

**INNOVATIVENESS  
DETERMINANTS  
OF NETWORK  
ORGANISATIONS  
IN THE KNOWLEDGE  
ECONOMY**



EDITED BY  
BARBARA BOJEWSKA

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# Contents

INTRODUCTION . . . . .	9
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*Barbara Bojewska*

## CHAPTER I

### DETERMINANTS OF NETWORK ORGANISATIONS' DEVELOPMENT

IN THE KNOWLEDGE ECONOMY . . . . .	15
1.1. Introduction . . . . .	15
1.2. The development of network organisations depending on the characteristics of the environment . . . . .	17
1.3. The importance of management concepts in the development of network organisations in the knowledge economy . . . . .	27
1.4. The importance of projects in the development of network organisations	35
1.5. Summary . . . . .	43
Bibliography . . . . .	45

*Anna Skowronek-Mielczarek*

## CHAPTER II

### OPPORTUNITIES AND BARRIERS OF THE FUNCTIONING

OF THE NETWORK ORGANISATIONS IN THE KNOWLEDGE ECONOMY	47
2.1. Introduction . . . . .	47
2.2. Determinants of network organisations' creation . . . . .	48
2.3. Barriers in establishing and conducting cooperation within network organisations . . . . .	56
2.4. Common actions implemented within network organisations . . . . .	61
2.5. Summary . . . . .	67
Bibliography . . . . .	69

*Barbara Bojewska*

## CHAPTER III

### THE IMPORTANCE OF NETWORK ORGANISATIONS AS LEARNING

ORGANISATIONS IN THE KNOWLEDGE ECONOMY . . . . .	71
3.1. Introduction . . . . .	71
3.2. Actions of network organisations as knowledge organisations . . . . .	72
3.3. Characteristics of network organisations as learning organisations . . . . .	80
3.4. Instruments that support the development of network organisations as learning organisations . . . . .	89
3.5. Summary . . . . .	96
Bibliography . . . . .	98

*Agnieszka Sopińska*

CHAPTER IV

PHENOMENON AND DETERMINANTS OF KNOWLEDGE

MANAGEMENT IN NETWORK ORGANISATIONS AND THEIR

INNOVATIVENESS . . . . .	101
4.1. Introduction . . . . .	101
4.2. The way of acquiring knowledge in network organisations and its determinants . . . . .	104
4.3. The way of using knowledge by network organisations and its determinants . . . . .	109
4.4. Characteristics of knowledge exchange process in network organisations and its determinants . . . . .	114
4.4.1. The scope of knowledge exchange in the network . . . . .	114
4.4.2. Areas which are affected by the knowledge exchange in the network . . . . .	115
4.4.3. The direction of knowledge flow in the network . . . . .	116
4.4.4. The level of payment for knowledge exchange in the network organisations . . . . .	117
4.4.5. The level of formalisation of knowledge exchange in the network	118
4.4.6. Decision-maker of knowledge exchange in the network organisations . . . . .	119
4.5. Knowledge management strategies used in network organisations and their determinants . . . . .	121
4.6. The advancement level of building knowledge management system and its determinants . . . . .	127
4.7. Knowledge management compared to the innovativeness of network organisations . . . . .	132
4.7.1. The advancement level of building knowledge management system compared to the innovativeness of network organisation	132
4.7.2. Knowledge management strategies compared to innovativeness of network organisation . . . . .	134
4.8. Summary . . . . .	136
Bibliography . . . . .	138

*Anna Skowronek-Mielczarek*

CHAPTER V

THE EFFICIENCY IN NETWORK ORGANISATIONS AND MEASURES

OF THEIR INNOVATIVENESS . . . . .	139
5.1. Introduction . . . . .	139
5.2. Effectiveness dimensions of network organisations . . . . .	140
5.3. Economic and financial effectiveness of network organisations in Polish economic practice . . . . .	146

5.4. Organisational effectiveness in the processes of network organisation's management compared to business practice . . . . .	151
5.5. Summary . . . . .	160
Bibliography . . . . .	161

*Marta Ziólkowska*

#### CHAPTER VI

INNOVATIVENESS DETERMINANTS OF NETWORK ORGANISATIONS . . . . .	163
6.1. Introduction . . . . .	163
6.2. Premises for implementing innovation in network organisations . . . . .	164
6.3. Innovative activity of network organisations . . . . .	169
6.4. Types of innovations in network organisations . . . . .	174
6.5. Sources of innovation in network organisations . . . . .	178
6.6. Benefits of implementing innovations in network organisations . . . . .	181
6.7. Summary . . . . .	185
Bibliography . . . . .	188

*Marta Ziólkowska*

#### CHAPTER VII

INNOVATIVENESS DETERMINANTS OF FRANCHISE ORGANISATIONS . . . . .	189
7.1. Introduction . . . . .	189
7.2. Premises for implementing innovations in franchise organisations . . . . .	190
7.3. Innovative activity of franchise organisations . . . . .	193
7.4. Types of innovations in franchise organisations . . . . .	197
7.5. Sources of innovation in franchise organisations . . . . .	199
7.6. Benefits of implementing innovations in franchise companies . . . . .	201
7.7. Factors encouraging and limiting innovative activity of franchise organisations . . . . .	204
7.8. Summary . . . . .	209
Bibliography . . . . .	213

*Agata Rundo*

#### CHAPTER VIII

INNOVATIVENESS DETERMINANTS OF VIRTUAL ORGANISATIONS . . . . .	215
8.1. Introduction . . . . .	215
8.2. Premises for implementing innovations in virtual organisations . . . . .	216
8.3. Innovative activity of virtual organisations . . . . .	223
8.4. Types of innovations in virtual organisations . . . . .	228
8.5. Sources of innovation in virtual organisations . . . . .	233
8.6. Benefits of implementing innovations in virtual organisations . . . . .	238
8.7. Summary . . . . .	243
Bibliography . . . . .	245

*Anna Dąbrowska*

CHAPTER IX

INNOVATIVENESS DETERMINANTS OF CLUSTERS . . . . .	247
9.1. Introduction . . . . .	247
9.2. Characteristics of clusters as network . . . . .	249
9.3. Premises for implementing innovations in clusters . . . . .	262
9.4. Innovative activity of clusters . . . . .	267
9.5. Types of innovations in clusters . . . . .	269
9.6. Sources of innovation in clusters . . . . .	271
9.7. Benefits of implementing innovations in clusters . . . . .	275
9.8. Summary . . . . .	278
Bibliography . . . . .	280
APPENDIX NO. 1 . . . . .	283
APPENDIX NO. 2 . . . . .	284
LIST OF FIGURES . . . . .	285
LIST OF TABLES . . . . .	297



# Introduction

Building a new economy, in which innovations play a vital role, becomes the main challenge for countries, regions and organisations of modern world. The aim is to strive to achieve a high level of development and competitiveness primarily through innovations under conditions of the knowledge economy.

Knowledge economy is based on generating innovative ideas i.e. those that after the implementation bring material or social profits. Innovation is becoming not only a choice but a necessity. Competition in the knowledge economy refers to the speed of generating innovative ideas, related to the products and services, as well as to business processes (innovative reactions between people and technology), to organisational models (innovative connection between the structure of the organisation and management system), the environment in which organisations operate (an innovative relation between business, science and politics). Achieving the success in the knowledge economy requires radical changes in the way of management in both private and state enterprises, but also at the level of the region or state. One requires from governing body not only new knowledge and skills, but also a change in the current way of thinking, that is replacing the old knowledge with the one newly acquired. Knowledge and innovation are key factors in economic development, and are becoming even more important in knowledge economy.

The way to economic success and competitiveness leads through the acquisition and processing of the information and creation on their basis knowledge used then in a practical way – to create and implement innovations. The transition to a knowledge economy is reflected primarily in the increased competitive advantage of countries and regions specialising in the production of highly processed and high-tech products.

Innovations in the age of the knowledge economy are an important factor of the competitiveness and in enterprise's development. The development of innovativeness of companies and technologies in Poland is currently funded both at the national level by the Innovative Economy Program and the Human Capital Program and at the regional level by the Regional Operational Programmes. The new strategy for the European Community development, i.e. the document "The European Union 2020" prepared by the European Commission is gaining on popularity.

Dynamics of changes in the environment makes that knowledge is rapidly devaluing, thus organisations must continually "learn", that is become "intelligent" focusing on the creation and management of knowledge. Enterprises have to create and cumulate competences which are based on the process of organisational learning.

Strive to continuous expanding of knowledge, organisational learning, forces the state to create the appropriate conditions, relating for example to high spending on education, research and development; and effective cooperation between a state and an enterprise.

Contemporary conditions for creation and implementation of innovation are characterised by unpredictable changes in the close and distant business environment. High intensity of market changes, not only is the result of introduced innovations, but also forces further changes, innovations, including the creation of the configuration of organisational units (partners), where participants submit their actions to achieve a common purpose and show a willingness to cooperate. They engage in various types of relations, strategic alliances – create network organisations.

Network structures as a concept of cooperation between economic entities are associated with technological changes in the market and growing international competition. Network organisation, also known as cross-organisational network is a form of relations between the various economic entities in the modern economy. It is based on a need for a comprehensive realisation of strategic objectives (implementation of corporate strategies of enterprises that participate in it). One of the primary goals of the network organisation is to achieve synergies that can be obtained through cooperation and collaboration of many partners. Mutual coordination, alignment in the area of operational procedures, technologies or infrastructures, common decision making in a designated area of cooperation, the repetitive nature of the exchange and cooperation covering a longer time horizon, contribute to a more efficient and economic functioning of network organisations, which enables to compete with companies from outside this structure. Network organisations may take the following forms: virtual organisation, strategic alliance, franchise and outsourcing.

The growing importance of innovation and the complexity of functioning determinants and development of enterprises operating in a changing environment, creating new opportunities and occasions, cause that research of innovativeness of network organisations becomes purposeful in the terms of the knowledge economy including innovativeness of network organisations as knowledge based organisations and learning organisations. In 2011, one did therefore undertake a research project No. 2011/01/B/HS4/04808 “Innovativeness of network organisations in the knowledge economy” funded by the National Science Centre<sup>1</sup>.

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<sup>1</sup> The research project was carried out under the supervision of Associate Professor Barbara Bojewska (Department of Enterprise Management, Institute of Management SGH) by the following team: Associate Professor Anna Skowronek-Mielczarek (Department of Enterprise Management, Institute of Management SGH), Associate Professor Agnieszka Sopińska (Department of Management in the Economy, Institute of Management SGH), Associate Professor Anna Dąbrowska (Department of Consumer Behaviour, Institute of Management SGH), PhD Marta Ziółkowska (Department of Enterprise Management,

In light of the foregoing considerations, an important research problem was to show the relations between the following categories: knowledge economy, network organisations and innovativeness. Particularly important was to identify innovativeness determinants of network organisations in the context of the challenges of the knowledge economy. The following research questions were raised:

- P.1. Does the knowledge economy create conditions conducive to the creation and functioning of network organisations?
- P.2. Does knowledge economy foster innovativeness and efficiency of network organisations?
- P.3. What is the meaning and determinants of innovativeness of network organisations?
- P.4. Does knowledge management promote innovativeness of network organisations?
- P.5. Is network organisation a learning organisation in the context of its innovativeness?
- P.6. Are there any differences between the level of innovativeness and its determinants in virtual organisations, clusters and franchise networks?

The results of empirical studies allowed to obtain answers to the formulated research questions. On this basis one can make conclusions about the relationship between innovativeness, network structures and knowledge economy.

The obtained results of the research project were presented in the hereby study. An empirical study was carried out in 2013 in a group of 363 companies belonging to the organisations, which can be defined as network organisations, conducting their businesses on the territory of Poland. Research population covered enterprises which were members of franchise networks (121 companies), clusters (121 companies) and virtual organisations (121 enterprises). One has used, for the purpose of the research, a quota sampling<sup>2</sup>.

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Institute of Management SGH), MA Agata Rundo (in cooperation with the Department of Enterprise Management, Institute of Management SGH).

<sup>2</sup> Survey was conducted on the basis of specially prepared database which consisted of 370 franchise companies. According to the structure of the population one has selected quotas (specified number of interviews in line with the structure of the population) with accordance to a province and category: trade, services. Survey was carried out on the basis of specially prepared database of clusters' coordinators, which covered 198 companies. According to the structure of the population one has selected quotas (specified number of interviews in line with the structure of the population) with accordance to a province and a type of institution participating in the cluster: enterprises, scientific-research units, business environment institutions. In the case of virtual organisations one has selected quotas with accordance to a province (due to the lack of knowledge about the structure of the population of virtual organisations, the quota was based on the structure of the population of all companies in Poland).

<sup>One</sup> recognises virtual organisations as companies that declare, among others, one of the following activities: implementation of joint projects with other companies; cooperation with other companies in order to implement a specific project; participation in consortia / strategic alliances / joint ventures; cooperation

In order to identify the phenomenon of network's organisations innovativeness, the quantitative study was conducted using an interview questionnaire containing 34 research questions. The study was carried out using the technique of Computer Assisted Personal Interviewing (CAPI). Interviews were conducted in the respondent's company and concerned the assessment of the problem from the perspective of companies belonging to the network and the network to which the analysed company belongs<sup>3</sup>.

The aim of the study was to identify the determinants of network organisations' innovativeness in Poland in the years 2007–2012 with particular emphasis on clusters, virtual organisations and franchise networks. Respondents were classified according to the type of a network, as well as to other criteria, such as: the number of employees in a company belonging to the network, the nature of business of enterprise belonging to the network, the role of companies in the network (network organisation), the number of participants in the network, the stage of network's development and network's range of operation.

Detailed distribution of analysed economic entities is presented at the end of the book in Appendix 1 and Appendix 2. The vast majority of surveyed companies belonged to micro-enterprises (59%), operating in the service sector (57.6%), and acting as a network participant (63.9%). The study included mainly those enterprises, which belonged to the network with up to 10 participants (42.4%) and networks in the maturity stage of development (45.2%) with domestic (35%) and regional (34.4%) range. This distribution of responses makes the information obtained from the respondents of a high cognitive and practical value, especially due to the network's stage of development, to which surveyed companies belong.

This study consists of nine chapters. In the first chapter one presents considerations regarding conditions of development of network organisation in the knowledge economy. The second chapter shows opportunities and barriers of functioning of these organisations. The third chapter highlights the significance of features of a learning organisation for network organisations and of their innovativeness and it is an attempt to assess network organisations with accordance to that. The fourth chapter underlines the complexity of the phenomenon of knowledge management and the

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of several companies within a single (superior) partnership / corporation; using / providing outsourcing services; using / providing freelancing services; purchase of licenses from contractors; using of another entity's / person's product on the basis of copyright.

<sup>3</sup> The respondents were competent persons to provide information concerning the company's functioning in the network. The study concerned the expertise in the field of business development, innovation, strategy, management. Therefore, the respondents were the persons occupying the position in the company, which allows them to have such knowledge. The study was conducted with people in positions: manager for business development, manager for network management, the owner, managing director / executive officer (or deputy), CFO / financial manager.

relations of network organisations with innovativeness. The fifth chapter concerns the effectiveness of network organisations and measures of their innovativeness in this context. Chapter six presents the determinants of network organisations' innovativeness. The ways of implementing innovations, sources, types of implemented innovations and their benefits are presented in this chapter too. A measure of innovative activity of network organisations was the number of implemented innovations. The analysis of the innovativeness' conditions of franchise networks (Chapter 7), virtual organisations (Chapter 8) and clusters (Chapter 9) are presented in further chapters. Each chapter ends with a summary of research results.

Due to the wide spectrum of concerned subjects, this study can provide material for researchers of the knowledge economy, innovativeness and network organisations, and especially for entrepreneurs and managers who recognise its usefulness in economic practice. It should be emphasised that the studies directly relating to network organisations, especially when taking into account the criterion of network's size measured by the number of its participants and the criterion of types of network organisations are relatively few in numbers. This underlines the importance of the undertaken research subject relating to network organisations and their innovativeness, as well as the importance of this publication dedicated to determinants of network organisations' innovativeness in the knowledge economy.

*Barbara Bojewska*



## Chapter I. Determinants of network organisations' development in the knowledge economy

### 1.1. Introduction

In times of post-industrial economy based on knowledge and modern technologies, economic development depends primarily on the knowledge and skills of employees, universities and research centres activities as well as their cooperation with economic entities, information infrastructure, as well as favourable conditions created by state authorities for the development of new economy. Knowledge economy characterises with:

- acceleration of knowledge creation;
- the growing importance of intangible capital;
- innovativeness as a priority;
- changes in knowledge resources<sup>1</sup>.

The transition to the knowledge economy can be seen e.g. in the growth of competitive advantage of regions, countries and enterprises specialised in the production of highly processed and high-tech products<sup>2</sup>. Competitiveness of enterprises depends primarily on the acquisition and processing of information and on their basis the creation of knowledge used in a practical way.

A strong connection of globalisation with the progress of science and technology is one of the most important features of globalisation. The progress affects the process of globalisation mainly by creating technical achievements that help to improve transport and communication, and above all to produce new or upgraded products, to implement flexible and highly efficient methods of production, new methods of management, organisation and distribution etc. The progress of science and technology supports innovations.

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<sup>1</sup> S. Korenik, *Budowa Gospodarki Opartej na Wiedzy w przekroju regionów jako wyzwanie dla procesów integracji krajów Unii Europejskiej*, [in:] *Innowacyjny jednolity rynek - wyzwaniem dla wymiaru gospodarczego Unii Europejskiej*, Urząd Komitetu Integracji Europejskiej, Warsaw 2007, p. 79–80.

<sup>2</sup> A. Kukliński, *Gospodarka oparta na wiedzy – Wyzwania dla Polski XXI wieku*, KBN, Warsaw 2001, p. 120.

Technical progress accelerates during the constant demand for innovation from globally competing companies<sup>3</sup>.

The main features of a knowledge economy (new economy) are as follows:

- a high percentage of GDP is allocated for scientific research, intellectual services and information and telecommunication services and products. Highly educated society, commonly used information techniques and high awareness of the continuous learning need and use of acquired knowledge in practice are the result of such state policy;
- well-developed infrastructure. Those branches of industry, which use high technology in their businesses, increase productivity and added value per employee, are gaining popularity;
- a high level of transaction security and mutual trust of market participants. This is possible with well organised legal system and legal norms;
- education market adjustment to the needs of a constantly changing labour market. This enables the absorption of new employees appearing on the labour market as well as minimise the loss of human capital under spending. This situation is also possible due to the advanced state cooperation with the business sector in research funding and coherent social and economic policy. These economies are opened and highly competitive;
- product development and knowledge enterprises are the result of entrepreneurship. State policy creates favourable conditions for the development of entrepreneurship. Enterprises are interested in rapid implementation of new inventions and patents for production and service activity thus they increase their competitiveness<sup>4</sup>.

A new economy is dominated by the entities which, thanks to information technology will be able to create a virtual network of relationships between employees, suppliers, shareholders and customers. Innovations and time are important tools in the competitive struggle. The shorter the period of time from the birth of an idea to its implementation as a specific product on the market, the greater the chances of getting a competitive advantage. Employees who create and implement new ideas are very important<sup>5</sup>. Innovativeness is the primary source of enterprise's competitive advantage. This mainly concerns network organisations which are built due to the

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<sup>3</sup> A. Toffler, *Trzecia fala*, Wydawnictwo Kurpisz S.A., Poznan 2006.

<sup>4</sup> A.K. Koźmiński, *Jak zbudować gospodarkę opartą na wiedzy?*, [in:] *Rozwój polskiej gospodarki -perspektywy i uwarunkowania*, G.W. Kołodko (ed.), WSPiZ im. L. Koźmińskiego, Warsaw 2002, p. 157–158.

<sup>5</sup> D. Simpson, *Kulturowe aspekty zarządzania wiedzą w korporacjach transnarodowych*, [in:] *Rozwój regionalny i globalny we współczesnej gospodarce światowej*, (ed.), J. Rymarczyk, Wydawnictwo AE we Wrocławiu, Wrocław 2005, p. 341.



characteristics of the knowledge economy and efforts to create more value resulting from business integration.

In the context of above considerations, the aim of this chapter is to determine the factors of network organisation development in the knowledge economy and their evaluation in terms of innovativeness and reasons to create network structures in this type of economy. It was assumed that changes in the external environment of enterprises and changes in the management of enterprises in the knowledge economy favour the development of network organisations, the creation of knowledge organisations and they do not remain without effect on their innovativeness. Following research questions were raised:

1. What characteristics of business environment in the knowledge economy are conducive to the development of enterprises and the creation of network organisations?
2. What are the concepts of business management in the knowledge economy which support network organisations in adapting to changes in the environment? Do they have an impact on the growth of the innovativeness of network organisations?
3. What is the importance of implemented projects in network organisations in the knowledge economy? Do they have an impact on the growth of the innovativeness of network organisations?

The results of empirical studies conducted in a group of 363 enterprises belonging to the organisations, which can be defined as network organisations, made it possible to obtain answers to the research questions. The relationship between changes which are characteristic for the knowledge economy in the environment (internal and external) of modern enterprises, and creating premises and determinants of functioning and development of network organisations in this type of economy, with a particular focus on their growth of innovativeness was shown in the studies.

## **1.2. The development of network organisations depending on the characteristics of the environment**

The beginning of the twenty-first century is a period of huge changes in the functioning and development of enterprises. These changes result from significant changes in the environment, which are defined as the turbulent environment. Such an environment is characterised by<sup>6</sup>:

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<sup>6</sup> *Przedsiębiorstwo a narastająca niestabilność otoczenia*, (ed.) H.R. Sobiecki, J.W. Pietrewicz, OW SGH, Warsaw 2012.

- an increase in new changes – events (significant technological, economic, social changes) affecting businesses environment which increasingly diverge from its past experience;
- an increase of the environment's intensity – constantly increasing dependence of an enterprise from the environment. Analysis of the environment and the competitive advantage (meeting competition) engages more and more resources of the enterprise;
- an increase of a pace of changes in the environment – this characteristic of the environment requires a flexible business model to meet the occurring changes in it;
- an increase of the environment complexity – is mainly due to its uncertainty. There are market niches, new customer groups, new products resulting from new technological capabilities which satisfy new needs;
- an increase of the public environmental awareness – with the socio-economic development and the emergence of global issues such as a state of natural environment, an availability of energy resources, changing social expectations towards companies;
- a technological advancement and business integration affect new opportunities of the enterprises' development, new areas of cooperation which can be a source of technological and product innovation and can create new areas of the market;
- the growing importance of human capital – human capital is the driving force of creation and distribution of knowledge. An efficient diffusion of knowledge through human capital among various branches is the basis for the rapid development of the economy and the organisation. The knowledge usage in the production process takes the form of technical progress understood as a change in technique and technology involving the use of new materials, new forms of energy, new technology, the emergence of new products, new technologies and organisations.

Changes in the environment and global trends should be considered as challenges and potential new opportunities which are a premise of development. On the one hand, they affect the turbulent nature of the environment, on the other hand they have a significant impact on the functioning and development of the modern enterprise.

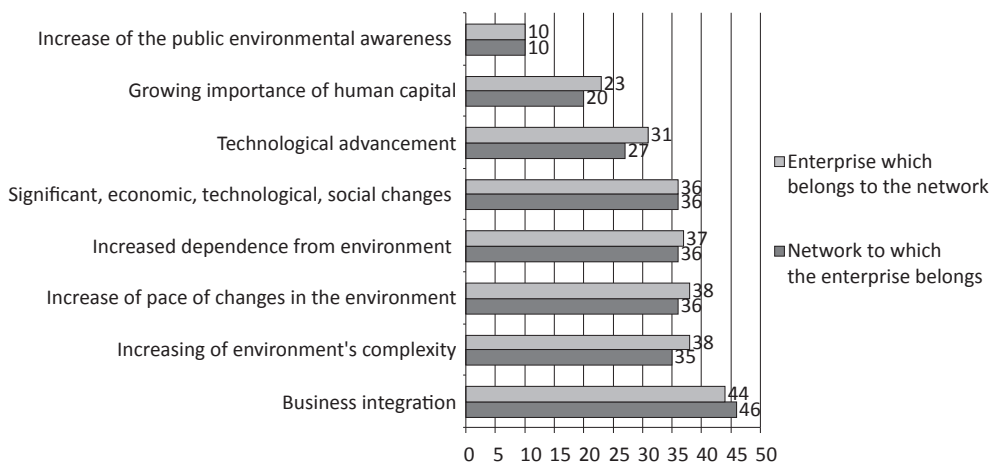
Accordingly, some respondents were asked what qualities of the business environment in the knowledge economy are conducive to their development and creation of network organisations. Respondents answered from the perspective of an entity belonging to the network (network organisation), and commented on the network to which their enterprise belongs.

The network is a deliberately singled out set of nodes (elements) with specific tasks that are related to different types of couplings and enable the realisation of strategic

objectives. There are different force systems among the participating organisations in the network<sup>7</sup>: mutual independence, inequivalent independence, interdependence, inequivalent relationship. The network organisation is a group of integrated enterprises whose specific relations are the sources of their competitiveness<sup>8</sup>. The following definition of network organisation, that determines the participants of the network organisation and indicates the characteristics of the relationship between them, was presented in this paragraph. According to H. Fołtyn network organisation is a group of similar or different elements such as enterprises which come together permanently in the system of connections and relationships but they keep a self-reliance, or as a result of the building of temporary communication links among the independent units (organisations or people). The terms network organisation and network are used interchangeably in the study.

According to the above considerations, one can look at the results of empirical studies of companies belonging to the network in the context of conditions of their development and of the importance of the changes in the environment (external factors). It is also interesting to know the opinion of respondents on the importance of environment changes for the network to which the surveyed company belongs (Fig. 1.1).

**Figure 1.1. The importance of the environment's characteristics in the development of network organisations (% of responses)**



Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=363$ .

<sup>7</sup> B. de Witt, R. Meyer, *Synteza strategii*, PWE, Warsaw 2007, p. 225.

<sup>8</sup> Z. Pierścioneek, *Zarządzanie strategiczne w przedsiębiorstwie*, WN PWN, Warsaw 2011, p. 397–404.

According to analysis, from the perspective of the subject of studies (enterprises belonging to the network), the business integration is the most important factor in the process of modern enterprise's development (44% of responses). This also concerns network (a network organisation to which the surveyed company belongs – 46% of responses). Not too high percent of responses in relation to this response can be surprising, because business integration is the essence of the functioning of the surveyed companies, which is the result of changes in the environment and constitutes about their character and at the same time has an impact on the functioning of this type of organisation.

Not very high percent of responses in relation to business integration (although the largest percentage of responses) may result, as it can be assumed with some problems, from the risks that are associated with the functioning of the network, such as a lack of confidence or too big commercialisation of many projects<sup>9</sup>. Barriers of network organisations functioning are the subject of detailed discussion in the second chapter of this study.

Business integration may relate to individual agreements or can create network systems. In this context, activity of enterprise belonging to the network should be distinguished from the network to which this company belongs.

Business integration is connected with certain benefits that are attributed to the network organisations, namely<sup>10</sup>:

- easier access to the various factors of production being at the disposal of various enterprises;
- new opportunities for business – an increase of the diversity of cooperation forms, enriching the offer;
- ensuring an efficient communication – new forms and channels of distribution;
- new interdependencies (building a competitive advantage through the regional and global actions).

Other indicated features of the environment also determine the development of the organisation, but to a lesser extent what was confirmed by the test results. It can be assumed that the surveyed companies consider features such as the complexity of the environment, the increase of changes, the intensity of changes as indirectly affecting the development and above all, which are premises of business integration.

One can notice from Figure 1.1. that the percentage of the growing importance of human capital and increase of the public environmental awareness as characteristics of the environment is not high. A lack of awareness about the relationship between

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<sup>9</sup> A. Greenspan, *Era zawirowań. Krok w nowy wiek*, Warszawskie Wydawnictwo Literackie MUZA S.A., Warsaw 2008, p. 289–290.

<sup>10</sup> P. Kotler, J.A. Caslione, *Chaos. Zarządzanie i marketing w erze turbulencji*, MT Biznes, Warsaw 2009, p. 45.

these factors and the business integration and the development of modern organisations may suggest undervaluation of knowledge, skills, innovativeness, satisfying customer needs, which are crucial to gain the competitive advantage.

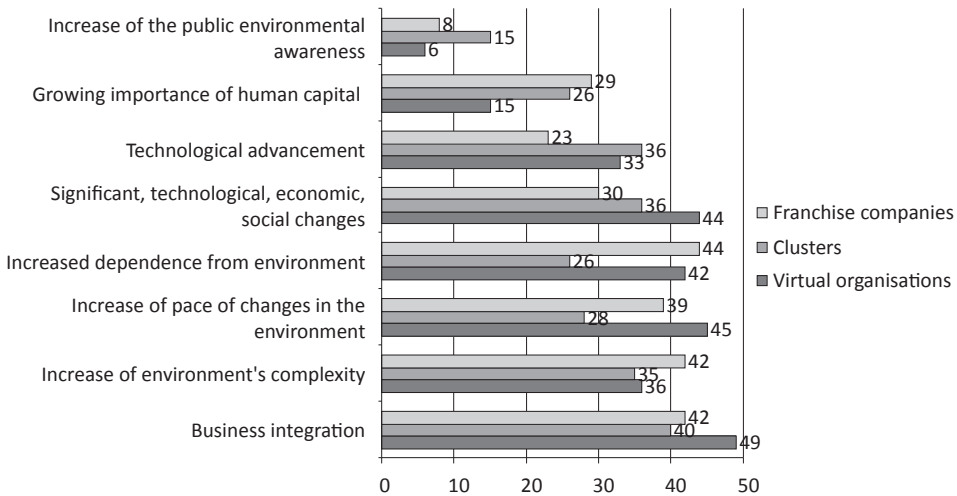
Different types of network connections are combined with a new approach to creating enterprise's competitive advantage, i.e. taking into account the relational advantage – an effect of partnerships. The relational advantage should be treated as an additional outcome generated by the cooperating parties and relations in the network organisation. This also applies to different types of network organisations.

The functioning of the network structure helps in information acquisition, its processing and use, better identification of customer needs and quick responding to competition activity. These benefits relate to all types of surveyed network organisations, in which the importance of business integration as a source of new opportunities for business in a complex, rapidly changing environment (Fig. 1.2) is seen. One can observe a similar trend in the other tested sections (Fig. 1.3, 1.4, 1.5, 1.6, 1.7). Apart from benefits that come from cooperating within a network, the surveyed companies belonging to the network are aware of the barriers and risks that are associated with this type of structure (not too high percentage of responses).

Business integration is the most important for the development of virtual organisations (49% of responses), Figure 1.2. Also, other features of the environment, such as increase of pace of changes (44% of responses) and significant technical, social, economic changes (45% of responses) are essential for the development of virtual organisations. The increase of environment's intensity that is associated with increasing degree of dependence on environment through the necessity to analyse its various aspects in order to make appropriate decisions concerning the functioning and development of the enterprise is very important in enterprise's development for franchise organisations. Clusters connect the development to the greatest extent with business integration and technological advancement.

Building information society and information revolution is not only one of the premises of globalisation process, but also one of the most important factors of business models change. Technological advancement creates new opportunities in business management and is conducive to the functioning of companies in the complex network of spatial – functional relations. It affects the growth and scope of the various types of cooperation which enables the integration of activities and better access to knowledge and information. Business integration is closely linked to technological advancement.

**Figure 1.2. The importance of the environment's characteristics in the development of network organisations depending on the type of network organisation (% of responses)**



Source: Same as Fig. 1.1.

The growing importance of the public environmental awareness is a more important factor for the development of clusters than for other surveyed network organisations. For this reason the connections between business, scientific – research units and universities and the intensity of contacts in the field of knowledge and experience exchange are so important. Synergies can be a source of innovative products and technology which take into consideration consumer's needs.

It is important to point out the relations between selected features of the respondents and the features of the environment, affecting the development of modern enterprises. Business integration, the increase of pace of changes in the environment and the increase of environment's complexity are the most often mentioned attributes of the environment determining the development of modern enterprises in the network organisations.

This mainly concerns small enterprises belonging to the network (49% of responses). In contrast, medium-sized enterprises indicate the importance of technical, economic and social changes in the environment (46% of responses) – Figure 1.3. These changes are closely related to the complexity and speed of environment's changes. Service companies belonging to the network and the those conducting activity in sectors: administration, education, culture (Fig. 1.4), network organisations with up to 10 participants (Fig. 1.5), networks that are in the maturity stage (Fig. 1.6) and international networks (Fig. 1.7) pointed to similar factors. It is

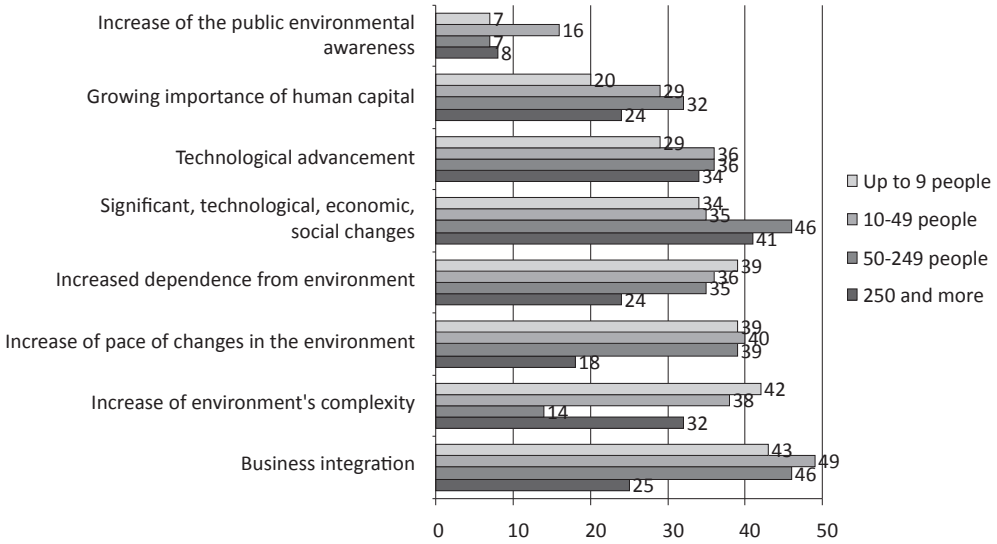
interesting that small enterprises belonging to the network and the networks with a smaller number of participants (networks of a local character) pointed to similar factors, as the international networks (networks rather with the largest number of participants, a wide range and high reach of activities). It can be the result of benefits from business integration of different subjects in the knowledge economy and their desire for further development by increasing their resources and better use of the environment opportunities through business integration and continuous analysis of environment changes.

It is interesting that an increase of public environmental awareness and the growing importance of human capital were least frequently indicated. This applies to surveyed enterprises in the selected groups. These factors are closely connected with the development, technological advancement, the increasing importance of knowledge and they enable to create innovation at every stage. It may suggest that the surveyed enterprises are focused primarily on increasing their potential by business integration, which enables them to develop human capital and become ecologically oriented. On the other hand, the increase of public environmental awareness and the growing importance of human capital motivate enterprises to develop and to look for opportunities to increase their potential and to satisfy the needs of the environment.

The enterprise being a complex system should not only build economic strategies. With the socio – technological development and the increase of public awareness, it is more and more responsible for produced goods in the manufacturing process and for its services. It is also socially responsible for the environment. Ecological aspects in management should be seen as an opportunity for the enterprise, as a source of a competitive advantage.

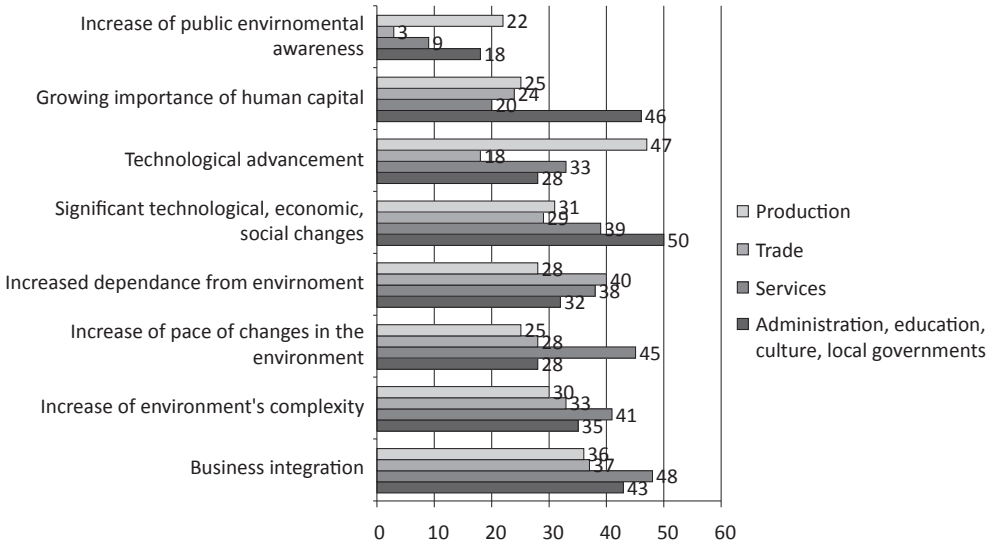
Human capital thrives with the development of society. It is the driving force of creation and distribution of knowledge. An efficient diffusion of knowledge through human capital among the various branches is the basis for the rapid development of enterprises and the economy. Knowledge application in the production process takes the form of technological change understood as a change in technique and technology involving the use of new materials, new forms of energy, new technology, the emergence of new products, new technologies and organisations. The growing importance of human capital in the enterprise is seen mainly through the changes and implemented innovations.

**Figure 1.3. The importance of the environment’s characteristics in the development of network organisations depending on the number of employees in enterprises belonging to the network (% of responses)**



Source: Same as Fig. 1.1.

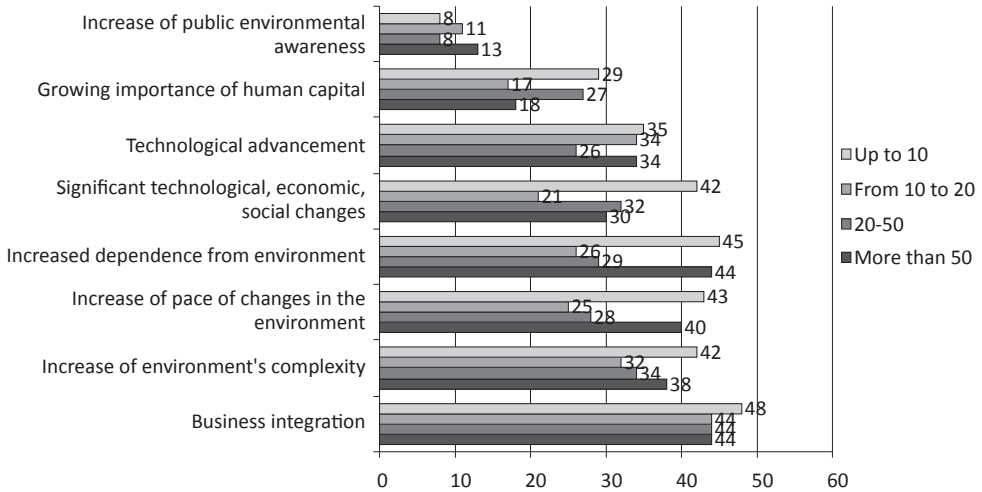
**Figure 1.4. The importance of the environment’s characteristics in the development of network organisations depending on the network’s participants type of business (% of responses)**



Source: Same as Fig. 1.1.

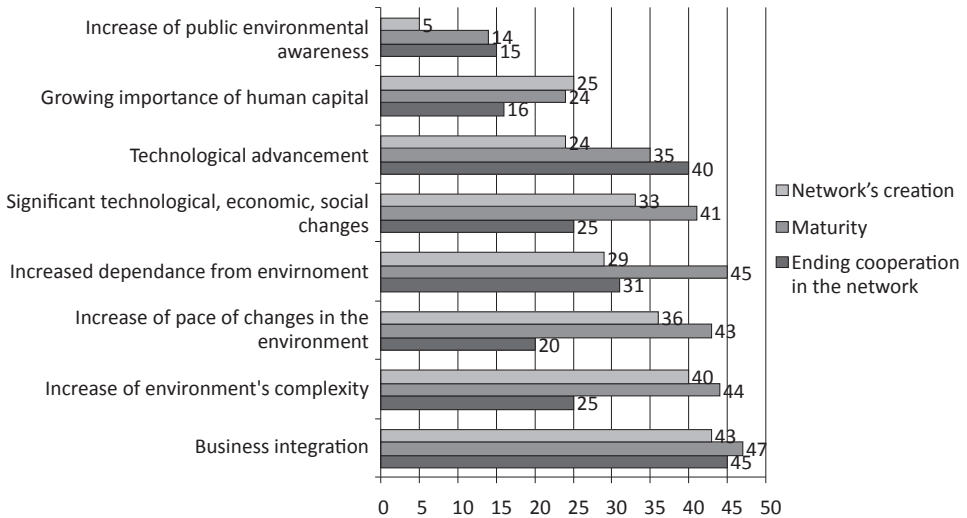


**Figure 1.5. The importance of the environment's characteristics in the development of network organisations depending on the number of network's participants (% of responses)**



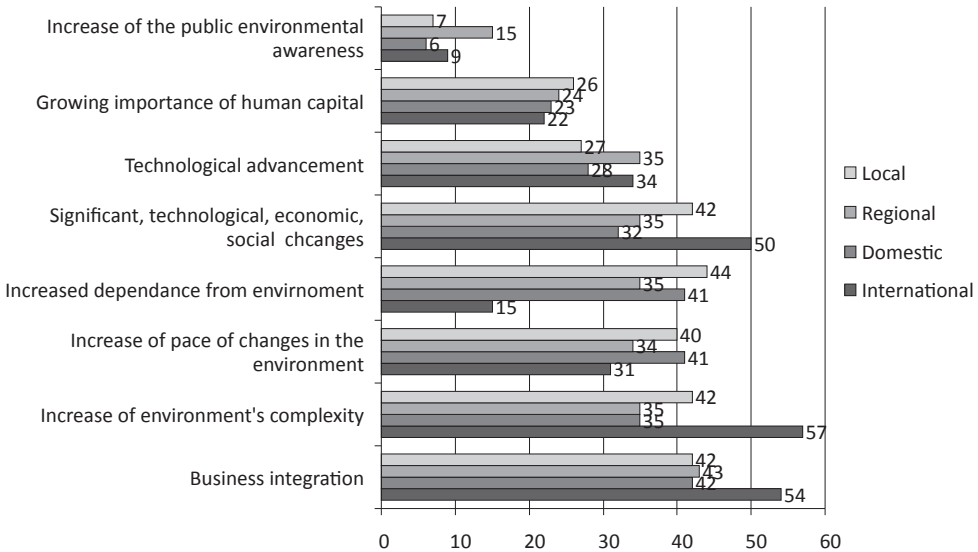
Source: Same as Fig. 1.1.

**Figure 1.6. The importance of the environment's characteristics in the development of network organisations depending on the stage of network's development (% of responses)**



Source: Same as Fig. 1.1.

**Figure 1.7. The importance of the environment's characteristics in the development of network organisations depending on the network's range (% of responses)**



Source: Same as Fig. 1.1.

