

CO-OPETITION IN NETWORK RELATIONS BETWEEN BUSINESSES

Introduction

The characteristic features of the last two decades of the twentieth century and the first decade of the twenty-first have been significant and sudden changes in the surrounding environment. The response to such strong turbulences of the environment is among others expressed in corporations seeking new competitive advantages and trends of development of their relations with competitors. The competitors' tendency to form cooperative relations by establishing co-opetitive relations has been one of the new phenomena observed during this period. Co-opetitive relations are defined as streams of simultaneous and interdependent competition and cooperation relations between competitors keeping their organizational separateness¹. This paradox causes that at least two independent sides cooperate in order to achieve mutual benefits while they continue to be competitors². The complexity of the phenomena of cooperation and competition results from simultaneous implementation of two contradictory logics of relations between businesses: trust (the common interests) and conflict (contradiction of demands, confrontation). Therefore, we have a paradoxical situation in which the competing parties must trust each other, be involved in cooperation and share information, experience and risk of the cooperation. Thanks

* The Authoress is an associate professor at the Chair of Management in Economy at the Warsaw School of Economics in Warsaw.

¹ J. Cygler, *Kooperencja – nowy typ relacji między konkurentami*, "Organizacja i Kierowanie" 2007 No 2 (128), pp. 61–77.

² A.A. Lado, N.G. Boyd, S.C. Hanlon, *Competition, Cooperation, And the Search for Economic Rents: A Syncretic Model*, "Academy of Management Review" 1997, Vol. 22, No. 1, pp. 110–141.

to this, the sides will be able to integrate their activities so as to achieve expected benefits and realise individual strategic goals.

In literature dealing with management, co-opetition is a phenomenon that has been examined to a relatively little extent. It is mainly considered in relations between two sides – as the simplest model of relations between competitors. Nevertheless, progressing globalisation (of the world economy, sectors and corporations), aggravation of competitive conflicts (hyper-competition symptoms) as well as the growth of technological involvement in an ever increasing number of sectors have resulted in a dramatic growth of costs of businesses' functioning. The growth of costs of business activity has become so severe that firms are unable to function on their own. At the beginning companies decided on a simple form of competitive cooperation (bilateral) to create with time multilateral, i.e. network, relations.

Recently the phenomenon of co-opetition has been becoming more common and more important not only for the strategy of enterprise development but also for relations between competitors, rules of how to play in sectors and the development of world economy. Co-opetitive relations are becoming an indispensable element of a market game.

Theoretical foundations of companies' co-opetition

Processes and phenomena appearing while forming and shaping co-opetitive relations have been undertaken by researchers in a number of theoretical concepts, among which the key ones are games theory and the theory of transaction costs.

A.M. Brandenburger and B.J. Nalebuff's³ PARTS concept is one of fundamental works dealing with co-opetition in games theory. A.M. Brandenburger and B.J. Nalebuff show that the co-opetition phenomenon is mainly stimulated by corporations seeking sources of increasing added value defined as the difference between value created by all participants and value created by all other players⁴. By moulding both vertical and horizontal relations into so-called value net, organisations attempt to gain the greatest advantages (so-called "pie").

Despite competitive phenomena, thanks to relations in the value net, the "pie" to be shared grows, which results in defined and measurable advantages for all players

³ A.M. Brandenburger, B.J. Nalebuff, *Co-opetition. 1. A Revolutionary Mindset that Combines Competition and Cooperation. 2. The Game Theory Strategy That's Changing the Game of Business, Currency, Double-day*, New York, 1996.

⁴ A.M. Brandenburger, B. J. Nalebuff, *Co-opetition. 1. A Revolutionary Mindset that Combines Competition and Cooperation. 2. The Game Theory Strategy That's Changing the Game of Business, Currency, Double-day*, New York, 1996; A.M. Brandenburger, H.W. Stuart Jr., Value-Based Business Strategy, "Journal of Economics & Management Strategy", Vol. 5, No. 1, Spring 1996, pp. 5–24.

