

THE IMPACT OF CUSTOMER PARTICIPATION ON BUSINESS ECOSYSTEMS

Garyfallos Frigidis

Department of Business Administration, University of Macedonia & Institute of Technology and Education of Serres, garyf@teiser.gr

Adamantios Koumpis

Research Programmes Division, ALTEC S.A., akou@altec.gr

Konstantinos Tarabanis

*Department of Business Administration, University of Macedonia, kat@uom.gr
GREECE*

The concept of business ecosystems is a new, powerful metaphor that steps forward the movement towards symbiotic and co-evolutionary business networks. The literature describes business ecosystems as economic communities comprised of a number of business entities that are closely related the one to the other with symbiotic relationships; as a result, they constantly interact and seek to co-operate to fulfill their particular goals and attain mutual benefits. In this paper we discuss the role of customers in business ecosystems. We argue that the concept of business ecosystems is focused on the needs and the roles of the producers and neglects the customers, especially the end-customers. We analyse the impact of customers' participation as active members in business ecosystems and suggest that it intensifies their co-evolutionary character and increases their dynamism. We discuss technological aspects of customer participation in business ecosystems.

1 INTRODUCTION

The purpose of the business enterprise, as defined in the literature of business strategy, is to create value. The traditional thinking about value creation is based on the industrial organisation theory and the concept of the value chain: the enterprise belongs and operates in some industrial sector; strategy is primarily pre-occupied with positioning the enterprise in the right place on the value chain, so that it performs the right value-adding activities that promise to offer the biggest profit. The competitive advantage derives by disaggregating the value creation process of the business enterprise into discrete activities, which create a basis for differentiation. In the marketplace, the business enterprise selects the products that fit better to its value-adding activities and places them in the right market segments, that correspond to large enough customer bases.

Today, however, a variety of trends, such as globalisation, the development of the digital economy and the increased importance of information technology, services and knowledge, change dramatically the business context and open up new ways of value creation. The term "new economy" launched about the end of the previous century to denote the radical change that was taking place in the business world, the economy and -more broadly- the modern society. The key point of this term is that the economy as we knew it has changed and now it operates in a new, different way (OECD, 2000).

In this modern business environment, the fundamental logic of business strategy and value creation is changing and new models are emerging. Network structures and concepts of collaboration have been developed as effective means to cope with the needs and challenges of 21st century. The development of business networks, alliances and virtual organisations question the traditional organisational and strategic business models. Value creation is not considered anymore a linear business function, but a collaborative and co-evolutionary process. The focus of the strategic analysis is not on the company itself or even on the industry, but on the whole value-creating system, within which business partners, allies, suppliers and customers work together to co-produce value. According to Normann and Ramirez (1993), the key strategic task in the new business environment is the reconfiguration of roles and relationships among this constellation of economic actors in order to mobilize the creation of value in new forms and by new players. The underlying strategic goal is to create an ever-improving fit between business competencies and customer needs.

In this new setting, the concept of “business ecosystems” has emerged as a new strategic paradigm for business enterprises. Based on concepts and insights from biological systems and complexity theory (Moore, 1996, p. 9-10), it is a powerful metaphor that steps forward the movement towards symbiotic and co-evolutionary business networks. Business ecosystem consists of a large number of participants that can be business firms and other organisations, which are interconnected to each other, in a sense that they have an affect on each other. The concept of business ecosystems proposes a holistic way to examine the business enterprise and its relationships with its environment, showing concern for all the stakeholders.

In this paper we concentrate and discuss the role of customers in business ecosystems. In section 2 we present the concept of business ecosystems; we argue it is focused on the needs and the roles of the producers and neglects the customers, especially the end-customers; based on this argument, we explain the shortcomings and negative aspects of it entails. In section 3 we analyze the need for customer participation in the processes of business ecosystems. In section 4 we present the general aspects for customer participation in business ecosystems and discuss the technological aspects of this endeavor.