Taking into consideration innovativeness, it is important to emphasise the importance of cooperation and collaboration of all enterprises creating the network organisation. Innovative capabilities of this type of organisations can be defined as the sum of the processes creating innovation, such as learning processes, the process of project management, knowledge management and interaction processes. Pro-innovative attitudes such as creativity, flexibility, openness promote these processes. One can then distinguish capable or incapable entities of creating and implementing innovation.

Along with the process of globalisation, one can observe an increase of various types of cooperation that allow the integration of activities and better access to knowledge and information. Therefore, the importance of relationships, strategies and applied management concepts is increasing.

The development of enterprises in the knowledge economy is determined not only by external factors (external environment), but also depends on factors of an internal nature. In the opinion of the respondents this applies both to enterprises belonging to the network and network organisations (networks). The significance of the management concepts in a turbulent environment and their usage in the network organisations from the perspective of an enterprise belonging to the network is shown in the next subsection.

### **1.3. The importance of management concepts in the development of network organisations in the knowledge economy**

The transition to a knowledge-based economy requires a new management and new business management concepts. Literature emphasises the need for a comprehensive and strategic management in the context of the needs of the global market, the development of technology and increasing competition.

Competition in the knowledge-based economy is based on the ability to generate quickly innovative ideas concerning not only products and services but also business processes (innovative relationships between people and technology), organisational models (innovative connections between the structure of the organisation and management system) and the environment in which organisations exist (innovative connections between business, science and politics). Achieving success in the knowledge economy requires radical changes in the way of management not only in private and state owned companies, but also at the level of industry branches and cities, regions and countries. Not only new knowledge and skills, but also the change in the way of thinking, that is, continuous learning, supplementing the resources of knowledge acquired in the previous experiments, the newly acquired knowledge are required from management staff. Knowledge and innovation have always been important in economic development, and they will become even more important in the knowledge economy. Management especially knowledge management and innovation management play the supporting role in relation to the executed strategies.

Within the management improvement in a context of changes in the environment one may indicate the following directions of this process development:

- development of strategic thinking, especially by managers, for decision-making skills (e.g. concerning the development of innovation) and actions in the changing environment and market;
- seizing the opportunity to create and implement product, technological, organisational innovations, (e.g. cooperation development) to achieve competitive advantage;
- usage of the products supporting management, such as programs that support decision-making, planning, project structuring, creating knowledge bases.

Changes that occur in the environment affect all processes in the enterprise, in particular it concerns the management and its improvement. The management model of modern manager should base on important principles, such as engagement in decision-making, leadership, self-control and access to information and knowledge. The speed of generating innovations, innovativeness and competitiveness of an enterprise, a city, a region or a country depends largely on the mental model,

i.e. tacit knowledge of management. There is a belief that using current knowledge and modern technology we can solve almost any problem.

Which therefore management concepts are the most relevant in an increasingly complex and volatile environment for a modern enterprise including the company belonging to the network and the network organisation itself? Which of management concepts support the solution of emerging problems in a changing environment?

It is important to determine the significance of the management concept in the modern enterprise in the face of the changes and challenges arising from changes in the environment, that is, identification of management concepts that actually influence the development of enterprises.

The respondents were asked in the survey what modern concepts of business management in the knowledge economy support network organisations and enterprises belonging to the network to adapt to the changing environment. Respondents answered from the perspective of an entity belonging to the network, and presented an opinion on the network to which their enterprise belongs.

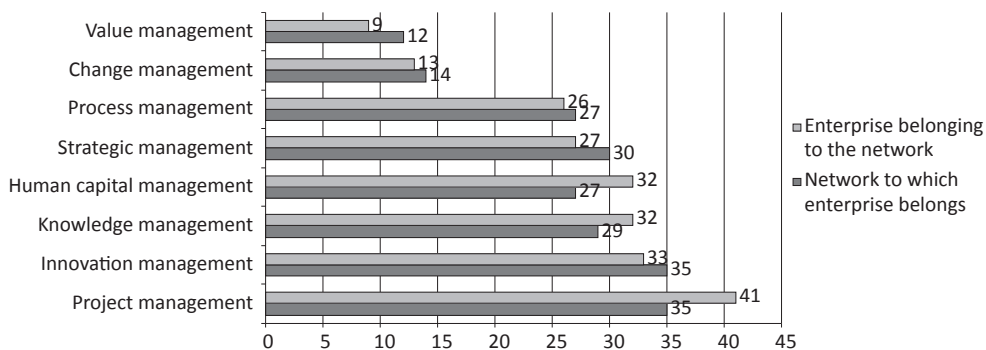
Respondents indicated the most important management concepts conditioning their development in the knowledge economy (Fig. 1.8). Project management (41% of responses), innovation management (33% of responses), knowledge management and human capital management (32% of responses) are the most important in the development of enterprises, from the perspective of the entities (as participants of the network organisation). With regard to the network organisation, i.e. from the network's perspective to which the surveyed enterprise belonged, respondents also indicated project management (35% of responses), innovation management (35% of responses) and knowledge management (29% of responses). For enterprises belonging to the network the distribution of responses is similar to the one for the networks to which surveyed enterprises belong.

This distribution of responses is not surprising, it is closely associated with the characteristics and priorities specific to the knowledge economy (knowledge, human capital, innovativeness). It indicates entrepreneurial managers and their willingness and ability to innovate by the use of knowledge. Management concepts show on the one hand the desire of managers to adapt the organisation to the changes in the environment, on the other hand the usage of existing potential of the organisations for the purpose of its increasing. Despite of the crisis, managers are aware of the importance of indicated management concept in the enterprise development.

Value management (9% of responses) is the least indicated factor taken into account by the respondents. It is quite surprising that the importance of fundamental objective of the enterprise functioning i.e. maximising its value is not appreciated sufficiently. It requires designing appropriate instruments in a technical sense. Appropriate measures should adequately reflect the effects of manager's decisions. Value

management prioritises all operational objectives and undertaken projects, also innovative ones. Each enterprise adopts the measures which should be consistent in terms of strategy and management methods. Value management determines a new way of management and sets new tasks for managers in the knowledge economy and closely relates to strategic management.

**Figure 1.8. The importance of management concepts in the development of network organisations (% of responses)**

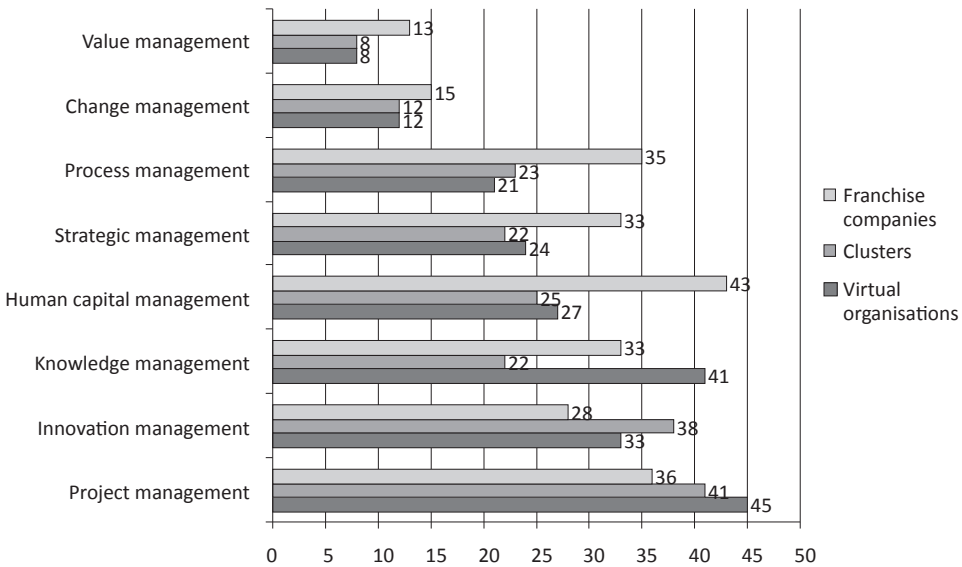


Source: Same as Fig. 1.1.

What is worth mentioning are the relation between selected characteristics of the surveyed respondents and the importance of management concepts in the development of network organisations.

Project management is the most frequently mentioned management concept as the most important in the development of network organisations in the years 2007 to 2012. Different meanings depending on the specific characteristics of the respondents are attributed to the other concepts. When it comes to the type of network organisation, the project management is the most emphasised in virtual organisations (45% of responses) and in clusters (41% of responses) and further in franchise organisations (36% of responses) – Figure 1.9. Franchise organisations most often indicated human capital management (43% of responses). Other concepts were characterised with a lower level of indications, but their selection proves that according to the respondents, they also have an impact on the development of enterprises, but to a lesser extent. What is more, one must emphasise the simultaneous usage of multiple management concepts in the enterprise (small differences in the level of responses). The least often indicated factors taken into account by the respondents relate to value management, to the greatest extent in clusters (5% of responses), and to a lesser extent in franchise organisations (13% of responses).

**Figure 1.9. The importance of management concepts in the development of network organisations depending on the type of network organisation (% of responses)**

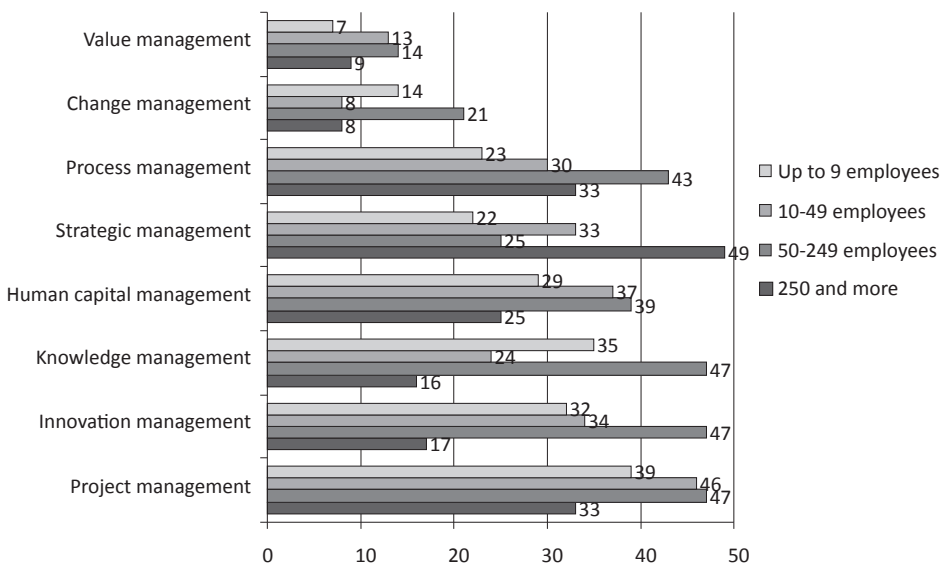


Source: Same as Fig. 1.1.

Furthermore, some differences in the significance of these management concepts, due to the size of enterprises, are also visible (Fig. 1.10).

For enterprises belonging to the network with respect to their size, the distribution of responses was basically similar to that in the group of all respondents. Project management is essential for the development of small and medium enterprises. Medium-sized enterprises equally pointed to the importance of project, innovation and knowledge management (equally 47% of responses). The development of enterprise, the ability to achieve the objectives and to gain a competitive advantage in this complex and intensely changing environment depends on the type of used knowledge, carried out projects and implemented innovations. Strategic management (49% of response), which is associated with the development category, is the most important for large enterprises. The larger the enterprise, the more important meaning of this concept in the development of enterprises in the knowledge economy.

**Figure 1.10. The importance of management concepts in the development of network organisations depending on the number of employees in enterprises belonging to the network (% of responses)**

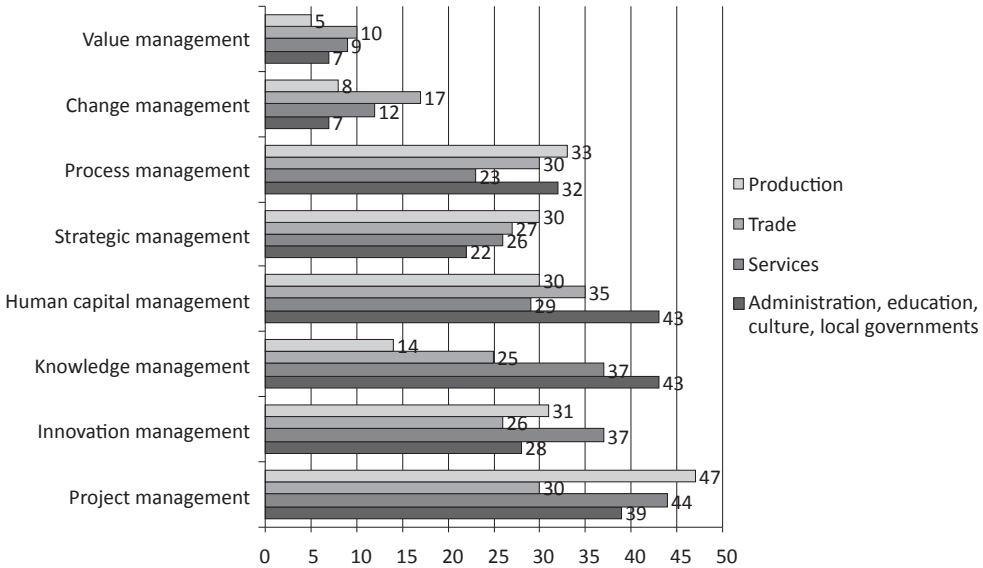


Source: Same as Fig.1.1.

In turn, with regard to the type of a business, enterprises belonging to the network organisation, conducting trade activities in relation to production and service companies indicated project management with lowest frequency – Fig. 1.11.

Trade companies pointed to human capital management (35% of responses), what results from the nature of commercial activity and the importance of human potential in these businesses. The highest level of indications with regard to the human capital management, have the organisations related to administration, education, culture and local governments (43% of responses), which in the context of earlier considerations related to the characteristics of the environment (characteristics of the knowledge based economy), corresponds to the growing importance of human capital particularly in regard to this type of business. For production and service companies the distribution of responses was basically similar to that in the group of all respondents which is associated with the greatest significance of project management. What is surprising, production companies least often, in relation to other companies, indicated knowledge management and value management. These concepts are closely related in fact to project management. They define a hierarchy of projects and the purpose of their implementation.

**Figure 1.11. The importance of management concepts in the development of network organisation depending on enterprise's type of business belonging to the network (% of responses)**



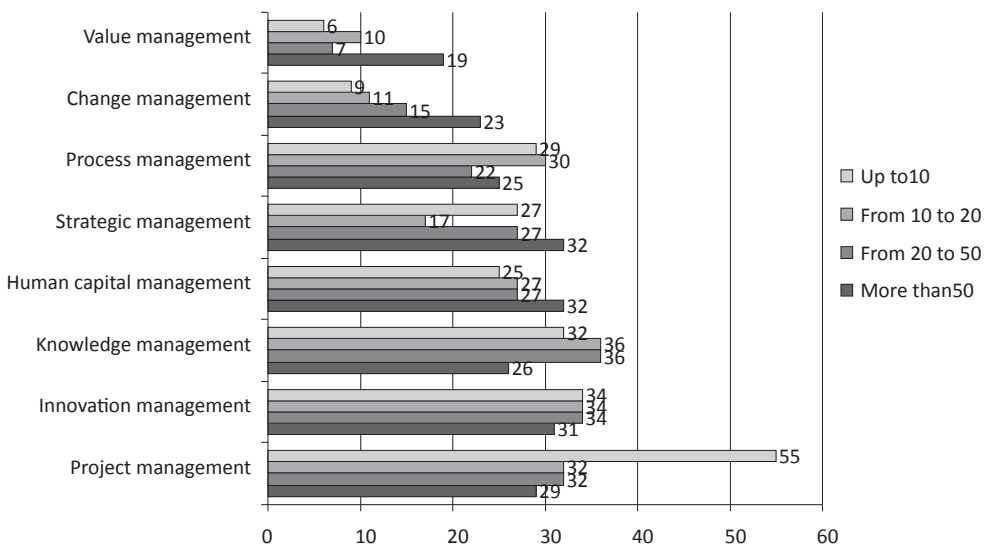
Source: Same as Fig.1.1.

One can observe the relation between the importance of project management concept, human capital management and the size of network organisation (measured by the number of its participants) (Fig. 1.12) and the phase of its development (Fig. 1.13) and the range of network's activities (Fig. 1.14).

The smaller the network, or the smaller the number of its participants, the more important project management and human capital management. This applies to the network organisation which consists of up to 10 participants. This may mean that smaller organisations with less potential, less resources tend to increase or maintain them by implementing projects (also innovative ones) and usage of human capital (knowledge, skills, and experience) as the main source of competitive advantage in the knowledge economy. Each project is a risky and complex venture, so preparatory activities and an appropriate formulation of the project objective and its effective management are very important. The role of human capital management is to support the project realisation.



**Figure 1.12. The importance of management concepts in the development of network organisations depending on the number of network's participants (% of responses)**

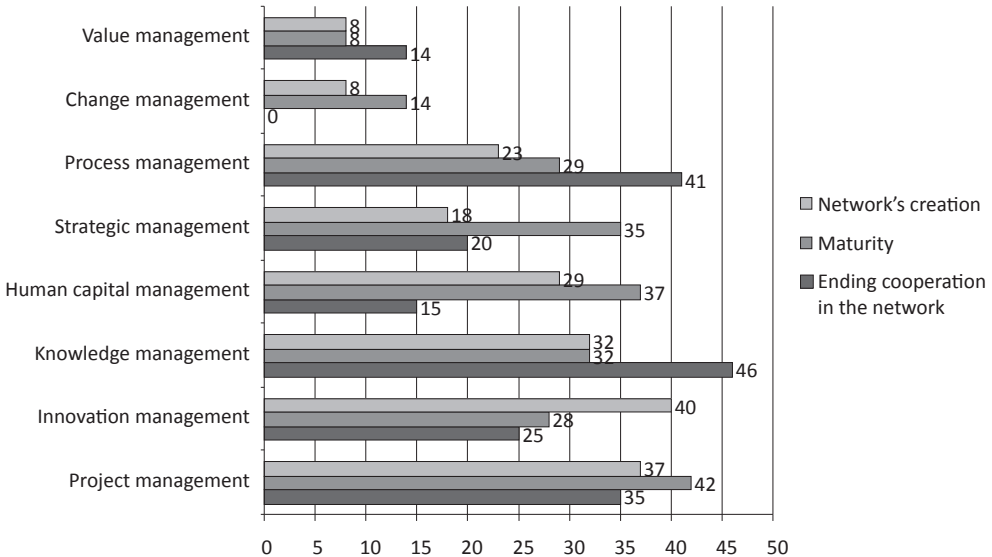


Source: Same as Fig. 1.1.

In contrast, project management and human capital management are more important in the maturity stage of the organisation than in the phase of starting or ending activity (Fig. 1.13). It is obvious that launching the project and development of human capital require funding and resources for the implementation of investment. Therefore, in the maturity stage organisations, which are successfully managed, have a suitable potential. What is more, network organisations, which are created in order to cooperate and because of the synergy of resources and the effects, should already in the phase of creation be willing and capable of creating projects based on their potential, mainly human capital. The establishment of the network is the most important project for network organisations and for enterprises belonging to the network – to join it.

In the phase of ending the cooperation one indicates primarily knowledge management (46% of responses) and process management (41% of responses). These concepts probably support decisions and actions regarding the possibilities of development of enterprises belonging to the network. It is interesting that the change management in the network organisations in the phase of ending the cooperation was not indicated (0% of responses). After all, on the one hand this stage is connected to a change, on the other hand to a project, which implements the change with respect to the network.

**Figure 1.13. The importance of management concepts in the development of network organisations depending on the stage of network development (% of responses)**

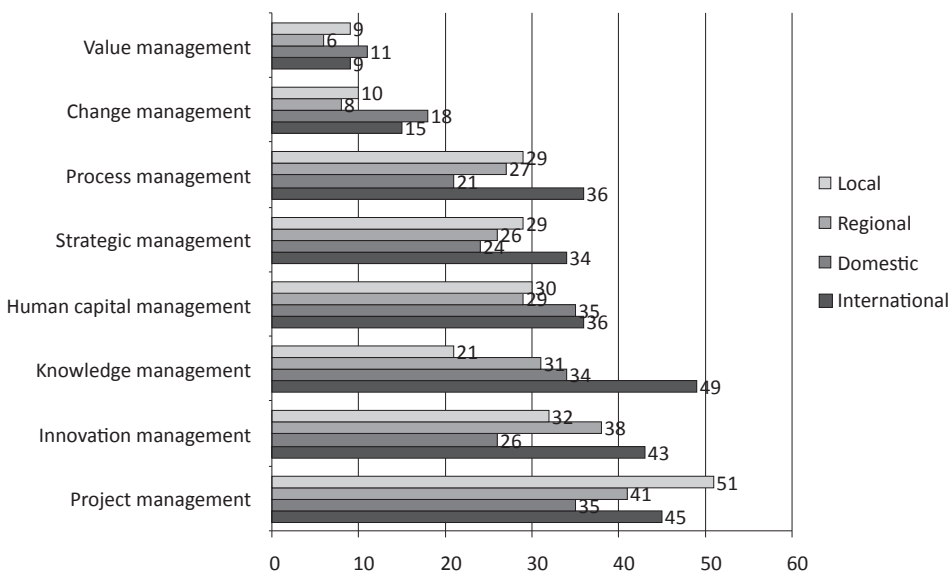


Source: Same as Fig. 1.1.

What is worth considering, the importance of project management is more frequently emphasised in the local enterprises (51% of responses) than in the international, domestic and regional ones (Fig. 1.14). Knowledge management in international companies (49% of responses) was the most often indicated factor taken into account by the respondents.

Local networks are mainly networks with fewer numbers of participants and international networks are the network organisations with the largest number of participants. Therefore, comparing the network organisations by the size and its range, it is clear that in the development of each type of network organisations, project, knowledge, innovation and human capital management play an important role especially in the knowledge economy. The success of small, local organisation or large, international ones depends on the management and its effectiveness. Modern management is complex and oriented to the needs of the global market and exploiting the resources, processes, and information from outside and inside of the organisation. The reason for the need of project management in the modern enterprise is the importance of projects (Subsection 1.4, Chapter 1) and knowledge management (Chapter 4) in enterprises in the knowledge economy.

**Figure 1.14. The importance of management concepts in the development of network organisations depending on the network's range (% of responses)**



Source: Same as Fig. 1.1.

## 1.4. The importance of projects in the development of network organisations

Modern economy requires enterprises to build continuous competitive advantages<sup>11</sup>. Enterprises are subject to increasing pressure of time and quality of their products and services. More 'ambitious results' need be to achieved using less and less effort and means, in the shortest time possible, winning the trust and loyalty of customers. One way of enterprise's adaption to operate in a dynamic and competitive environment is to focus attention on project management.

This process consists of a deliberate planning, organising, directing and controlling with respect to the project, which due to its size (effort), uniqueness, complexity and temporality of its implementation has been divided into separate, systematically solved partial tasks. The development and implementation of information system, the realisation of anti-crisis program, or the introduction of a new product on the market might be considered as risky projects. The implementation of projects enables achieving many benefits such as<sup>12</sup>:

<sup>11</sup> *Podstawy organizacji i zarządzania*, (ed.) M. Romanowska, Difin, Warsaw 2001, p. 233.

<sup>12</sup> B. Lent, *Zarządzanie procesami prowadzenia projektów*, Difin, Warsaw 2005.

- economic efficiency (faster return on investment, cost reduction);
- profit of time (shortening the time of realisation, better time management);
- quality improvement (reducing errors in planning);
- effectiveness of decision-making processes (the effects of delayed decisions during project are more visible);
- avoidance of the excess staff and redundancy when allocating tasks.

What is worth mentioning is that IT project management<sup>13</sup> is becoming popular in recent years. IT project management is a new field of information technology, which requires computer knowledge and skills, as well as management knowledge and work organisation. The first large information systems (the 60<sup>th</sup>, 70<sup>th</sup> years of the 20<sup>th</sup> century) were created using intuitive management methods. On their basis, and also because of the increasing complexity of emerging systems, more complex models of building information systems were created.

Enterprises have begun to implement projects in order to change the business objectives into actual results. Many of the companies base its functioning on the projects realisation. It happens for example in construction, consulting, or in companies creating computer software. On the other hand, there are companies (e.g. in the food, textile industry), for which the implementation of projects is not the basis of activity. But even these enterprises implement projects such as the construction of a new warehouse or training of employees. Projects are also ubiquitous in the public sector – thanks to them, the visions of politicians and society's needs can be transformed into new roads, schools or hospitals. Projects allow to implement changes. They are an important tool used by enterprises in their efforts to adapt to the changing environment and in their competitive struggle, despite the fact that projects are subject to risks resulting primarily from<sup>14</sup>:

- growing and changing consumer's demands;
- pressure of cost reduction;
- legal restrictions;
- increasingly more complex technology;
- disperse of project teams which is connected with ongoing globalisation.

Thanks to the projects and their effective implementation, companies are able to cope with the increasing complexity while reducing costs and risks. The projects

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<sup>13</sup> IT – Information Technology one of the areas of computer science (including hardware and software used to create, transfer, present and protect the information), combining telecommunications, tools and other technologies related to information. It provides the user with the tools by which he can acquire, select, analyse, process, manage and distribute the information to other people. *Słownik wyrazów obcych*, PWN, Warsaw 2007.

<sup>14</sup> K. Manu, <http://www.articlesbase.com/leadership-articles/the-importance-of-project-management-in-organizations-246928.html>, access: 9.07.2012.

enable companies to have optimal resources and to make the best decisions based on the gathered information and to achieve a competitive advantage related to the focus of the project team to achieve goals while maintaining customer satisfaction with the ordered product<sup>15</sup>.

Some respondents were asked in a study what the significance of implemented projects in the network organisations is. Do they have an impact on the growth of their innovativeness? Respondents provided answers from the perspective of an enterprise belonging to the network and presented opinions about the network to which the enterprise belongs.

One has pointed, from the perspective of the surveyed enterprises (companies belonging to the network organisation), to the numerous benefits from the implemented projects in the years 2007–2012. The most important are: better satisfying of the customer needs (52% of respondents), improvement of the market position (52% of responses), financial benefits (50% of responses) and positive image (50% of responses) (Fig. 1.15). These benefits relate mainly to the external environment and company's place on the market and its strive for gaining a competitive advantage by exploiting the chances (opportunities) which are in the environment and by counteracting the threats. The benefits associated with an increase of innovativeness (36% of responses), but to a lesser extent in comparison to the other benefits, were indicated by the respondents. It is puzzling, because as a rule improving innovativeness has a major influence on the satisfaction of customers or financial benefits. For the respondents also, as one can guess, but only to an extent.

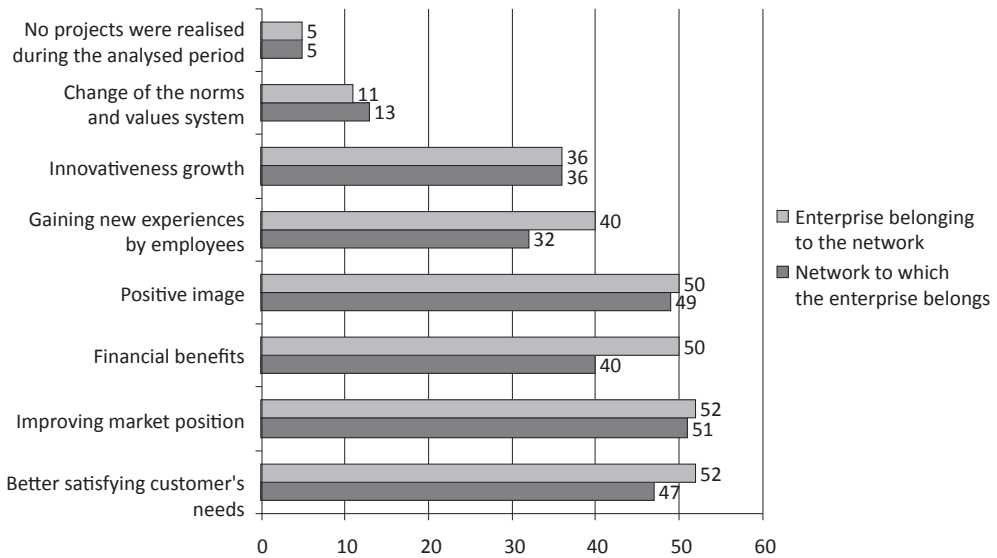
There were no projects realised in 5% of the organisations during this period. It could be due to a lack of knowledge about the need for a change, a lack of project management skills, a lack of funds or other resources and characteristics of managers, as creativity, willingness to take a risk and entrepreneurship. Moreover, respondents indicated (to a small extent) that the projects did not have a significant impact on the change of the norms and values system of employees, which may suggest that the organisational culture has not supported the strategy and has not required changes in the surveyed enterprises. On the one hand, organisational culture surrounds the project directly and determines its implementation, and on the other hand, the project usually affects the system of norms and values of the employees, their attitude and commitment.

A similar trend is visible in relation to the network organisations, in which the surveyed enterprises participate.

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<sup>15</sup> P. Charlette, *Zarządzanie projektem: poradnik dla samorządów terytorialnych*, Małopolska Szkoła Administracji Publicznej Akademii Ekonomicznej, Cracow 2004, p. 117.

**Figure 1.15. The benefits of the projects' realisation in the network organisations (% of responses)**

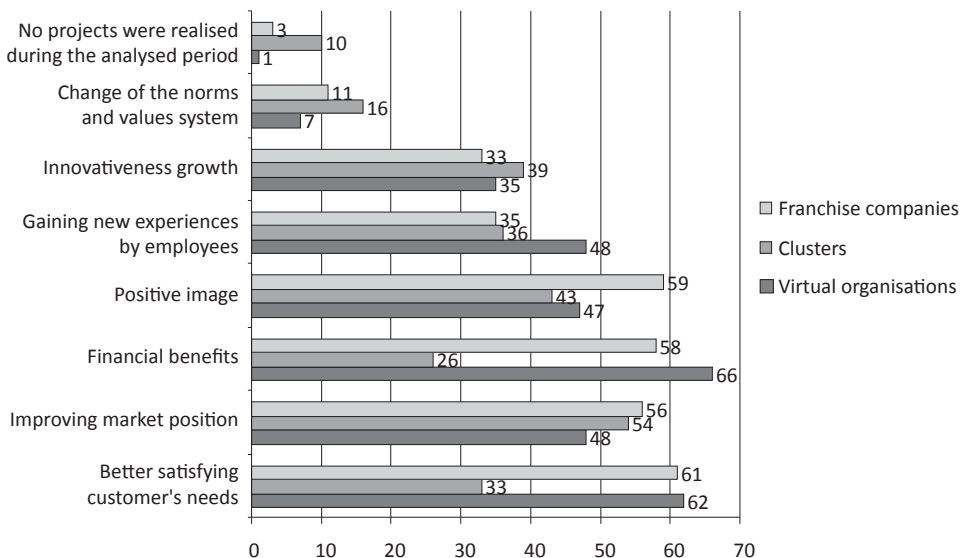


Source: Same as Fig. 1.1.

From the perspective of analysed virtual organisations, to the greatest extent the benefits of the projects realisation relate to financial benefits (66% of responses) and better satisfying of the customers' needs (62% of responses), Fig. 1.16. Thus, the distribution of responses was basically similar to the one obtained for all respondents. From the point of view of franchise companies it is also important to improve the image (59% of responses). Expansion of the services' offer, improvement of the service quality and entering new markets are the innovative projects. One can assumed that franchise organisations to the greatest extent implement these projects to achieve the goal which is a positive image of the company. According to the respondents belonging to the clusters, the most important benefit of the projects realisation is the improvement of the market position (54% of responses).

Cooperation undertaken within the clusters (project of organisational and development character) is aimed at joining forces. This cooperation significantly contributes to the reduction of the threats, to replenish the resources and to full knowledge and skill usage. Improvement of market position of enterprises gathered in clusters, is followed by the acquisition of knowledge and implementation of the process of internationalisation and the effective implementation of the results of scientific and development research. The clusters contribute to costs reduction, thereby the sale of products at lower prices becomes possible, and that is why market capacity is increasing, which causes the development of products (higher innovativeness of clusters).

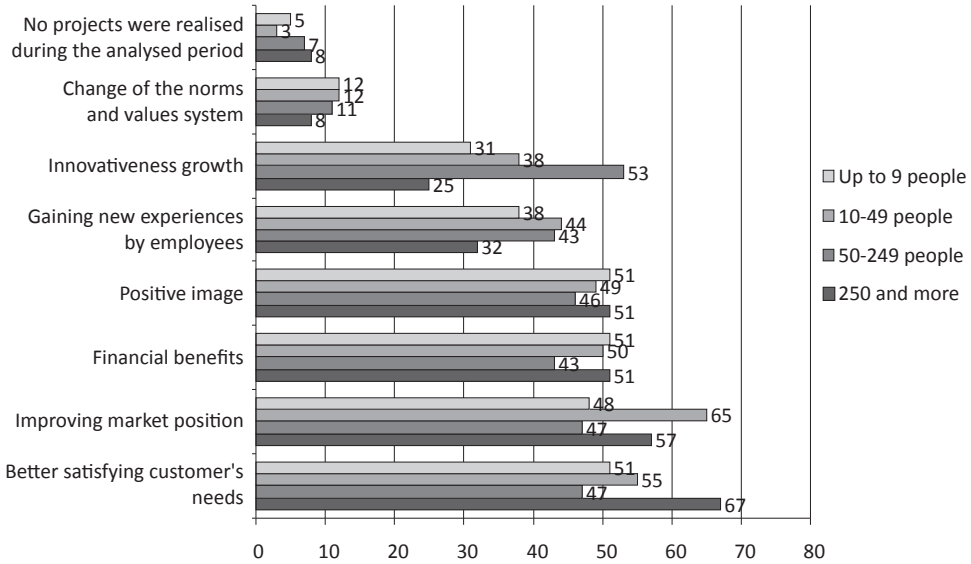
**Figure 1.16. The benefits of the projects' realisation in the network organisations depending on the type of the network organisation (% of responses)**



Source: Same as Fig.1.1.

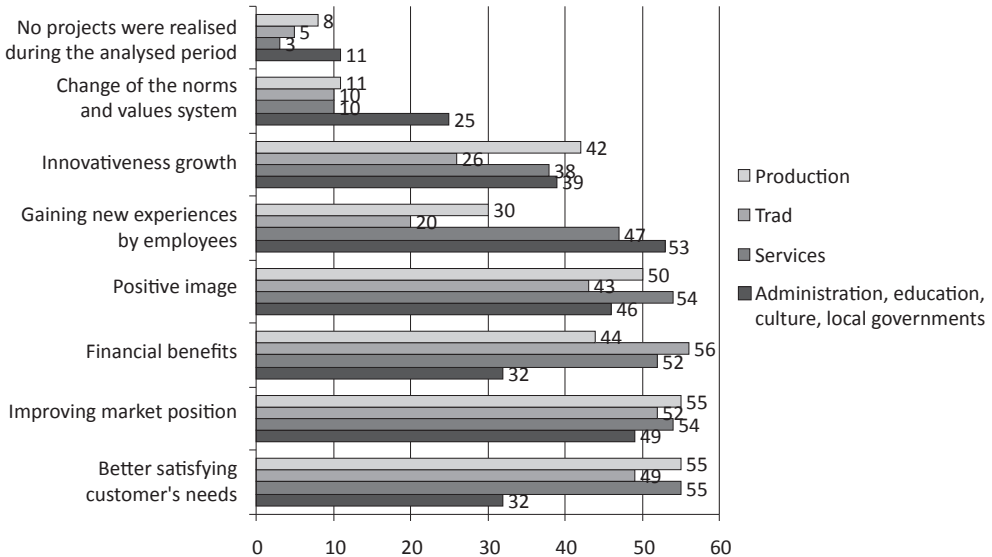
It is important to point out that the larger the enterprise belonging to the network is, the more respondents indicated above mentioned priorities in the gained benefits from the projects realisation – Fig. 1.17. The distribution of responses was basically similar to the one obtained for all respondents. This may mean that the larger the enterprise, the greater the potential including the knowledge and skills, which enables the implementation of projects and achievement of significant benefits. It should be noted that the level of indications is not much lower in other enterprises separated by the number of employees, compared to large companies. Thus, small and micro enterprises belonging to the network also implement projects to reach their objectives. This is probably connected with belonging to the network that has a greater potential and resources that can be engaged in projects. An increase of innovativeness (53% of responses) was indicated to the greatest extent in the medium-sized enterprises, in comparison to other analysed enterprises. One can make a conclusion, that the medium-sized companies belonging to the network should be most innovative. This concerns more often manufacturing companies (42% of responses) than trade and service ones or these which operate in the area of administration, education and culture – Fig. 1.18.

**Figure 1.17. The benefits of the projects' realisation in the network organisations depending on the number of employees of the network's participant (% of responses)**



Source: Same as Fig. 1.1.

**Figure 1.18. The benefits of the projects' realisation in the network organisations depending on the type of the business of the network's participant (% of responses)**

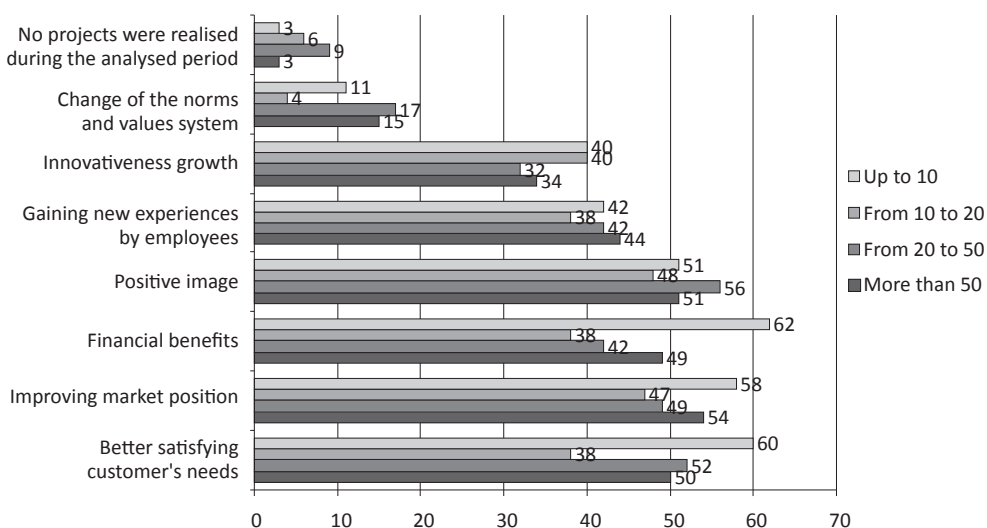


Source: Same as Fig. 1.1.



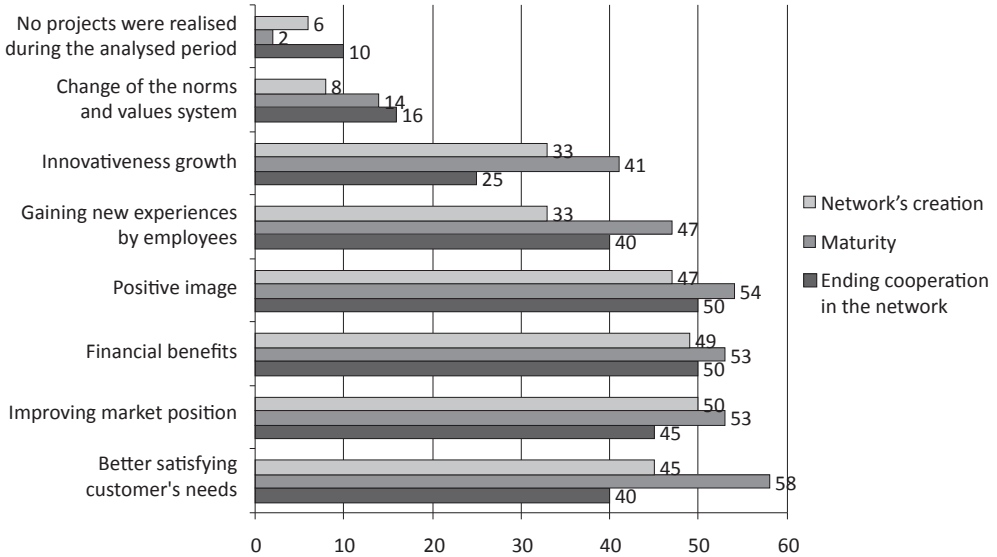
It was already mentioned that the larger the enterprise is, the more benefits from the implementation of the projects it achieves. The companies belonging to the network with a smaller number of employees more often combine the innovativeness growth with the project than the large companies. This also applies to the group of analysed companies separated due to the size of the network and its range. The fewer participants in the network (up to 10 participants and from 10 to 20), the greater the frequency of the indicated benefits – Figure 1.19, mainly in the maturity stage (Fig. 1.20) – one can notice the biggest opportunities resulting from many conditions. It mainly concerns enterprises on the one hand, with a local range, and on the other hand, with an international range (Fig. 1.21). Local networks are the networks with a smaller number of participants and international networks belong to a networks group with the largest number of entities. Increase of innovativeness mainly concerns regional networks (41% of responses) and international ones (40% of responses). In this context, the innovativeness of network organisations, which have a smaller number of participants and a smaller range should therefore be higher than in other organisations (except of international ones), what can be attributed to a greater extent to the quality of human capital than only to the amount of available resources. This translates to knowledge and skills such as ability of making changes, obtaining EU funds to finance the projects and project management, innovation and intellectual capital management. Creation and implementation of projects require on the one hand, information and knowledge, and on the other hand, projects generate knowledge and innovation, influence product and enterprise's development and improve employees. They enable the organisation to learn.

**Figure 1.19. The benefits of the projects' realisation in the network organisations depending on the number the network's participants (% of responses)**



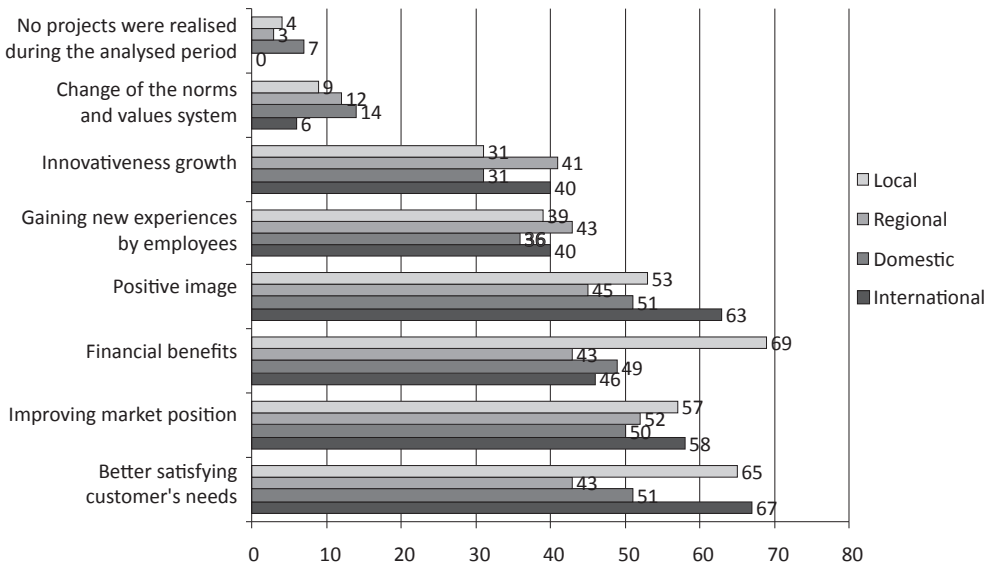
Source: Same as Fig. 1.1.

