston.

Gancarczyk, M. (2010). Struktura zarządzania w ujęciu O.E.Wiliamsona jako przedmiot decyzji menedżerskich. Organizacja i Kierowanie.

Ingram, P., Simons., T. (2002). The Transfer of Experience in Groups of Organizations: Implications for Performance and Competition. Management Science 48(12): 1517-1533.

Lozano Platonoff, A. (2009). Zarządzanie dynamiczne, Nowe podejście do zarządzania przedsiębiorstwem. Difin, Warszawa.

De Reuver, M., Bouwman, H., MacInnes, I. (2010). Business Model Dynamics: A Case Survey. Journal of Theoretical and Applied Electronic Commerce Research 4(1):1-11.

Podręcznik OSLO. (2005). Zasady gromadzenia i interpretacji danych dotyczących innowacji. OECD.

Polowczyk, J. (2012). Zarządzanie strategiczne w przedsiębiorstwie w ujęciu behawioralnym. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań.

Powell, W.W., White, D.R. (2005). Network Dynamics and Field Evolution: The Growth of Interorganizational Collaboration in the Life Sciences. American Journal of Sociology 110(4): 1132–1205.

Provan, K.G., Brinton Milward H. (2001). Do Networks Really Work? A Framework for Evaluating Public-Sector Organizational Networks. Public Administration Review 61(4): 414-423.

Provan, K.G. Kenis, P. (2008). Modes of Network Governance: Structure, Management, and Effectiveness. Journal of Public Administration Research and Theory 18(2):229-252.

Schumpeter, J.A. (1960). Teoria rozwoju gospodarczego. PWN, Warszawa.