(a nonzero-sum game). Thus they attempt to maximise their added values as the difference between the size of values captured as a result of activities in the system of relations and values achieved outside the game⁵.

In the world literature dealing with management sciences, the issues of co-opetition are dealt with through the prism of transaction cost theory. In the light of the above concepts co-opetitive relations belong to extremely risky. These transactions are burdened with considerable costs resulting from opportunistic behaviour, the necessity to coordinate activities and low level of mutual trust, a result of the competitive nature of cooperation⁶. The necessity to generate specific assets (both tangible and intangible) for the purposes of various cooperative relations between competitors and the need to create a security system against opportunistic behaviour generate additional costs which in effect may lead to the failure of the whole system. The risk of failure is relatively high, for co-opetitive relations are treated as a specific type of hybrid relations encumbered with a high risk of deceitful parties' dealings caused by their very characteristics (direct competitors).

In literature dealing with management sciences co-opetitive relations are considered from two perspectives: competitive and cooperative. The competitive perspective draws both from the achievements of researchers in the field of strategic management (M.E. Porter, G. Hamel and C.K. Prahalad) as well as marketing management (N. Borden and P. Drucker)⁷. Co-opetitive relations are formed in order to achieve the most favourable competitive position in the sector and gain additional advantages which would be impossible to achieve but through inter-organizational correlation.

Also the cooperative perspective draws from research and theoretical achievements in the fields of strategic management (F. J. Contractor, and P. Lorange, K.R. Harrigan and J.L. Badaracco) and marketing management (K. A. Borg)⁸. In the

⁵ A.M. Brandenburger, B.J. Nalebuff, *The Right Game: Use Game Theory to shape Strategy*, "Harvard Business Review", July-August 1995, pp. 57-71.

⁶ M. Dietrich, *Transaction Cost Economics and Beyond. Towards a New Economics of the Firm*, Routledge, London-New York 1994, s. 103-105; O.E. Williamson, *Comparative Economic Organization: The Analysis of Discrete Structural Alternatives*, „Administrative Science Quarterly” June 1991, Vol. 36, No. 2, pp. 269-296; P.S. Ring, A. Van de Ven, *Cooperative Relationships Between Organizations, The Strategic Management Research Center*, University of Minnesota, Minneapolis 1989 (working paper); G.R. Jones, C.W. Hill, *Transaction Cost Analysis of Strategy - Structure Choice*, „Strategic Management Journal” 1988 Vol. 9, pp.159-172.

⁷ N. Borden: *The Concept of the Marketing Mix*, „Journal of Advertising Research”, 1964, June, pp. 2-7, P. Drucker: *Skuteczne zarządzanie*, PWE, Warszawa 1975; G. Hamel, C.K. Prahalad, *Competing for the Future*, Harvard Business School Press, Boston 1994, M.E. Porter, *Competitive Advantage*, The Free Press, New York 1985.

⁸ F.J. Contractor, P. Lorange, *Cooperative Strategies in International Business*, Lexington Books, Boston 1988; K.A. Borg, *Problem Shift and Market Research: the Role of Network In Business Relations*, "Scandinavian Journal of Management" 1991, No. 7, pp. 285-295; J.L. Badaracco, *The Knowledge Link. How Firms Compete Through Strategic Alliances*. Harvard Business School Press, Boston, 1991; K.R., *Harrigan Strategic Alliances, Form, Autonomy & Performance*, First Boston Working Series, Boston 1987; K.R. Harrigan, *The Role of Inter-*

cooperative perspective mainly the appearance of advantages resulting from cooperation between companies is accentuated. These advantages mainly arise as the effect of synergy, scale and scope and become the main reasons why companies cooperate.