2 QUANTIFYING THE ROLE OF THE CUSTOMER IN BUSINESS ECOSYSTEMS

During the 1990s, technological developments and new managerial trends (e.g. focus on core competencies and outsourcing) boosted the growth of networks of business collaboration. The focus of strategic analysis has moved from the single company to different forms of business networks, such as *business constellations* (Normann and Ramirez, 1993), *extended enterprises* (Prahalad and Ramaswamy, 2003), *value nets* (Bovet and Martha, 2000) and *strategic networks* (Jarillo, 1988).

The concept of business ecosystems is a recent addition in the literature of business networks. A business ecosystem is “an economic community comprised of a number of interacting organisations and individuals, including suppliers, producers, competitors, customers and other stakeholders, that produces goods and services of value for the customers” (Moore, 1996, p.26).

The concept of business ecosystems has several advantages over other forms of business networks (Fragidis, Tarabanis and Koumpis, 2007a). For example, business

ecosystems concentrate large populations of different kinds of business entities. They transcend industry and supply chain boundaries and assemble a variety of organisations that can complement each other and synergistically produce composite products. Interdependence and symbiotic relationships are inherent attributes in business ecosystems; as a result, the participants counter a mutual fate and co-evolve with each other. But in parallel, members compete with each other for the acquirement of resources and the attraction of customers.

The evolution of our research should drive us in identifying the lead markets, i.e. those areas that exhibit a highly active profile in terms of innovations for new services that involve customer participation and experiences as an integral part of their structure. Our final sample comprised 254 enterprises – public or private. More specifically, we followed a five step methodology as described below:

STEP 1: We chose 3 parameters which can be easily determined from publicly disclosed data that is available

- **ATOG** = Average Turn-over Growth over a 5-year period 2000 to 2005 (for ~ 12% of the data we had to undergo a projection to cover the entire 5-year period using the average growth of the years before or after)
- **PUBEXCM** = Average Public expenditure on customer participation related areas of investment over the same period
- **BEXCM** = Average Business expenditure on customer participation related areas of investment over the same period

The following were considered as expenditures on customer participation related areas of investment for an enterprise: (i) expenditures for tangible or intangible (immaterial assets) related with the introduction of new products or services except from costs or expenses dedicated to R&D or production lines; (ii) expenditures for improving the relationships with customers in all aspects related with access-to-products or services, costing factors, improvement of existing and development of new communication channels; (iii) expenditures related to the creation of customer relationship management applications and systems, staffing costs for the previous two types of costs, and maintenance.

STEP 2: We computed the average of these figures for all enterprises involved in our study (both public and private).

STEP 3: We then computed the performance of each identified 'cluster' on these indicators. In each case performance is designated by a 1 or 0 corresponding to performance above or below the mean.

STEP 4: The enterprises have been categorised based on their performance in each of these indicators; Each category is referred to as a 'box'; Each box is labelled 1 to 8; This process allows us to define lists of enterprises for each category.

STEP 5: The next step was to rank the enterprises within each list. This last step is not presented here as it needs more attentions as much of the variance comes from the particular business domain and market segment that an enterprise is active in. This enables us to derive the following categories:

Table 1 – Enterprise categories

Category	Description
1	Below average performance on all 3 indicators
2	Above average ATOG growth but below average investment in customer participation related areas by both public and private sectors
3	Above average public investment in customer participation related areas but below average investment by industry and below average ATOG performance
4	Above average ATOG performance, above average public sector investment in customer participation related areas but below average investment by industry.
5	Below average ATOG performance, below average public sector investment in customer participation related areas and above average investment by industry.
6	Above average investment in customer participation related areas by industry, above average ATOG performance and below average public investment in customer-related areas
7	Above average investment in customer participation related areas by both public and private sectors but below average ATOG growth
8	Above average performance on all 3 indicators

Below we summarise the results of the empirical study.