**Figure 1.20. The benefits of the projects' realisation in the network organisations depending on the stage of network's development (% of responses)**



Source: Same as Fig. 1.1.

**Figure 1.21. The benefits of the projects' realisation in the network organisations depending on the network's range (% of responses)**



Source: Same as Fig. 1.1.

One can assume that learning is the most important benefit of the projects' realisation for the network organisation in the context of the knowledge economy and innovativeness of the enterprises. The learning process is also an important condition of innovativeness. Assessment of the network organisations according to their ability to learn is the subject of discussion in Chapter 3.

## 1.5. Summary

Narrowing the scope, skills to create new technical solutions and the abilities to use the latest achievements of science and technology in social and economic life are the basis for sustainable economic development in modern market economies in the knowledge economy. These factors are important because between the science, technology and education development and the level of human knowledge, there is a feedback that stimulates economic growth, socio-economic development and changes in the education, research and innovation processes. Research and development, investments in human capital and the level of knowledge (e.g. environmental one), determine the development of the modern economy, and knowledge plays the special role here. The knowledge economy is most often associated with an information and communication technologies, technical progress and innovativeness. One can notice that the growing importance of globalisation, technology, information, and above all science and knowledge is mentioned among the most important features of the knowledge economy. The demand for knowledge, skilled workers and modern management is increasing. Human capital and actions that increase its quantity and quality become very important. The need for creation and implementation of innovation requires continuous skills development, creation and assimilation of new knowledge and the creation and implementation of projects, allowing the introduction of changes, particularly innovation, such as new scientific, organisational and technological solutions and new products.

It is worth mentioning that based on the research results from the point of view of participants of the network, the development of modern enterprises depends primarily on changes in the environment such as the pursuit of business integration. This allows the increase of the enterprises' potential and it should increase the capacity of enterprises belonging to the network and the network itself to create and implement the innovations. Least likely, managers pointed to the increasing importance of human capital and environmental awareness. These factors are important because they determine the type of business strategy (e.g. innovation strategies) and they also create its potential. What's more, a society which creates certain conditions for the economic, social and cultural development is important in the process of creating

knowledge economy. The development of science, education of the society and process of learning how to use knowledge play an important role in the development of new economy.

In this context, it is interesting to determine the significance of the management concept in the modern enterprise in face of changes and challenges arising from changes in the environment that is an identification of management concepts which influence the development of enterprises. Project management, innovation management, knowledge management and human capital management are important in the development process of enterprises, from the perspective of the surveyed entities (as participants of the network organisation).

The results of empirical studies indicate the benefits concerning the growth of innovativeness not only from projects' realisation but also from belonging to the network. Enterprises with a smaller number of employees more often associate the innovativeness growth with the project than the large enterprises. This also concerns the group of surveyed companies separated due to the size of the network and its range. Creation and implementation of projects require information, knowledge and specific skills and characteristics, and on the other hand, the projects generate knowledge and innovation, influence the development of products and position, enterprise's image in the market and the improvement of its employees. They enable the organisation to learn.

Narrowing the scope, in the context of innovativeness of modern enterprises one should emphasise the importance of the knowledge economy, creation of the right conditions for innovativeness, creation of an information database about innovations (information should come from both external and internal sources), creation of organisational structures which are conducive to innovativeness (flexible structures, network structures), the improvement of management or the creation of the generation of innovative managers (managerial broad-minded highly qualified staff who is opened to any kind of change, willing to risk and implement projects, willing to share knowledge and to the develop human capital).

With reference to the above considerations, one can conclude that on the basis of empirical research, respondents gave answers to formulated in this section questions. An image of managers' awareness in terms of the most important internal and external conditions of modern enterprises was revealed. On the one hand, the strive to business integration of enterprises in the knowledge economy, which is reflected in the creation of network organisations, on the other hand project management and benefits from their realisation. However, as the research shows, the growth of innovativeness is one of many benefits of the projects, but is not a benefit which was indicated most frequently by respondents. This applies more to medium-sized and

manufacturing enterprises belonging to the clusters with regional range, and up to 20 participants in the network, which is in its maturity stage.

At the same time a low level of indications and “do not know” answers in empirical research may indicate a lack of knowledge or unwillingness to share knowledge owned by the respondents about the importance of environmental changes in the development of enterprises, the importance of the management concept and the role of projects in the knowledge economy in relation to the companies belonging to the network and the network as a whole.

It should be emphasised that in the context of business integration and project management, the developed ability to learn continuously decides about the survival and success of the enterprise. Learning organisation is the one whose competitive advantage is based on knowledge, skills, creativity, imagination, intelligence, experience, intuition, motivation and system of values of people who work there. In times of globalisation, which means the increased competition, and the acceleration of the pace of civilisation progress, enterprises must be prepared for constant change and continuous learning. Innovative economy can be built only through innovative society and this applies equally to the employees and employers. Human capital may indeed be lost in a short time due to inefficient management, knowledge management, innovation management or human resource management.

Reflections on the determinants of the development of network organisations in the knowledge economy in this chapter constitute the starting point for the analysis of opportunities and barriers of the network organisations functioning in this type of economy (Chapter 2), and analyses of network organisations as learning organisations, which are characteristic for the knowledge economy and determine its development (Chapter 3).

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## Chapter II. Opportunities and barriers of the functioning of the network organisations in the knowledge economy

### 2.1. Introduction

Changes that affect most economic activities of modern enterprises are globalisation, rapidly progressing economy ‘*servicisation*’, interpenetration of service and production sectors, standardisation of consumption, necessity of environment protection and conducting balanced development, uncertainty and discontinuity of changes occurring in the business environment, intensifying crisis or economy recession phenomena, the dynamic growth of ICT sector, knowledge and intellectual capital importance. Processes within enterprises, which involve changes in resources and processes, ways of gaining competitive advantage and execution of development strategies, have an impact on enterprise management. Dynamics of these changes and high level of uncertainty of business activity conduction result in enterprises constantly looking for new opportunities of achieving competitive advantage in viability and development<sup>1</sup>. Among them is taking advantage of the broad co-operation with other actors on the market, so as to seize new growth opportunities, a joint potential, resources and skills are among them. This cooperation can take various forms, ranging from occasional contacts through networking companies, and ending with the close capital connections. Basing company’s development on cooperation and collaboration can help in creating a competitive advantage in relation to other entities, allowing to achieve certain economic effects on a regular basis, flexibly and quickly adapting companies activities to market conditions. Therefore, in this part of the studies one presents issues concerning the essence of functioning of the network organisations, the factors that lead economic entities to establishing cooperation,

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<sup>1</sup> W. Szymański, *Niepewność i niestabilność gospodarcza. Gwałtowny wzrost i co dalej*, Difin, Warsaw 2011; *Globalizacja, kryzys i co dalej*, (ed.) G. Kołodko, Poltext, Warsaw 2010.

the barriers that can occur in this area and the types of joint actions conducted by network organisations.

Following research questions were raised:

1. What are the main factors encouraging companies to cooperate within network organisations?
2. What are the barriers in terms of establishing and conducting cooperation in network organisations?
3. What joint actions are dominant within network organisations?

Following passages of this chapter are an attempt to provide answers to these questions. They are based on synthetic results of empirical studies conducted in a group of 363 companies belonging to organisations, which can be described as network organisations.

## 2.2. Determinants of network organisations' creation

Knowledge management ability or more broadly understood intellectual capital becomes one of the key determinants of the enterprises development. It can increase the potential of the company over tangible assets value, and also promotes its dynamic growth. The creation and use of knowledge in the enterprise can be accelerated by developing relationships with business partners, and establishing a far-reaching cooperation. Thanks to the synergistic effects, a properly used knowledge increases its value, and its use increases its size. Thus it becomes a valuable business asset that can generate profits for each of the cooperating companies.

Undoubtedly the latest information technology has a huge impact on changes in the functioning and management of companies. In the most dynamically developing organisations, profits are increasingly the result of the use of information and communication technology, both inside and in connection (and even integrated) with suppliers and customers. Enterprises cooperation in integrating separate information systems therefore contributes to faster response to changes in the environment, also allowing to limit the risks associated with wrong orders execution.

Companies must seek these types of business that will meet the expectations of investors concerning the achieved rate of return on invested equity. This phenomenon also involves the progressive relocation of business activities linked to the free movement of capital and information. For enterprise executives, this means the necessity for continuous monitoring of activities and creating new business models to ensure a high return on investment<sup>2</sup>. Establishing cooperation with similar partners in the

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<sup>2</sup> *Uwarunkowania i sposoby wzrostu konkurencyjności przedsiębiorstw*, (ed.) M. Białasiewicz, *Economicus*, Szczecin 2009, p. 143.



sector, instead of competing with them, can help to strengthen the competitive advantage and to maintain a satisfactory level of profits, because in this way increases the scale of business and synergistic effects of such cooperation may raise additional investors' interest.

A substantial change in the relationships between consumers and business organisations takes place in the modern economy. Customers of companies are gaining wider impact on product design and creation of offers which exactly meet their expectations. This means that the development of products and services, their characteristics and functional features, new distribution channels, new ways of using resources, new business models causes the transformation in thinking about innovation and their application in business practice<sup>3</sup>. Often the potential of an enterprise is insufficient to conduct research, innovate, offer new solutions for the distribution, supply etc. However by taking this type of joint actions with business partners, it is possible to shorten and accelerate the implementation of innovative solutions. This can strengthen the innovative potential of enterprises.

In the processes of modern business management one can notice a phenomenon of using resources which come from external entities, and this requires establishing cooperation beyond the organisational framework of the economic entity in the functional sense, or even geographically. Thanks to this kind of cooperation companies can quickly solve their problems, use the collected and available in an open system resources to implement non-standard decisions and unconventional actions.

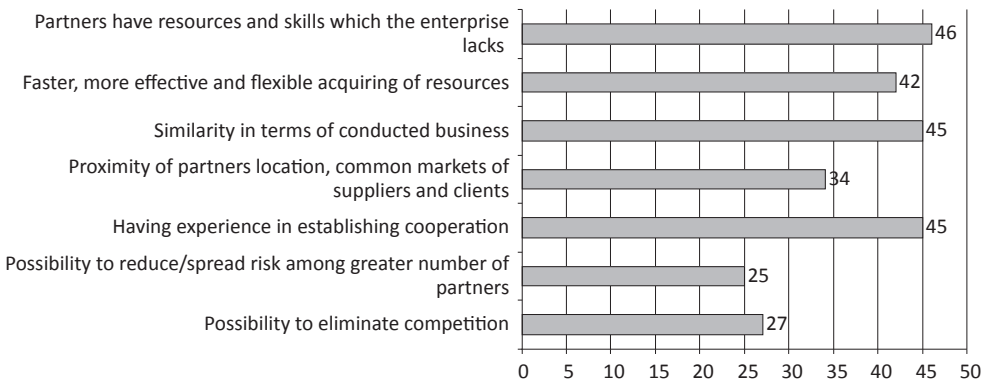
Selected conditions mentioned above cause that in the development of modern enterprises strategies, in addition to their independent development, concepts using specific relations and partnerships with other entities are becoming increasingly important. Cooperation, apart from competing, may be the key to market success<sup>4</sup>. Competition does not preclude establishing cooperation between enterprises. Thus, new forms of this cooperation, new organisational structures, new perception of companies emerge, highlighting high dynamics of changes in the methods of its functioning and interactions with the environment. Network organisation can be considered as one of these types of cooperation.

In empirical studies, respondents were asked what factors led them to cooperate in the framework of network organisations (respondents could indicate any number of answers). Answers are presented in Fig. 2.1.

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<sup>3</sup> C.K. Prahalad, M.S. Krishnan, *Nowa era innowacji*, PWN, Warsaw 2010, p. 9–10.

<sup>4</sup> M. Najda-Janoszka, *Organizacja wirtualna. Teoria i praktyka*, Difin, Warsaw 2010; M. Strzyżewska, *Współpraca między przedsiębiorstwami-odniesienie do polskiej praktyki*, Oficyna Wydawnicza SGH, Warsaw 2011.

**Figure 2.1. Factors encouraging enterprises to cooperate within the network organisations**

Source: Own research 2013, Department of Enterprise Management, Institute of Management, SGH, N=363.

Partners having resources and skills which the enterprise lacks, the similarity in terms of enterprises' businesses and having experience in establishing cooperation were the most often indicated factors taken into account by the respondents when deciding about collaboration in the framework of network organisations. The percentage of indications in this field was generally similar, oscillating around 45%. It means that it is important for companies to have previous experience of cooperation, particularly positive, which encourages them to take next steps in cooperation. The similarity in the conducted type of business also encourages companies to try to establish cooperation, and not only compete with their direct competitors.

Analogously high, over 42% of respondents pointed to faster, more efficient and flexible acquiring of resource. Therefore, awareness is growing and by collaborating enterprises can derive from external resources to acquire those resources that will help them to stay in the market and to achieve market success<sup>5</sup>. Lower frequency of indications occurred in relation to the proximity of the location of partners, common markets of suppliers and customers. In the Internet age, the barrier of access to suppliers, customers, or partners disappears. Enterprises are free to establish relationships with entities from the same environment using communication and information technologies. So enterprises do not necessarily have to be closely located.

What is interesting, the possibility of eliminating competition was also not a main factor reported by respondents. So it is not a competitive struggle, elimination of competition, but rather interaction and cooperation that promote establishing the relations between the companies. The possibility of reducing/spreading risk among a larger number of partners was the least indicated factor by the respondents. From the

<sup>5</sup> J.H. Dyer, H. Singh, *The relational view: cooperative strategy and sources of interorganizational competitive advantage*, "Academy of management review" 1998, vol. 23, p. 660-679.

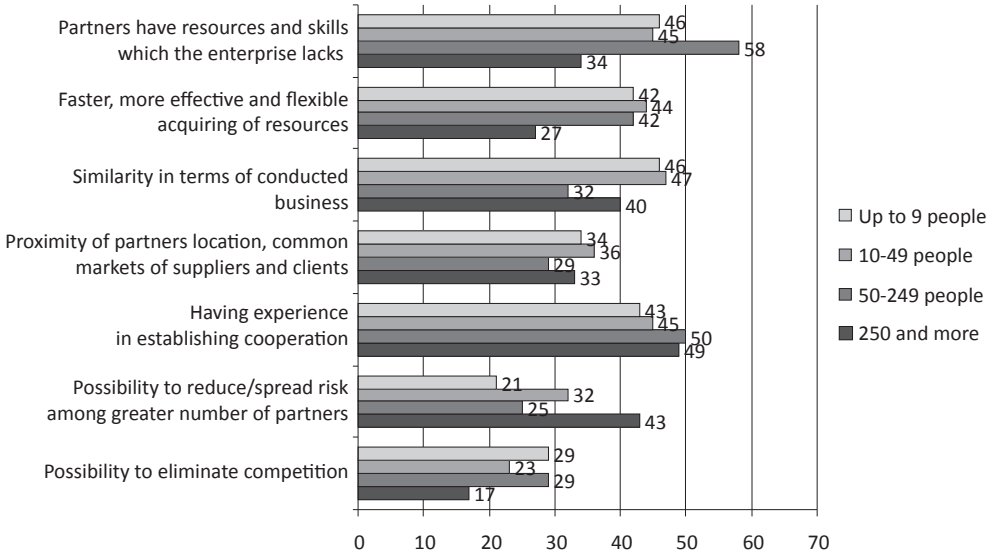
distribution of answers comes a definite conclusion that the cooperation of companies is lead rather by prospect of achieving certain benefits, multiplying their potential, and not by defending against competition and its elimination. This is in cooperation, not in competition, where the respondents see the opportunity to achieve success in the market and to gain a competitive advantage.

Interesting results were obtained in the scope of the relations between factors considered by respondents when starting collaboration within the network organisation with selected criteria of differentiation. And so medium-sized enterprises usually pointed to the resources and skills of partners, which a company lacked (Fig. 2.2). More than 58% of these respondents pointed to this factor, it was a much higher level than in all surveyed group. Perhaps medium entities diagnose better their own limits of development and attribute greater importance to the cooperation with partners, who have key resources. Large enterprises usually pointed to its experience in establishing cooperation and the possibility of reducing/spreading risk among a larger number of partners, more than 49% and 43% of respondents in this group pointed to these answers. The interesting aspect is that the total number of respondents indicated reducing risks when establishing cooperation within the network least often. This may mean that large enterprises conduct extensive economic analysis of their activities, evaluate profitability of business ventures, and determine the level of risk associated with specific projects. What's more, by establishing cooperation with relevant and appropriate business partners they can lower the threshold of acceptable risk; divide the risk on a greater number of participants involved in the implementation of specific business projects.

For small and micro enterprises distribution of responses was basically similar to the one obtained for all respondents.

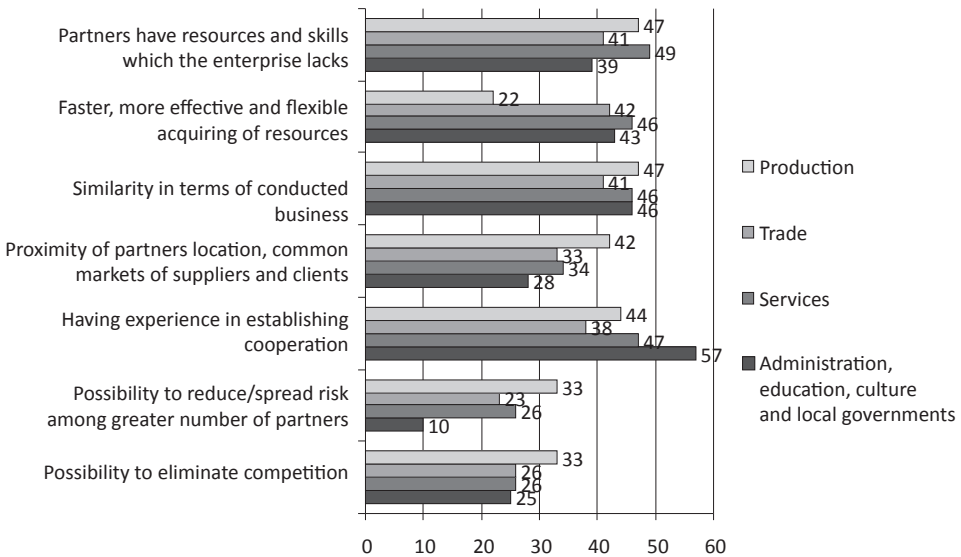
By contrast, manufacturing companies pointed to, in addition to the three factors that were most often mentioned in the group of all respondents, the possibility of eliminating competitors and reducing or spreading risk among a larger number of partners (Fig. 2.3). For trade companies distribution of responses was basically similar to that in the group of all respondents. The service companies frequently pointed to the acquisition of external resources from partners and speed and flexibility in the process of acquiring them. The companies belonging to the section of culture, administration, education most frequently pointed to having experience in establishing cooperation. More than 57% respondents from that group indicated this factor, while 45% of the companies in the group of all respondents pointed to that factor. On the other hand, only 10% of them indicated the possibility of reducing/spreading risk among a larger number of partners as a factor that encourages them to cooperate in the framework of network organisations.

**Figure 2.2. Factors encouraging companies to cooperate within the network depending on the size of the respondent in %**



Source: Same as Fig. 2.1.

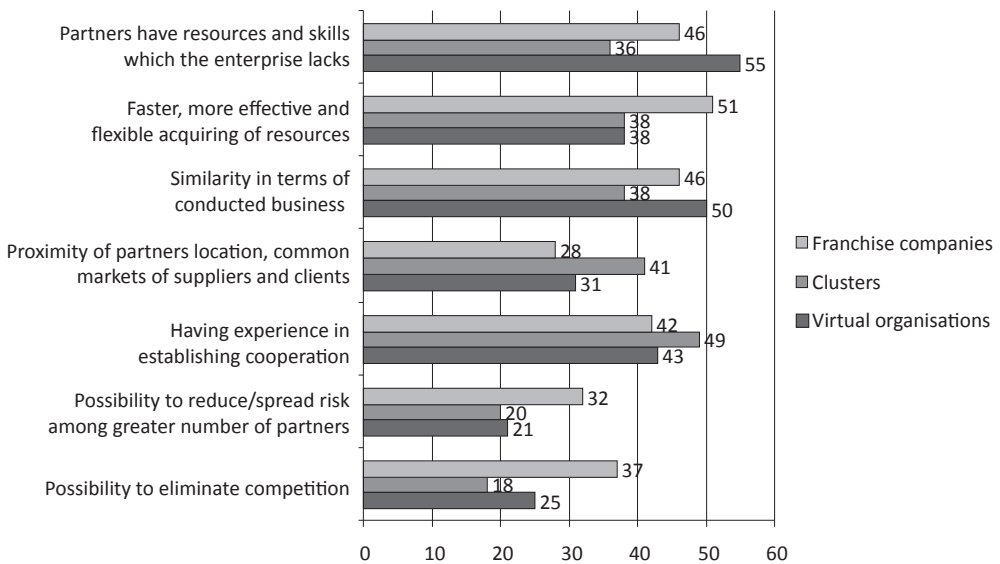
**Figure 2.3. Factors encouraging companies to cooperate within the network depending on the type of respondents' business in %**



Source: Same as Fig. 2.1.

Taking into consideration the type of network organisations to which surveyed respondents belonged, differences in frequency of chosen factors that encourage businesses to establish cooperation were noticed (Fig. 2.4). Franchise businesses frequently pointed to the rapid, more efficient and flexible resource acquiring, more than 51% of companies in the group indicated this factor. Partners having resources and skills, which an enterprise lacked, similarity in terms of activities and experience in establishing cooperation received a similar number of indications. In contrast, more often than the total number of enterprises, franchise businesses pointed to the possibility of eliminating competition and reducing or spreading risk among a larger number of partners. It means that franchise is regarded as a model of enterprise conducive to beating the competition. In addition, a proven formula of franchise helps to reduce business risk, especially for smaller enterprises. So joining the franchise network enables to achieve success in the market, also reducing the level of risk connected with business activity.

**Figure 2.4. Factors that encourage enterprises to establish cooperation within the network depending on the type of the network in %**



Source: Same as Fig. 2.1.

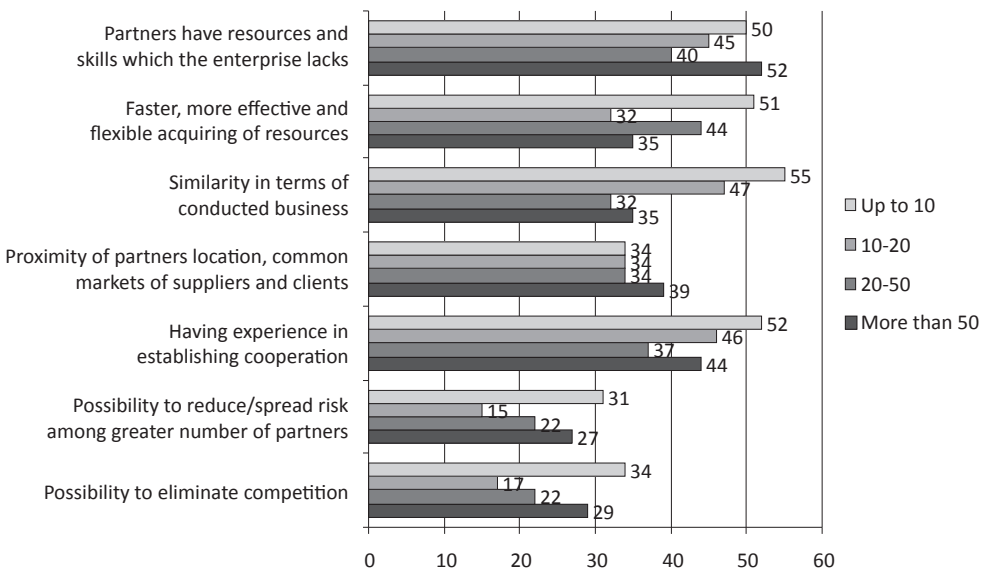
The companies belonging to the clusters most often pointed to its experience in establishing cooperation between the partners and the proximity of partners' localisation, common markets of suppliers and customers, which is understandable due to the nature of this type of network organisations. Companies belonging to

clusters indicated reducing the risk and the possibility of eliminating competition with a lower frequency, than the total group of tested subjects.

For virtual organisations the key factors when establishing cooperation were resources and skills of partners which they lacked in the company – over 55% of responses and the similarity of conducted businesses – more than 50% of the responses in this group of respondents. So the percentage of indications in this area was higher than in the group of all respondents. This may lead to a conclusion that for virtual enterprises, the similarity of business activity and complementarity of resources play a key role in establishing cooperation. They allow to respond faster to changes in the environment, to create matched offers etc.

By evaluating factors encouraging the surveyed companies to cooperate within the network organisation depending on the number of participants of the network and its range, one can observe some interesting connections (Fig. 2.5, Fig. 2.6).

**Figure 2.5. Factors encouraging companies to cooperate within the network depending on the number of network's participants in %**



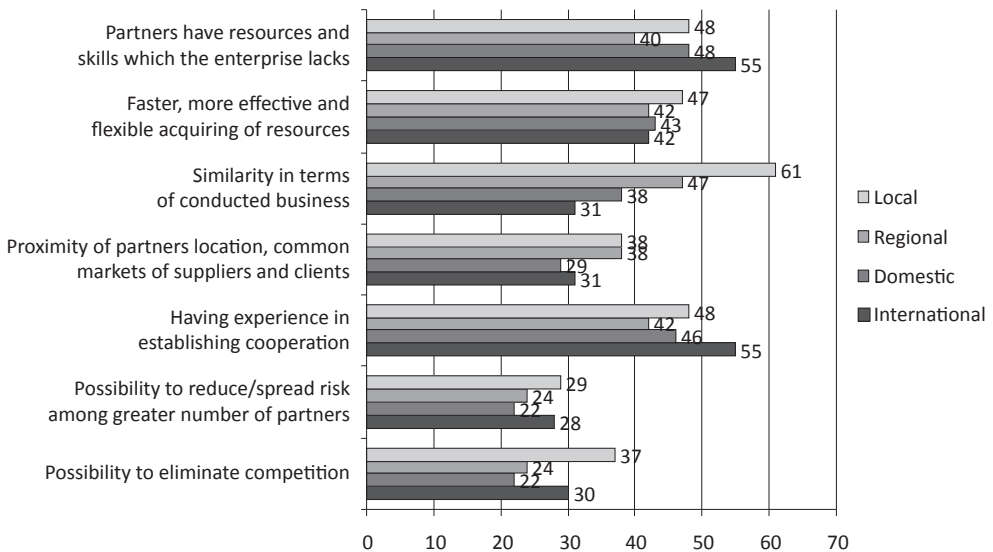
Source: Same as Fig. 2.1.

The smaller the number of network participants, the greater the frequency of indications that encourage companies to establish cooperation compared to the indications in the group of all entities. In particular, most responses in a group of networks with up to 10 participants were assigned to the similarity of its conducted business and capability of acquiring resources faster and in more efficient way. Network organisations with more than 50 participants, most often pointed to

the resources of their partners, which an examined company did not have. So the expansion and development of a large network organisation is possible through acquisition of complementary partners, who strengthen the potential of the whole network. Furthermore, the experience in cooperation between the partners, which can result in greater trust and obtaining synergy effects in the pursuit of common goals, is very important too.

Companies belonging to international networks with a large number of participants, that is certainly conducting business on a large-scale, pointed to similar factors (Fig. 2.6).

**Figure 2.6. Factors encouraging companies to cooperate within the network depending on its range in %**



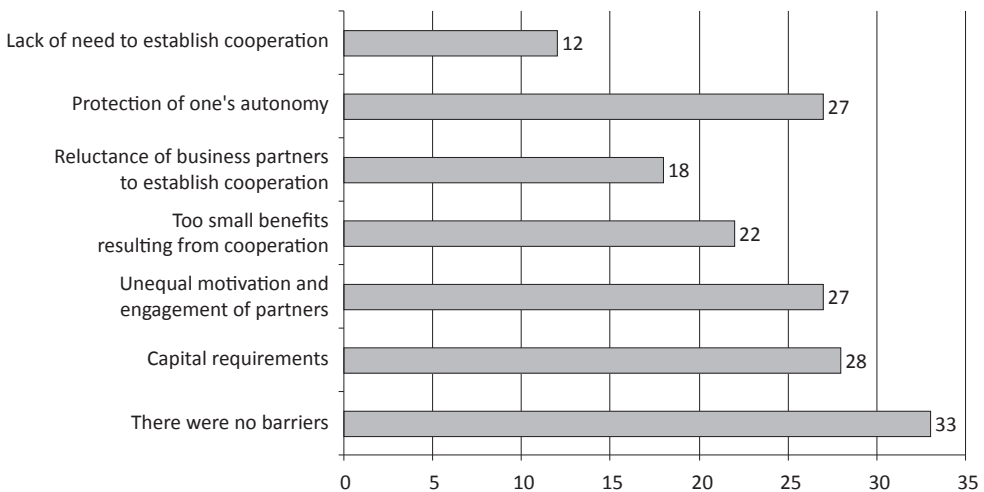
Source: Same as Fig. 2.1.

The distribution of responses obtained for the surveyed entities due to the range of networks activities to which they belong, is therefore, similar to the distribution of responses in the group which was separated due to a number of participants of the network. Local networks are usually networks with fewer participants and international networks belong to the group of networks with the largest number of participants.

### 2.3. Barriers in establishing and conducting cooperation within network organisations

Another area of research taken in empirical study concerned the barriers that may exist when establishing and cooperating within network organisations. Respondents could select any number of barriers in cooperation between enterprises within network organisations, which are presented on Fig. 2.7. What is particularly interesting, most responses concerned the absence of such barriers. More than 33% of respondents identified this factor. This could mean that the cooperation of companies, when already established, is carried out in a conscious, thoughtful way and is a part of a defined strategy for growth. Barrier of cooperation may be imposed to potential participants of the network by capital requirements; this factor was pointed by more than 28% of the total number of respondents.

**Figure 2.7. Barriers when establishing and conducting cooperation within network organisations in %**



Source: Same as Fig. 2.1.

27% of respondents pointed to protection of their autonomy and unequal motivation and engagement of partners, which are further barriers when establishing and conducting cooperation between enterprises within the network organisations. It seems that companies' managers, when deciding to conduct joint activities, are aware of the occurrence of some restrictions related to the rules of operations in a specific network organisation. Nevertheless, such cooperation takes place. Slightly more than 20% of surveyed companies indicated small benefits resulting from cooperation within a network organisation. This may mean that decisions about whether



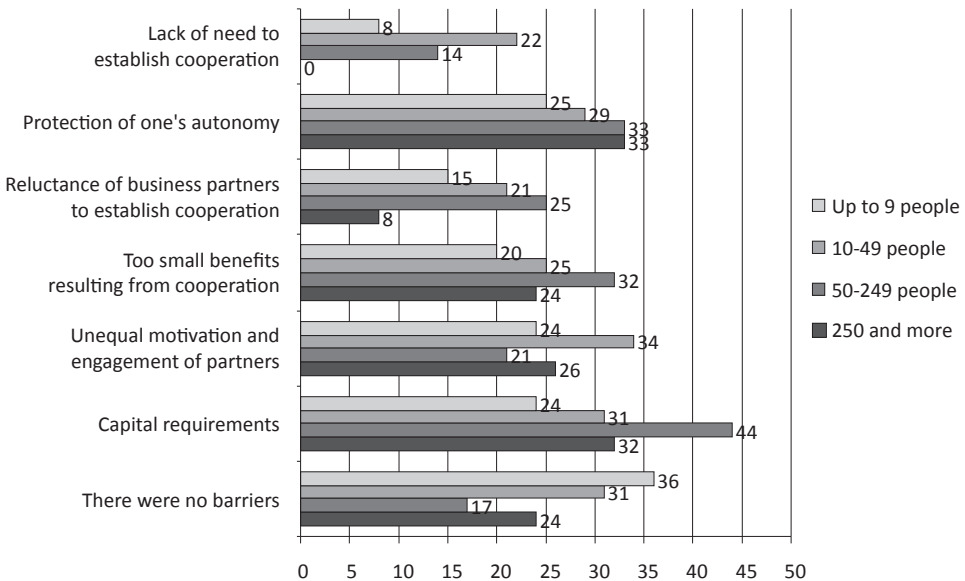
to join the network organisation were taken in their case without a deep analysis or the level of expectations regarding benefits of cooperation was too high. The practice of the network organisations functioning came out to be not so favourable, as this entities previously assumed. 18% of respondents pointed to the reluctance of business partners to establish cooperation, as a barrier to the functioning within the network organisation. The reluctance to cooperate may in turn cause a decrease in the level of trust among partners, thereby can also lead to conflicts and enterprise's withdrawal from the network organisation. 12% of respondents indicated lack of need to establish cooperation as a barrier to conduct joint activities within the network organisation. It is quite surprising, because all tested entities belonged to the specific network organisations, therefore one can assume that they were involved in certain common activities carried out by these organisations.

Quite interesting responses were obtained in terms of the list of barriers to establishing and conducting cooperation within network organisations with selected criteria of their differentiation. For more than 36% of micro-enterprises there were no barriers, and if one must point to certain restrictions, nearly 25% of respondents in this group chose protection of one's autonomy as a barrier (Fig. 2.8).

For small businesses the most often cited barrier was unequal motivation and commitment of partners, more than 34% answers of respondents from this group. Capital requirements are the second barrier in terms of the frequency of its occurrence. What is interesting, more than 44% of medium-sized companies indicated this limitation, when in principle, such a barrier should have a stronger impact on smaller companies. Since medium-sized enterprises already have a certain potential and should have adequate financial and property resources, this type of barrier should lose its importance. The second barrier in terms of frequency of occurrence in the group of medium-sized enterprises is that benefits from establishing cooperation are too small, the percentage of indications was higher by 10 percentage points than for all surveyed companies.

Protecting one's autonomy is the most indicated barrier when establishing and conducting cooperation in the group of large enterprises. And it would seem that large entities rather not have a problem with keeping their bargaining position when dealing with other participants of the network organisation, if only because of its potential and size of business.

**Figure 2.8. Barriers when establishing and conducting cooperation within network organisations depending on the size of the respondent in %**



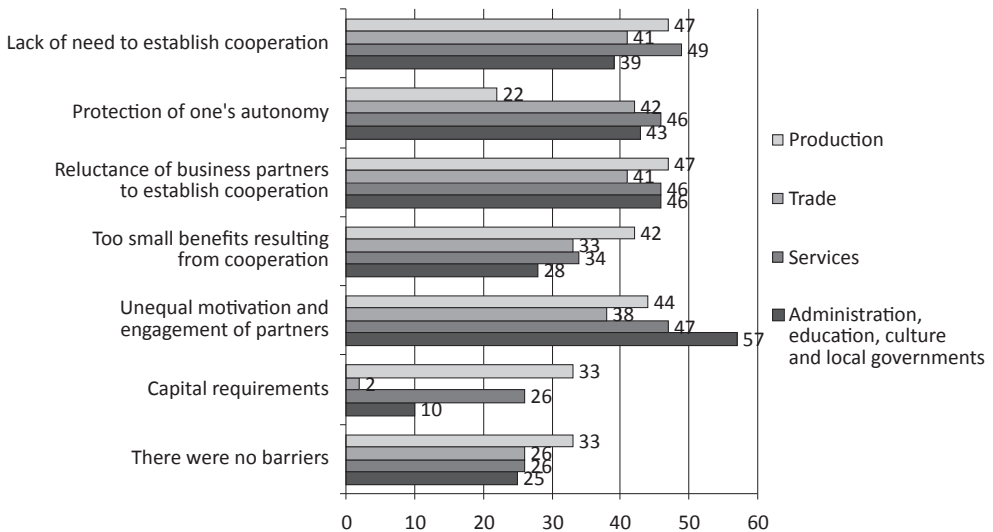
Source: Same as Fig. 2.1.

Separating the surveyed companies in terms of the type of businesses indicates that, in production companies the highest frequency of indications regarding barriers, were assigned to unwillingness to cooperate by the partners and the lack of need for establishing cooperation (Fig. 2.9).

Trade enterprises frequently pointed to the protection of their autonomy, and service enterprises pointed to unequal motivation and commitment of the partners. Also, respondents belonging to sectors of administration, education, culture and local governments frequently pointed to this barrier. It means that the profile of companies' business can affect the perception of the severity of a particular barrier.

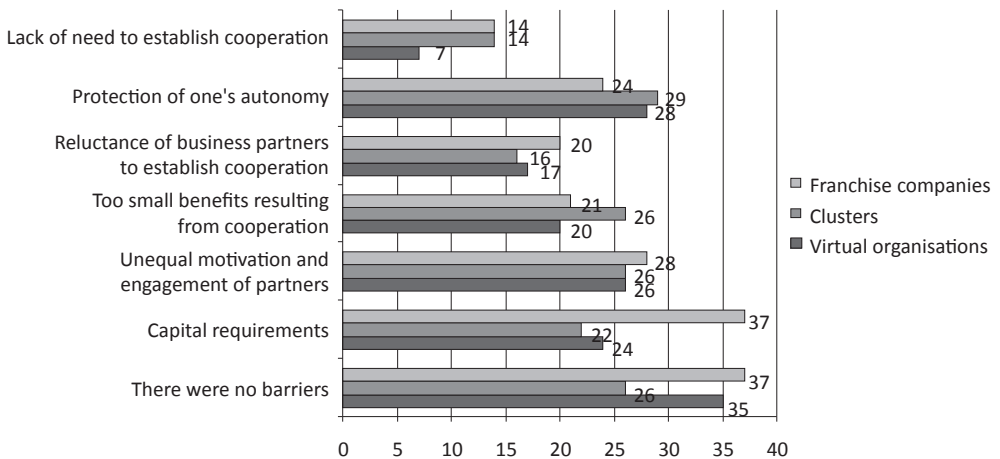
Given the type of network organisation, to which surveyed respondents belonged, the certain differences in the frequency of indicated barriers when establishing and conducting cooperation are apparent (Fig. 2.10) The group of franchise companies most frequently pointed to the absence of barriers to cooperation and capital requirements, when joining the network. It means that the franchise is treated as a way to develop the company, but capital requirements set by a franchisor may limit the intensity of its use. The distribution of responses in the other groups of network organisations was basically similar to the one obtained from all respondents.

**Figure 2.9. Barriers when establishing and conducting cooperation within the network organisation depending on the type of respondents business in %**



Source: Same as Fig. 2.1.

**Figure 2.10. Barriers when establishing and conducting cooperation within the network organisation depending on the type of the network in %**

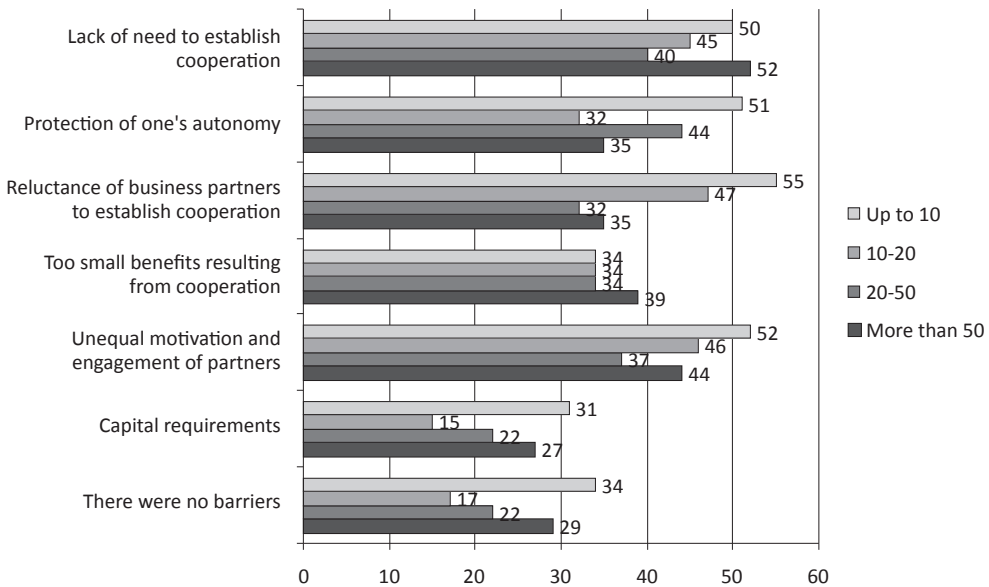


Source: Same as Fig. 2.1.

By evaluating existing barriers when establishing and conducting cooperation by the surveyed companies, depending on the number of participants of the network and its range, one can observe some interesting connections (Fig. 2.11, Fig. 2.12).

The smaller the number of participants of the network, the greater the frequency of indications compared to the distribution for all entities, regarding all barriers existing when establishing and conducting cooperation by the surveyed companies. Especially most responses in the group composed of up to 10 network partners occurred in relation to the partners reluctance to cooperation, 55% of respondents in the group pointed to this barrier. This may mean that for smaller entities, it is difficult to establish a common framework of cooperation, or to convince about benefits that one can achieve. It is also difficult to resign from independence that smaller entrepreneurs have, due to their small potential of growth. Usually they make all the decisions concerning the operations of the company. A similar frequency of indications occurred in relation to unequal motivation and commitment of the partners. On the other hand, large companies frequently pointed to the lack of the need to establish cooperation and unequal motivation and commitment of the partners. So managers from large companies are rather willing to cooperate when they can observe evident positive economic effects that are beneficial for them.

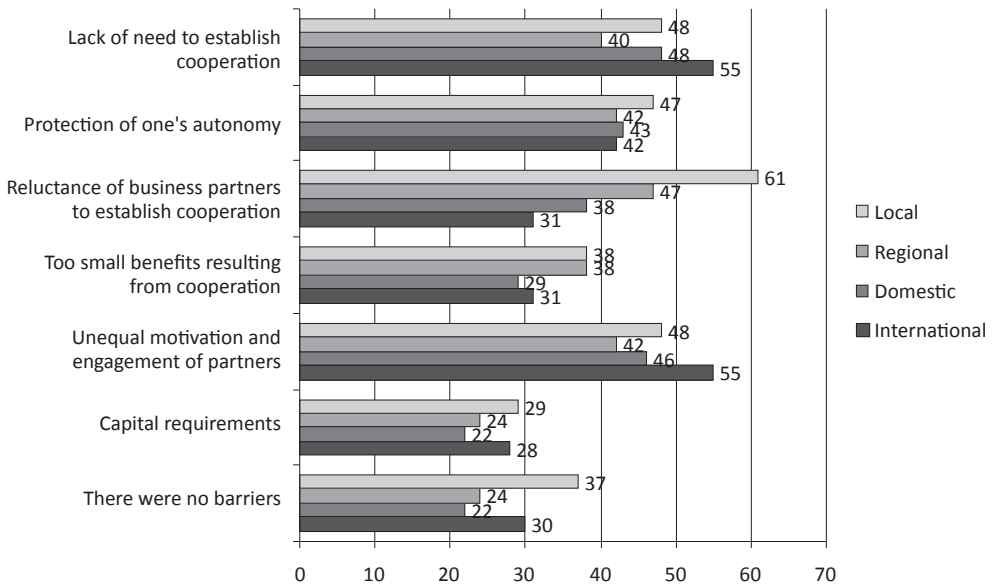
**Figure 2.11. Barriers when establishing and conducting cooperation within the network organisation depending on the number of its participants in %**



Source: Same as Fig. 2.1.