Companies' co-opetition in the network system

Network co-opetition arises when more than two sides are engaged in competitive cooperation forming network structures. Co-opetitive network relations emerge mainly in the so-called co-opetitive sectors, i.e. such sectors where functioning and growth of competitors are conditioned by mutual co-opetitive relations, thus creating co-opetition. Co-opetitive sectors among others include aviation (civilian services), airplanes (production), ICT and banking. They are characterised by simultaneous existence of technological advancement, susceptibility to globalization and symptoms of hyper-competition. One should also notice that co-opetitive network relations more and more frequently appear in sectors in which there exist only two out of three main characteristics of co-opetitive sectors.

Intra-network co-opetition

Co-opetition between companies may develop both within network relations as well as between whole network systems. In case of **intra-network co-opetition** apart from numerous co-opetitive relations, there also exist internal competitive relations. Relations inside three global alliances in the sector of passenger air services are an excellent example of infra-network co-opetition. Each of the systems has been created as a result of various cooperative relations among indirect or direct competitors, thus creating a constellation⁹. Despite strong competitive relations, members of network relations willingly take advantage of the *code-sharing* system, which among others allows for harmonizing flights offered by all alliance members, and marketing agreements (common *frequent flyer* programmes or common promotions)¹⁰.

company Cooperation in Integrated Strategy: Strategic Alliances and Partnering Arrangements, „Advances in Strategic Management” 1995, Vol. 11B.

⁹ Constellation is a system of co-opetitive relations (usually strategic alliances) made between independent enterprises competing with each other in their own or similar sectors both for clients and new members of the system. S.G. Lazzarini, *The Impact of Membership In Competing Alliance Constellations: Evidence on the Operational Performance of Global Airlines*, „Strategic Management Journal” 2007, Vol. 28, pp. 345–367.

¹⁰ E. Marciszewska, *Globalizacja sektora usług transportu lotniczego*, „Monografie i Opracowania”, Ofic. Wyd. SGH, Warszawa 2001, pp. 151–173; J. Gimeno, *Competition Within and Between Networks: The Contingent Effect of Competitive Embeddedness on Alliance Formation*, „Academy of Management Journal” 2004, Vol. 47, No. 6, pp. 820–842.

Co-opetitive relations may exist in different types of networks. Companies' co-opetition is most frequently established in balanced and predominated networks. Balanced networks usually occur as a result of forming cooperative relations by independent competitors. A.-P. de Man points to diversity of co-opetitive relations resulting from the character of competitive relations among players in a balanced network¹¹. There exist three basic types of co-opetition: direct, indirect and asynchronous. Direct co-opetition is formed by members of the network system who are simultaneously direct competitors. Indirect co-opetition arises when also indirect competitive relations are present in the system; while the system of competitors' relations which apparently appear in an appropriate sequence is asynchronous co-opetition. A company teaches its partner who later becomes its competitor. It should be noted, however, that according to the accepted definition of co-opetition the third type may be taken into account if the sequence of relations between cooperation and competition is of illusory character and their activities do not differ merely by the power of actions.

On the other hand in predominated networks, where one company (or several) plays the central role and the remaining ones are its satellites, co-opetition among companies may be both horizontal and vertical in character. Horizontal co-opetition exists among direct competitors who directly and actively compete with each other; whereas vertical co-opetition arises when companies play a double role towards each other, that of competitors and suppliers. Such a situation is illustrated by computer firms, which simultaneously compete for customers and supply components for their products.

Together with the appearance of co-opetitive relations among competing sides in network relations, the so far existing position of strength is shaken. Within competitive behaviours of other entities in the network system other cooperative relations are formed, which causes the effect of intra-network diffusion of co-opetitive relations. Factors of intra-network co-opetition include: importance of position in the network, structural autonomy and density of the network¹²; whereas flows of assets (e.g. money, technology, equipment or organizational abilities), information (gained from related companies and concerning their competitive behaviour, strategies and resources) and status (power, strength, legitimization of position in the structure)¹³ are stimulators of arising co-opetitive relations.

¹¹ A.-P. de Man, *The Network Economy. Strategy, Structure and Management*, Edward Edgar, Cheltenham 2004, p. 131.