Table 2 – Populated categories for the identified enterprise clusters

BOX	1	2	3	4	5	6	7	8
ATOG	0	1	0	1	0	1	0	1
PUBEXCM	0	0	1	1	0	0	1	1
BEXCM	0	0	0	0	1	1	1	1
Total	48	70	24	20	16	13	43	20

However, it may also be that comparisons between types are perhaps even more useful. In particular because we have 2 inputs (public and private sector expenditures in customer participation related investments) and 1 output (ATOG growth) it is sensible to see how enterprises are able to deliver above or below average growth with the same combination of inputs.

So it seems that the most interesting questions arise (in order of importance) when we consider the following duets of enterprises:

1. Enterprises of boxes 2 and 7. This will answer the question 'what are the factors that enable enterprises of category 2 to grow much faster than these of box 7 even though both have low levels of public and private expenditures in customer participation related areas of investments? This may identify factors apart from expenditures in customer participation related expenditures that enable rapid growth or how to utilise R&D money most effectively.
2. Enterprises of boxes 3 and 4. These both have low levels of private investment and high levels of public investment, yet 3 underperforms economically and 4 over-performs. Clearly 4 is able to utilise its public

investment much more effectively than 3. Furthermore 4 achieves this despite having little private sector investment - this will show how to utilise innovation in a cluster with little existing private sector investment

3. Enterprises of boxes 5 and 6. These are enterprises where high levels of private investment occurs and little use is made of public funds. Yet 6 prospers and 5 does not. This will tell us how to make best use of private investment funds as they are not deployed to get subsidy from the public sector.
4. Enterprises of boxes 1 and 8 do not tell us so much as it is harder to discern cause and effect here, so these should be considered as out of the scope of this paper.

The evidence we collected is in harmony with the approach we present in Section 4 for a conceptual and a business model for the development of “customer-centric business ecosystems” that builds on both business and public administration ecosystems. More over it is easy to identify that if both public and private expenditures in areas of customer participation co-exist, then the success options for business ecosystems are high.

3 GENERAL ASPECTS OF CUSTOMER PARTICIPATION IN BUSINESS ECOSYSTEMS

In most cases, customer participation in business processes is governed by the business needs and is devoted to serve the benefits of businesses. For example, the customer’s role is acknowledged to be important in decreasing the development time and improving the effectiveness of the product development process. In this context, customer participation is usually restricted in providing new concept ideas, evaluating quality of the products or helping business firms learn and improve their productivity. Customers seldom participate to resolve their own problems, by participating in the configuration of the goods and services they receive. On the contrary, business firms usually perceive and interpret customer needs through marketing processes into fixed or customizable product and services. Nevertheless, customizable product can usually only approximate customer needs, but hardly can really meet them.

This kind of customer participation is submissive to the needs of business enterprises. Customers can only receive benefits indirectly, say from the better quality of the products, the improved coordination achieved among the business enterprises and the reduced transaction cost.

The concept of business ecosystems promises the development of more participative business schemata and more collaborative business processes, in which the customer can participate to collaborate with the business partners in the configuration and co-production of products and services. This way, the customer and the businesses benefit mutually: the former from the opportunity to meet his/ her unique needs and the latter from the opportunity to learn from the customer, come closer to him/ her and co-develop innovations. Notice that customers are not interested in single products, but on complete solutions, that are developed by the direct or indirect collaboration of a variety of producers. Customers combine usually single offers from different suppliers to create valuable outcomes for themselves (Prahalad and Ramaswamy, 2004, p.10).

The need for customer participation is genuine and well documented in the literature. Normann and Ramirez (1993) use the manufacturing metaphor to describe customers' function: customers use a wide range of inputs in order to create value. It is the customers, therefore, not the business enterprises that have value-adding activities. For Sawhney, Balasubramanian and Krishnan (2003) customers seek particular outcomes and engage in activities to achieve them; these activities can be mapped along a customer-activity chain, which represents end-to-end sequences of related activities that often crosses industry and market boundaries.