Large companies belonging to the international networks with a large scope of activities and with a high number of participants pointed to similar factors (Fig. 2.12).

**Figure 2.12. Barriers when establishing and conducting cooperation within the network organisation depending on its range in %**



Source: Same as Fig. 2.1.

The distribution of responses obtained from the surveyed entities, due to the range of activities of the network to which they belong, is therefore, in principle, similar to the distribution of responses in the group which was separated due to a number of participants of the network.

## 2.4. Common actions implemented within network organisations

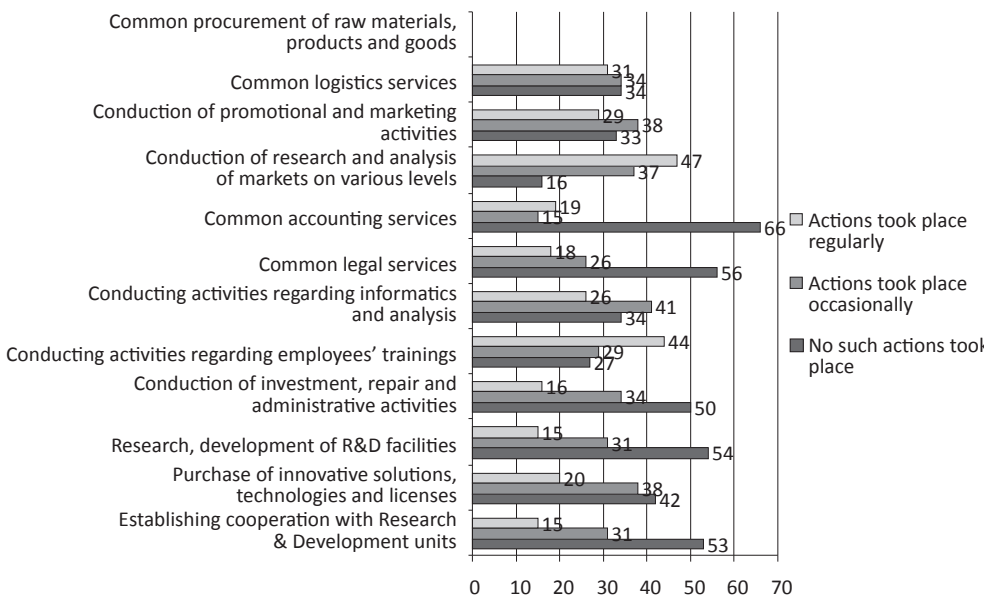
The functioning of the network organisations creates a new quality of management processes, it builds developed interaction processes between a large number of entities that participate in networks and are in greater or lesser extent dependent one from another. The network of connections means not only a specific, real flows of information between the participants of the network organisation, but also participants of a network have a common policy regarding the selection of optimal strategies, new distribution of complementary resources and agreed ways of creating them, organising common business processes in a faster, more efficient, cost-effective and with higher level of quality way. Principles of cooperation and collaboration in the network organisations allow organisations to achieve higher level of management and to create value for stakeholders, through an agreed approach of companies to

joint problem solving and the ability to improve the functioning efficiency of the various participants of the network.

The key to market success of the network organisation is to extend its period of joint actions, if it results in an expected level of satisfactory effects for individual participants. Participants of the network organisations should see the benefits of operating within its framework. If they want such a situation to happen, all of them must have the ability to work in the network, ability to cooperate, have complementary resources and skills and ability to use modern integrated information and communications system. These are basically the fundamental attributes that participants of network organisation must have.

It follows that the variety of joint actions is a condition for the development of network organisations. Therefore, one analysed types and frequency of joint actions that the respondents undertake (Fig. 2.13). By evaluating the distribution of responses one can notice interesting fact that answers that dominate, show a lack of taking defined joint actions. Depending on the type of action, percentage of indications ranged from 16% to 66%. In turn, among the activities carried out regularly, this percentage ranged from 15% to 47%. Most often one indicated promotional and advertising activities. This may mean that joining network organisation increases the visibility and promotes the company in the market, thus it is beneficial for all participants of the network. Not without significance is also a possibility to accumulate greater financial resources in this area than a single company would be able to engage.

**Figure 2.13. Frequency of conducting joint actions by the companies belonging to the network organisation in %**



Source: Same as Fig. 2.1.

Over 44% of respondents also conduct regular employee's trainings, which can increase the efficiency of the entire network organisation and can contribute to a specific standardisation of common actions. Such activities also allow to improve the functioning of the whole network, as well as its individual participants. Further, they encourage the informal exchange of knowledge and experience, and in this way enable to build a kind of organisational culture and a sense of identification of employees with the network organisation.

On quite the same level – about 30%, respondents pointed to the joint operations of procurement of raw materials, products and goods and logistics services. This seems to be a natural solution in network organisations, because then their bargaining power with suppliers grows, therefore economies of scale and optimisation of purchasing costs count. Common logistics services promote the elimination of redundant, overlapping processes, and thus allow to release the funds and optimise logistics costs.

26% of the surveyed companies indicated use of common IT services, which can contribute to speeding up decision-making processes, as well as faster response to changes in the environment. Joint activities when using information technology can also be crucial to improve the current functioning of the network organisation, because they organise and accelerate the time of execution of business processes, facilitate information exchange, contribute to the development of common databases and creation of platforms for exchange of knowledge.

About 20% of responses were assigned to common conducting of research and market analysis. As a result, companies belonging to the network organisation can better match their offer to the expectations of its customers, and include in it changes of buyers' behaviour, thus can react more effectively to the actions of their competitors.

18–19% of the respondents indicated joint legal and accounting services. Such activities contribute to the standardisation and simplification of internal procedures, which in the end can lead to lowering costs.

Nearly 20% of respondents purchased together on regular basis innovative solutions, technologies and licenses, and about 15% conducted joint research, joint development of R&D facilities and started collaboration with research – development facilities. The formation of network organisations often stems from the desire of its participants to develop and implement various innovative solutions. The very process of their creation can be capital intensive, involving a relatively high degree of risk. Hence, the joint operations of enterprises undertaken for the development and implementation of innovation contribute to spreading capital investment and risk among participants of the network organisation.

More than 16% of the surveyed companies on a regular basis led joint investment, repair and administrative activities thereby obtaining certain financial benefits, as well as various types of savings.

Interesting responses were obtained regarding the regularly conducted joint operations within the network organisation with selected criteria of differentiation (Table 2.1 and Table 2.2).

**Table 2.1. Regularly conducted joint activities within the network organisation depending on the respondent's size and type of business in %**

Types of joint activities	COMPANIES' SIZE					SECTOR		
	Up to 9 person	10–49 person	50–249 person	250 and more	Production	Trade	Services	Administration, education culture, local governments
Procurement of raw materials, products and goods	33	27	29	49	16	42	32	18
Conduction of activities regarding common logistics services	25	34	36	41	11	40	28	28
Conduction of promotional and advertising activities	44	52	46	83	17	55	48	60
Conduction of research and analysis of markets on various levels	13	22	29	50	11	17	20	29
Common accounting services	16	20	25	33	5	18	22	15
Common legal services	14	19	39	33	5	23	20	11
Conducting activities regarding informatics and analysis	20	31	47	41	16	34	25	22
Conducting activities regarding employees' trainings	38	55	43	67	16	40	52	46
Conduction of investment, repair and administrative activities	14	16	21	34	8	17	17	14
Research, development of R&D facilities	10	17	29	25	11	11	17	18
Purchases of innovative solutions, technologies, licenses	16	21	29	43	8	16	24	18
Establishing cooperation with R&D units	9	20	33	41	16	7	16	36

Source: Same as Fig. 2.1.

What draws attention is the fact that in large enterprises, most commonly implemented measures had the highest percentage of indications, both in comparison with other companies, and with the distribution of responses for all entities. The percentage of indications ranged from 29% to 83%. Most frequently, therefore, one indicated the conduction of joint promotional and advertising activities – 83% and employees' training – 67%. In the group of micro-enterprises the percent of indications regarding these two types of activities amounted together to 44% and 38%.

In terms of the dependence between the type of activities carried out by the entities and selected types of collaborative activities, there was no such clear relation. The highest

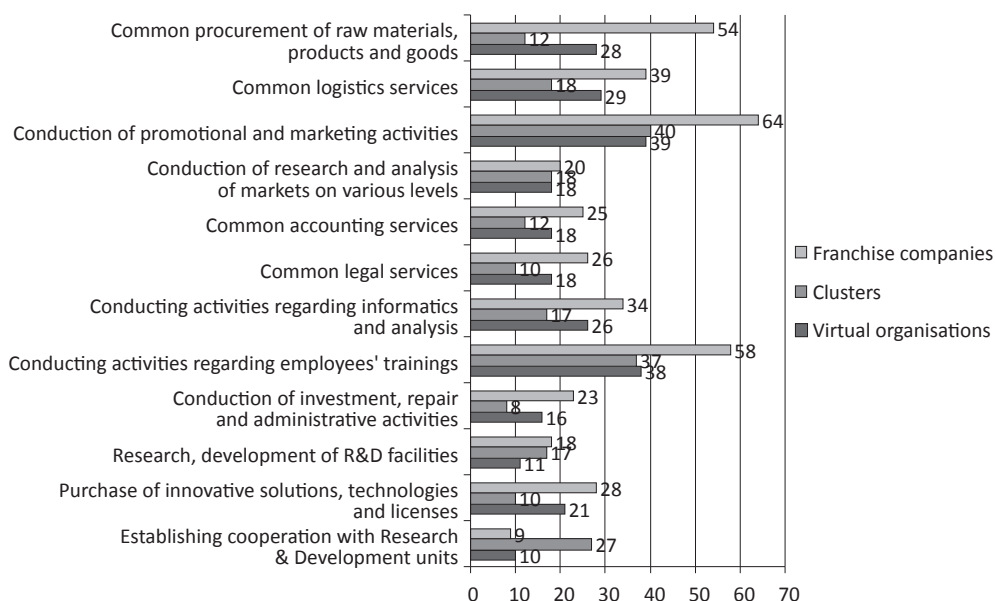


frequency of indications of selected joint activities occurred in commercial enterprises and it regarded joint purchasing, joint logistics and information services. Administration, educational and cultural entities and the local governments most frequently indicated commonly conducted joint promotional and advertising activities. Also these entities frequently pointed to the establishing cooperation with Research & Development units, well above the percentage indicated in the group of all surveyed companies. What is interesting, manufacturing companies did not point to any of the most frequent commonly carried out activities. It follows that the production companies within the network organisations lead the least number of common activities on a regular basis.

One can observe some interesting connections by evaluating the types of commonly carried out activities by the surveyed companies within the network organisation, depending on its type (Fig. 2.14).

And so in group of franchise companies most of commonly implemented activities had the highest percentage of indications, both in comparison with other network organisations and the distribution of responses for all entities. The percentage of indications ranged from 18% to 64%. Most frequently one indicated joint promotional and advertising activities – 64% of responses, employees' training – 58% of responses, joint purchasing of resources and materials – 54% of responses. In clusters one most often pointed to the joint promotional and advertising activities – 40% of responses, employees' training – 37% of responses and establishment of cooperation with R&D units – 27% of responses.

**Figure 2.14. Regularly conducted joint activities within the network organisation depending on the type of the network in %**



Source: Same as Fig. 2.1.

When it comes to the relations between the types of activities carried out jointly and the size and range of the network organisation, to which the company belonged, one can spot a defined trend (Table 2.2). The greater the number of participants of the network, the greater the frequency of indications compared to the distribution of responses for all entities. It is found in regard to all types of commonly conducted activities. The percentage of indications ranged from 19% to 43%. The highest rates were noticed in relation to a common logistics services – 43% of responses, establishing cooperation with R&D units – 30% of responses, a common legal and accounting services – 28% of responses.

**Table 2.2. Regularly conducted joint activities within the network organisation, depending on the type of network, the number of participants and its range in %**

Types of joint activities	NETWORK'S SIZE			NETWORK'S RANGE			
	10–20	20–50	More than 50	Local	Regional	Domestic	International
Procurement of raw materials, products and goods	26	31	37	41	19	39	30
Conduction of activities regarding common logistics services	23	25	43	27	20	34	52
Conduction of promotional and advertising activities	47	67	66	41	40	56	67
Conduction of research and analysis of markets on various levels	15	27	28	7	20	22	31
Common accounting services	10	21	27	17	15	24	21
Common legal services	10	18	31	12	14	24	25
Conducting activities regarding informatics and analysis	15	29	29	20	19	31	46
Conducting activities regarding employees' trainings	47	52	49	37	38	53	64
Conduction of investment, repair and administrative activities	8	12	19	14	16	18	12
Research, development of R&D facilities	17	20	20	9	16	16	25
Purchases of innovative solutions, technologies, licenses	17	17	29	14	20	21	31
Establishing cooperation with R&D units	15	27	30	3	19	16	31

Source: Same as Fig. 2.1.

The distribution of responses obtained for the test subjects due to the range of activities of the network to which they belong, is also, in principle, similar to the distribution of responses obtained due to the number of participants of the network.

Most of the highest indications were obtained in organisations with an international range.

What is particularly worth noting is that international networks most frequently pointed to the joint activities in the field of innovation implementation, so on conducting joint research, developing research facilities, joint purchasing of innovative solutions, technology, licenses and establishing cooperation with R &D units. One can therefore assume that the larger the network organisation and the greater its scale of operations, the greater the frequency of conducting joint activities in the field of innovation on a regular basis. In smaller networks, those of local range, one pointed more often to the activities of joint promotional and advertising activities, joint operating activities – purchasing, logistics services, staff training etc. Activity in the field of common innovative solutions is of minor importance. Thus, in general, joining the network organisation, from the perspective of those entities is not the key to increase of their level of innovativeness, but rather to improvement of organisational efficiency and increase of the current efficiency by reducing certain costs and achieving savings.

## 2.5. Summary

Because of the economic situation and its dynamic changes, a modern single company is often not able to resist the overwhelming competition from global competitors alone. The solution to this problem, which can reduce the uncertainty of actions, may be establishing cooperation with other companies, and creating network organisation together. Most often when choosing such a strategy one is considering possible to achieve synergies, strengthening its market position and a faster and more efficient development. Empirical studies have confirmed that enterprise's managers when making decisions about cooperation in the framework of network organisations most often considered the following factors: resources and skills of partners, which a firm lacked, similarity in terms of conducted business and the experience in establishing cooperation. It follows that managers have become increasingly aware that by collaborating enterprises can derive from external resources to acquire those resources that will contribute to the ability to survive on the market and to achieve market success. Linking resources, their specific configuration makes it possible to create a common R&D base to improve the management system and business processes. It also contributes to overcoming the barriers faced by companies in the course of conducting business. According to the managers of the surveyed companies' proximity of partner's localisation, common markets of suppliers and customers and the possibility of reducing the risk of business operations as well as innovative activity

are of minor importance when establishing cooperation within network organisation. Based on the distribution of the responses, one can make a conclusion that the companies start cooperation to achieve certain benefits, multiply their potential and not to defend against business competition and to eliminate it. This is in cooperation, not in competition, where the respondents see the opportunity to achieve success in the market and to gain a competitive advantage.

The ability to achieve certain benefits tends not only to cooperate within network organisations, but there is also a list of constraints that hinder this cooperation. Empirical studies reveal the main barriers in the processes of establishing cooperation within network organisation, which are the capital requirements imposed on potential participants of the network, the protection of one's independence, unequal motivation and commitment of the partners and too little benefits resulting from cooperation within the network organisation. It seems, therefore, that companies' managers, when deciding to conduct joint activities, are aware of specific restrictions related to the rules of operating within a specific network organisation. Nevertheless, such cooperation takes place, in the group of the respondents over 33% of the companies, did not provide any barriers resulting from cooperation within the network organisations.

Empirical studies also assessed the frequency and types of joint activities taken by the companies. What is puzzling, is the fact that in the distribution of responses prevail responses demonstrating a lack of conduction of separate joint actions. And one of the characteristics of network organisations is a joint conduction of various types of projects. Among the activities carried out jointly, one frequently pointed to the promotional activities, staff training, buying resources, products and goods and logistics services. Relatively few surveyed managers pointed to the joint purchasing of innovative solutions, technology and licenses, conducting joint research, development of R&D units and networking with R&D facilities. And it would seem that the joint efforts of enterprises undertaken for the development of innovation and its implementation will contribute to spreading investment risk between individual participants of the network organisation, and thus help them to achieve market success faster than the company could obtain it independently. So this is not a kind of joint action that encourages the most to establishing cooperation within the network organisations.

Summing up the above considerations, based on conducted empirical research one can make a conclusion that in case of surveyed companies joining the network organisation is not the key to increase their level of innovativeness, but rather to improve organisational efficiency and to increase the current efficiency by reducing certain costs and achieving savings.

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## Chapter III. The importance of network organisations as learning organisations in the knowledge economy

### 3.1. Introduction

The knowledge economy is mainly connected with information and communication technology, technical progress and innovativeness. The demand for knowledge and highly skilled workers is growing in this type of economies. The pace of changes makes the existing knowledge and skills devalued in a short period of time. It is important to constantly increase skills and learn continuously, which will create the conditions for the development and using the knowledge in practice. The learning process is understood here as:

- an activity involving the acquisition of competencies and skills that allow the unit to be successful in achieving personal goals or objectives of the organisation;
- an activity involving the processing of existing knowledge<sup>1</sup>.

Dynamics of changes in the environment cause that the knowledge is rapidly devaluing, thus organisations must continually “learn”, so they must become “smart” keeping the focus on the creation and knowledge management. Knowledge is a factor on which depends future development. New competition requires quick and skilful technology using and flexible response to market needs. It also determines the continuous development and innovativeness. Scientific progress is on the one hand the basis for the development of the information society and globalisation of the world economy, on the other hand, globalisation intensifies competitive pressure and influences the development of science and technology.

In the context of the above considerations, the aim of this chapter is to analyse the network organisation as an organisation based on knowledge and learning organisations in Poland in the years 2007–2012. It was assumed that the characteristic

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<sup>1</sup> Zarządzanie wiedzą w społeczeństwie uczącym się, OECD, Ministerstwo Gospodarki – Departament Strategii Gospodarczej, Warsaw 2000, p. 26.

activities specific to the knowledge and learning organisations also apply to network organisations and they promote their innovativeness. The following research questions were raised:

1. What characteristic actions of a knowledge organisation are undertaken in network organisations?
2. What characteristics of a learning organisation (that foster innovativeness and are a source of competitive advantage) do network organisations have as the knowledge organisations?
3. What instruments based on knowledge, creativity and improvement aid learning ability and innovativeness of network organisations?

Following passages of this chapter are an attempt to provide answers to these questions. They are based on synthetic results of empirical studies conducted in a group of 363 companies belonging to organisations, which can be described as network organisations.

On this basis one can conclude about the relation between the characteristics and activities which are characteristic of network organisations as learning organisations and instruments which support the learning process of network organisations in the knowledge economy.

### 3.2. Actions of network organisations as knowledge organisations

The knowledge organisation has the ability to adapt to the changes implied by the environment, and it very often anticipates these changes and shapes the environment<sup>2</sup>. One can say that this is an intelligent enterprise. According to J.B. Quinn, intelligent enterprises are such organisations whose most valuable product is knowledge “which is like value-added service”<sup>3</sup>. Such companies are capable of innovative and rapid adaptations, but the most important is the accumulation of intellectual capital and knowledge management<sup>4</sup>. Knowledge management is a method of managing the organisation which functions in post-industrial society (knowledge society), involving the collection, processing, dissemination and use of knowledge to achieve the goals of the company<sup>5</sup>.

<sup>2</sup> R. Brett, *Creating Intelligent Organization*, “The Journal for Quality & Participation” 2002.

<sup>3</sup> J. Stoner, R. Freeman, D. Gilbert, *Kierowanie*, PWE, Warsaw 2001, p. 612.

<sup>4</sup> B. Kromer, *Wiedza jako podstawowy czynnik funkcjonowania organizacji inteligentnej*, Politechnika Koszalińska, “Zeszyty Naukowe Instytutu Ekonomii i Zarządzania” 2009, no. 2.

<sup>5</sup> *Słownik zarządzania kadrami*, (ed.) T. Listwan, C.H. Beck, Warsaw 2005, p. 112.



The point of existence of knowledge organisation is the ability to acquire, develop and use knowledge, develop and learn, encourage workers to raise skills and search for effective solutions to the problems that exist in this organisation. Knowledge has a strategic dimension here. Learning is the core competency of such an organisation<sup>6</sup>. The category of learning organisations and their role in the knowledge economy will be the subject of detailed discussion in the next subsection.

In the literature, there is a disagreement about defining the characteristics of the knowledge organisation. It is assumed that such organisations:

- produce products rich in knowledge, i.e. those whose knowledge is more than 50% of their value, or provide services based on the use of knowledge to a greater extent than physical labour<sup>7</sup>;
- employ highly qualified specialists, i.e. knowledge workers who constitute the core of all employees<sup>8</sup>. Knowledge workers produce the greatest added value and significantly affect the value of their businesses<sup>9</sup>;
- gather everything what the individual employed people know (always with the customers' cooperation) and put this into action;
- rely on mutual interacting networks on the basis of different forms of relations, partner enterprises<sup>10</sup>;
- knowledge workers produce the greatest added value and significantly affect the value of their businesses;
- their structure is subordinate to and directed at the creation of added value based on the effective use of knowledge<sup>11</sup>;
- focus on a future of technological and demographic capabilities<sup>12</sup>;
- the value of intellectual capital determines their market value and this means that the ratio of market value to book value is more than 2 (in other words, what is not included in the balance sheet, is worth more than the book value).

Knowledge organisations are the enterprises which create knowledge and added value. In empirical studies, the respondents were asked what actions specific to the knowledge organisations were taken in network organisations in the years 2007 to

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<sup>6</sup> P. Senge, A. Kleiner, C. Roberts, R.B. Ross, B.J. Smith, *Piąta dyscyplina, materiały dla praktyka*, Oficyna Ekonomiczna, Cracow 2002, p. 24.

<sup>7</sup> *Zmiany paradygmatów kształtujących systemy zarządzania*, [in:] *W poszukiwaniu Nowych Paradygmatów Zarządzania*, (ed.) W.M. Grudzewski, I.K. Hejduk, SGH, Warsaw 2008, p. 135; B. Miękula, A. Pietruszka-Ortyl, A. Potocki, *Podstawy zarządzania przedsiębiorstwami w gospodarce opartej na wiedzy*, Difin, Warsaw 2007, p. 33.

<sup>8</sup> *Ibidem*, p. 21.

<sup>9</sup> T.H. Davenport, *Zarządzanie pracownikami wiedzy*, Wolters Kluwer, Cracow 2007, p. 17.

<sup>10</sup> B. Miękula, A. Pietruszka-Ortyl, A. Potocki, *Podstawy zarządzania...*, op.cit., p. 21.

<sup>11</sup> *Zmiany paradygmatów...*, op.cit., (ed.) W.M. Grudzewski, I.K. Hejduk, p. 135.

<sup>12</sup> *Gospodarka oparta na wiedzy. Perspektywy Banku Światowego*, (ed.) A. Kukliński, KBN, Biuro Banku Światowego, Warsaw 2003, p. 179.

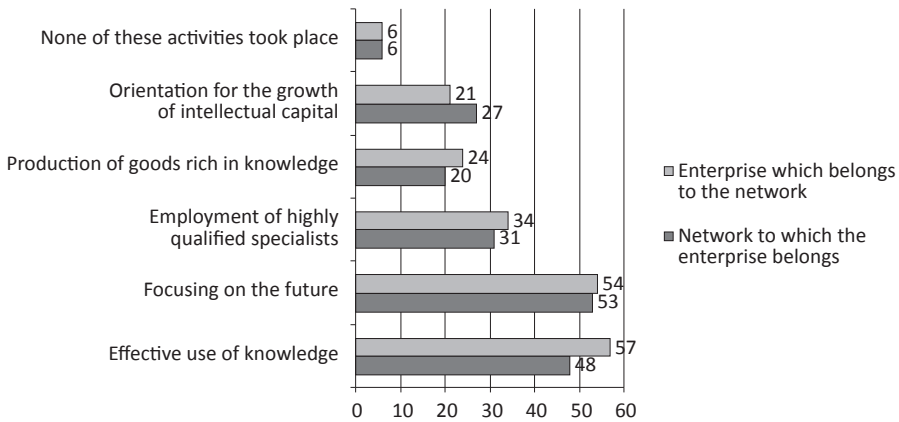
2012. Respondents provided the answers from the perspective of an entity belonging to the network, and they presented an opinion on the network to which their enterprise belonged.

The effective use of knowledge (57% of responses) and focusing on the future (54% of responses) have the greatest meaning, from the perspective of the surveyed enterprises belonging to the network, in the processes of acquiring, development and use of knowledge – Fig. 3.1. The networks to which surveyed enterprises belong or organisations with larger-scale operations focus on similar factors. Those most often mentioned determinants of knowledge organisations are closely associated with the management. Effective use of knowledge indicates knowledge management, project management and innovation management. In contrast, focusing on the future is the essence of strategic management. These concepts make the largest contribution to the development of enterprises, innovativeness and competitive advantage, what was indicated by the respondents (see Chapter 1, Subsection 1.3).

The orientation to the increase in the value of intellectual capital (21% of responses, enterprises belonging to the network) and the production of products rich in knowledge (20% of responses, the network) were the least important indicated factors taken into account by the respondents. It is quite surprising because the value of intellectual capital determines the market value of the company. But the companies that produce products rich in knowledge are such companies that provide products, services based particularly on the use of knowledge than physical labour. Apparently, the surveyed companies benefit to a lesser extent from the knowledge what results from the nature of the processes, but they aim at its effective use as much as possible. Interestingly, there is also a % of responses in relation to the statement “none of these actions take place” which means that enterprises to which this statement refers, do not show activities that are characteristic of the knowledge organisations or they do not have knowledge about it. The lack of such actions in the company suggests a lack of innovation, a lack of employees’ motivating to develop and as a result these companies do not keep up with changes in the environment. In the knowledge economy, the structure of the enterprise, which adapts to the changing environment, should be subordinate to and directed at the creation of added value on the basis of the effective use of knowledge, what refers to more than half of the surveyed enterprises.

It is worth mentioning the relations occurring between selected characteristics of the respondents and the factors taken into account in the process of creating a knowledge organisation.

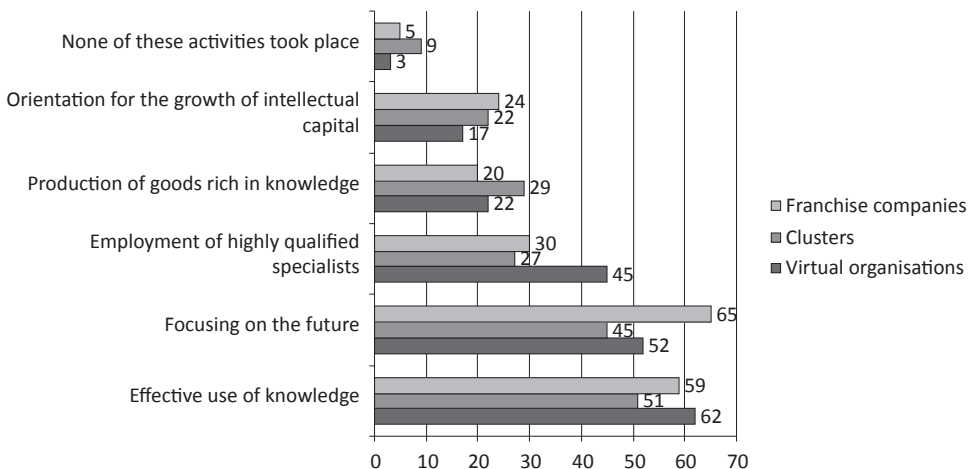
**Figure 3.1. The activities of the network organisations as the knowledge organisations (% of responses)**



Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=363$ .

As far as the type (group) of the network organisation, focusing on the future is the most stressed here and this relates to franchise organisations (65% of responses) – Fig. 3.2. In contrast, both the virtual organisations (62% of responses) and franchise organisations (59% of responses) and clusters (51% of responses) emphasise the importance of effective use of knowledge. The distribution of responses for enterprises depending on the type of the network organisation was similar to the distribution obtained for all respondents.

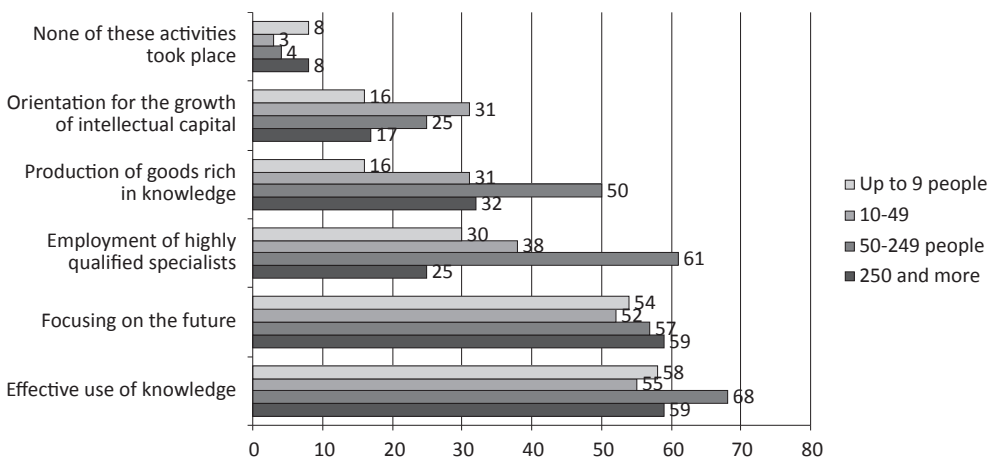
**Figure 3.2. The activities of the network organisations as the knowledge organisations depending on the type of network organisation (% of responses)**



Source: Same as 3.1.

By contrast, from the point of view of the size of the enterprise belonging to the network, medium-sized enterprises are more often, than large, small and micro enterprises, characterised by the effective use of knowledge (68% of responses), employment of highly qualified specialists (61% of responses) and the production of goods rich in knowledge (50% of responses) – Figure 3.3. Large companies belonging to the network take into account the effective use of knowledge and focusing on the future too. Knowledge has a strategic meaning here, what is characteristic for the knowledge organisation and concerns all surveyed companies but predominantly large and medium enterprises. The production of goods rich in knowledge (16% of responses) and the orientation for the growth of intellectual capital (16% of responses), which may result from the nature of the production processes and a lower potential compared to other companies (also belonging to the network) were the least indicated factors by the respondents in micro enterprises.

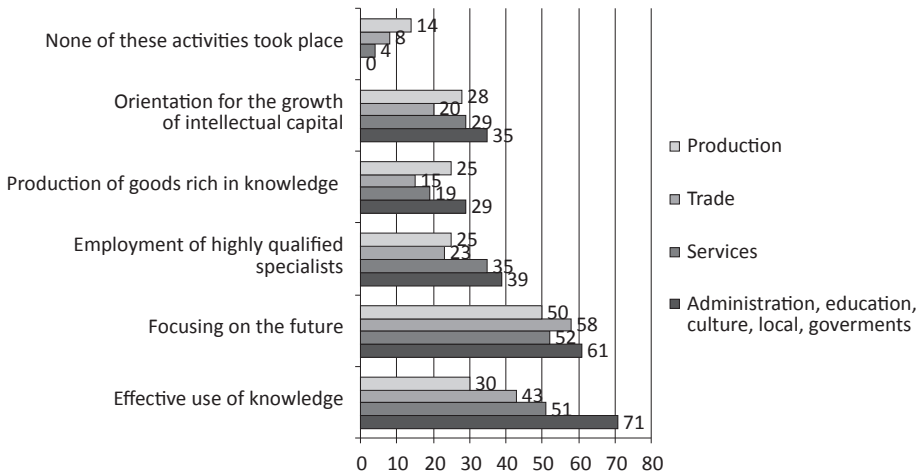
**Figure 3.3. The activities of the network organisations as the knowledge organisations depending on the number of employees in enterprises belonging to the network (% of responses)**



Source: Same as 3.1.

The enterprises from sectors like administration, education and culture more than any other surveyed enterprises by the type of business – Fig. 3.4, mostly belong to the knowledge organisations. Identified factors to the slightest extent related to production and service enterprises. These companies should often take into account knowledge in their activities to acquire and stay in the market and use their potential to create and implement innovation.

**Figure 3.4. The activities of network organisations as knowledge organisations depending on type of activities of the enterprises belonging to the network (% of responses)**

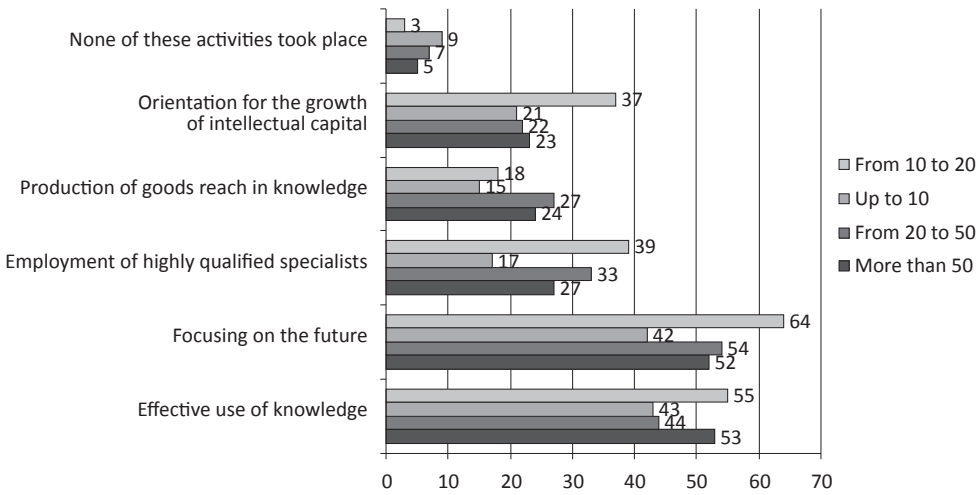


Source: Same as 3.1.

Regarding the results of empirical research, from the perspective of the network (the network organisation to which the surveyed company belongs), the dependence of the priority of focusing on the future and the effective use of knowledge on the size of the network is visible – Fig. 3.5. The smaller the network (up to 10 participants), the greater focus on the future and the desire to make effective use of knowledge. This may mean that smaller entities particularly seek to acquire the knowledge and to use it in order to maintain its position, to maintain its potential and to increase innovativeness. They (as more flexible) are better able to and even forced to respond to changes in the environment in order to stay in the market. Smaller networks may be, thus, to a greater extent, considered to be knowledge organisations (more competitive, efficient in their operations, more innovative) than the other surveyed network organisations.

What's more, based on the results of the research one should note that the large networks (more than 50 participants) have the high level of indications with regard to the studied factors – greater coverage and range of their activities force the use of knowledge, both the internal and the external.

**Figure 3.5. The activities of the network organisations as the knowledge organisations depending on the number of network participants (% of responses)**

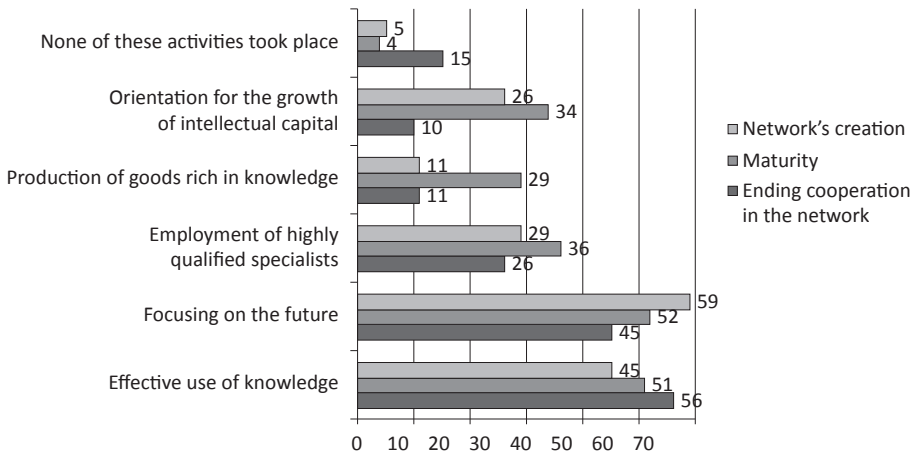


Source: Same as 3.1.

Network organisation should be a knowledge organisation at every stage of its development. This is confirmed by the results of empirical research (Fig. 3.6). Most of the activities characteristic for the knowledge organisation take place in the maturity stage. According to the respondents, focusing on the future (59% of responses) is the most important factor for the stage of network's creation and the effective use of knowledge (56% of responses) and for ending the cooperation in the network. Distribution of responses was similar to the one obtained for all respondents.

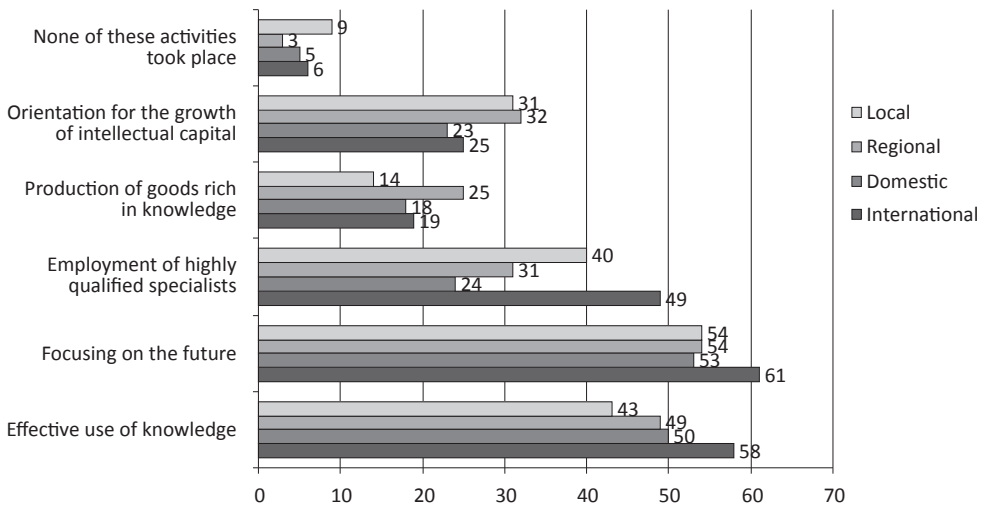
The distribution of responses for the surveyed companies, depending on the range of the network, was similar to the distribution obtained for all respondents. International networks (rather larger networks with a larger number of participants) are considered to be more of the knowledge organisations, by taking into account in the management such factors as: focusing on the future, the effective use of knowledge and the employment of highly qualified specialists – Fig. 3.7. It should be noted that all surveyed network organisations depending on the range of their activities had a fairly high level of indications with regard to the examined activities describing a knowledge organisation.

**Figure 3.6. The activities of the network organisations as the knowledge organisations depending on the stage of network's development (% of responses)**



Source: Same as 3.1.

**Figure 3.7. The activities of network organisations as knowledge organisations depending on the network's range (% of responses)**



Source: Same as 3.1.

The question is raised here: Which enterprise is particularly a knowledge organisation, which keeps up with the environment changes? According to the results, it is a franchise company, medium or large, from administrative, educational and cultural sector, belonging to the small or large network, which is in the phase of establishing or ending the international cooperation.

Enterprises which take actions specific to the knowledge organisation have the characteristics of the learning organisation. Learning is the core competency of the knowledge organisation. Whether these findings can be applied to the network organisation and what characteristics of a learning organisation are typical for the network organisation in terms of their innovativeness is the subject of the next subsection 3.3.

### 3.3. Characteristics of network organisations as learning organisations

To determine the organisation as a learning organisation it should fulfil certain conditions: it must be an institution organised in a different way from the traditional organisation and organised processes of organisational learning should occur in it consciously. Managerial staff should particularly focus their attention on these processes and effectively manage them. The concept of the learning organisation makes changes to a perception of the company. First of all, one considers the effectiveness of management subsystems, which include knowledge management, management of creativity, change, competence and talent, innovative and participatory management, project management, and strategic management which combines all these elements.

To determine the organisation as a learning organisation, certain conditions should be fulfilled: it must be an institution organised in a different way from the traditional organisation and conscious organised processes of organisational learning should occur in it. What's more, managerial staff should particularly focus their attention on these processes and effectively manage them.

What is interesting, learning organisation has grown out of the organisational culture. The values, which are located in the centre of culture of learning organisation, are: professionalism, creativity, innovativeness, autonomy of participants, their willingness to cooperate and learn, attention to customer's satisfaction. It is important that these values are implemented both by managers and by all members of an organisation.

One can not observe directly the organisational learning ability, but it is measured by the factors which affect it, such as<sup>13</sup>:

- the entity as an agent of organisational learning. Participants of the enterprise affect its learning primarily through initiatives of its improvement. Involvement

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<sup>13</sup> A. Zgrzywa-Ziemak, *Zdolność uczenia się przedsiębiorstwa w świetle badań empirycznych*, "Przegląd Organizacji" 2006, no. 1, p. 22–23.



of employees in self-development and organisational support for their efforts (concerning individual development, as well as the enterprise's improvement) is essential for the learning capacity;

- collective learning. The intensity of a synergistic collective process of learning, as a result of which the members of the enterprise create the knowledge together. Subsequently, having such skills as supporting collective learning, workers' positive attitude to teamwork and the relation between the employees focused on trust, openness, mutual respect and cooperation is very important for the ability of the enterprise's learning;
- open learning culture. An assumption of temporariness of possessed knowledge (openness in cognitive dimension) is conducive to enterprise's learning ability. Enterprise's process of learning requires an open culture in the anthropological dimension – voluntarism, which presumes activity of the company's participants in shaping the surrounding reality. Individual identity fosters modern enterprise learning, which does not mean moving away from collectivity;
- organisational continuity which is shaped by the overriding values and a common vision for the future which stems from them. The higher enterprise's learning ability, the greater the awareness of core values among the participants of the enterprise, the more employees share the vision of the company and they are involved in its creation;
- information system which mobilises for development is a use of different ways of transmitting information, their usage, minimal standardisation of communication methods and forms of messages. The more formal information systems mobilise for action, the higher enterprise's learning ability is;
- dispersed leadership. The more impermanent and passable power is and the more it depends on the type of tasks and conditions of their implementation and not on their place in the organisational hierarchy, the higher enterprises' capability is; it results from competence, is based on commitment but not on coercive measures. Active operations of managers to support dispersed leadership and the willingness of the employees to take over power are important for the development of learning abilities. What's more, open and informal relations between superiors and employees which are based on trust, partnership, mutual respect are crucial too;
- inter-organisational learning. Development of the wide inter-organisational networks by enterprise, which searches for new knowledge for the enterprise, is very important for development of enterprise's learning ability. Intensity of cooperation between cooperators is significant. The more open and development-oriented the relationships between the cooperators, the higher enterprise's learning ability. Ability to learn promotes the stability in cross-organisational collaboration;

- future-oriented strategy. In order to develop the learning ability it is crucial for the strategy to focus on building enterprises of the future, and not extending present enterprise and improving current activities. The more their strategies are focused on innovative solutions in the industry and building new activities, the higher enterprise's learning ability is. Formulation processes and implementation of strategies should be the learning processes;
- system thinking. The more intensive behaviours for dealing with dynamic complexity, the higher enterprise's learning ability. It is all about activities to identify the consequences of the decision making and those to determine the system structure of organisational problems. The more frequently the modelling and simulation in the process of organisational problem solving and decision making are used, the higher learning ability is;
- organisational structure approaching innovative solution. The less organisational structure restricts the range of freedom of organisational behaviour, the more conducive to enterprise's learning it is. It is about a minimum degree of standardisation and formalisation; dominance of horizontal interactions in the communication, control and coordination, the hierarchy of objectives, not positions.