¹² D.R. Gnywali, R. Madhavan, *Cooperative Networks and Competitive Dynamics: a Structural Embeddedness Perspective*, „Academy of Management Review” 2001, Vol. 26, No. 3, pp. 431–445.

¹³ B. McEvily, A. Zaheer, *BridgingTies: A Source of Firm Heterogeneity in Competitive Capabilities*, „Strategic Management Journal” 1999, Vol. 20, pp. 1133–1156.

The key position of an enterprise in network relations is seen through the prism of number and importance of relations in which it participates. If a company performs a central role in the network system and is engaged in inside co-opetitive relations of strategic importance, then it has at its disposal better access to assets, information and the appropriate status¹⁴. Intra-network co-opetition formed with key players stimulates diffusion of these relations to players of lesser importance in the network system¹⁵.

Structural autonomy is related to the so-called structural holes resulting from lack of direct relations within network relations¹⁶. The more autonomic companies are, the lesser the probability of their competitors reacting to formed co-opetitive relations is.

Structural equivalence concerns similarity of relations between network members. Assets, information and status flow in a similar way. In identical systems competitors show little willingness to compete and cooperate.

The density of the network is related to the intensity of correlations among players in the network¹⁷. In a dense network the flow of assets and information is fast. Co-opetitive relations are usually formed in networks with varied network density as flows of assets, information and status are varied. Moreover, in varied networks forming co-opetitive relations causes that it is necessary to create next ones.

The above mentioned factors have a significant impact on competition and co-opetition relations among members of network structures. In a situation when competition relations begin to dominate, the network members are more interested in a mutual fight and atomization of the whole system. Thus, they will attempt to loosen their relations. On the other hand if co-opetitive relations become predominant, there is a danger that the network players will become solely interested in cooperation, which may result in their becoming satellites of their cooperating entities while heterogeneous resources will not be used in the best way possible over a longer time horizon¹⁸.

The intensity of co-opetitive relations appearing in the network depends on the intensity of competitive and cooperative relations among its members. The intensity of competitive relations is connected with how frequently they occur among mem-

¹⁴ D.R. Gnywali, J. He, R. Madhavan, *Impact of Co-Opetition on Firm Competitive Behavior: An Empirical Examination*, „Journal of Management” 2006, Vol. 32, No. 4, pp. 507–530.

¹⁵ S. Wasserman, K. Faust, *Social Network Analysis: Methods and Applications*, Cambridge University Press, Cambridge 1999, pp. 124–135.

¹⁶ D.R. Gnywali, R. Madhavan, *Cooperative Networks and Competitive Dynamics: a Structural Embeddedness Perspective*, „Academy of Management Review” 2001, Vol. 26, No. 3, pp. 431–445.

¹⁷ Ø.D. Fjeldstad, M. Becerra, S. Narayanan, *Strategic Action in network industries: an empirical analysis of European mobile phone industry*, „Scandinavian Journal of Management” 2004, Vol. 20, pp. 173–196.

¹⁸ M. Bengtsson, S. Kock, *Cooperation and Competition in Relations Between Competitors in Business Network*, „Journal of Business & Industrial Marketing” 1999, Vol. 14, No. 3, pp. 178–193.

bers of a given network structure as regards the total number of possible competitive relations.

Research conducted by T.-H. Chien and T.-J. Peng has proven the consistency of dependence relations of intensity of co-opetition occurrence in the network on frequency of forming competitive and cooperative relations. In their research in the stimulator sector the members of the network competed to win tenders to produce simulators, which they did cooperating with each other within the framework of outsourcing agreements¹⁹. Similar conclusions were drawn by S. Hertz and L.-G. Mattsson and also by Ø. D. Fjeldstad, M. Bercerra and S. Narayanan who indicated correlation of the growth of intensity of competitive and cooperative relations in network structures, which in effect have an impact on how intense co-opetition inside the network is²⁰.