The recent success of Web 2.0 is another example that supports the prospect of customer participation in business processes (Fragidis G., Tarabanis K. and Koumpis A, 2007b). The message of the Web 2.0 with regard to business strategy seems to be clear: "give people the opportunity to participate". The most well-known success stories of the Web 2.0 (e.g. Wikipedia, MySpace, YouTube, etc.) are based on the concept of user participation. In all these cases, instead of business-generated content we see user-generated content; the users contribute directly or indirectly and collectively co-create content or experiences. The users are not only consumers, but also co-developers; they do not expect passively the fulfillment of their needs and wants by the business firms, but actively participate in the development of the products and services that meet their needs. Their motives for participation are related with their needs to be heard by business firms, to configure products, services and places that fulfill their needs, to tailor offers according to their preferences, to experiment, learn and gain experiences, to contribute to the community, to offer to their peers and communicate and share with the others.

In previous work we (Fragidis G., Tarabanis K. and Koumpis A, 2006, 2007a) proposed a conceptual and a business model for the development of "customer-centric business ecosystems", that is business ecosystems that are developed having in mind customer participation in configuration and production process. The conceptual model analyses customer participation in business ecosystems, while the business model illustrates the operation of customer-centric business ecosystems.

The business model is depicted in figure 1. It is based on an information platform that mobilizes customers to participate in value creation and empowers them to synthesize composite products. Customer needs can sometimes be so much heterogeneous that a single business firm or even a single business ecosystem cannot address them. Customer needs can, therefore, be satisfied only by the dynamic constellation of business firms, business ecosystems and other organisations, such as public agencies, in new formations we call "customer-centric business ecosystems".

For instance, viewing the business ecosystem of the automobile firms mentioned in section 2 from the customer's perspective, we perceive it is shaped by the customer's need (suppose) to buy a new car. Certain needs and action that derive from this are related with the recycling of the old car (which may involve transportation to recycler's establishment, multiple transactions with various public administration agencies, etc.), the issue of driving licence, the issue of car insurance, etc. As a result, the customer-centric automobile ecosystem can involve the car producer's business ecosystem (notice that Moore (1996) restricts his interest in it), the recycler's business ecosystem, the insurance company (which can be part of an insurance/ financial services business ecosystem) and the public administration business ecosystem, which regulates or supports the whole process. Connections among business entities are flexible and temporary and dissolve after the fulfilment

of the customer needs. If the car buyer is to drive the new car soon, all these ecosystems have to collaborate closely.

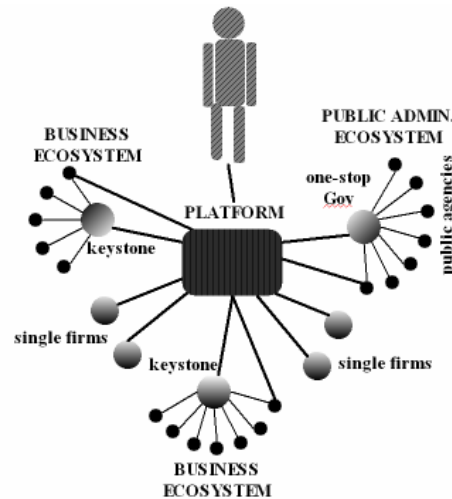


Figure 1: The business model for customer-centric business ecosystems

The platform is the “keystone entity” of the customer-centric business ecosystem. It offers the mechanism for customer participation and leverages resources and capabilities offered by business entities. It is the customer’s agent, it is neutral towards the business enterprises; it is not a retailer of products and services and does not possess the offers. It sets the technological and business standards for the interactions, coordinates them and controls their technical aspects.