The evaluation of the learning ability of network organisations based on the fulfilment of necessary conditions closely associated with this process was one of the purposes of empirical research.

In empirical studies, respondents were asked: what characteristics of a learning organisation that foster innovativeness and are a source of competitive advantage does a network organisation as a knowledge organisation have. Respondents provided answers from the perspective of an entity belonging to the network, and presented an opinion on the network to which their enterprise belonged.

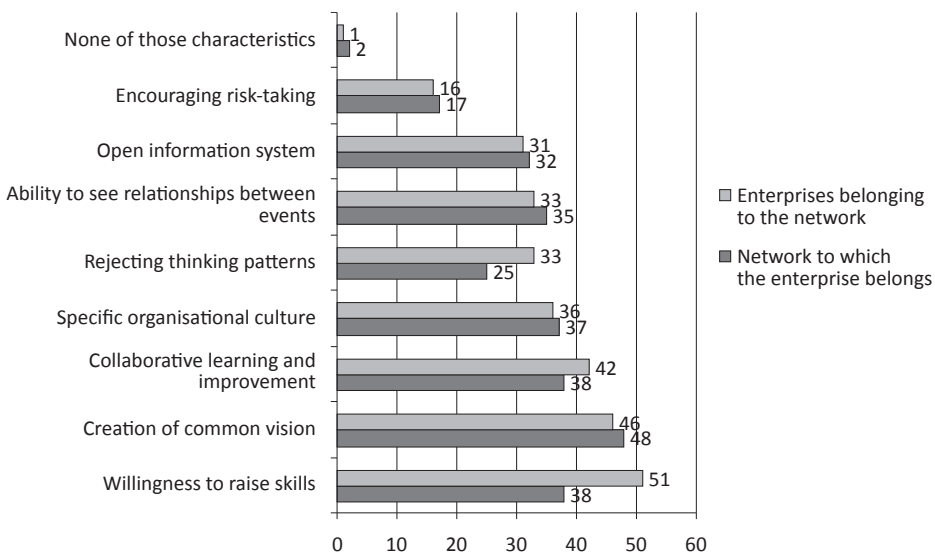
In the years 2007–2012, from the perspective of the surveyed entities, readiness to upgrade skills (51% of responses), the creation of a common vision (46% of responses), and collaborative learning and improvement (42% of responses) – Figure 3.8 are the necessary conditions and the most important features of learning organisations. A similar trend is noted in network organisations, which include the surveyed enterprises. It's an interesting and positive fact which shows the importance of skills and competence in enterprises, cooperation and commitment as determinants of success in conditions of strong competition. The effective management is important here, which will shape, strengthen and use their potential in the direction of innovativeness of enterprises (see Subsection 1.3).

It should be noted that the creation of a common vision is the more important factor for the networks (48% of responses) than for the surveyed enterprises (46% of responses). Creating a common vision in the network is difficult due to the number

of participants with different characteristics, and it might be a reason for attaching greater importance to this factor.

With respect to only 1% of the surveyed enterprises and 2% of the network one cannot talk about their learning process, due to the absence of the features characteristic to learning organisations.

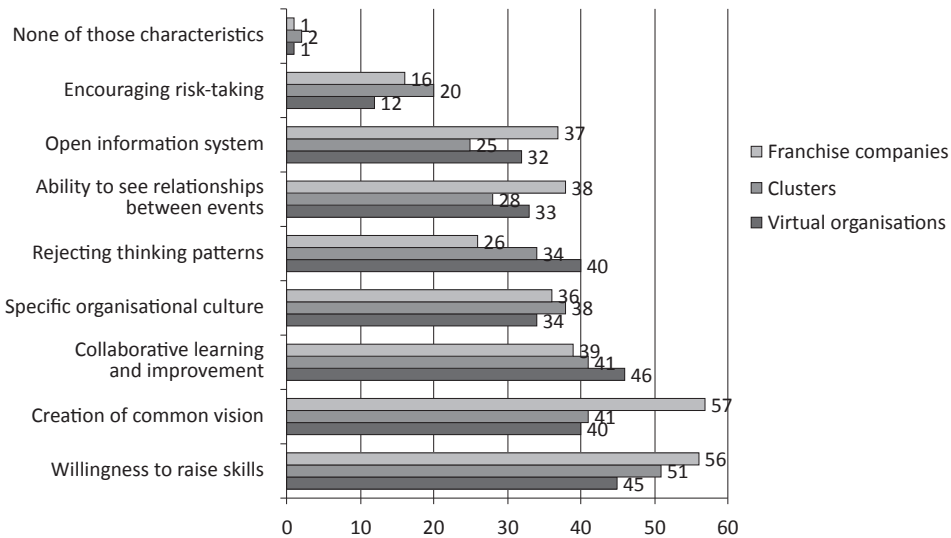
**Figure 3.8. Characteristics of network organisations as learning organisations**  
(% of responses)



Source: Same as 3.1.

Enterprises belonging to the network surveyed in selected sections pay attention to similar factors. Franchise organisations are more focused on willingness to raise skills (56% of responses) and the creation of a common vision (57% of responses) than virtual organisations or clusters, Fig. 3.9. Virtual organisations are generally characterised by the greater focus on collaborative learning and improvement (46% of responses). A willingness to upgrade skills (51% of responses) was indicated in clusters. Network organisations appreciate the importance of knowledge and skills and their acquisition, development and usage, which is the evidence of the realisation of the organisational learning process.

**Figure 3.9. Characteristics of network organisations as learning organisations depending on the type of network organisation (% of responses)**



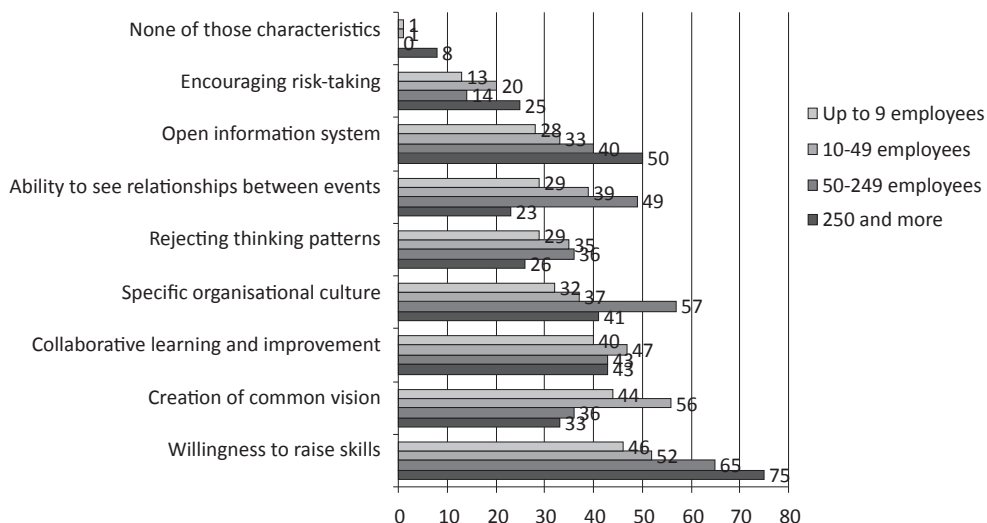
Source: Same as 3.1.

The distribution of responses for enterprises depending on the size is similar to the distribution obtained for all respondents. A dependence on the willingness to raise skills and openness of an information system is seen. The larger the company is, the more respondents indicated the presence of these characteristics (Fig. 3.10). Enterprise learning also requires open information system which mobilises for development, in other words, the use of different methods of sharing information and openness in the cognitive dimension. It promotes innovativeness. One can assume that the more information systems (including formal) mobilise for action, the greater the enterprise's learning ability and the opportunity to be innovative are.

The creation of a common vision was the most important feature for small and micro enterprises, and from this point of view, one can talk about these companies as about learning organisations.

Common vision strengthens the identification of participants with the organisation and its goals, and creates the conditions for the growth of employees' self-reliance, including creativity and innovativeness.

**Figure 3.10. Characteristics of network organisations as learning organisations depending on the number of employees in enterprises belonging to the network (% of responses)**

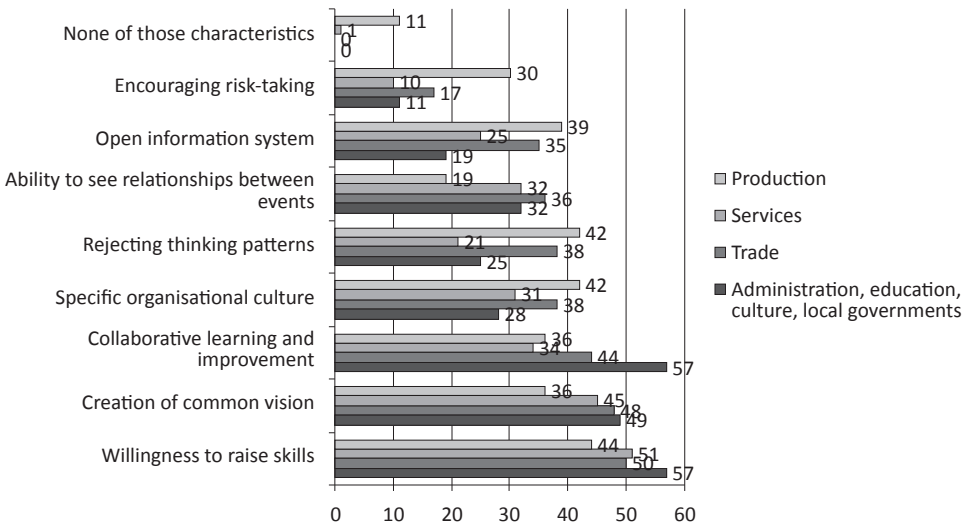


Source: Same as 3.1.

From the point of view of the enterprise's type of business belonging to the network, companies operating in sectors as administration, culture, education, local governments were more often oriented to upgrading skills (57% of responses), the creation of a common vision (49% of responses) and collaborative learning and improvement (57% of responses) – Fig. 3.11 than trade, production and service enterprises. Organisations belonging to a group of administration, education, culture and local government more often take into account actions aimed at acquisition, development and use of knowledge and skills in their strategies and management and they strive to changes in the amount and quality of knowledge.

It is interesting that indeed the most respondents from manufacturing enterprises indicated the lack of the characteristics regarding learning in the organisation, but at the same time pointed to specific organisational culture, rejecting thinking patterns, open information system and encouraging risk-taking. This may result on the one hand from the fact that the concept of learning organisation arose in the eighties of the twentieth century, on the other hand, the production companies (more often medium and large) seek to adapt to changing conditions, by creating a culture change and motivating employees to the development, entrepreneurship and innovativeness. They base their actions on the knowledge that employees have, knowledge that is enriched and developed and is available to enterprise. Therefore, manufacturing companies are becoming more innovative.

**Figure 3.11. Characteristics of network organisations as learning organisations depending on the activities of the enterprises belonging to the network (% of responses)**

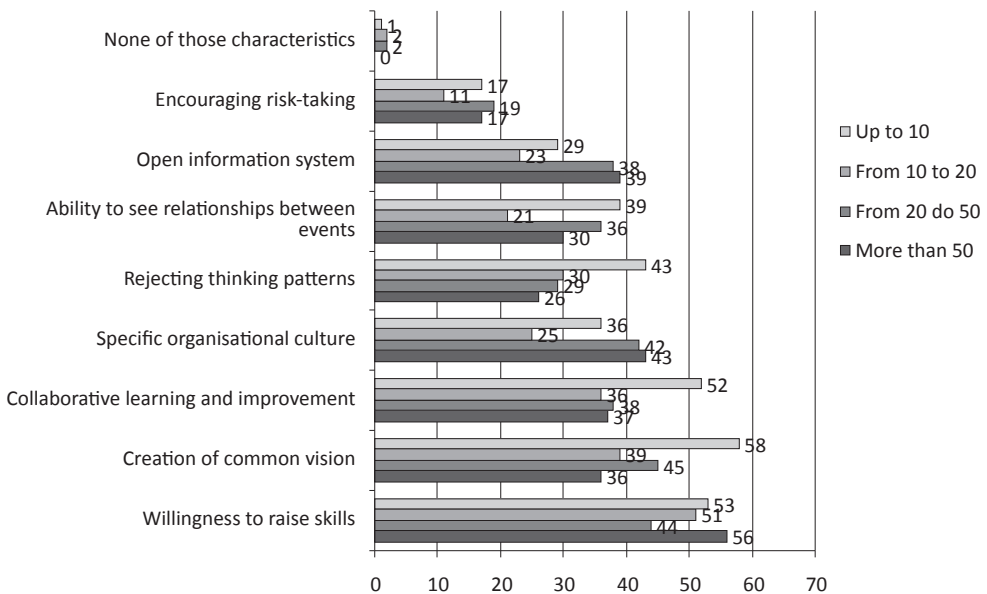


Source: Same as 3.1.

On the other hand, due to the size of the network, enterprises belonging to the smallest networks (up to 10 participants) and largest ones (over 50 participants) mainly indicated the features of organisational learning. The creation of a common vision (58% of responses) is the most important factor for the smallest networks and willingness to raise skills (56% of responses) – Fig. 3.12 is the most significant factor for the largest enterprises. The smallest networks can operate on the market thanks to their characteristics, and the largest ones – are able to expand.

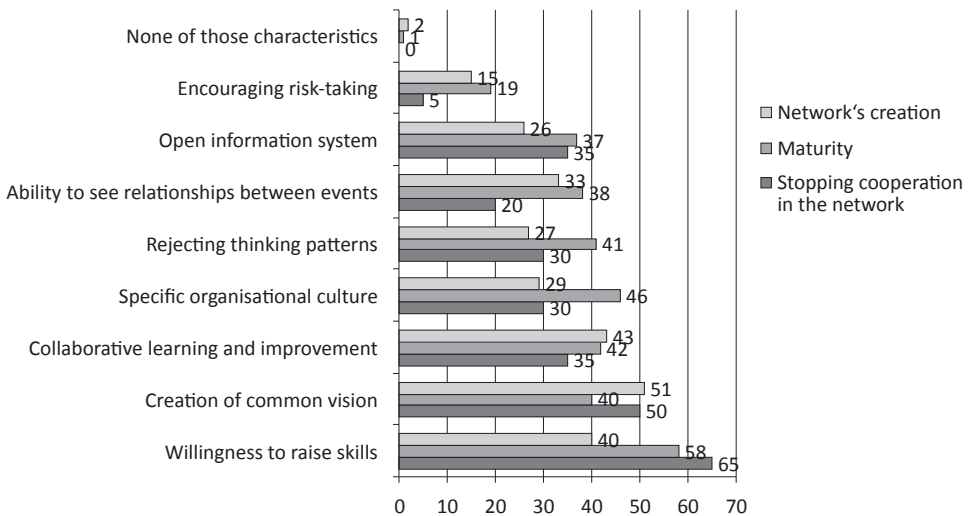
In relation to the stage of network's development, the highest level of indications relates to network organisations in the maturity stage. What's more, the relations between the phase of ending network cooperation and features of enterprises belonging to the network, such as willingness to raise skills (65% of responses) and the creation of a common vision (50% of responses) – Fig. 3.13 are worth mentioning here. Although this is the stage associated with finishing cooperation between network participants, it is characterised by strategic thinking. In general, a category of learning is closely associated with a category of change (strategy, structure, technology), which is seen as an inherent property of a learning organisation. Innovativeness and continuous improvement is the positive effect of changes and implementation of knowledge.

**Figure 3.12. Characteristics of network organisations as learning organisations depending on a number of participants of the network (% of responses)**



Source: Same as 3.1.

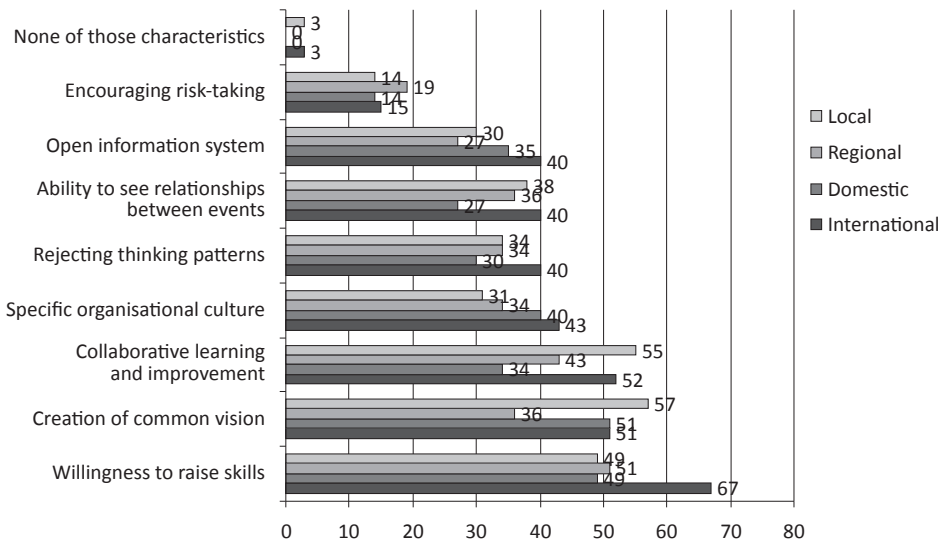
**Figure 3.13. Characteristics of network organisations as learning organisations depending on the stage of network's development (% of responses)**



Source: Same as 3.1.

International and local network organisations show the higher intensity of learning organisation's characteristics than the domestic and regional ones – Fig. 3.14. This corresponds to the dependency between the size of the network and the characteristics of enterprises as learning organisations (cf. 3.12).

**Figure 3.14. Characteristics of network organisations as learning organisations depending on the network's activities (% of responses)**



Source: Same as 3.1.

This raises the question in the context of innovativeness. What enterprise is, to the greatest extent, a learning organisation where employees continually improve their abilities to create what they want to create, and the organisation itself continuously develops its capacity to shape its future? Learning organisation is an organisation which invests in development of the staff and involves people in the creation and implementation of innovations.

The results of the survey indicate that franchise organisation, large and medium, from such sectors as: administration, education and culture, belonging to the small or large network, which is in the maturity stage or ending international cooperation, is to the greatest extent a learning organisation. These network organisations, which greatly take actions as knowledge organisations (cf. Subsection 3.2) have also extremely features of learning organisations (cf. Subsection 3.3).

This allows to formulate a statement that network organisation as a knowledge organisation has the characteristics of a learning organisation, which promotes the innovativeness and is a source of competitive advantage.

It is important to take into consideration organisations to the less extent based on the knowledge and learning processes. The knowledge economy is a challenge



for them, but it also forces them to take actions, in order to adapt to changing conditions and to ensure continuous improvement of the participants and the organisation itself. The awareness of the importance of the information about errors and ways of correcting them is important too.

Multiple instruments help to improve learning and innovativeness of enterprises. Confrontation of theoretical issues related to the use of methods of enterprise's development as a learning organisation with particular emphasis on the network organisation is the subject of the next subsection.

### **3.4. Instruments that support the development of network organisations as learning organisations**

The concept of organisational learning and a learning organisation has emerged in the eighties and its main principles are rooted in the multiple perspectives of management, such as organisational strategy, culture, structure, knowledge absorption capacity, ability to solve problems etc., which define learning outcomes. Learning organisation is a system in which employees continuously improve their capabilities of achieving the desired goals, and new expansive thinking patterns are shaped, and people are continually learning how to learn as a team<sup>14</sup>. Learning organisation is a system capable of creating, acquiring and transferring knowledge, as well as it is able to change their behaviour in accordance with the acquired knowledge. A conscious use of learning processes at individual, group and system levels for continuous transformation of the organisation in a direction which increases a number of customers, users, employees and the community's satisfaction is characteristic of this type of organisation.

Most of the definitions of "learning organisation" indicate a close relationship with the category changes. The change is seen as an inherent property of a learning organisation. It is not about every change, but only about one which occurs as a result of the learning process. This process does not necessarily lead to the modification of behaviour. It can create knowledge potential as a result of transformations in the knowledge resources<sup>15</sup>. Innovativeness and continuous improvement are the positive effect of changes and knowledge application.

Change in a way of thinking is the essence of a learning organisation. It is an organisation in which employees continuously improve their ability to create what they want to create, and the organisation itself continuously develops its capacity to shape its

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<sup>14</sup> P. Senge, *Piąta dyscyplina. Teoria i praktyka organizacji uczących się*, Dom Wydawniczy ABC, Wałbrzych 2002; P. Szwiec, *Twórczość w organizacji uczącej się – imperatyw ciągłej transgresji*, "Przegląd Organizacji" 2005, no. 3, p. 11.

<sup>15</sup> Ibidem.

future. Learning organisation is an organisation which invests in the staff's development and involves people in the creation and implementation of innovations. Managerial staff should specifically focus their attention on these processes and effectively manage them. Tools such as management methods and techniques which support the creation and development of a learning organisation (Table 3.1) are very important here.

**Table 3.1. Selected instruments for the development of a learning organisation**

Name of the instrument	The importance of instrument
Customer Relationship Management (CRM)	Comprehensive understanding of the customer for competitive differentiation of offered products. Striving to identify, attract and retain the customers and to build lasting and profitable relationships – relationships with customers.
Stakeholder's analysis	This involves the management of enterprise's social responsibility and the concept of CRM. This includes the identification of all stakeholders and an analysis of their needs, problems and potential. It is performed during the stage of preparation of the strategy and defining the project.
Strategic alliance	The relationship between the enterprises whose aim is the implementation of a common goal of both partners. The aim is to improve business management by coordinating competences in order to achieve a better competitive position in the market by the partners.
Merger	Form of cooperation between potential competitors, suppliers, manufacturers and customers who have decided to jointly lead the project, or activity, integrating and combining resources and skills. It should focus on the perspectives of development on the specific market.
Benchmarking	Comparing with the best, orientation for the goods or services of the highest quality, learning from the best acting entity, (i.e. competitor) on the market. The starting point in the course of change and improvement is to identify deviations that occur between organising processes in the best enterprise and the enterprise which introduces improvements.
Project management	This includes activities related to the preparation and implementation of decisions related to the implementation of projects for achieving project's objectives in terms of quality, costs and deadlines.
Outsourcing	A new look at the function of the organisation – including the activities carried out in the enterprise. It results from a new business strategy, which involves a focus on the key areas of operation and use of independent external stakeholders (suppliers).
Mentoring	The training focused on the discovery and development of the employee's potential. It is based on inspiration, stimulation and leadership. It includes some elements of consulting, evaluation and development of the identity of the organisation.
Coaching	Directing development of skills, competencies, and employee's motivation in a specific area conducted individually by the trainer.
360 degrees model	Modern technique of staff assessment. This creates an opportunity to increase efficiency and uncovers areas that need a change.
Strategic scorecard	It is useful for assessment of the degree of effectiveness. It allows one to use all management functions, processes and resources necessary to efficient implementation of the strategy, which is thought out and rational response to changes in the environment.
Kaizen	It refers to continuous improvement. It is based on the commitment of all employees of the organisation, regardless of position, to constant search of ideas to improve all areas of the organisation.

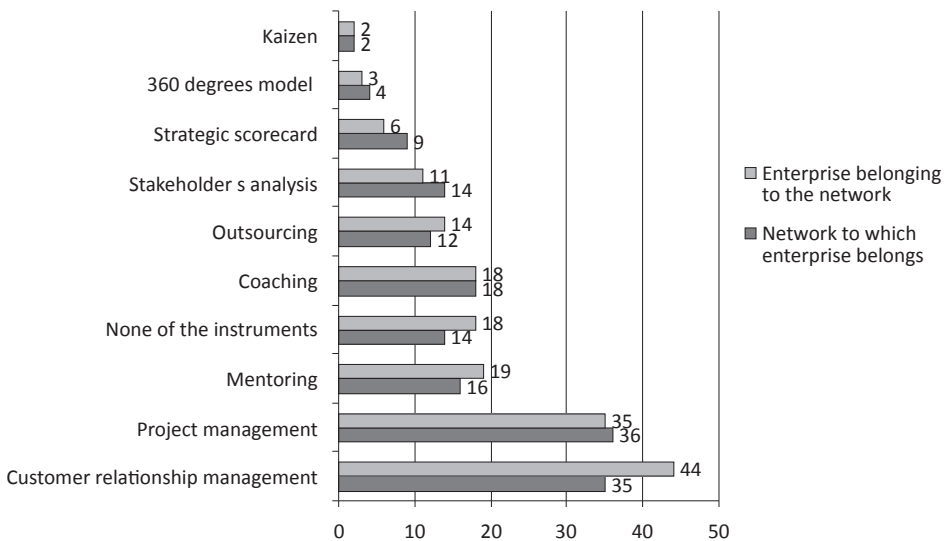
Source: Own research based on: *Metody organizacji i zarządzania*, (ed.) S. Duchniewicz, Wydawnictwo Menedżerskie PTM, Warsaw 2007; [www.mfiles.pl](http://www.mfiles.pl), *Encyklopedia zarządzania*; [www.mentoring.com.pl](http://www.mentoring.com.pl), S. Karwala, *Mentoring – strategia rozwoju organizacji uczącej się*.

The main objective of the use of instruments (mainly management methods) is the use of information, knowledge, skills and competencies and motivation for improvement and development of the enterprises in a changing and competitive environment.

In empirical studies, respondents were asked what instruments based on knowledge, creativity and improvement, help to improve the learning ability and innovativeness of network organisations. Respondents provided answers from the perspective of an entity belonging to the network, and presented an opinion on the network to which their enterprise belongs.

The results of empirical studies indicate that managers have a low awareness of the instruments (tools, methods) that support learning process of an organisation (relatively small % of responses for the majority of the selected tools) in the enterprises belonging to the network, and in network organisations. Customer relationship management and project management (Fig. 3.15) are the most important in the development of enterprises and network organisations. It is worth mentioning the fact that none of the instruments support enterprise in learning and thus they are not used (18% of responses). This may be due to the fact that the respondents – managers do not have the exact knowledge of a learning organisation and of what factors determine its development. Least often, respondents pointed to kaizen and 360 degrees model.

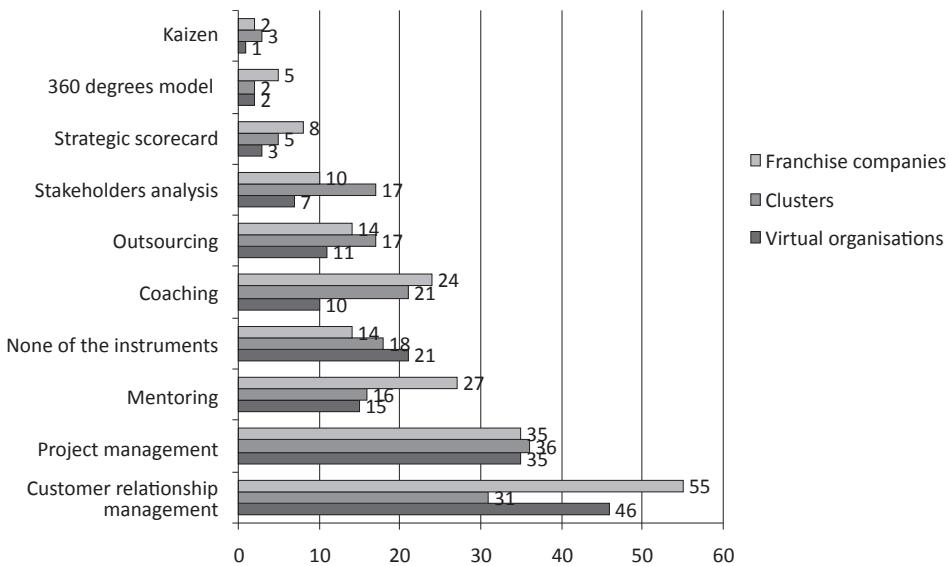
**Figure 3.15. Instruments for the development of network organisations as learning organisations (% of responses)**



Source: Same as 3.1.

The distribution of responses for enterprises and surveyed networks in selected sections was similar to the distribution obtained for all respondents. Customer relationship management and project management were the most important tools in the development of learning process for all surveyed enterprises. One can observe some dependencies. Customer relationship management is important for the vast majority of surveyed franchise organisations (65% of responses) and virtual organisations (46% of responses). When it comes to project management, the level of indications is rather similar, with respect to the clusters (36% of responses), virtual (35% of responses) and franchise (35% of responses) organisations – Fig. 3.16. On the other hand, kaizen, 360 degrees model and strategic scorecard were the least frequently pointed by the respondents. It concerned mainly virtual organisations, to which most indications also refer, when it comes to choosing the statement “none of the instruments” (21% of responses).

**Figure 3.16. Instruments for the development of network organisations as learning organisations depending on the type of network organisation (% of responses)**

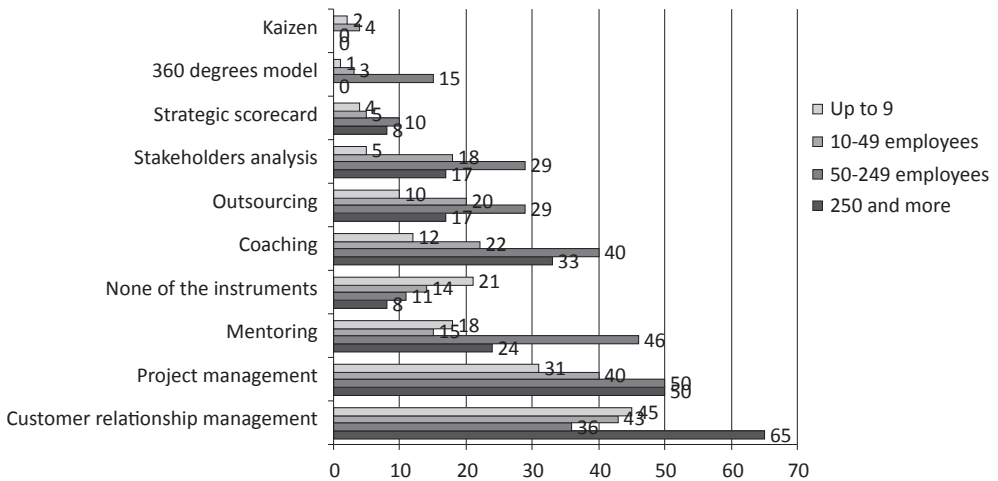


Source: Same as 3.1.

Customer relationship management was the most frequently indicated by large companies (65% of responses) – Fig. 3.17. The larger the company, the higher the level of indications, particularly in relation to project management. This shows a greater knowledge of respondents from this type of companies. Relations with the environment and the acquisition of information and use them in undertaken projects are

important in the enterprise's development. Kaizen and Model 360 degrees are not appreciated.

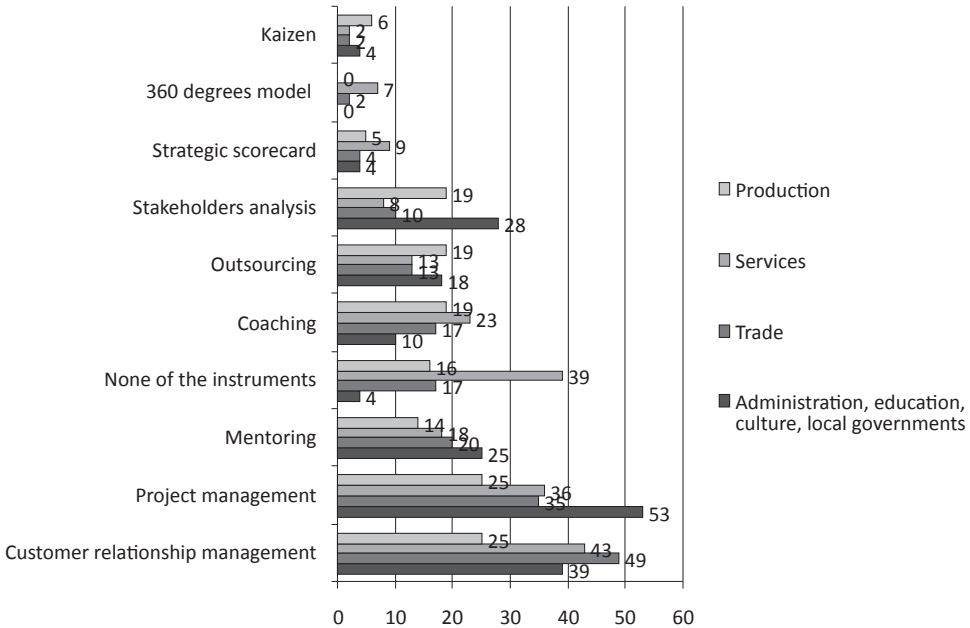
**Figure 3.17. Instruments for the development of network organisations as learning organisations depending on a number of employees in enterprises belonging to the network (% of responses)**



Source: Same as 3.1.

When it comes to the type of activities of the surveyed enterprises, the customer relationship management is most appreciated by service enterprises (49% of responses), and project management by organisations from the area of administration, education, culture and local governments (53% of responses) – Figure 3.18. Direct relationships between the service provider and beneficiary are characteristic and fundamental for these types of enterprises. On the other hand, what is surprising, manufacturing enterprises emphasised the statement “none of the instruments” (39% of responses) and had less indications in relation to the other instruments in comparison with other types of enterprises.

**Figure 3.18. Instruments for the development of network organisations as learning organisations depending on the activities of the enterprises belonging to the network (% of responses)**

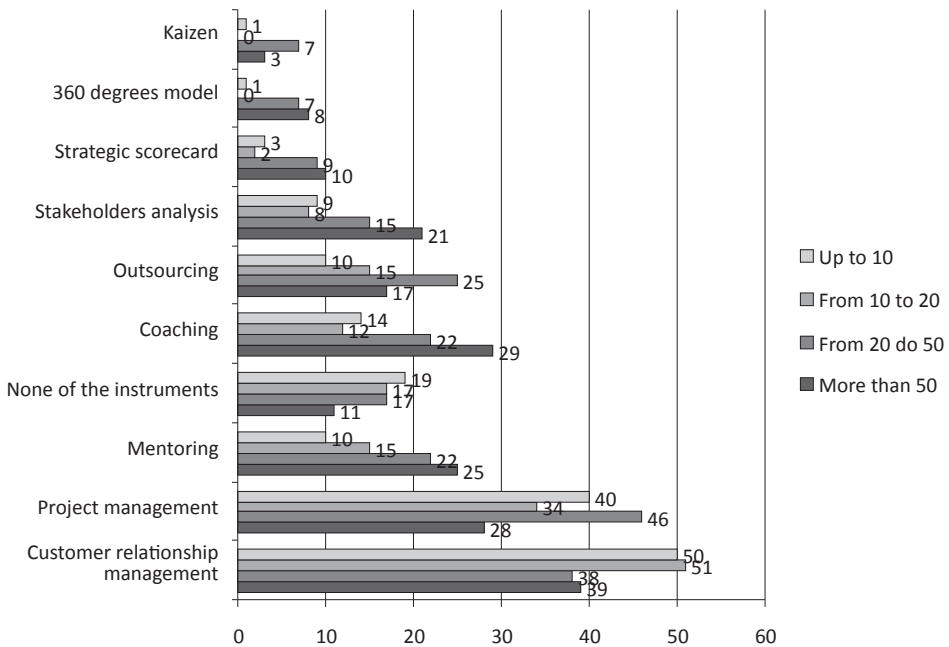


Source: Same as 3.1.

It is necessary to stress out that some differences in the validity range of the used instruments of supporting the development of enterprises as learning organisations in the surveyed network organisations, depending on the size of the network (Fig. 3.19), the development stage (Fig. 3.20) and the network’s range (Fig. 3.21), are visible. Customer relationship management is mainly appreciated in networks with up to 20 participants (51% of responses), in the stage of ending network cooperation (55% of responses), with an international range (54% of responses). When it comes to the importance of customer relationship management, it is interesting that a high percentage of indications also refer to the networks in the phase of its creation. This is due to the adoption of a philosophy, the mode of action which is to attract customers and increase their satisfaction and reduce costs, what is important at every stage of development of the organisation, but it becomes particularly important in the initial and final stage, as it concerns the nearest future of the organisations in these stages of development.

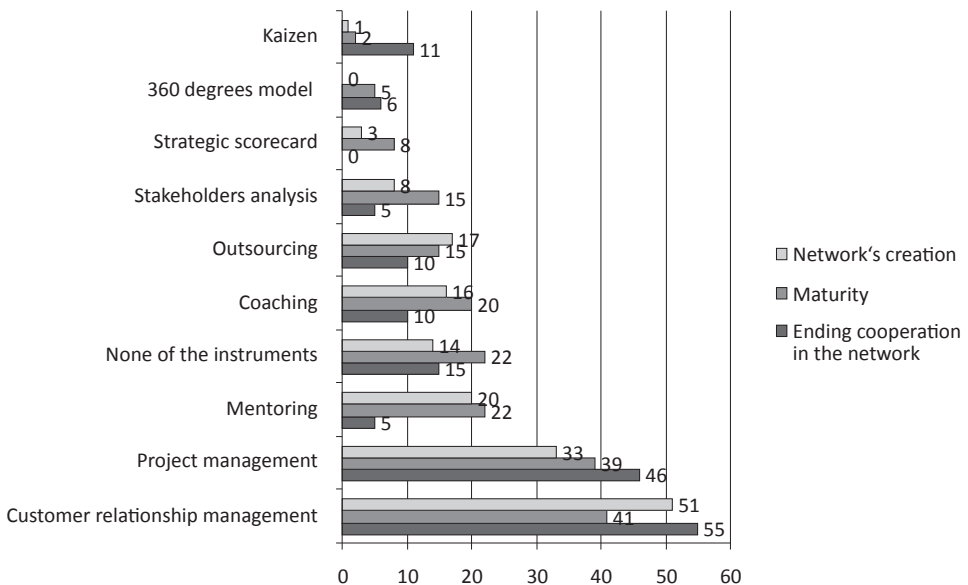
In contrast, project management, is mostly used in the networks holding 20 to 50 participants (46% of responses), in the phase of ending cooperation within a network (46% of responses), with an international range (46% of responses). This applies to rather large networks with a large range and coverage, which through the implementation of projects and their management strive to implement the changes, to increase innovativeness and as a result the position on the market.

**Figure 3.19. Instruments for the development of network organisations as learning organisations depending on a number of network's participants (% of responses)**



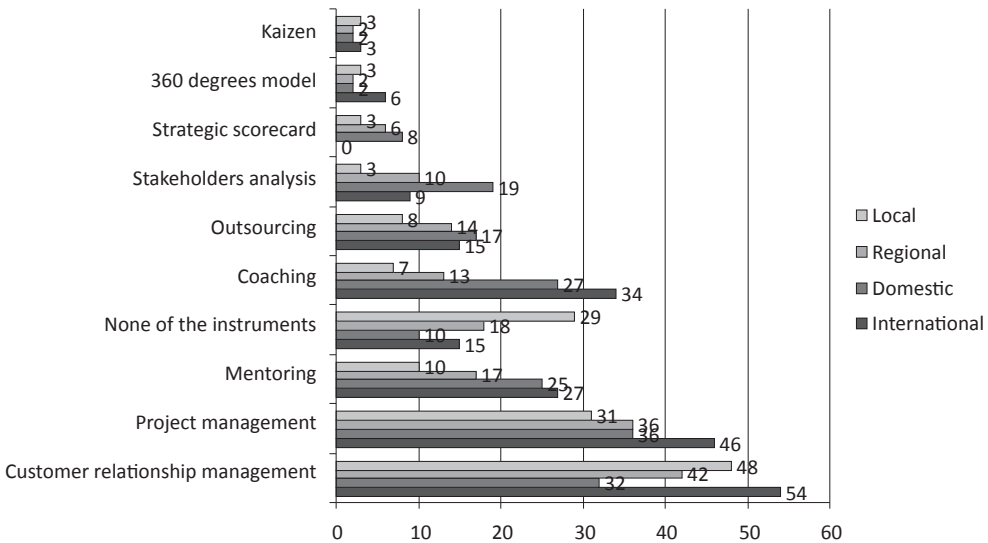
Source: Same as 3.1.

**Figure 3.20. Instruments for the development of network organisations as learning organisations depending on a stage of network's development (% of responses)**



Source: Same as 3.1.

**Figure 3.21. Instruments for the development of network organisations as learning organisations depending on the activities of the network (% of responses)**



Source: Same as 3.1.

Based on the statement “none of the instruments”, which was one of the variants of answers to the above questions, one can indicate network enterprises and network organisations, which do not use instruments supporting their development as learning organisations, therefore they might slightly be considered as learning and knowledge organisations. This concerns enterprises belonging to virtual organisations and micro enterprises, which perform production activities in the local network with up to 10 participants, which are in the maturity stage. One can assume that, this kind of enterprise and such a network organisation do not have a future in the market unless they make some changes in the direction of improvement of: people, processes and procedures, products, relations with the environment.

### 3.5. Summary

The role of knowledge is very important in the building of a competitive advantage of modern enterprises. A high learning ability understood as the willingness of an enterprise to change its knowledge (the change of knowledge is understood in the context of two parallel processes – the verification of the existing knowledge and the development of new one) is an important source of competitive advantage.

In addition to the learning ability, innovativeness of enterprises is currently recognised as one of the important factors, which helps to achieve a competitive



advantage in the conditions of a knowledge economy. The processes of organisational learning are the basis of innovative organisational technical activities. According to M.E. Porter, one should look for competitive advantage primarily in the ability to be innovative, to constantly improve the level of innovativeness and to obtain an appropriate efficiency.

Processes of organisational knowledge management relate to the broader concept which includes not only the distribution and dissemination of knowledge, but also its generation and use, which is closely associated with the processes of organisational learning and its innovativeness. The relationships that exist between the organisational learning and innovativeness can be summarised as follows: **Organisational learning is the process by which innovation in the operations of the organisation occurs, so the level of learning process can become a major source of enterprise's competitive advantage.** Learning can in fact concern both improvement of existing aspects of an organisation – the development of the existing knowledge of owned products, technologies etc., as well as the development of knowledge, creating new competencies – creating new knowledge based on new principles and rules. The ability to create its own, original knowledge relates most to the network organisations, that primarily in this way build their success on the market.

With reference to the above considerations, based on empirical research, one can assume that the answers for the research questions raised in this chapter were provided.

As a result of empirical research, one can conclude that the majority of network organisations are the organisations based on knowledge. Activities characteristic of the knowledge organisation are implemented in virtual, franchise organisations and clusters as well as in companies belonging to such networks.

Effective use of knowledge and focusing on the future are the most important in the process of acquisition, development and use of knowledge. Specific management concepts are used during these actions. The surveyed enterprises belonging to the network and the networks, to which surveyed enterprises belong, are able to respond to changes in the environment, to use emerging opportunities and to counter the threats. They are able to change, to create and to implement innovation. Still, the problem is to evaluate the effectiveness and efficiency of undertaken activities, such as knowledge or innovation management (but it is not a goal of this study). This assessment can be done through the prism of the organisational innovativeness level, which is the subject of discussion in the next subsections.