It also should be noted that within network connections co-opetitive relations may cover a diverse area of the system. On account of diversity among members of the network, their character and importance, co-opetitive relations may cover connections specified in the definition of competitive cooperation. This implies that co-opetition may cover both the whole network as well as its part. Relations in Eurosmart are an example of fragmentary scope of co-opetition within network structures. Eurosmart is an association of a network character which gathers manufactures of the so-called smart cards, main suppliers (e.g. producers of chips, semi-conductors, magnetic sensors and biometric elements), academic centres and other organizations related to production or use of these cards²¹. Due to significant diversity of Eurosmart members, two groups of intra-network relations can be observed, those among smart card manufacturers and their suppliers (diagram 1).

¹⁹ The research mainly concerned identification of competitive and cooperative relations in the simulator sector creating network structure in Taiwan. The network includes 13 firms (3 home-based and 10 foreign) which manufacture simulators for aviation (both military and civil), tanks and artillery, simulators of ships, nuclear power stations and computer war games to be used by the army. All network members compete among one another for completing a project for particular simulators and then cooperate within subcontractor agreements. The projects are sporadic but of considerable values (each worth some 3 million USD). Despite the necessity to have at their disposal a substantial fleet of machinery and specialized staff, most of the players are able to realize the project on their own. However, the cost of its realization will be significantly lower if competitors who have at their disposal specific resources (well-qualified and specialized staff, specialist equipment) are included. The research covered 22 contracts concluded in the years 1995–2002. T. – H. Chien, T. – J. Peng, *Competition and Cooperation Intensity in a Network – A Case Study in Taiwan Simulator Industry*, “The Journal of American Academy of Business” 2005, Vol. 7, No. 2, pp. 150–155.

²⁰ S. Hertz, L. – G. Mattsson, *Collective Competition and the Dynamics of Market Reconfiguration*, „Scandinavian Journal of Management” 2004, Vol. 20, pp. 31–51; Ø.D. Fjeldstad, M. Bercerra, S. Narayanan, *Strategic Action in network industries: an empirical analysis of European mobile phone industry*, “Scandinavian Journal of Management” 2004, Vol. 20, pp. 173–196.

²¹ www.eurosmart.com of 22 November 2007.

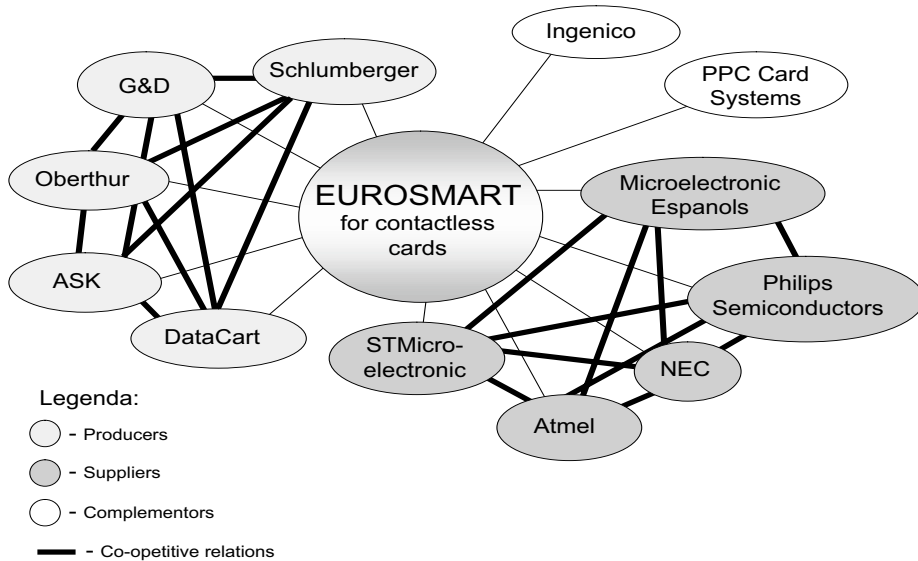


Diagram 1. Intra-network co-opetitive relations in Eurosmart

Source: Z. M'Chirugui, *Smart card industry: a technological system*, „Technovation” 2005, Vol. 25, pp. 929–938.