Service-oriented architectures (SOA) and web services (WS) technologies, which have both received significant attention in e-business recently because they can provide a flexible environment for the interaction and economic exchanges between business enterprises and with customers, can be used for the development of the business model of customer-centric business ecosystems. The OASIS Reference Model for Service Oriented Architecture (2006) describes SOAs as a paradigm for organizing and utilizing distributed capabilities that may be under the control of different ownership domains. W3C (2004) describes services as abstract resources that represent capabilities of performing tasks and operations and web services as software systems designed to support interoperable interaction over a network.

4 CONCLUSIONS

A customer-centric business ecosystem comprises hubs to both private and public entities – all of which are equally important and can have a substantial impact in the transactions of the individual with the ecosystem as a whole. A buying experience from an internet portal is not exciting at all if part of the transaction cannot be executed in real time because of e.g. shortage of the payment clearing party. This issue directly relates to the value and value creation. Though there is a worryingly growing body of research literature in the area of value creation, it is not bad at all to

examine a very basic bottom line: how much do public or private enterprises invest in customer participation related assets – both tangible or intangible. A project for modernising the communication channels with customers of a public entity (e.g. Ministry of Labor) in terms of organising the ecosystem of employment agencies linked with the pool of employers posting their job offerings and the pool of available job-seekers as part of a whole, may substantially increase the growth in the area under consideration. Therefore, it is of great importance the contributions that can have to our study field empirical data we collected that sheds light in the growth related aspects of enterprises – public or private – that have exhibited above the average expenditures in customer participation related activities.

5 ACKNOWLEDGEMENTS

Part of the work reported in the paper has been supported financially by the European Commission in the context of the IST Project PANDA for Collaborative Process Automation Support using Service Level Agreements and Intelligent dynamic Agents in SME clusters.

6 REFERENCES

1. Bovet D. and Martha J. Value nets: reinventing the rusty supply chain for competitive advantage. *Strategy & Leadership*, Vol. 28, No 4, 2000, pp. 21 – 26.
2. Frigidis G., Tarabanis K. and Koumpis A. Value creation in dynamic customer- centric networks. *Proceedings of the IEEE International Conference on E-Business Engineering (ICEBE)*, Shanghai, 24-26 October, 2006.
3. Frigidis G., Tarabanis K. and Koumpis A. Conceptual and Business Models for Customer-Centric Business Ecosystems. *IEEE Inaugural International Digital Ecosystems and Technologies Conference (DEST)*, Cairns Australia, 21-23 February, 2007.
4. Frigidis G., Tarabanis K. and Koumpis A. Strategic Opportunities in the Web 2.0: The Development of Customer-Centric Environments. *7th International Conference of the International Academy of E-Business*, Vancouver, Canada, 5-8 April, 2007.
5. Jarillo J. C. On Strategic Networks. *Strategic Management Journal*, Vol. 9, No. 1, 1988, pp. 31-41.
6. Moore J.F. *The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems*. J. Wiley & Sons, Winchester, England, 1996.
7. Normann R. and Ramirez R. From value chain to value constellation: designing interactive strategy. *Harvard Business Review*, Vol. 71, Iss. 4, 1993, pp. 65 – 77.
8. OASIS Committee Specification, Reference Model for Service Oriented Architecture 1.0, 2006, http://www.oasis-open.org/committees/ tc_home.php?wg_abbrev=soa-rm
9. Organisation for the Economic Cooperation and Development (OECD). *Is There a New Economy?* OECD, Paris, 2000.
10. Prahalad C.K and Ramaswamy V. The new frontier of experience innovation. *Sloan Management Review*, Vol. 44, No.4, 2003, pp. 12 – 18.
11. Prahalad C.K and Ramaswamy V. *The Future of Competition: Co-creating Unique Value with Customers*. Harvard Business School Press, Boston, Massachusetts, 2004.
12. Sawhney M., Balasubramanian S. and Krishnan V.V. Creating growth with services. *Sloan Management Review*, Vol. 45; Iss. 2, 2003, pp. 34 – 44.
13. W3C Working Group, *Web Services Architecture*, 2004, <http://www.w3c.org>