According to the results of empirical studies, network organisations, which take actions as knowledge organisations (see Subsection 3.2), have the features of learning organisations (see Subsection 3.3). Network organisation as knowledge organisation

has the characteristics of a learning organisation, which promotes its innovativeness and is a source of competitive advantage.

Furthermore, empirical results indicate that enterprises belonging to the network and in network organisations itself are using instruments supporting organisational learning. But managers have a low awareness of the significance of those instruments (relatively small % of responses for the majority of the selected tools). Customer relationship management and project management are very important in the development of enterprises and network organisations. It is worth mentioning that among the surveyed enterprises were those, in which none of the instruments supporting enterprise in learning were used. This may be due to the fact that the respondents – managers do not have the exact knowledge about the essence of a learning organisation and the factors which determine its development.

The process of organisational learning is associated with adaptive actions, development and implementation of the concept of operation, changes in organisational behaviour, but above all with the knowledge and skills and their acquisition, transfer, development and usage. Learning ability and innovativeness of network organisations depend on the use of knowledge instruments, creativity and improvement. Knowledge management plays an important role in the network organisation as a learning organisation, what is the subject of discussion in the next chapter.

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## Chapter IV. Phenomenon and determinants of knowledge management in network organisations and their innovativeness

### 4.1. Introduction

Knowledge plays a dual role in network organisations<sup>1</sup>. On one hand, knowledge is the determinant and the main motive for creating network structures, on the other hand, it is the result of these structures functioning. Knowledge of network organisation is not only a simple sum of the knowledge of individual entities (units), but also a common knowledge of the whole network, resulting from the phenomenon of knowledge diffusion between the network elements<sup>2</sup>.

All processes that enable the creation, dissemination and use of knowledge by network organisation in order to achieve its objectives are called knowledge management<sup>3</sup>. Skilful knowledge management can greatly increase the efficiency of the network organisation.

The following chapter presents the results of empirical research on knowledge management in network organisations, as a part of a broader research project called “Innovativeness of network organisations in the knowledge economy”, conducted in 2011–2013 by the Department of Enterprise Management in Warsaw School of Economics.

**The aim of the study was to present the phenomenon of knowledge management in network organisations and its determinants and examine whether there**

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<sup>1</sup> A. Sopińska A., W. Jakubowska, *Organizacja sieciowa jako przedmiot zainteresowań nauk o zarządzaniu*, [in:] *Zarządzanie strategiczne. Quo vadis?*, (ed.) R. Krupski, “Prace Naukowe Wałbrzyskiej Wyższej Szkoły Zarządzania i Przedsiębiorczości” 2013, no. 2, Wałbrzych.

<sup>2</sup> A. Sopińska, *Zasoby wiedzy w organizacjach sieciowych*, [in:] “Studia i Prace Kolegium Zarządzania i Finansów” 2012, no. 118, Oficyna Wydawnicza SGH, Warsaw.

<sup>3</sup> A. Sopińska, *Wiedza jako strategiczny zasób przedsiębiorstwa. Analiza i pomiar kapitału intelektualnego przedsiębiorstwa*, Oficyna Wydawnicza SGH, Edition II, Warsaw 2010.

**is a relationship between knowledge management and innovativeness of network organisations. The following assumptions were made in the study:**

Assumption 1: Due to the nature of network's creation, knowledge management in network organisations is considered at two levels: at the level of the individual participant (unit) of the network, and at the level of the whole network organisation.

Assumption 2: The following parameters are to describe the phenomenon of knowledge management in network organisations, most of which are considered at the level of enterprise and at the level of the whole network:

- Description of the way of acquiring knowledge;
- Description of the way of using knowledge;
- Description of the process of sharing knowledge within the network;
- Description of applied knowledge management strategy;
- Assessment level of building knowledge management system.

A detailed scope of examining individual parameters is presented in Table 4.1.

**Table 4.1. The scope of examining individual parameters of knowledge management in relation to a single network unit (enterprise) and the whole network**

Parameters which describe the phenomenon of knowledge management	Examination level	
	Single unit (enterprise)	Whole network
1. The way of acquiring knowledge	Yes	Yes
2. The way of using knowledge	Yes	Yes
3. The process of exchanging knowledge (range, area, direction, level of payment, formalisation, centralisation)	No	Yes
4. Applied knowledge management strategy	Yes	Yes
5. The stage of building knowledge management system	Yes	Yes

Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=363$ .

Assumption 3: The following potential factors (determinants) that affect the phenomenon of knowledge management in network organisations are considered<sup>4</sup>:

- The size of the enterprise in terms of number of employees;
- The type of business;
- The type of network;
- The role which the enterprise plays in the network;
- The size of network measured by the number of participants in the network;
- The geographical range of the networks;
- The stage of network's development.

<sup>4</sup> A. Sopińska, *Determinanty zarządzania wiedzą w organizacjach sieciowych*, [in]: *Współczesne przedsiębiorstwo. Teoria i praktyka*, (ed.) A. Sopińska, Oficyna Wydawnicza SGH, Warsaw 2012.

Assumption 4: Single network unit (enterprise) is able to identify and assess all the parameters describing the phenomenon of knowledge management not only at its level (single unit), but also at the level of the whole network to which it belongs.

Assumption 5: The following parameters are used to examine the relationship between knowledge management and innovativeness of network organisations:

- description of the knowledge management strategy;
- and the assessment of level of building knowledge management system.

They are analysed separately on two sets: a set of organisations which do not undertake innovative activity; and a set of organisations with the highest innovative activity.

**Adopted goals and research assumptions were the basis for seven research questions:**

1. What is the dominant way of acquiring knowledge at the level of a single network unit (enterprise) and at the level of the whole network?
2. What is the dominant way of using knowledge at the level of single enterprise and the whole network?
3. How does the process of knowledge exchange between participants of the network look like? i.e.:
  - What is the scope of knowledge exchange in the network?
  - Which areas does the knowledge exchange concern within the network?
  - What is the direction of knowledge flow in the network?
  - What is the level of payment for sharing knowledge in the network?
  - What is the level of formalisation of knowledge flow in the network?
  - Who decides on the knowledge exchange in the network?
4. What is the dominant strategy of knowledge management at the level of the individual enterprise and the whole network?
5. What is the level of progress of building knowledge management system at the level of the individual enterprise and the whole network?
6. Which of the potential factors (determinants) affect the description of the individual parameters of knowledge management in network organisations?
7. Is there a relationship between knowledge management and innovativeness of network organisations?

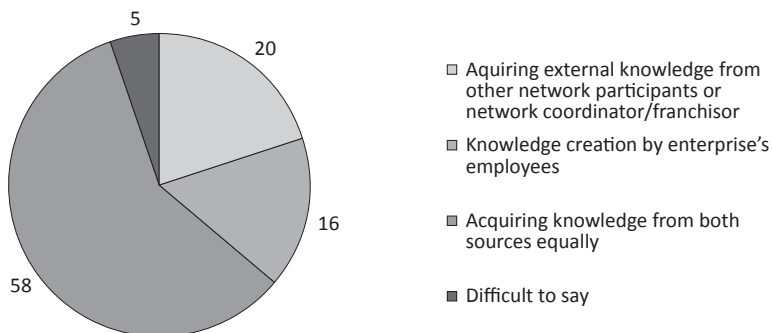
The research included 363 companies belonging to the network organisations and concerned the period 2007–2012. The considerations in the following subsections are an attempt to answer the specific research questions.

## 4.2. The way of acquiring knowledge in network organisations and its determinants

The method of acquiring knowledge is one of the basic parameters describing the phenomenon of knowledge management in the network organisation<sup>5</sup>. A single network unit (enterprise) can acquire knowledge in three ways: it can obtain it from external sources (e.g. from other network members or entities outside the network); it can independently create knowledge (as a result of the creative processes of their own employees); or it can acquire knowledge from both sources simultaneously. The entire network, to which this enterprise belongs, may be directed towards: acquiring external knowledge (in this case from the network environment); the knowledge creation by the participants in the network or the acquisition of knowledge from both sources equally.

The entities were asked about the dominant way of acquiring knowledge at the level of a single network unit (enterprise), majority of them (58%) pointed out that they are focused on acquiring knowledge from both sources equally (Fig. 4.1). They mentioned in the second place the acquisition of knowledge from other participants in the network (20% of all responses), more often entities employing 20–50 people stressed this option (32%). The exclusive focus on the creation of knowledge by the employees of the enterprise (16% of responses) was the least popular option declared by the entities. 5% of respondents (significantly more often manufacturing enterprises and companies employing 250 or more people) could not identify the way of knowledge acquisition by the enterprise.

**Figure 4.1. The ways of acquiring knowledge at the enterprise's level (single network unit)**



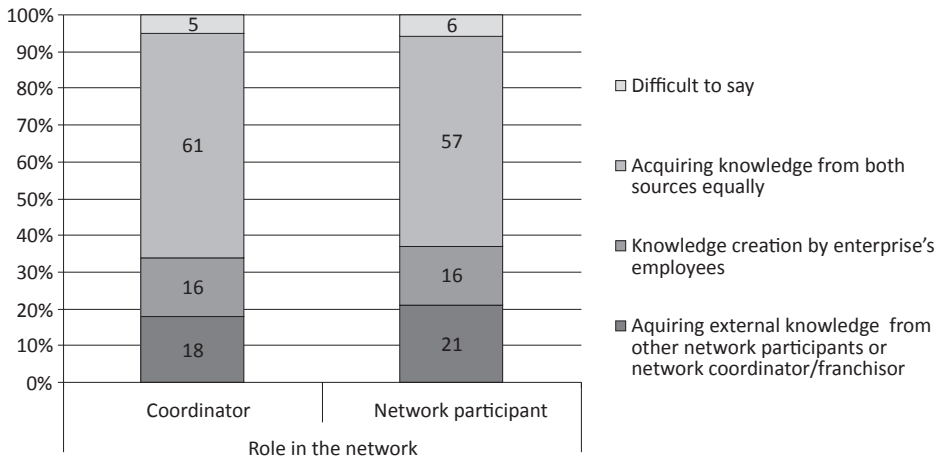
Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH, N=363.

<sup>5</sup> A. Sopińska, *Knowledge management at network organizations*, "Organization and Management" 2013, no. 1, vol. 154, KNOiZ PAN, SGH, Warsaw 2013.



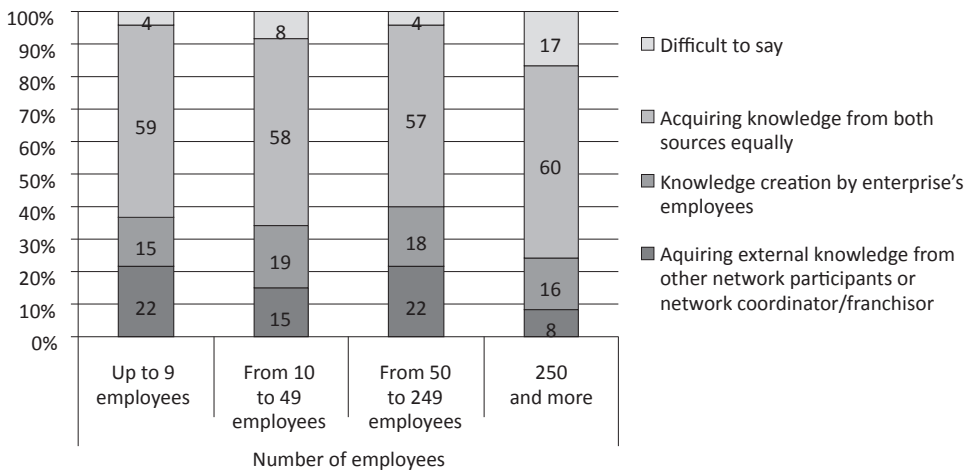
It should be noted that the size of the enterprise; the type of business; the type of network to which it belongs; their role in the network; network's size; stage of network's development; and network's range did not affect the indications' order of individual ways of acquiring knowledge by a single network unit. Minimal differences concerned only the percentage of indications of each of the ways of acquiring knowledge. Figures 4.2–4.8 present above responses in detail.

**Figure 4.2. The way of acquiring knowledge by enterprises depending on their role in the network**



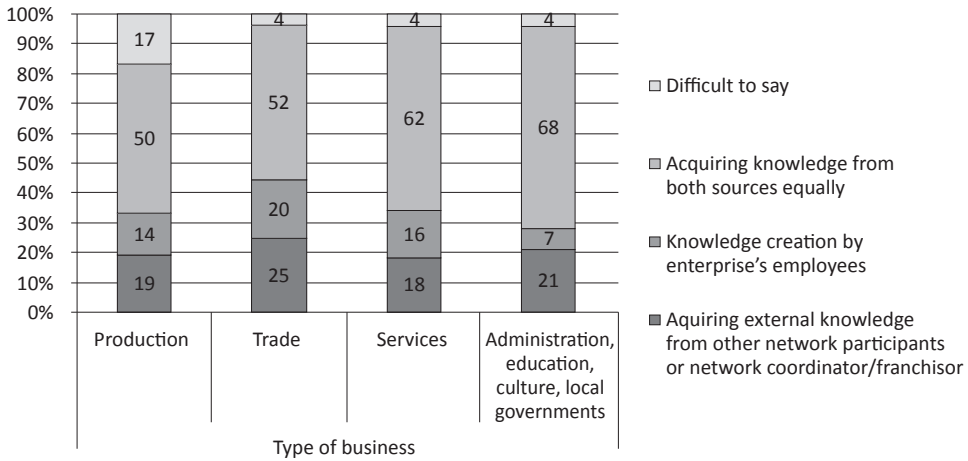
Source: Same as 4.1.

**Figure 4.3. The way of acquiring knowledge by enterprises depending on their size**



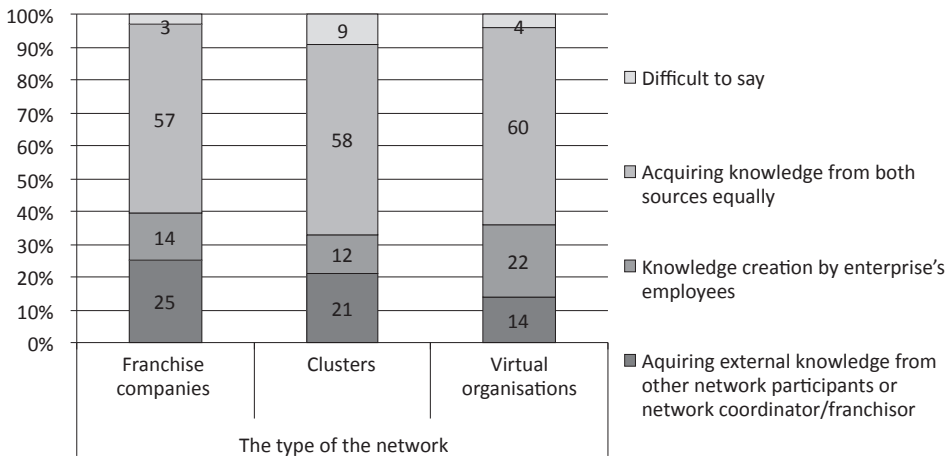
Source: Same as 4.1.

**Figure 4.4. The way of acquiring knowledge by enterprises depending on the type of business**



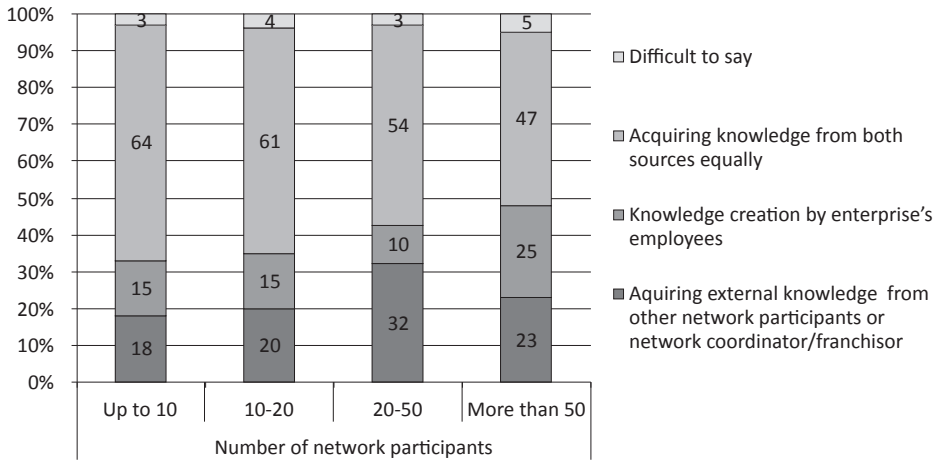
Source: Same as 4.1.

**Figure 4.5. The way of acquiring knowledge by enterprises depending on the type of the network**



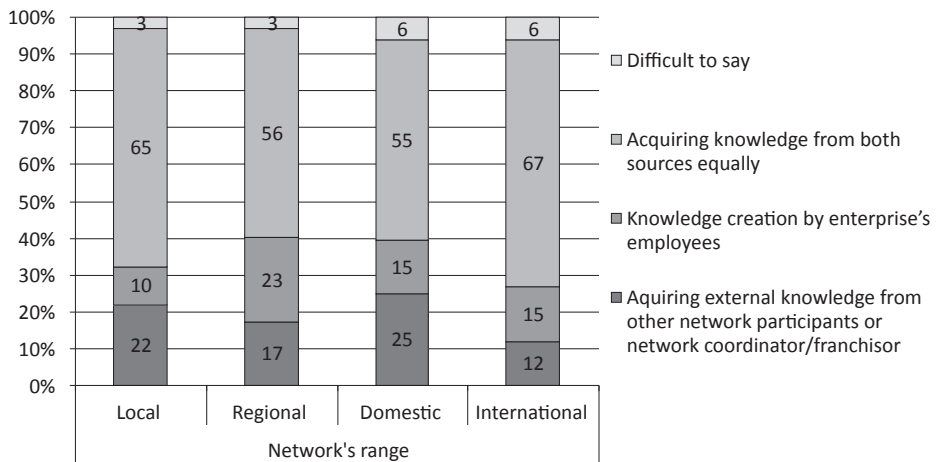
Source: Same as 4.1.

**Figure 4.6. The way of acquiring knowledge by enterprises depending on the size of the network**



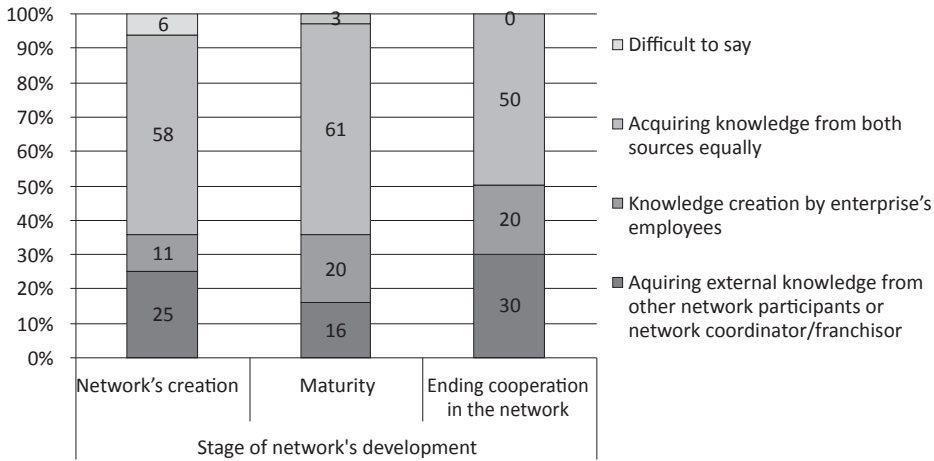
Source: Same as 4.1.

**Figure 4.7. The way of acquiring knowledge by enterprises depending on the network's range**



Source: Same as 4.1.

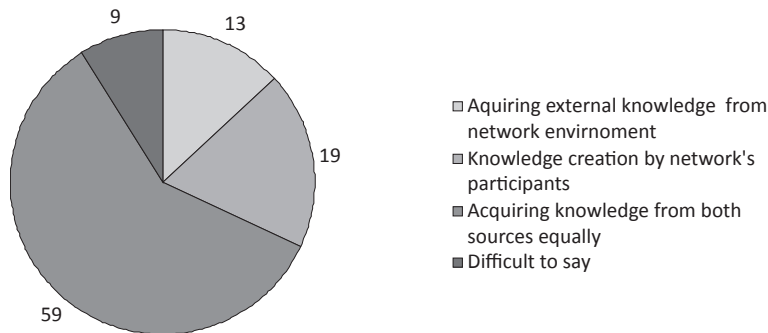
**Figure 4.8. The way of acquiring knowledge by enterprises depending on the stage of network's development**



Source: Same as 4.1.

At the level of the entire network, majority (59%) of the respondents pointed that the use of both sources (internal and external) equally is the dominant way of acquiring knowledge. 19% of the surveyed enterprises had an opinion that their network benefits primarily from the creation of knowledge by the network participants, and 13% – that acquiring knowledge from the environment is dominant in the network. Some respondents (mainly production enterprises) could not identify the way of acquiring knowledge at the network's level (9% of respondents). (Fig. 4.9).

**Figure 4.9. The process of acquiring knowledge at the level of the whole network**



Source: Same as 4.1.

It should be noted that entities which conduct business classified as administration, education, culture and local governments more often indicated the simultaneous use of both knowledge sources by the whole network (81%). The enterprises belonging to

the regional networks more often than others claimed that their network is focused on the creation of knowledge by the participants (27%).

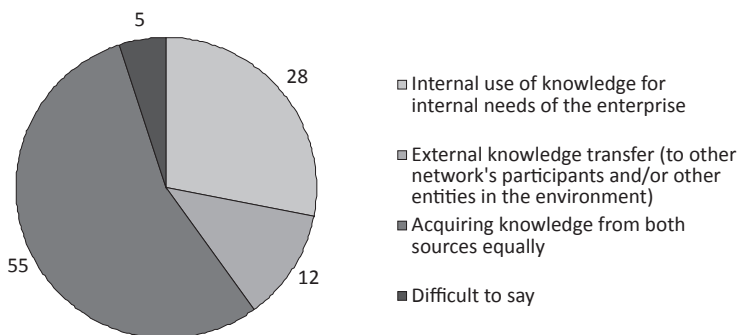
Narrowing the scope, one can conclude that the simultaneous acquisition of knowledge from two sources (internal and external) at the level of a single network unit (enterprise) as well as at the level of the whole network is a dominant way of acquiring knowledge. Over half of the respondents were for this option. Only about one third of entities admitted to using only one of the sources, an external source was a preferred source at the enterprise's level, and internal source at the network's level, which in this case meant the creation of knowledge by the network participants.

### 4.3. The way of using knowledge by network organisations and its determinants

It is important to stress out that the next parameter, that describes the phenomenon of knowledge management in network organisation, is a way of using the acquired knowledge. A single network unit and the whole network can use the acquired knowledge in three ways: they can use it only for internal purposes; they can transfer knowledge outside, they can use both ways of using the knowledge equally.

Surveyed entities were asked about the dominant way of using knowledge at the level of a single network unit and 55% of them said that they are focused equally on the two ways of using knowledge, 28% of respondents admitted that they use the knowledge for their own purposes, and only 12% of them aimed at the transfer of knowledge to other network's participants. Only 5% of the respondents did not specify the way of using knowledge in their enterprises (Fig. 4.10).

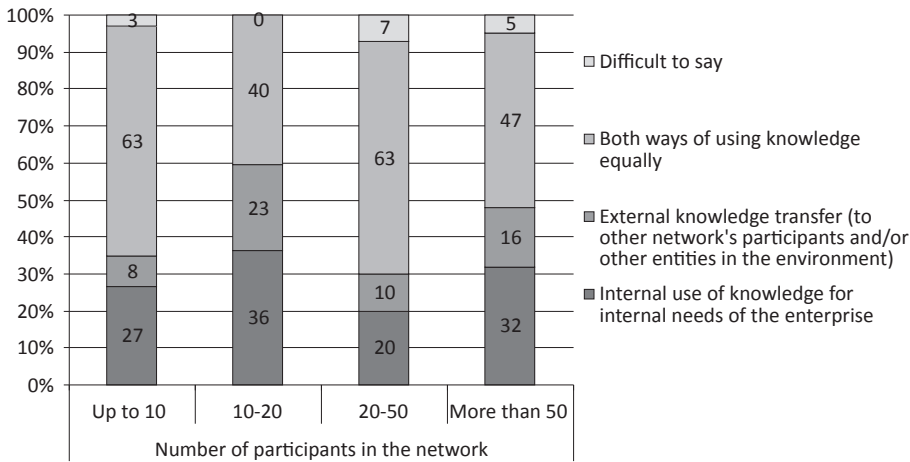
**Figure 4.10. The way of using knowledge at the enterprise's level (single network unit)**



Source: Same as 4.1.

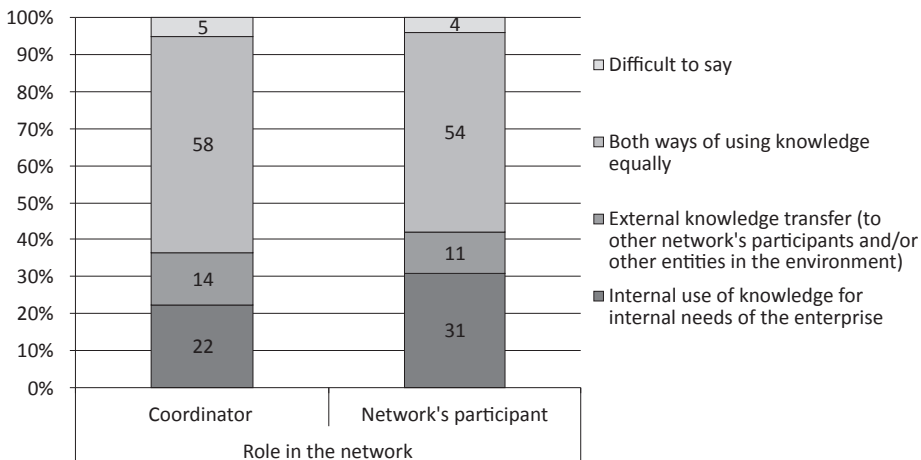
It is worth pausing to consider that the following factors: the size of network, the role in the network, the type of network to which the enterprise belongs; the range of network, and stage of network's development did not affect the indications' order of particular ways of using knowledge at the level of a single unit. More than 50% of respondents pointed to "both ways of using knowledge equally", while the least indications concerned the external knowledge transfer. Fig. 4.11–4.15 present above responses.

**Figure 4.11. The way of using knowledge by enterprises depending on the size of the network**



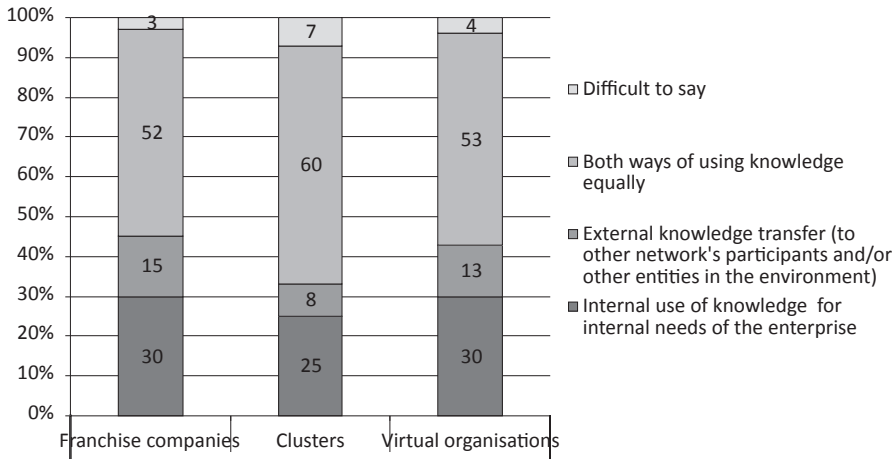
Source: Same as 4.1.

**Figure 4.12. The way of using knowledge by enterprises depending on the role in the network**



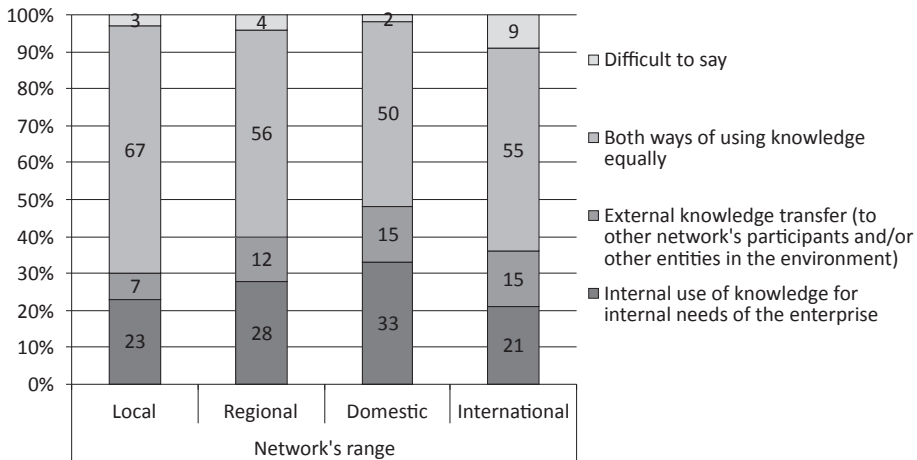
Source: Same as 4.1.

**Figure 4.13. The way of using knowledge by enterprises depending on the type of the network**



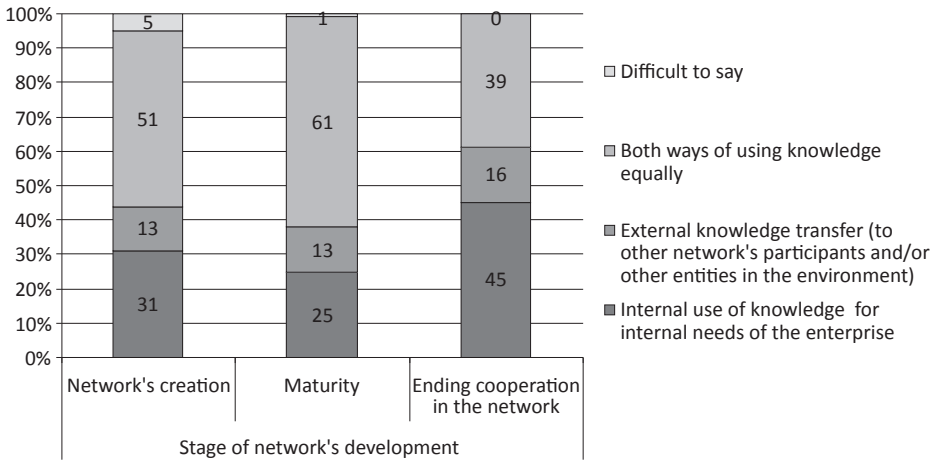
Source: Same as 4.1.

**Figure 4.14. The way of using knowledge by enterprises depending on the network's range**



Source: Same as 4.1.

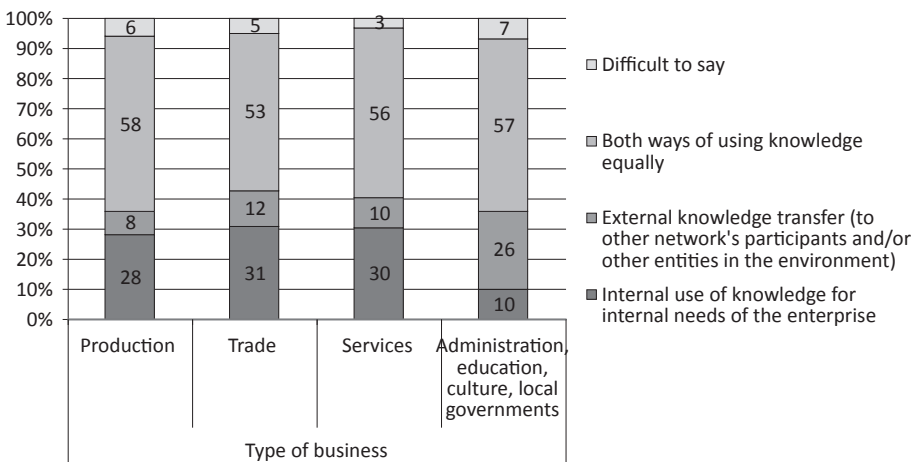
**Figure 4.15. The way of using knowledge by enterprises depending on the stage of network's development**



Source: Same as 4.1.

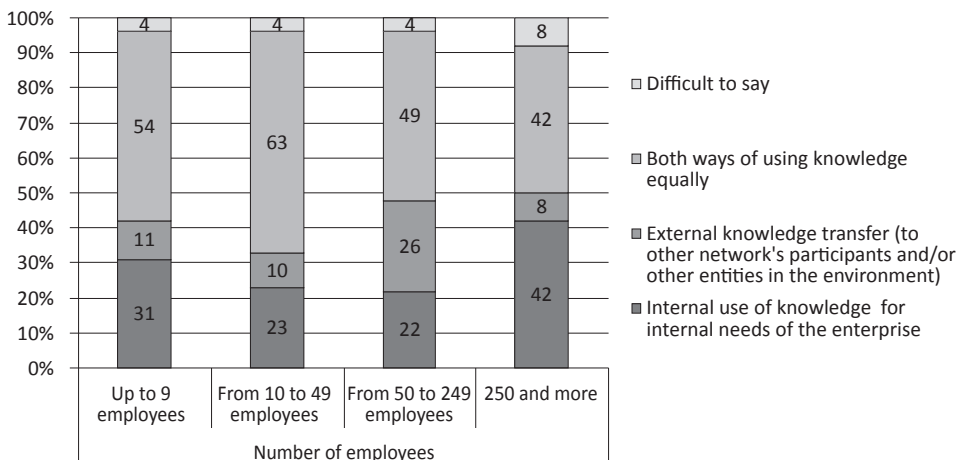
Type of business and size of enterprise affected the way of using knowledge at the level of a single network unit (enterprise). Majority of respondents indicated using knowledge in two ways. What's more, the percentage of external knowledge transfer was higher than the percentage of internal use of knowledge, which was indicated by enterprises that conduct activities classified as administration, education, culture and local governments and enterprises employing 50–249 people. Figures 4.16–4.17 present above responses.

**Figure 4.16. The way of using knowledge by enterprises depending on the type of business**



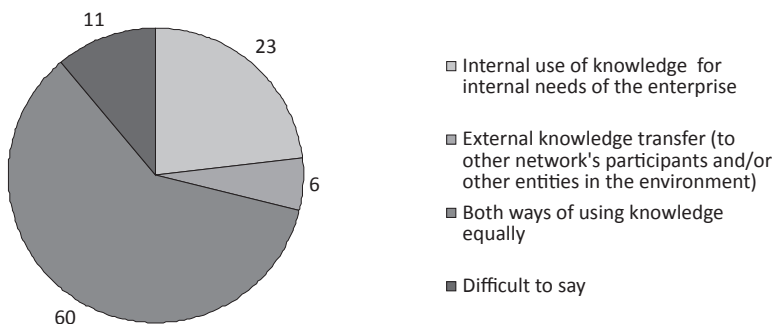
Source: Same as 4.1.



**Figure 4.17. The way of using knowledge by enterprises depending on their size**

Source: Same as 4.1.

It is important to underline that networks to which surveyed enterprises belong are focused equally on two ways of using knowledge (60% of responses). 23% of respondents indicated the internal use of knowledge, and only 6% – external knowledge transfer. 11% of respondents could not diagnose the dominant way of using knowledge at the level of the whole network.

**Figure 4.18. The way of using knowledge at the whole network's level**

Source: Same as 4.1.

Among surveyed enterprises, companies belonging to the network, in the stage of ending cooperation (only 35% of respondents) least likely indicated both ways of using knowledge at the level of whole network.

To sum up, one can conclude that regardless of the level of analysis (the level of a single network unit or the whole network) the dominant way of using knowledge was a combined use of both ways (internal and external). It was 55% of responses

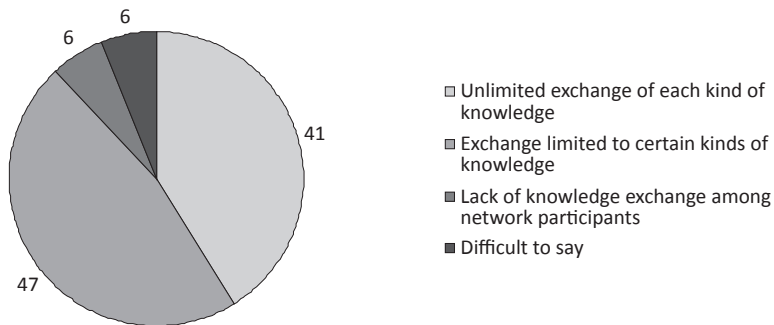
concerning enterprise and 60% of responses concerning network. External knowledge transfer was the least popular among respondents (apart from enterprises that conduct businesses classified as administration, education, culture, local governments and enterprises that employed 50–249 people).

#### **4.4. Characteristics of knowledge exchange process in network organisations and its determinants**

One of the reasons for creating network organisations is the ability to exchange knowledge between its participants. Description of knowledge exchange process is the third parameter characterising the phenomenon of knowledge management in network organisation. The process of exchanging knowledge in network organisation is characterised by a number of specific variables: identification of the range of knowledge exchange; identification of areas affected by the knowledge exchange; description of the knowledge flow; level of payment assessment; assessment of level of formalisation of the knowledge transfer; and identification of the main decision-maker of knowledge exchange. Each of these variables is presented below.

##### **4.4.1. The scope of knowledge exchange in the network**

The exchange of knowledge within the network organisation can be unlimited and be related to each kind of knowledge, or it can be limited to certain selected areas of knowledge. The surveyed enterprises were asked what the scope of the knowledge exchange in the network is. 47% of respondents said that the range of the knowledge exchange is limited to certain kinds of knowledge, and 41% of respondents pointed that it is unlimited and it applies to each kind of knowledge. Only 6% of all surveyed enterprises claimed that there is a lack of knowledge exchange between network participants. The remaining 6% of respondents could not answer this question, enterprises belonging to the clusters (12%) and enterprises which are in production sector had the biggest problem with answering to this question. Such a distribution of responses confirms the thesis about a mass exchange of knowledge in network organisations (Fig. 4.19).

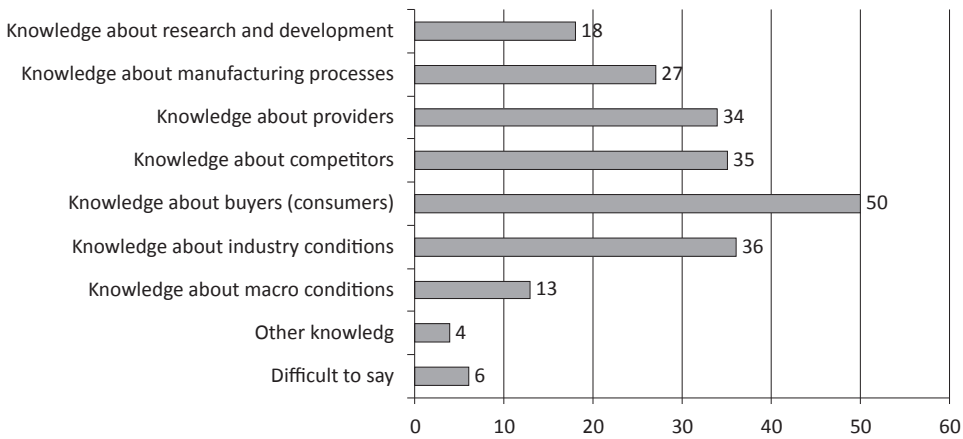
**Figure 4.19. The scope of knowledge exchange in network organisations**

Source: Same as 4.1.

It is important to stress out that the smallest enterprises which employ up to 10 people (51% of the enterprises in this category had the opinion that the range of knowledge exchange is unlimited in their networks) and entities of local range (the percentage of responses was even higher, 62%) pointed, more often than other respondents, to the unlimited range of the knowledge exchange. These enterprises (employing up to 10 people) also least likely reported the answer “the range of the knowledge exchange which is limited to certain categories of knowledge” (only 31% of respondents).

#### 4.4.2. Areas which are affected by the knowledge exchange in the network

Knowledge from different areas may be the object of knowledge exchange in network organisations. In this study, respondents could choose three areas of knowledge exchange from the following categories: knowledge about research and development; knowledge about manufacturing processes; knowledge about suppliers; knowledge about competitors; knowledge about the buyers (consumers); knowledge about industry conditions; and knowledge about the macro conditions. The respondents were asked which areas the knowledge exchange concerns in the network. Majority of respondents pointed to knowledge exchange about buyers (50% of the surveyed companies believed that the knowledge exchange concerns precisely this area). Third place was taken by knowledge about conditions of the industry sector; knowledge about competitors, and knowledge about buyers (consumers) (each of them received approximately 34–36%). 27% of surveyed enterprises stressed the knowledge exchange about manufacturing processes and 18% of respondents indicated the knowledge exchange about research and development. Only 13% of respondents declared the knowledge exchange about macro conditions. (Fig. 4.20).

**Figure 4.20. Areas of knowledge exchange in the network**

Source: Same as 4.1.

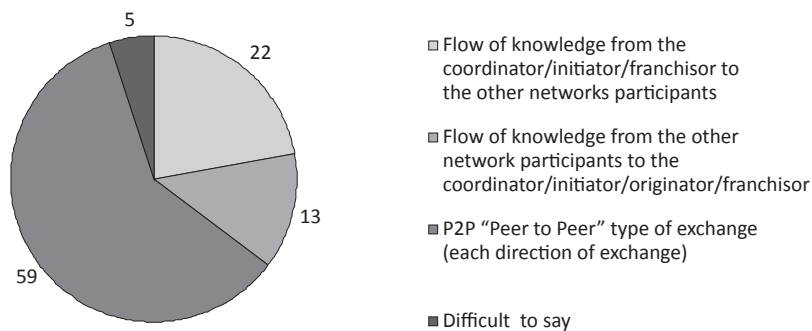
It should be noted that knowledge about research and development was more commonly stressed as the field of knowledge exchange by entities operating as a part of clusters (36%), enterprises which are in production sector (33%) and enterprises conducting businesses from such categories as: administration, education, culture and local governments (47%). Exchange of knowledge about research and development was least commonly declared by virtual organisations (7%) and trading entities (7%). Franchise companies (66%) more often and production enterprises (16%) and clusters (24%) least likely pointed to knowledge exchange about customers. Exchange of knowledge about macro conditions was mentioned mostly by clusters (21%), network coordinators (20%) and entities conducting businesses from such sectors like: administration, education, culture, local governments (32%).

#### 4.4.3. The direction of knowledge flow in the network

The movement of knowledge in network organisations can be centrifugal (from coordinator/initiator/franchisor to other participants of the network); centripetal (from other network participants to coordinator/initiator/originator/franchisor) or can be performed in P2P “peer to peer” form (each direction of exchange). Respondents were asked about the direction of knowledge flow within the network. 59% of them answered that the flow direction is arbitrary and is of a “peer to peer” direction character. Enterprises belonging to virtual organisations and those operating in networks with local range most commonly opted for free movement of knowledge (70% and 73% respectively). The centrifugal movement of knowledge was chosen by 22% of all the enterprises under the research, while centripetal movement was mentioned by 13%. The remaining 5% of respondents did not have any view on

this issue. Production companies (as much as 14% of entities from this category of enterprises); and enterprises operating within clusters (10%) could not answer this question (Fig. 4.21).