Since there are competitive relations both between card manufacturers and also between their suppliers, the competing sides have decided to form co-opetitive relations, mainly to reduce the costs of operations, join forces for the benefit of R&D and introduce new technological standards and better diffusion of benefits resulting from cooperation.

Similar fragmentation of co-opetitive relations may be observed in clusters, a specific type of networks. In a geographically limited but multi-sectoral network system there may be a number of co-opetitive relations among companies which are connected by various relations characteristic of this type of networks.

Inter-network co-opetition

Inter-network co-opetition occurs mainly in conditions of strong competition for technological standards²². Both competitors and their suppliers, who within inside co-operational and co-opetitional relations create defined technical and technological standards, are participants of network systems. The network established in 1989 by a system of agreements among the following corporations: Nokia, Ericsson, Motorola and Psion known as Symbian OS²³ provides a good example. This network

²² P.B. De Laat, *Systematic Innovation and the Virtues of Going Virtual: The Case of the Digital Video Disc*, “Technology Analysis & Strategic Management” 1999, Vol. 11, No. 2, pp. 159–180.

²³ In 2007 the Symbian network was formed by: Nokia (47,9%), Ericsson (15,6%), Sony Ericsson (13,1%), Panasonic (10,5%), Siemens AG (8,4%), Samsung (4,5%). Source: www.symbian.com.

structure was formed among others to develop standards in the field of cordless operating systems used mainly in mobile telephony.

The Symbian network competed against another network structure created around Microsoft Corp. Both network systems competed for technical and technological standards in the field of portable cordless operating systems. Competitive relations between both networks were directed at expanding the area of the standards they had introduced; to this aim they engaged new firms as next members of network structures²⁴.

In 2003 we witnessed cooperation between the competing networks in order to synchronise systems functioning in Symbian and Microsoft equipment. Thanks to the license agreement with Microsoft, mobile phones of the Symbian network producers may among others receive electronic mail and other personal data from Microsoft system (diagram 2).