**Figure 4.21. The direction of knowledge flow within the network**

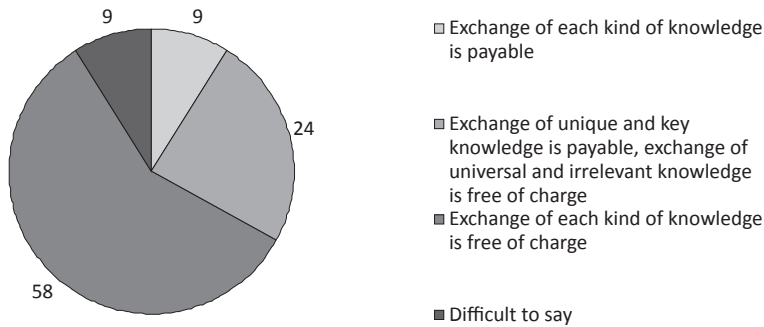


Source: Same as 4.1.

It is important to underline that enterprises belonging to the franchise networks more often than others (35%), and enterprises belonging to virtual organisations far less likely than others (10%) pointed to the centrifugal direction of knowledge flow. Furthermore, the centripetal direction of knowledge flow more often appeared in enterprises employing from 50 to 249 people. They also significantly less than the others stressed the exchange of "peer to peer" (only 39% of entities).

#### 4.4.4. The level of payment for knowledge exchange in the network organisations

A three-rate scale to measure the level of payment for knowledge exchange was applied in the research, where 1 – means lack of payment (each kind of knowledge exchange in the network is free); 2 – selective payment (unique and key knowledge exchange is payable while universal and irrelevant is free of charge); and 3 – full payment (exchange of each kind of knowledge is payable). The study shows that 58% of the analysed enterprises operated in networks in which each kind of knowledge exchange is free; 24% – in networks where knowledge exchange payment applies to unique and fundamental knowledge, and only 9% in networks with full payment for each kind of knowledge (Fig. 4.22). The remaining 9% of respondents had no opinion about it, while manufacturing enterprises (up to 25% of the respondents in this category were not able to identify the level of payment of knowledge exchange), and those belonging to the clusters (17% of responses) more often than the others had no opinion.

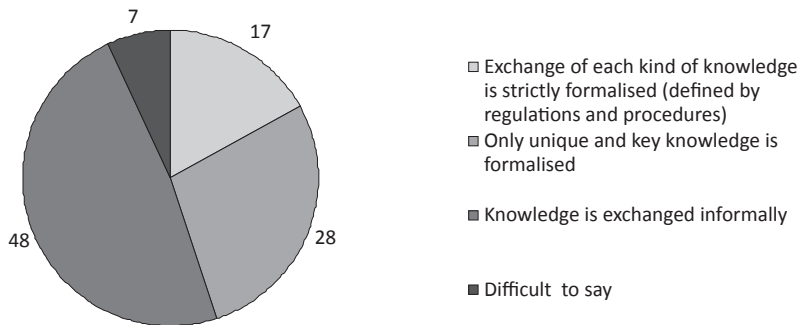
**Figure 4.22. The level of payment for knowledge exchange**

Source: Same as 4.1.

It is worth mentioning that the largest enterprises employing 250 and more people chose selective payment for knowledge exchange more commonly than the others (50% of responses), while among enterprises from networks of local range this choice was relatively least common (13%). 72% claimed that each kind of knowledge exchange is free of charge in their network.

#### 4.4.5. The level of formalisation of knowledge exchange in the network

A three-rate scale was used to measure the level of formalisation, where 1 – means the lack of formalisation (knowledge exchange within the network is informal), 2 – there is a selective formalisation (formalisation applies to unique and fundamental knowledge exchange) and 3 – a complete formalisation of each kind of knowledge exchange (defined by rules and procedures). 48% of 363 surveyed entities had the opinion that the knowledge exchange in their networks is formalised; 28% of respondents claimed that the formalisation of knowledge exchange in their networks is selective. 17% stated that each kind of knowledge exchange is strictly formalised. 7% of respondents could not specify the level of formalisation of knowledge exchange in their networks (Fig. 4.23). A lack of opinion on the rate of formalisation of the exchange of knowledge at the level of a network was most evident in the answers of production enterprises (17%); those employing 250 people and more (24%); entities being a part of clusters (12%).

**Figure 4.23. The level of knowledge exchange formalisation in network organisations**

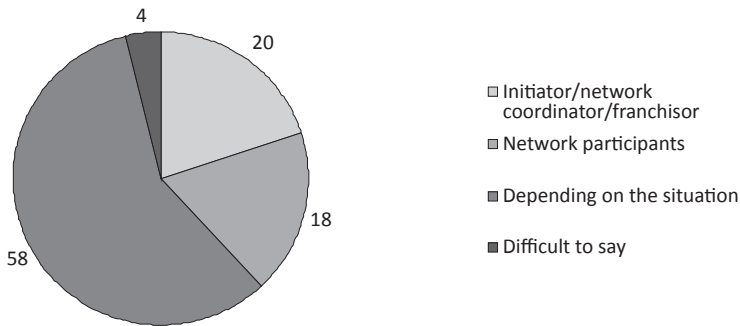
Source: Same as 4.1.

It should be noted that enterprises belonging to the largest networks with over 50 participants, definitely more commonly stated that exchange of each kind of knowledge in their network is strictly formalised (30%), while enterprises belonging to the smallest networks with up to 10 participants more frequently stated that the exchange of knowledge in their networks is not formalised (60%).

#### 4.4.6. Decision-maker of knowledge exchange in the network organisations

The position of a decision-maker of a knowledge exchange might be occupied by: only network broker (initiator/network coordinator/franchisor); each network participants; or, depending on the situation, a chosen entity.

A question about the unit deciding about knowledge exchange in a network provided the following answers: 58% of respondents pointed to approach depending on the situation, 20% stated that the network broker is the decision-maker; while only 18% stated that the network participants are the decision-makers themselves. 4% of respondents expressed no opinion (Fig. 4.24) on the subject. In comparison to the previous variables describing the process of knowledge exchange, the answer was most difficult for the production enterprises (14%), those employing 250 people and more (16%) and those being a part of clusters (8%).

**Figure 4.24. Decision-maker of knowledge exchange in the network organisations**

Source: Same as 4.1

The broker was most commonly indicated as the main knowledge exchange decision-maker in a network by: enterprises being a part of franchises (30%), entities belonging to networks comprising more than 50 participants (31%), and entities belonging to the networks at their decadent stage. The approach depending on the situation was most commonly reported by enterprises belonging to networks with up to 10 participants (as much as 60%). Entities belonging to the franchise networks were those who stressed least commonly network participants as knowledge exchange decision-makers. Only 10% of entities from this category expressed a view that network participants decide on knowledge exchange on their own.

The following conclusions can be drawn from the present study:

1. The knowledge exchange in 363 analysed network organisations was a mass phenomenon. 88% of all surveyed entities stated that the phenomenon of knowledge exchange exists in networks to which they belong.
2. The limited range (concerning selected kinds of knowledge) of knowledge exchange predominated in the analysed network organisations (47% of responses). Majority of entities shared the opinion that the range of knowledge exchange in their networks is unlimited (41%).
3. The exchange of knowledge within the network related primarily to the area of knowledge about buyers (consumers) – 50% of respondents indicated this area of knowledge exchange. About 1/3 of respondents declared the following areas of knowledge exchange: industry conditions, competitors and suppliers.
4. 18% of respondents pointed to knowledge about research and development.
5. In most of the analysed networks, knowledge flow has optional direction among participants – “peer to peer” exchange dominates (59% of responses).
6. Free of charge knowledge exchange predominates in analysed network organisations. 58% of entities shared the opinion that each kind of knowledge exchange in their networks is free.



7. The level of formalisation of knowledge transfer in networks, to which surveyed enterprises belong, is very low. Only 17% of respondents believed that each kind of knowledge exchange is strictly formalised, 48% thought that each kind of knowledge exchange is informal.
8. There was no specified decision-maker of knowledge exchange in the analysed network organisations, 58% of enterprises claimed that in this regard they use situational approach.
9. Two categories of enterprises: production enterprises and enterprises from clusters had problems with the identification of the particular variables describing the process of knowledge exchange.

#### **4.5. Knowledge management strategies used in network organisations and their determinants**

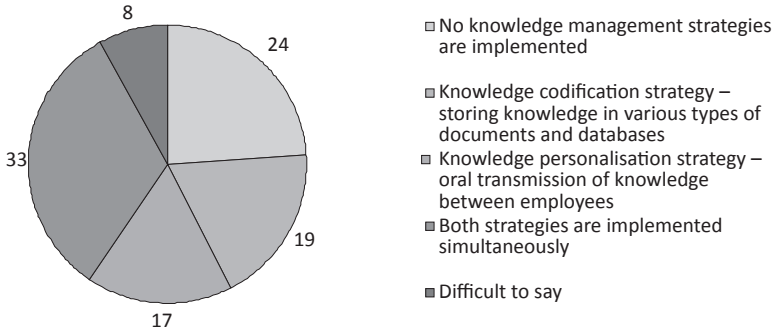
The identification of used knowledge management strategy is the next (fourth) parameter describing the phenomenon of knowledge management in network organisations. Enterprise can implement one of the two alternative strategies: knowledge codification strategies or knowledge personalisation strategies at the level of a single unit. It can also implement simultaneously both of these strategies. The strategy of knowledge codification also called “people to documents”, involves storing explicate knowledge in various types of documents and databases that are created on the basis of the IT system. Knowledge personalisation strategy called “people to people”, is the transfer of tacit knowledge in the process of communication and collaboration between employees, by developing personal relationships and an appropriate organisational culture.

The network as a whole can implement one of the four knowledge management strategies. Depending on the type of network and the type of knowledge, it may be: a strategy of the sub-contractors integration, owning a specialist knowledge, around the dominant participant in the network; strategy for the development of cooperation between equal rights experts from the specific field of knowledge; strategy of knowledge exchange between network participants on a commercial basis, based on buying and selling of knowledge or knowledge diversification strategy consisting of finding new uses for existing knowledge.

The respondents were asked about the dominant strategy of knowledge management at the level of a single network unit, 33% of the analysed enterprises said that they implement both strategies simultaneously, 19% – that they introduce a strategy of knowledge codification, and 17% – that they implement a strategy of knowledge personalisation. 24% of surveyed enterprises do not implement each strategy, while in this group dominate especially enterprises belonging to local networks (38%).

8% of respondents such as enterprises belonging to clusters (13%) and entities of administration, education, culture, local governments sectors (18%) had the difficulties in answering questions (Fig. 4.25).

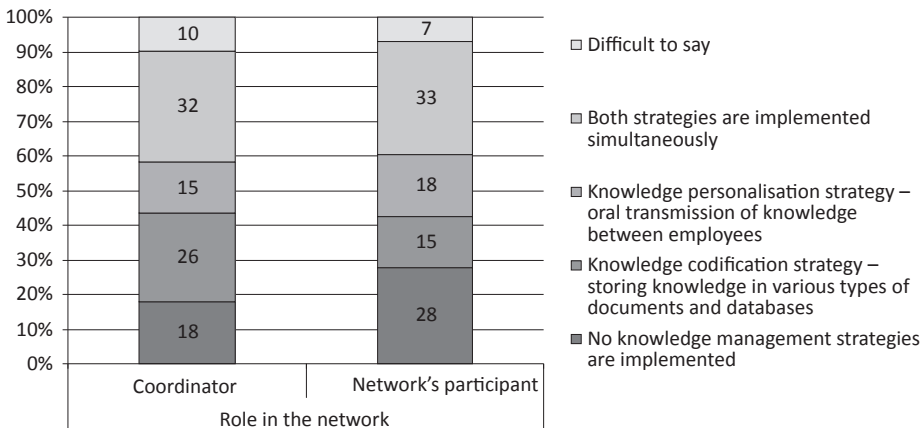
**Figure 4.25. Knowledge management strategies that are used at the level of a single enterprise**



Source: Same as 4.1.

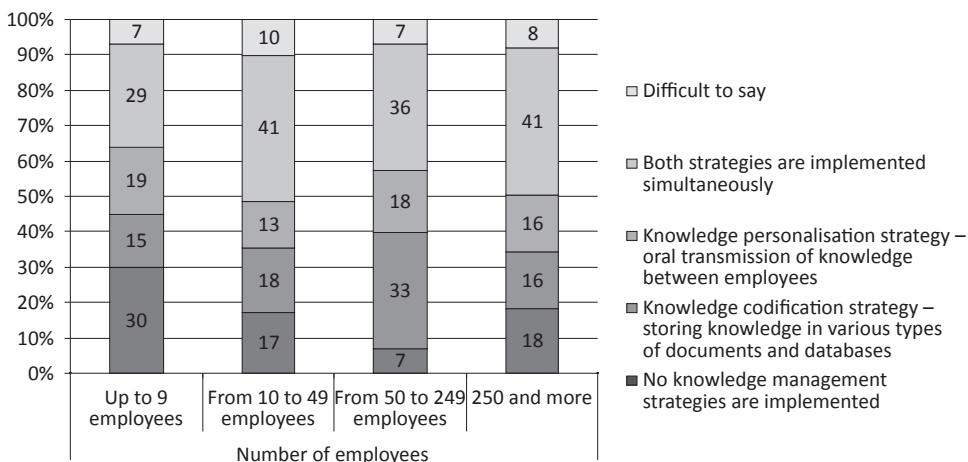
It is worth mentioning that the enterprises that act as network coordinators (26%) more often than those that act as network participants (15%) and enterprises employing 50–249 people (33%) were interested in implementation of knowledge codification strategies. What’s more, companies employing 50–249 people admitted least likely to the lack of implementation of knowledge management strategies – only 7% of them claimed that they did not implement any strategy. Figures 4.11–4.15 present the distribution of responses due to the role played by the entities in the network and due to the size of the entity.

**Figure 4.26. Knowledge management strategies implemented at the enterprise’s level depending on the role that it plays in the network**



Source: Same as 4.1.

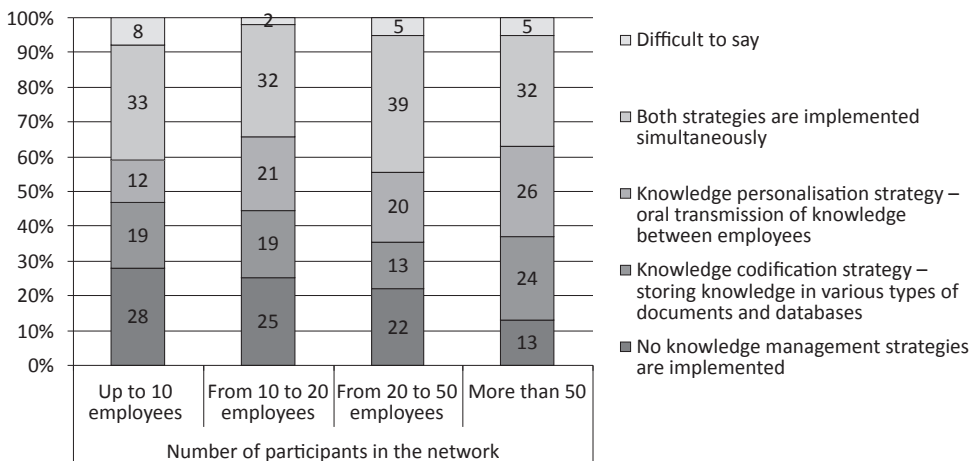
**Figure 4.27. Knowledge management strategies implemented at the enterprise's level depending on its size**



Source: Same as 4.1.

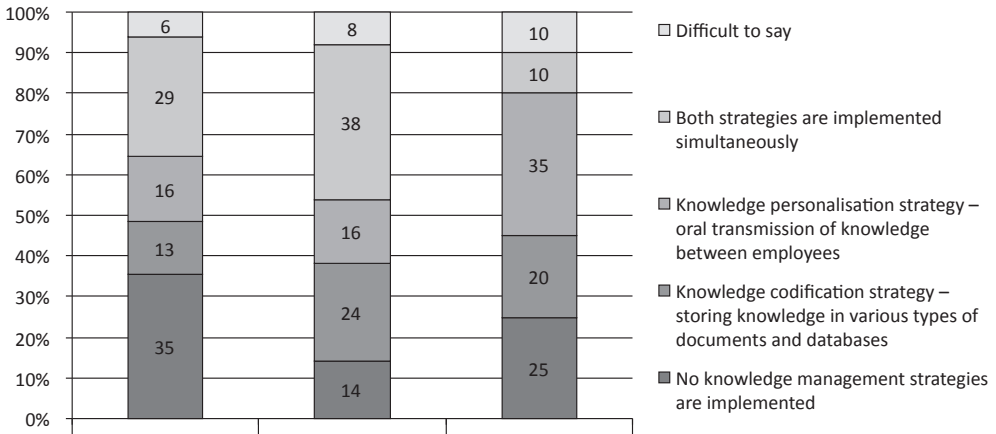
The participants of the largest networks (26% of responses), domestic network's participants (25%), and network's participants in the stage of ending the cooperation (35%) most often implemented knowledge personalisation strategy. Figures 4.28–4.30 present detailed distribution of responses based on the criterion: the size of the network; the stage of its development, and the network's range.

**Figure 4.28. Knowledge management strategies implemented by the enterprise depending on the size of a network**



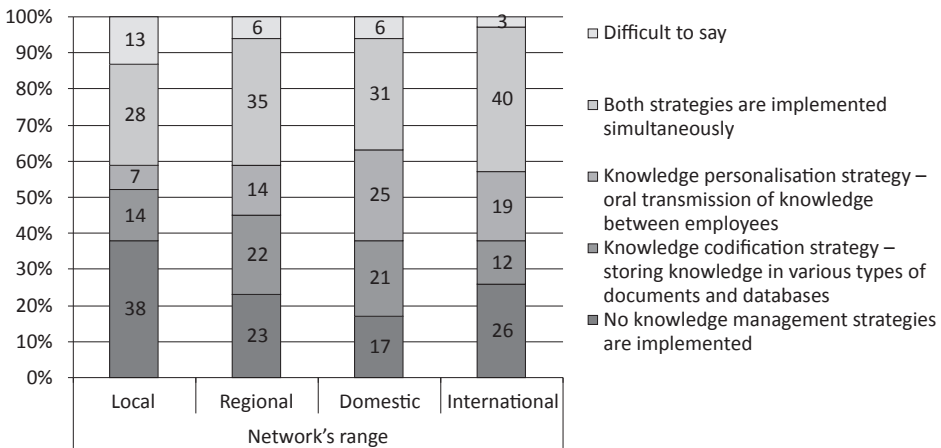
Source: Same as 4.1.

**Figure 4.29. Knowledge management strategies implemented by the enterprise depending on the stage of network's development**



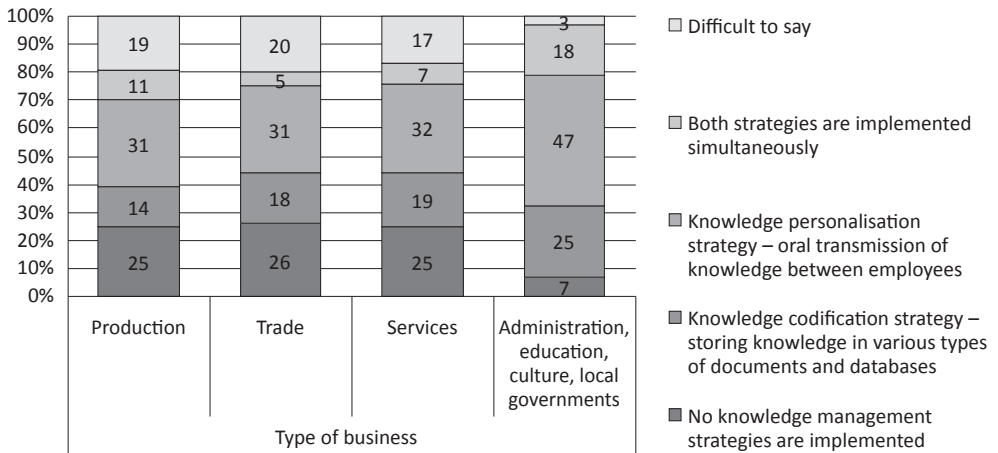
Source: Same as 4.1.

**Figure 4.30. Knowledge management strategies implemented by the enterprise depending on the network's range**



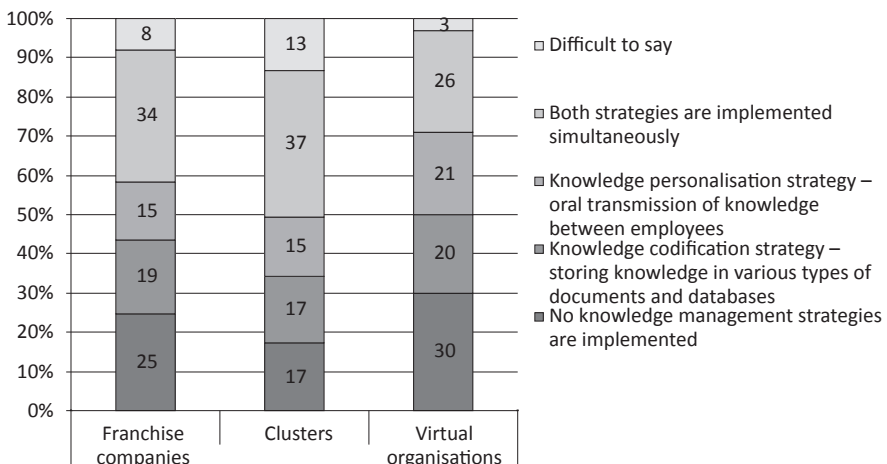
Source: Same as 4.1.

If we have a closer look at the type of the business of the surveyed enterprises, we discover that the distribution of responses of entities from such categories as: administration, education, culture, local government was different than in other categories of business (Fig. 4.31). These entities more likely than others claimed that they implement both knowledge management strategies simultaneously (47%, the ratio for all respondents was 33%), they much less often pointed to the lack of implementation of the strategy (only 7%, the ratio for all respondents was 24%).

**Figure 4.31. Knowledge management strategies used by enterprises depending on the type of business**

Source: Same as 4.1.

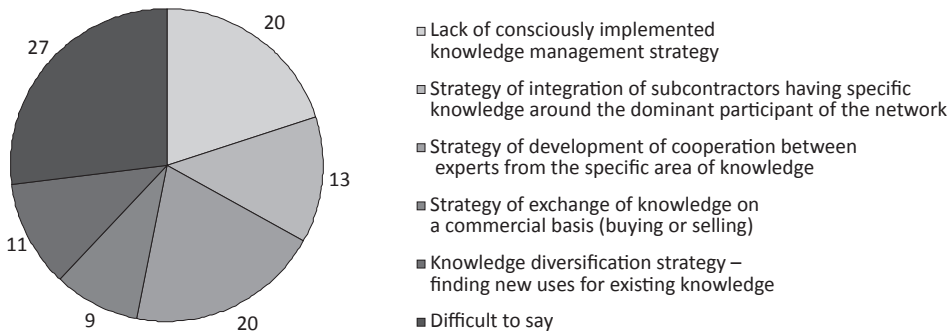
30% of entities operating in virtual organisations declared the lack of implementation of any knowledge management strategy more often than entities that operate in clusters (17%). Virtual organisations were more often focused on the implementation of one of the strategies (either codification or personalisation) than clusters and franchise organisations (Fig. 4.32).

**Figure 4.32. Knowledge management strategies used by enterprises depending on the type of the network**

Source: Same as 4.1.

Identification of the management knowledge strategy at the level of the whole network was more difficult in comparison to the level of a single unit (enterprise). 47% of respondents could not identify the knowledge management strategy in their networks and they stated that they did not implement any strategies in their networks.

**Figure 4.33. Knowledge management strategies used at the level of the whole network**



Source: Same as 4.1.

Among the entities that have stated that defined knowledge management strategy is implemented, one pointed most often to the strategy of development of cooperation between experts from the specific area of knowledge (20%) and the strategy of integration of subcontractors having specific knowledge around the dominant participant of the network (13%). Such a distribution of responses may indicate that only specialised knowledge is subject to management in the surveyed enterprises.

It is worth pausing to consider the lack of dominance of one of knowledge management strategy (knowledge codification strategy is implemented by 19% of the respondents, and knowledge personalisation strategy by 17%) at the level of a single network unit (enterprise). Implementation of both strategies simultaneously is definitely more common solution at the enterprise's level (33% of subjects). Strategy of development of cooperation between experts from the specific area of knowledge (20%) and strategy of integration of subcontractors having specific knowledge around the dominant participant of the network (13%) are the most common at the level of the whole network. What's more, 27% of respondents could not identify knowledge management strategy at the network level.

Furthermore, very large percentage of surveyed companies admit that no knowledge management strategy is implemented (24% of enterprises' responses, 20% of network's responses) both at the level of the enterprise and the whole network.

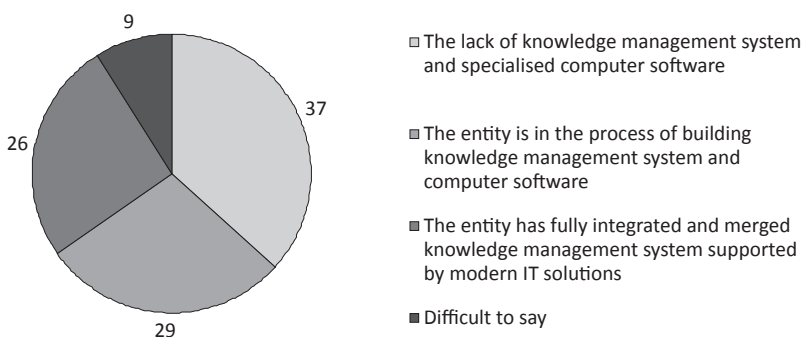
## 4.6. The advancement level of building knowledge management system and its determinants

The measurement of advancement level of knowledge management is the last parameter used to describe the phenomenon of knowledge management in network organisation.

A three-point scale was used to assess above parameter, both at the level of the single network unit (enterprise) and at level of the whole network, where: 1 – means zero level (the lack of knowledge management system and the lack of specialised computer software); 2 – an average level (the entity is in the process of creation of knowledge management system and computer software that allows one to use the knowledge at time delayed); 3 – a high level (there is fully merged and integrated knowledge management system supported by modern IT solutions which allow to use knowledge in real time).

The study shows that the advancement level of knowledge management system at the level of a single network unit (enterprise) is disappointingly low. 37% of all enterprises did not have knowledge management system and specialised computer software, and another 29% of respondents were in the process of creating such a system. Only 26% of the analysed enterprises stated that they had fully integrated and merged knowledge management system supported by modern IT solutions which allow access to knowledge in real time. The remaining 9% of respondents could not diagnose the advancement level of knowledge management system (Fig. 4.34).

**Figure 4.34. The advancement level of knowledge management system at the level of the single network unit (enterprise)**

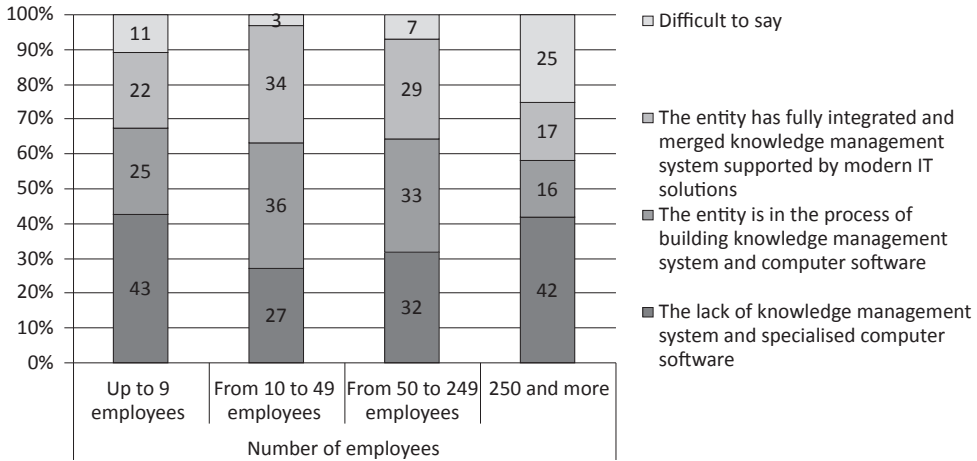


Source: Same as 4.1.

Enterprises employing 10–49 people (34%) and entities belonging to the network in the mature stage of development (40%) more often pointed to a fully integrated knowledge management system at the enterprise's level. Entities in the stage of ending

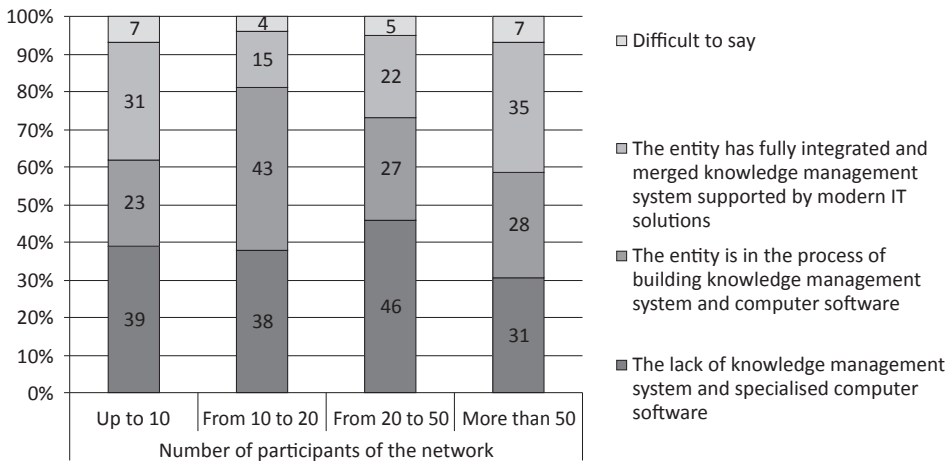
cooperation only through membership in the network realised the necessity to create a knowledge management system. Entities belonging to the network which are in the stage of being created (50%) pointed to the lack of knowledge management system. Figures 4.35–4.38 present detailed distribution of responses due to the size of the enterprise and network, stage of network’s development, as well as network’s range.

**Figure 4.35. The advancement level of building knowledge management system in the enterprise depending on its size**



Source: Same as 4.1.

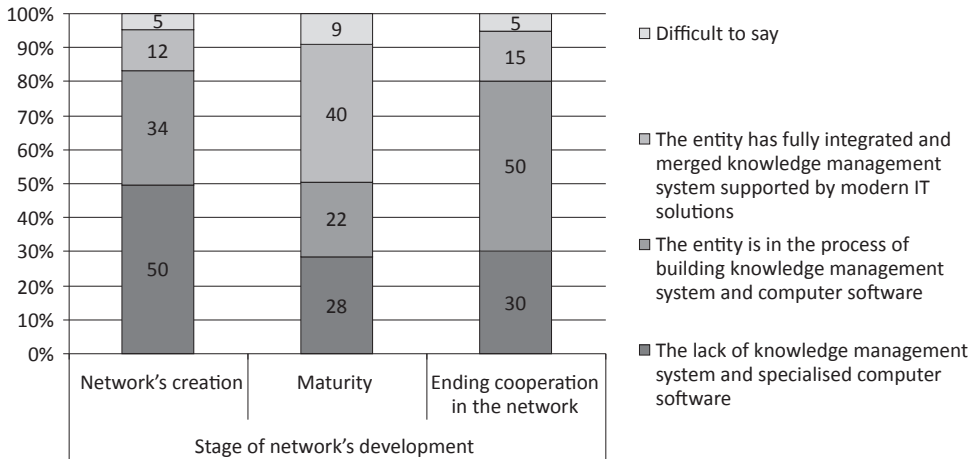
**Figure 4.36. The advancement level of building knowledge management system in the enterprise depending on the size of the network to which the enterprise belongs**



Source: Same as 4.1.

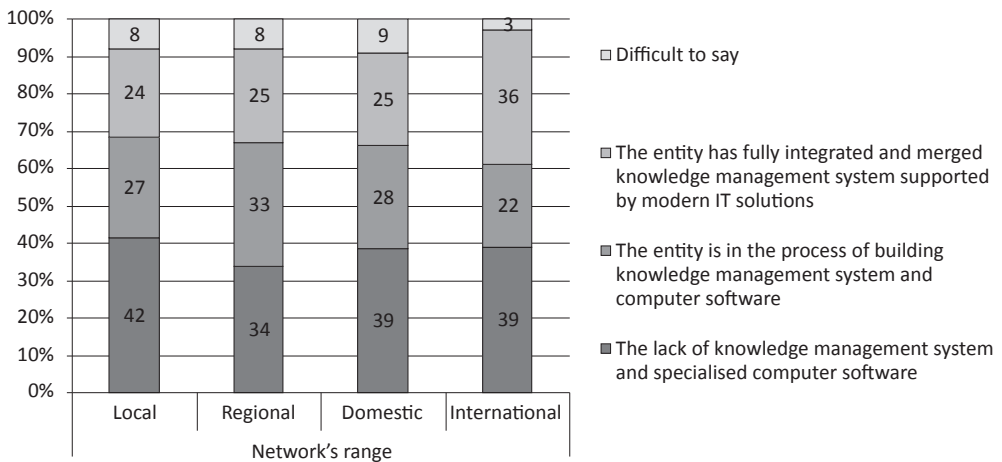


**Figure 4.37. The advancement level of building knowledge management system in the enterprise depending on the stage of network's development**



Source: Same as 4.1.

**Figure 4.38. The advancement level of building knowledge management system in the enterprise depending on the network's range**

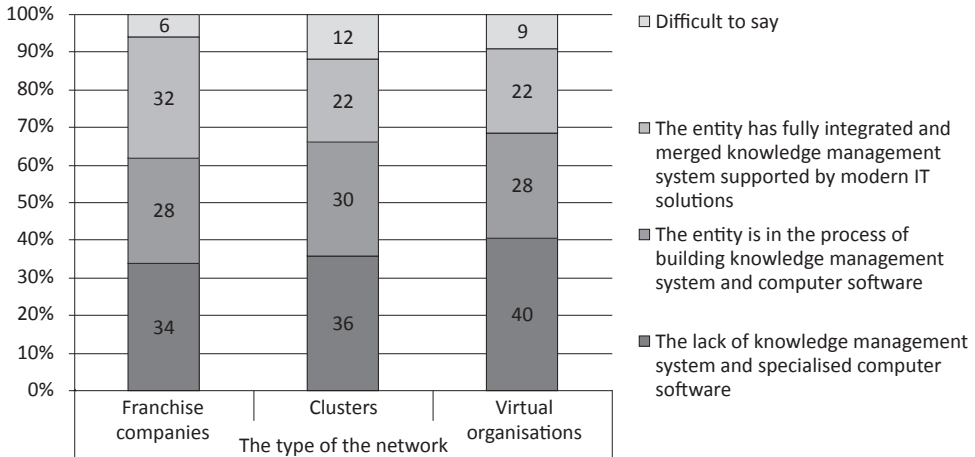


Source: Same as 4.1.

The following factors: the type of network to which the examined enterprise belongs, the role played in the network and the type of business affected the advancement level of building knowledge management system (32% of them had the highest advancement level of building knowledge management system). Taking into account the second factor, coordinators (32% of responses) had the higher level of development of knowledge management system, and regarding the third factor – enterprises

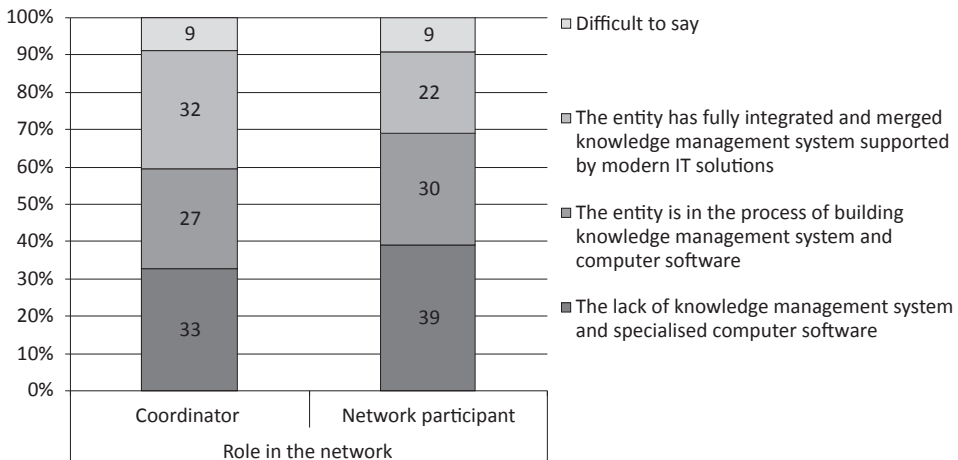
from such sectors as administration, education, culture and local-governments (36%). Detailed distribution of responses is presented in Fig. 4.39–4.41.

**Figure 4.39. The advancement level of building knowledge management system in the enterprise depending on the type of the network**



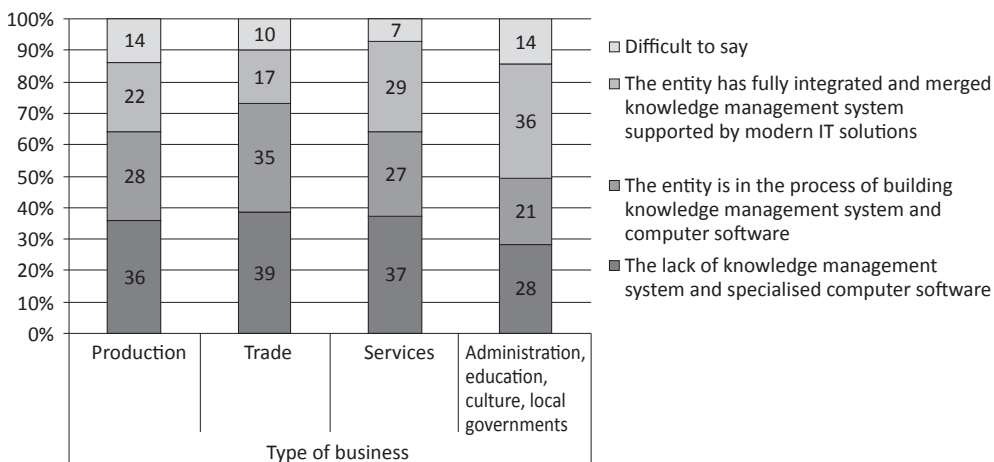
Source: Same as 4.1.

**Figure 4.40. The advancement level of building knowledge management system in the enterprise depending on its role in the network**



Source: Same as 4.1.

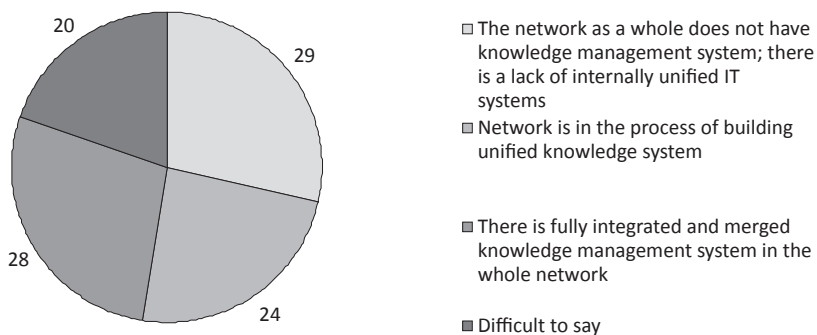
**Figure 4.41. The advancement level of building knowledge management system in the enterprise depending on the type of business**



Source: Same as 4.1.

Surveyed enterprises have great difficulties in assessing the level of building knowledge management system at the level of the whole network. 20% of respondents could not give answer to that question. The advancement level of building knowledge management system at the level of whole network is low in the opinion of the other entities. 29% of respondents claimed that the network, to which they belong, does not have a knowledge management system and internally unified system. Another 24% of respondents believed that their network is still in the process of creating a knowledge management system. Only 28% of respondents said that they had fully integrated and merged knowledge management system in their network, which allows an access to knowledge in real time (Fig. 4.42).

**Figure 4.42. The advancement level of building knowledge management system at the level of whole network**



Source: Same as 4.1.

To sum up, one can say that the advancement level of building knowledge management system was low in surveyed enterprises. This assessment applies to both a level of a single network unit (enterprise), and the level of the whole network. 37% of respondents admitted to the lack of advancement in building knowledge management, and at the level of the whole network – 20%. Only 26% of respondents said that they had fully merged and integrated knowledge management systems, and 28% had the opinion that network to which they belong has such a system.

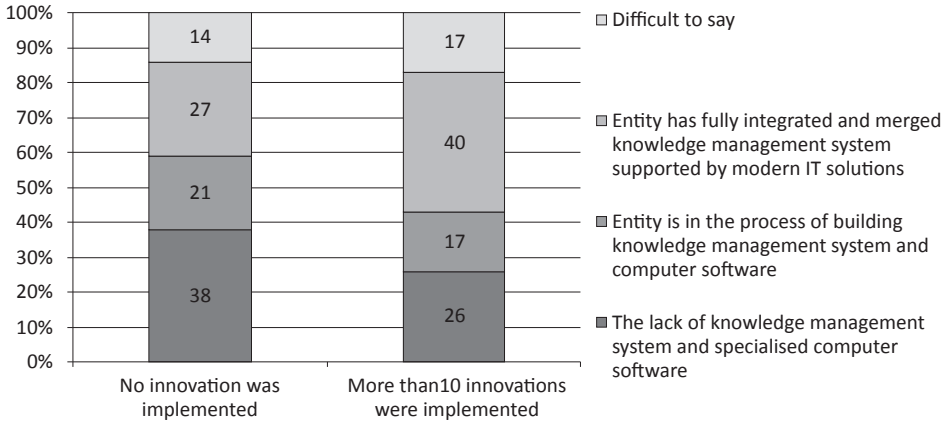
## **4.7. Knowledge management compared to the innovativeness of network organisations**

In order to check whether there is a relationship between knowledge management in network organisations and their innovativeness, a comparative analysis of two sets: the organisation characterised by a lack of innovative activity and the organisation with the highest innovative activities in the years 2007–2012 (“they implemented more than 10 innovation”) was conducted. The parameters that describe the knowledge management were: description of the knowledge management strategy and the advancement level of building knowledge management system. The analysis of these parameters was carried out separately at the level of a single enterprise and at the level of the whole network.

### **4.7.1. The advancement level of building knowledge management system compared to the innovativeness of network organisation**

Comparative analysis of the advancement level of building knowledge management system at the level of a single enterprise conducted in both groups of entities showed differences in the distribution of responses between the entities that have no innovative activity, and those with the highest innovative activity. 40% of respondents with the highest innovative activity ( $n_1 = 23$ ) said, that they do not have a fully integrated and merged knowledge management system supported by modern IT solutions, and another 17% is in the process of building such a system (Figure 4.43). Only 27% of respondents with the lowest innovative activity ( $n_2 = 104$ ) claimed that they have fully integrated and merged knowledge management system. The advancement level of building knowledge management system at the level of a single network unit (enterprise) is much higher in innovative entities than in entities with zero innovativeness.