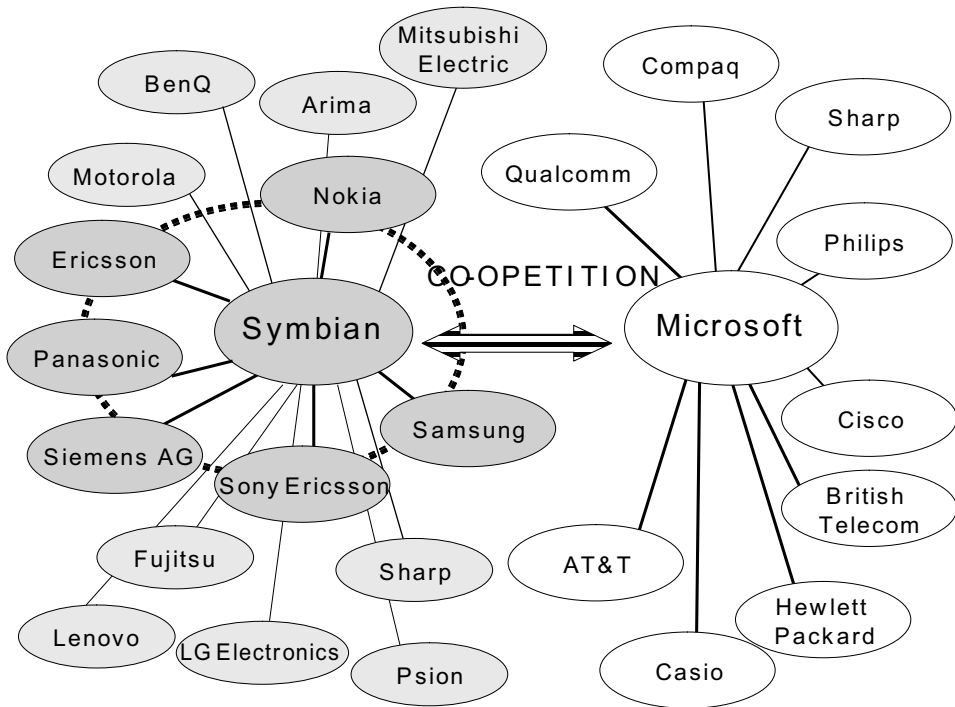


Diagram 2. Co-opetition between the Symbian and Microsoft networks in 2007

Source: Own study based on: www.symbian.com, www.microsoft.com

²⁴ In 2007 the Symbian network celebrated its successes as the leader on the market of cordless operating systems serving 71.1% of the whole market, while 6.6% fell to Microsoft. Nevertheless Microsoft is the world leader on the market of programming and other operating systems. Source: www.symbian.com.

Despite the agreement in the field of compatibility of data transmission systems, both networks remain in strong competitive relations. Similar co-opetitive relations among networks of innovators can be seen in pharmaceutical and biotechnology sectors as regards searching for solutions to such illnesses as cancer, AIDS, heart diseases or endocrinological, neurological and other illnesses²⁵. Inter-network co-opetition also exists in such sectors as chemicals, automobile, semi-conductors or telecommunications²⁶.

Co-opetition among companies in network systems may simultaneously appear at the level of intra-network relations and also among groups of firms. Competitors forming the network structure remain in co-opetitive relations. The Symbian consortium consisting of direct competitors, namely Nokia, Ericsson, Siemens AG, Samsung, Sony-Ericsson and Panasonic, is such an example. For its founders co-creating the Symbian network does not collide with performing strictly competitive activities. At the same time the network of companies may successfully compete for a customer against another constellation of firms. As regards relations with the network created by Microsoft Corporation, Symbian carries out the strategy of co-opetition.

Conclusion

Co-opetition in network relations among enterprises is an extremely complex phenomenon in contemporary economic practice. Multitude of factors influencing the character and dynamics of development of companies' co-opetition and multilateralism of relations among parties cause that important cognitive barriers for this phenomenon appear. At the same time an analysis of forming co-opetition in network relations among enterprises points to faint recognition of competitive cooperation. It primarily results from insufficient theoretical and research exploration of both the co-opetition phenomenon itself and the process of forming network relations among firms. Recent research of different research centres in the world is fragmentary in character, if not partial. Dynamic development of network relations is becoming both the cause and the result of enterprises' co-opetition. More and more firms function and grow within various network relations, which causes the necessity to consider co-opetition both in infra- and inter-network dimension. Moreover, creation and development of co-opetition, its diffusion within the framework of network relations have become an integral element of building and implementation of development strategies of companies – members of the system. Diversity of different

²⁵ J. Owen-Smith, W.W. Powel, *Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston Biotechnology Community*, "Organization Science" 2004, Vol. 15, No. 1, pp. 5–21.

²⁶ Ø. D. Fjeldstad, M. Becerra, S. Narayanan, *Strategic Action in network industries: an empirical analysis of European mobile phone industry*, "Scandinavian Journal of Management" 2004, Vol. 20, pp. 173–196.

network types and variability of intensity of factors interacting within network relations result in a wide range of co-opetitive relations which require predetermined behaviour on the part of the involved parties. Therefore an urgent need for more profound research on the phenomenon of co-opetition in network relations arises, both in theory and application.

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www.microsoft.com

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Abstract

In the contemporary business world co-opetition plays a significant role in the relations between competitors. Co-opetition occurs not only between two competing sides but also in network relations. It may develop both within network relations and also between whole network systems. In the intra-network co-opetition the position of the companies depends on several factors: number and importance of concluded relations, access to strategic assets (tangible and intangible) and status. Intensity of intra-network co-opetition depends on the intensity of competitive and co-operative relations among its members. The inter-network co-opetition emerges mainly in the context of fierce competition for technological standards (e.g. Symbian vs. Microsoft). Co-opetition between network systems of the companies may appear both at the intra-network and inter-network levels. Dynamic development of network relations becomes both the cause and the result of enterprises' co-opetition.