**Figure 4.43. The advancement level of building knowledge management system at the level of a single enterprise compared to its innovativeness**

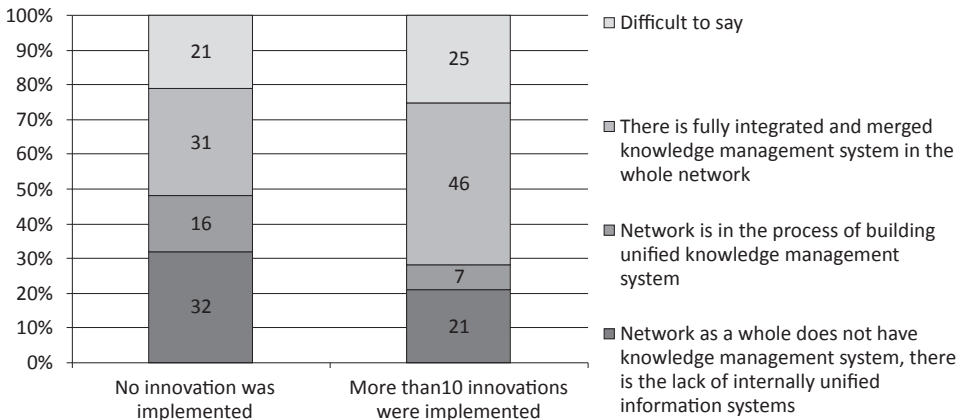


Source: Same as 4.1; n1= 23; n2= 104.

A similar dependence can be observed in the analysis of the advancement level of building knowledge management system at the level of the whole network (Fig. 4.44). The number of networks in the group that do not have any innovative activity was  $n3 = 117$ , and the number of networks in the most innovative group was  $n4 = 42$ .

Percentage of networks which had fully integrated and merged knowledge management system supported by modern IT solutions was higher among innovative networks (46% of responses) than in networks which did not implement any innovations in the years 2007–2012 (31%). On the other hand, the share of the networks which did not have the knowledge management system was lower than in innovative networks (21% compared to 32%).

**Figure 4.44. The advancement level of building knowledge management system at the level of whole network compared to its innovativeness**



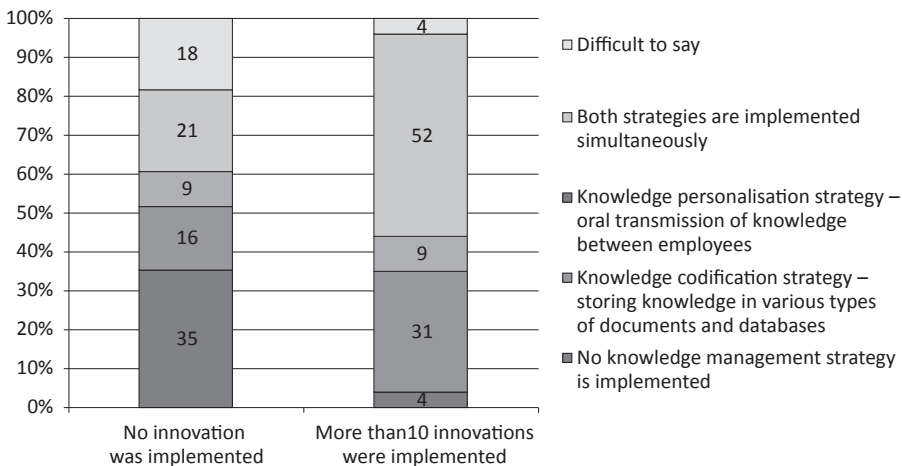
Source: Same as 4.1; n1= 23; n2= 104.

To sum up, one can conclude that there occurs dependence between the advancement level of building knowledge management system in network organisation and its innovativeness.

#### 4.7.2. Knowledge management strategies compared to innovativeness of network organisation

A description of the implemented strategy of knowledge management at the level of a single network unit (enterprise) and at the level of the whole network was the second considered parameter for both categories of entities (the most and the least innovative ones). Figure 4.45 presents the responses to the question about the dominant strategy of knowledge management, implemented at the enterprise level for both entities.

**Figure 4.45. Knowledge management strategies at the level of a single enterprise compared to its innovativeness**



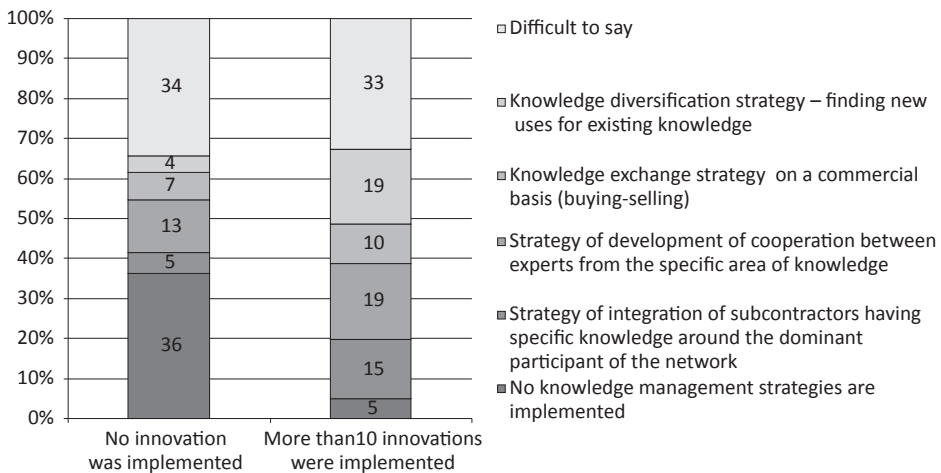
Source: Same as 4.1; n1= 23; n2= 104.

It is important to point out that the majority of innovative entities (52%) (n1 = 23) implemented both strategies (knowledge codification and knowledge personalisation), another 31% introduced exclusively knowledge codification strategy, and 9% implemented knowledge personalisation strategy. Only 4% of innovative enterprises did not implement any knowledge management strategy, 4% of them could not identify it. Taking into account entities with zero innovative activity (n2 = 104), 53%

of respondents did not introduce any knowledge management strategies or could not identify it.

What's more, one can see a similar dependence at the level of the whole network. Only 5% of innovative networks did not implement any innovative knowledge management strategies, whereas in networks with zero innovation activity it was 36% of responses (Fig. 4.46).

**Figure 4.46. Knowledge management strategies at the level of the whole network compared to its innovativeness**



Source: Same as 4.1; n3=117; n4=42.

To sum up, one can say that innovative network organisations have much higher advancement level of building knowledge management system than network organisations with zero innovative activity. In addition, innovative network organisations have in overwhelmingly majority, a defined strategy of knowledge management, which they implement. If there is no clearly dominant strategy at the level of the whole network, the implementation of both strategies simultaneously (knowledge codification strategy and knowledge personalisation strategy) will be the most common solution at the level of a single innovative enterprise.

## 4.8. Summary

All answers to research questions were obtained in the study. Table 4.2 presents all responses at the level of a single unit and the whole network.

**Table 4.2. All answers to research questions**

Research questions:	Obtained answers	
	At the level of a single network's unit	At the level of a whole network
1. What is the dominant way of acquiring knowledge at the level of a single unit (enterprise) and at the level of the whole network?	The knowledge acquisition from both sources (internal and external) equally (over ½ of enterprises)	The knowledge acquisition from both sources (internal and external) equally (over 1/2 of enterprises)
2. What is the dominant way of using knowledge at the level of a single enterprise and at the level of a whole network?	Both ways of using (internal use and external transfer) equally (over ½ of companies)	Both ways of using (internal use and external transfer) equally (60% of networks)
3. How does the process of knowledge exchange between network's participants look like?	Knowledge exchange is a mass phenomenon (concerns 88% of respondents). The object of knowledge exchange is primarily knowledge about buyers (50%). 18% of respondents pointed to knowledge exchange about research and development. The range of knowledge exchange is determined by some respondents as limited to selected types of knowledge (47%) and as unlimited (41%). Knowledge exchange is free (58%), informal (48%), with no predetermined decision-maker (58%). The knowledge exchange of "peer to peer" without strictly defined direction of knowledge flow (59%) overbalances.	
4. What is the dominant strategy of knowledge management at the level of a single enterprise and at the level of a whole network?	There is a lack of dominance of one of the knowledge management strategies. The solution of simultaneous implementation of knowledge codification strategy and knowledge personalisation strategy (1/3 of enterprises) is often used. 1/4 of the surveyed enterprises did not implement any knowledge management strategy.	The most commonly used strategies are: strategy of development of cooperation between experts from the specific area of knowledge (20%); and strategy of integration of subcontractors having specific knowledge around the dominant participant of the network (13%).
5. What is the advancement level of building knowledge management system at the level of a single enterprise and at the level of a whole network?	Low advancement level of building knowledge management system. Only ¼ of entities fully merged knowledge management system supported by appropriate IT system and 1/3 did not have it at all.	Low advancement level of building knowledge management system. Only ¼ of entities fully merged knowledge management system supported by appropriate IT system and 1/5 did not have it at all.
6. Which of the potential factors (determinants) affect the description of the individual parameters of knowledge management in network organisations?	None of the potential factors had an effect on all the parameters describing the phenomenon of knowledge management in network organisations. Individual factors have a selective effect on various parameters describing knowledge management in network organisations.	None of the potential factors had an effect on all the parameters describing the phenomenon of knowledge management in network organisations. Individual factors have a selective effect on various parameters describing knowledge management in network organisations.



Research questions:	Obtained answers	
	At the level of a single network's unit	At the level of a whole network
7. Is there a relationship between knowledge management and innovativeness of network organisations?	Within the studied parameters – yes. Innovative companies have a much higher advancement level of building knowledge management system than enterprises with zero innovative activity. In addition, the vast majority of innovative companies have already had a specific knowledge management strategy which is implemented.	Within the studied parameters – yes. Innovative companies have a much higher advancement level of building knowledge management system than networks with zero innovation activity. In addition, the vast majority of innovative networks have already had a specific knowledge management strategy which is implemented.

Source: Same as 4.1.

A detailed analysis of the obtained results caused the verification of one of the research assumptions (assumption 4). 363 of surveyed entities belonging to the network said that insofar as a single enterprise can identify and assess all the parameters describing the phenomenon of knowledge management at the level of a single network unit (5–9% of responses, it depends on the question), inasmuch as it has difficulties with the identification and evaluation of some parameters at the level of the whole network. The lack of answers to questions about knowledge management strategy at the level of the whole network was up to 27%, and to the question regarding the level of knowledge management system building – 20%. Two categories of entities: production enterprises and entities belonging to the clusters had biggest problems with the identification of individual parameters describing knowledge management.

Narrowing the scope, one can say that the level of development of knowledge management in surveyed network organisations is very irregular. Still, many network organisations do not have a comprehensive knowledge management system, supported by appropriate IT solutions, which allow access to knowledge in a real time nor consciously defined specific knowledge management strategy. The positive aspect is a mass exchange of knowledge between participants of examined networks and the use of different ways of acquiring knowledge by surveyed network organisations.

Furthermore, a relationship between the development of knowledge management in network organisations and their innovativeness was confirmed by the researches in the studies. Innovative network organisations, unlike organisations with zero innovative activity, mostly have defined strategies of knowledge management, and are characterised by a much higher advancement level of building knowledge management system.

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## **Chapter V. The efficiency in network organisations and measures of their innovativeness**

### **5.1. Introduction**

Studying the effectiveness of enterprises as well as network organisations is a difficult and many-sided process. This is because of the complexity of the phenomenon of the efficiency, and many different ways and methods of measuring it. Effectiveness is generally understood as obtaining specific results, exceeding the expenditure incurred to achieve them. The effectiveness is also connected with the concept of efficiency, which means the ability to act properly, which is associated with expenditures and effects. The efficient operation is about minimising the amount of expenditures used for achieving objectives. The second category, which is also connected with the efficiency, is effectiveness. It reflects the ability to select appropriate actions, processes and objectives that contribute to the achievement of specific outcomes. Hence, the effectiveness of economic entities, including network organisations can be seen from many points of view. Measurement of the effectiveness of the network organisations functioning includes many different areas. It is possible to carry out this measurement by measurable, financial categories, but also by making the assessment in qualitative terms. Assessment of effectiveness may be related to resources, as well as to business processes. Performed effectiveness analysis may focus on current, operating activities of the organisation, as well as on strategic operations, where its growth prospects and competitive potential are assessed. These conditions cause, that one needs to be aware of the complexity and multi-dimensionality of the assessment of the effectiveness of network organisations functioning. It is also not possible to design a specific template to carry out such an assessment in economic practice. Each network organisation is different, specific, and it requires an individual approach to assess the effectiveness of its operations. Nevertheless, in this passage of the work one characterised in a synthetic way selected approaches to analysing network organisations effectiveness, resulting from empirical research. Following research questions regarding effectiveness were raised:

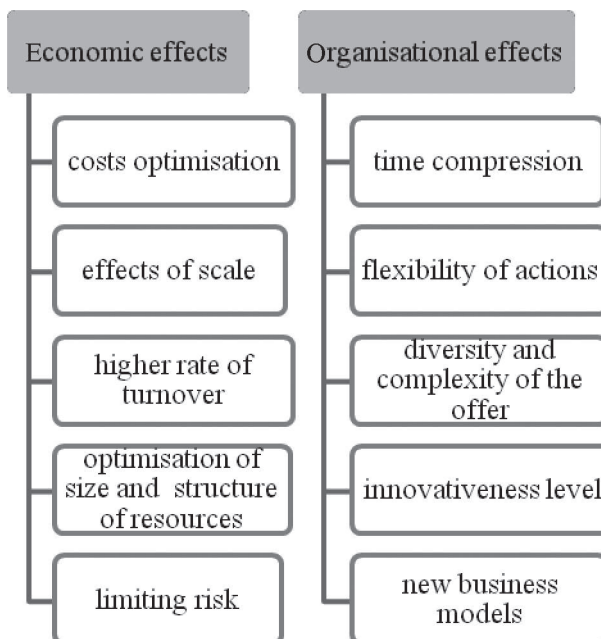
1. What are the general positive and negative effects of the cooperation within the framework of network organisations?
2. What economic effects do network organisations gain from their cooperation?
3. What organisational effects do network organisations gain from their cooperation?
4. Whether and which innovation measures are applied in network organisations?

Following passages of this chapter, based on synthetic results of empirical studies, are an attempt to provide answers to these questions.

## 5.2. Effectiveness dimensions of network organisations

Establishment of cooperation between enterprises is usually accompanied by expectation of achieving specific organisational, managerial, economic-financial, and also social or technical-technological effects. The level and scale of their achievement depends on the specifics and forms of cooperation between enterprises implemented within the network organisation, the duration of specific joint actions and projects. Most often one can present them in a synthetic way, as on the Figure 5.1.

Figure 5.1. Effects of network organisations



Source: Own research.

It seems, that the key role in this area belongs to the economic and financial effects, which can be reached by individual partners when establishing and conducting collaboration within the network organisation. They result in the optimisation of operating costs and increase of turnover volume. Through the joint implementation of specific processes one can reduce costs because it eliminates the repetition of similar activities. Similarly, using a common accounting and administration services, may contribute to the reduction of certain costs. Thus, the optimisation of the business operating costs will increase ROCE (*return on capital employed*) and the level of profits earned.

Joint actions within the network organisation also contribute to the increase of partner's scale of operation, may increase the territorial scope of the business, as well as its intensity. By establishing cooperation with similar entities, companies can offer more complex and more diverse products, they are able to increase the frequency of deliveries, as well as expand the scale of used distribution channels. This type of actions may improve the quality of customer's service, increase customer's level of satisfaction from the delivery of the goods at the right place, time and at the expected price. Collaborative marketing activities also contribute to the creation of new needs of potential customers, the more conscious shaping of the image of the network organisation, its visibility in the market. Such activities contribute to creating a brand of products or services provided by partners. Thus, in relation to competitors, a network organisation becomes more recognisable among clients, and thanks to that it can increase its turnover.

Implementation of joint actions also allows participants of the network organisations to use available resources more effectively, not only through the use of their own, but also by deriving from external resources, which are at disposal of the partner. Thus, one can notice a more efficient allocation and mobilisation of resources within the network organisation. It contributes to the specialisation of the activities of the individual companies, which may be the basis of creating niche-development strategies – in a particular group of companies belonging to the network.

Conducting joint activities within the network organisation also helps to reduce the risk of conducting business. This normally applies to common investment activities. The risk of business failure is then divided between the partners. Each of them can invest in new projects only part of the resources, and therefore reduce its commitment to the project, and it can also diversify their investments into various business projects. In addition, participants of the network organisation have greater possibilities, than a single company, of obtaining financing for the planned investment projects. Similarly, networks can present better and higher securities for investment loan repayment, which increases their bargaining power with banks.

Joint actions of network organisations may also affect the realisation of business projects by changing their configuration, shortening the duration, increasing quality, implementing innovation. By eliminating unnecessary, repetitive tasks companies can quicker carry out specific actions, time used for decision-making processes can be reduced and one can notice a faster response to changes in the environment of these entities. Observation and quick response to these changes allows cooperating enterprises to implement new business solutions and new business models. Often, this is when innovative process solutions may occur.

Today, companies are somehow forced to raise their level of innovation. This is a feature understood as the ability to continually seek and use in practice new concepts, ideas and inventions, as well as the results of research and development work. Innovativeness is also about upgrading and expanding existing production, exploitation and service technologies.

Examination of innovation from the side of the network organisations concerns introducing new solutions to the organisation, improving and developing infrastructure related to the collection, processing and sharing information<sup>1</sup>. In all these forms of innovativeness it is possible to use closer cooperation between economic operators, for example by having a common research and development facilities, conducting joint research, joint purchasing of innovative solutions, technology, licenses, establishing cooperation with research and development units etc.

Summarising the above considerations one can notice that the measurement of the network organisations efficiency synthetically should focus on assessment of:

- contribution of each participant to the cooperation within network organisation;
- overall positive effects (benefits) for each participant resulting from participation in the network organisation;
- overall negative effects (defects) for participants of network organisation;
- economic and organisational effects<sup>2</sup>.

This is how selected results of empirical studies concerning effectiveness of the network organisations in the polish business practice will be presented.

In these studies, respondents were asked what the positive and negative effects of their functioning within the network organisation are. They could indicate up to three responses in terms of the positive effects of the functioning within the network organisation (Fig. 5.2). What is interesting about 50% of the surveyed companies most

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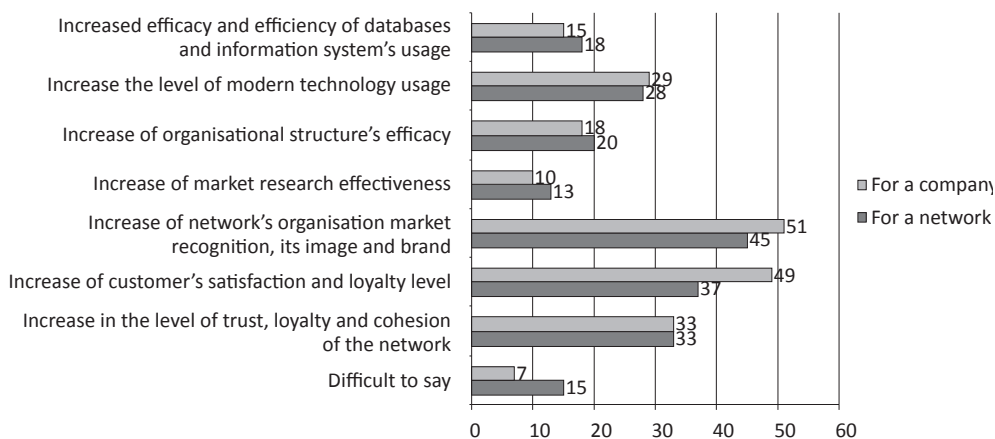
<sup>1</sup> M. Dolińska, *Innowacje w gospodarce opartej na wiedzy*, PWE, Warsaw 2010, p. 71.

<sup>2</sup> J. Parung, U.S. Bitici, *A conceptual metric for measuring collaborative networks*, "Journal of Modelling in Mngament" 2006, vol. 1, no. 2, p. 120–127, J. Barnais, J. Ingram, T. Kraśnicka, *ABC współczesnych metod i koncepcji zarządzania*, Wydawnictwo Akademii Ekonomicznej w Katowicach, Katowice 2010, p. 199.

often pointed to the growth of the network's organisation market recognition, brand image and increase of customer's satisfaction, as well as their level of loyalty. These answers were most frequent not only among companies belonging to the network, but also among the entire network organisations. These two effects of the functioning within network organisation can also be considered as factors encouraging to establishing cooperation. And indeed, this collaboration brings certain results.

However, in case of increase of customer's satisfaction, companies more often pointed to this result – 49% of responses, than the networks – 37% of responses. Perhaps this effect plays a much more positive role for many companies joining and operating within the network.

**Figure 5.2. Positive effects of functioning within a network organisation in %**

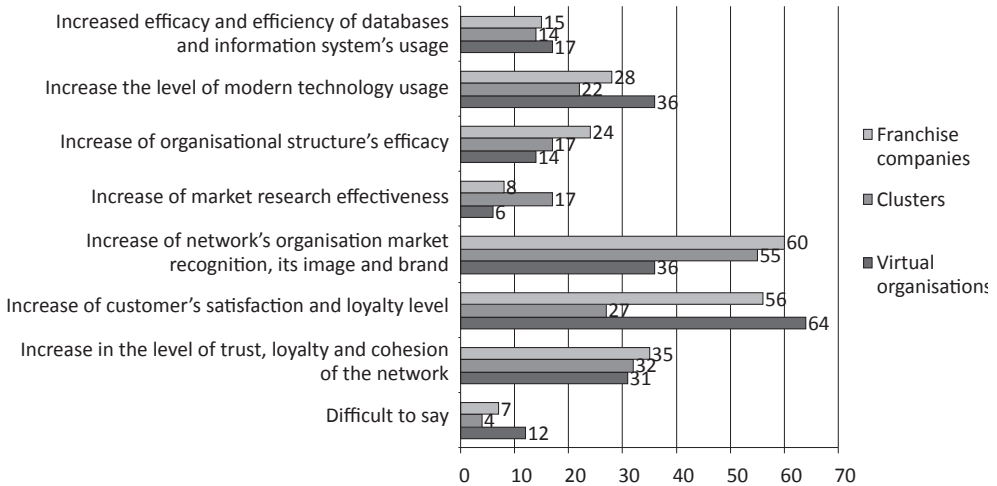


Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=363$ .

Another advantage, which results from operating within a network organisation, is an increase in the level of trust, loyalty and cohesion of the network. 33% from the total number of respondents pointed to that. Increasing the level of modern technology usage was pointed on the similar level. About 28% of companies and networks indicated that. About 20% pointed to the efficacy improvement of the organisational structures both of companies and networks. Another effect in terms of indication's frequency is an increased efficacy and efficiency of database's and information systems' usage. 15% of companies and 18% of the networks pointed to that. This may mean conducting joint activities in the field of systems integration and information usage. Approximately 10–13% of respondents indicated an increase in the efficiency of market research.

Given the nature of the network organisation, to which the surveyed respondents belonged, one can notice the differences in the frequency of the chosen positive effects of functioning within the network organisation (Fig. 5.3).

**Figure 5.3. The positive effects of the functioning within the network organisation depending on its type in %**

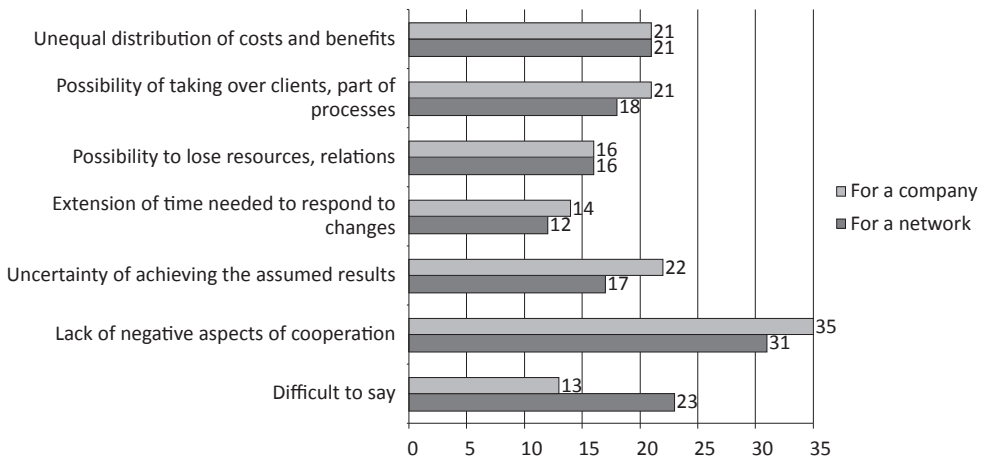


Source: Same as Fig. 5.2.

In all separated groups of networks, one typically pointed to the growth of the market recognition of the network organisation, its image and brand and increase of customer's satisfaction and loyalty level. However, the level of these indications was different. And so among franchise organisations, it amounted to 60% in terms of the organisation's market recognition and 56% in terms of the increase of customer's satisfaction and loyalty. In the group of clusters respectively 55% and 27% and in the group of virtual organisations 36% and 64%. It is worth noting that in the virtual organisations increase of the use of modern technologies was chosen as frequent as network organisation's market recognition. Perhaps virtual organisations can be regarded as the most modern, and participation in them as a manifestation of striving to the growth of innovativeness.

An interesting distribution of responses was obtained also in terms of the negative effects that are associated with the functioning within the network organisation, both from the point of view of the company as its participant, as well as for the entire network organisation (Fig. 5.4).



**Figure 5.4. Negative effects of functioning within a network organisation in %**

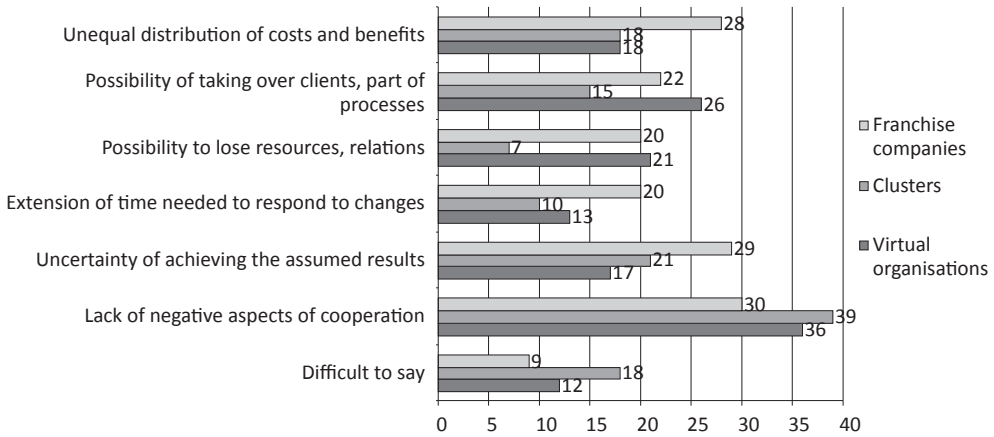
Source: Same as Fig. 5.2.

Worth noticing is the fact that the most popular answer was that there were no negative aspects of functioning within network organisation. 35% of companies and over 31% of networks pointed to that. Over 22% of companies and 17% of all networks indicated uncertainty of achieving the assumed results. More than 21% of companies and networks pointed to unequal distribution of costs and benefits within the network. With a similar frequency one pointed to the possibility of taking over clients and part of the processes by the other participants of the network. Possibility to lose resources was indicated by about 16% of the respondents, while 13% pointed to the problem of extension of time needed to respond to changes.

In principle, therefore, the prevailing belief is that there are no very severe negative effects of the functioning within network organisation. When speaking about other negative effects, one can bet the conclusion that they are associated, in a natural way, with conducting any business activities.

Assessing the negative effects of the functioning within network organisation in relation to its type one can conclude that most respondents pointed to the absence of these kinds of effects (Fig. 5.5). The highest frequency in this area occurred among clusters. In second place in terms of frequency participants of clusters pointed to the possibility of taking over customers and part of the process by the other members of the cluster.

**Figure 5.5. The negative effects of functioning within network organisation depending on the type of network in %**



Source: Same as Fig. 5.2.

Among the franchise organisations one pointed to the lack of certainty of achieving of the expected results and uneven distribution of costs and benefits. In turn, among virtual organisations, in second place in terms of frequency of indices one pointed to the possibility of intercepting clients and resources. The distribution of the remaining responses was similar to the distribution obtained for all respondents.

### 5.3. Economic and financial effectiveness of network organisations in the Polish economic practice

In the literature on management one can distinguish multiple categories of effectiveness measurement<sup>3</sup>. One may include following classical elements of measuring the effectiveness of the company in economic and financial terms:

- market value – in fact multiplying it with time, from the stakeholder's point of view it is therefore important to maximise market value and multiply owner's profits;
- maximising profits – achieving positive financial results by the entity, it is particularly important to increase the level of operating profits generated by the core business and the level of net profits, which reflects company's reinvestment capability;
- profitability – achieving a surplus of revenues over costs associated with undertaking a particular activity, it reflects operations' efficiency, one can use the relation of

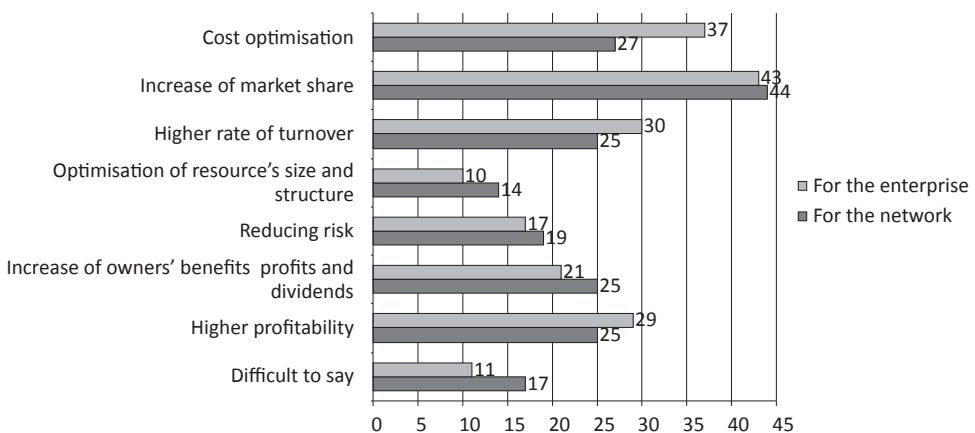
<sup>3</sup> F. Bławat, *Podstawy analizy ekonomicznej. Teorie, przykłady i zadania*, CeDeWu, Warsaw 2011; A. Skowronek-Mielczarek, Z. Leszczyński, *Analiza działalności i rozwoju przedsiębiorstwa*, PWE, Warsaw 2008.

profits to the capital involved or to effects of activities to measure it, maximising profitability allows to satisfy the expectations of stakeholders, and also enables to achieve a competitive advantage;

- economic value added (EVA) – an increase in value of the company in terms of EVA occurs when the profitability of the capital invested in the firm exceeds the cost of its acquisition, if EVA is increasing, one can then talk about strengthening the growth potential of the economic entity, this type of situation reflects an increase of its effectiveness;
- an increase in turnover – expanding the volume of sales might be for the company the opportunity to generate higher profits, it is also a possibility to reach new customers, to enter new markets, to increase the scale and scope of activities, it is also an additional advantage against suppliers, as well as competitors;
- market share – an effort to increase it lets the company to overtake potential customers, satisfy their expectations faster, achieve greater brand recognition, it also allows the company to create value for the final customer in a faster and more efficient way than the competition;
- optimisation of costs – an increase of efficiency aimed at optimising operating costs allows achieving higher incomes, helps to limit unnecessary costs, thereby releasing funds that can be involved in the profitable business operations.

On this background, the respondents were asked to indicate what economic effects they gained from operating within network organisations. They could choose from a list of three categories presented in Figure 5.6.

**Figure 5.6. Economic and financial effects achieved from operating within network organisation in %**

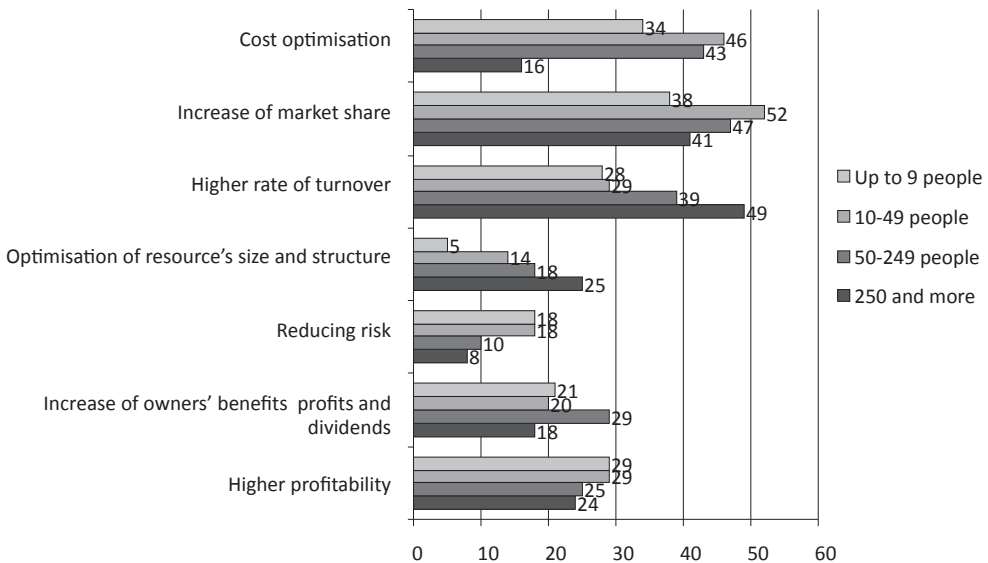


Source: same as Fig. 5.2.

Most indications were related to increasing market share and they were almost identical for the companies as for the networks. In second place in terms of frequency enterprises pointed to cost optimisation and higher rate of turnover and profitability respectively. So joining a particular network organisation actually results in an increase of turnover and benefits in the form of cost optimisation. The increase of owners' benefits, i.e. higher profits and dividends was relatively more often indicated among networks than enterprises. The level of indications for risk reduction was similar for individual companies as well as for networks. Respondents pointed to the optimisation of the size and structure of resources least frequently, even less than to the answer "difficult to say".

Interesting results were obtained in the scope of the relations between economic effects generated by the respondents due to participation in the network organisation with selected criteria of their differentiation. And so large companies most frequently pointed to the increase of rate of turnover (Fig. 5.7).

**Figure 5.7. The economic and financial effects achieved by participants of a network organisation depending on the respondent's size in %**



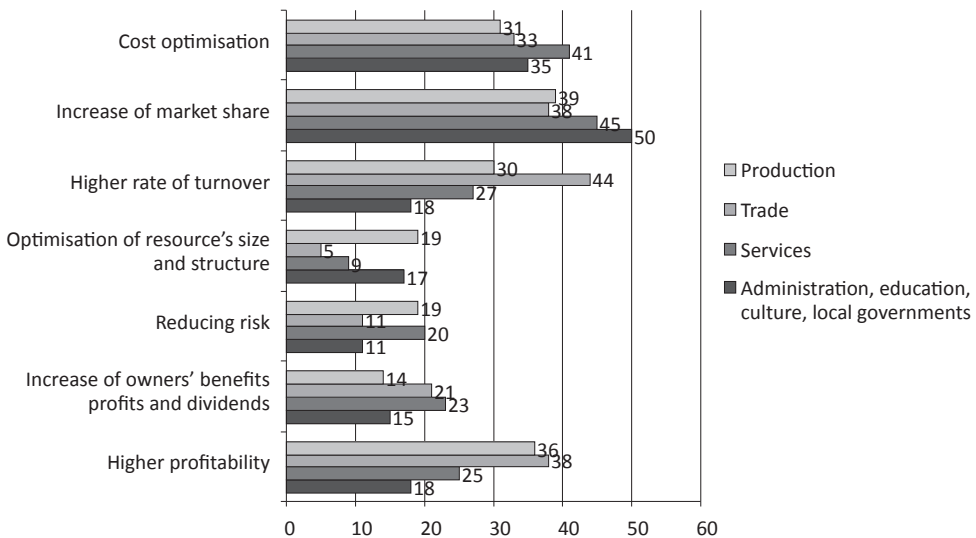
Source: Same as Fig. 5.2.

More than 49% of respondents in this group pointed to that, while among the group of smaller entities that share contributed to 28–29%. Smaller companies most often chose an increase in market share and cost optimisation, which accounted for 46–47% of responses. What is worth noting is the fact that in the group of large companies cost's optimisation was indicated only by 16% of respondents. So it may

be hard in the enterprises of that size to carry out activities aimed at decreasing operating costs. Definitely more often improving financial results and profitability is achieved by increasing market share and the rate of turnover.

In turn, manufacturing companies selected, in addition to the four categories of effects that were most often mentioned in the group of all respondents, the possibility of reducing risk and optimising the size and structure of resources (Fig. 5.8). Trade companies most often (44%) reported the positive effect of increasing the rate of turnover, while in the group of all respondents 30% of subjects chose this category. Service companies, as well as those belonging to the section of culture, administration and education most frequently pointed to the increase of market share.

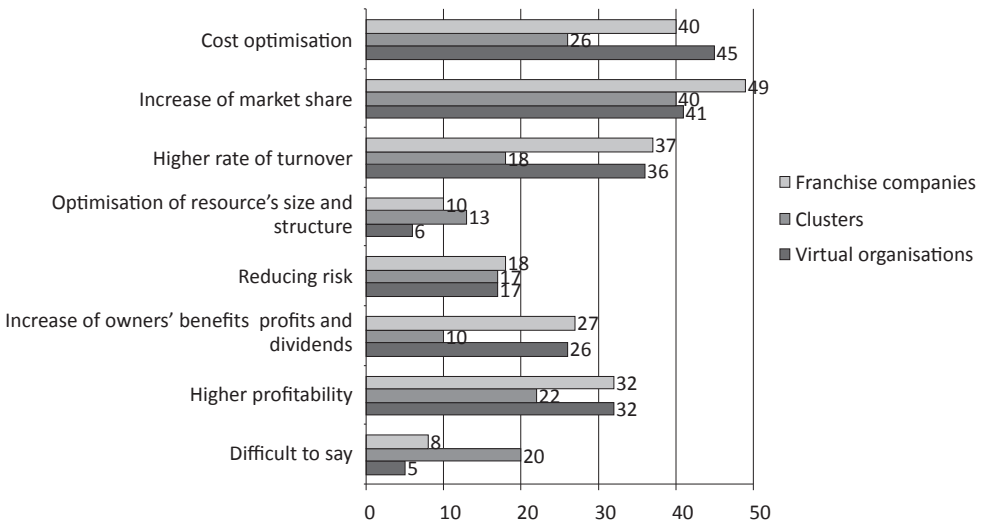
**Figure 5.8. The economic and financial effects achieved by participants of a network organisation depending on the respondent's type of business in %**



Source: Same as Fig. 5.2.

Given the type of the network organisation, which the surveyed respondents belonged to, differences in the frequency of selecting economic effects achieved from functioning within network organisation are apparent (Fig. 5.9). Increasing market share is the most often indicated category among all types of network organisations. In contrast, franchise companies and virtual organisations pointed to cost optimisation, higher rate of turnover and higher profitability definitely more often than clusters and the group off all respondents. In this group of subjects 20% of respondents were not able to determine what economic benefits they achieved from functioning within network organisation.

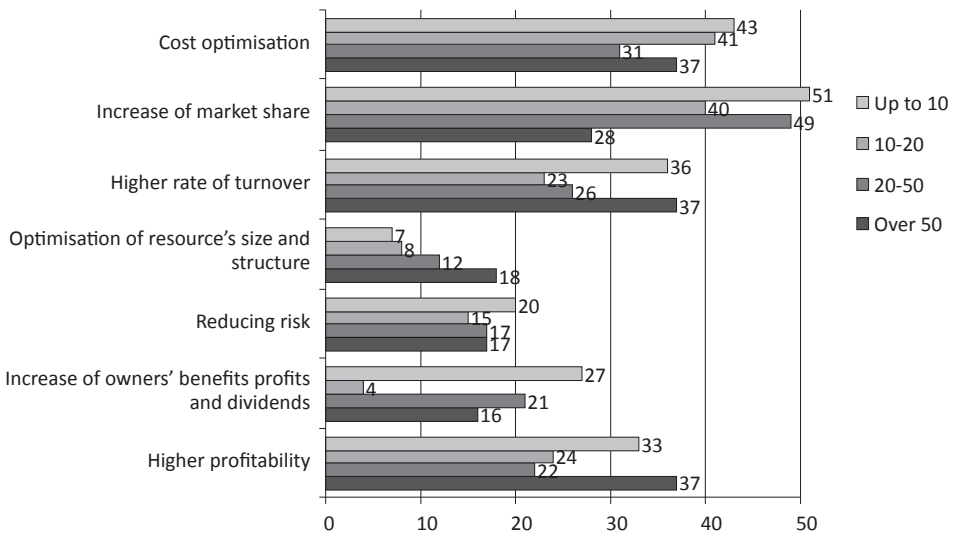
**Figure 5.9. The economic and financial effects achieved by participants of a network organisation depending on the type of network in %**



Source: Same as Fig. 5.2.

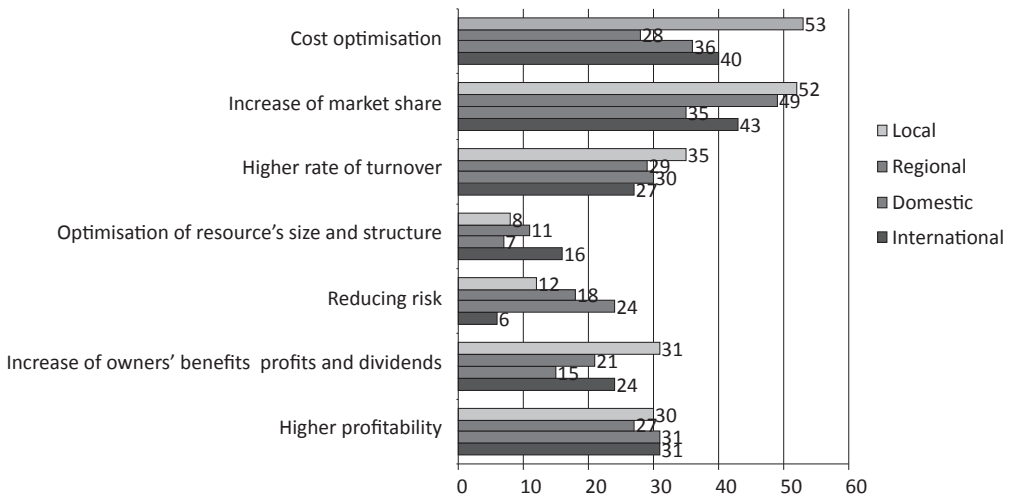
By evaluating the economic and financial effects achieved by the surveyed companies being a part of network organisations, depending on the number of its participants and its range, one can observe some interesting connections (Fig. 5.10, Fig. 5.11).

**Figure 5.10. The economic and financial effects achieved by participants of a network organisation depending on the network's size in %**



Source: Same as Fig. 5.2.

**Figure 5.11. The economic and financial effects achieved by participants of a network organisation depending on the network's range in %**



Source: Same as Fig. 5.2.

The smaller the number of participants and range of the activities of the network, the greater the frequency of indications compared to the distribution for all entities, occurs in relation to increasing market share and optimising costs. For network organisations with more than 50 participants, most often one pointed to a higher profitability and a higher rate of turnover.

#### 5.4. Organisational effectiveness in the processes of network organisation's management compared to business practice

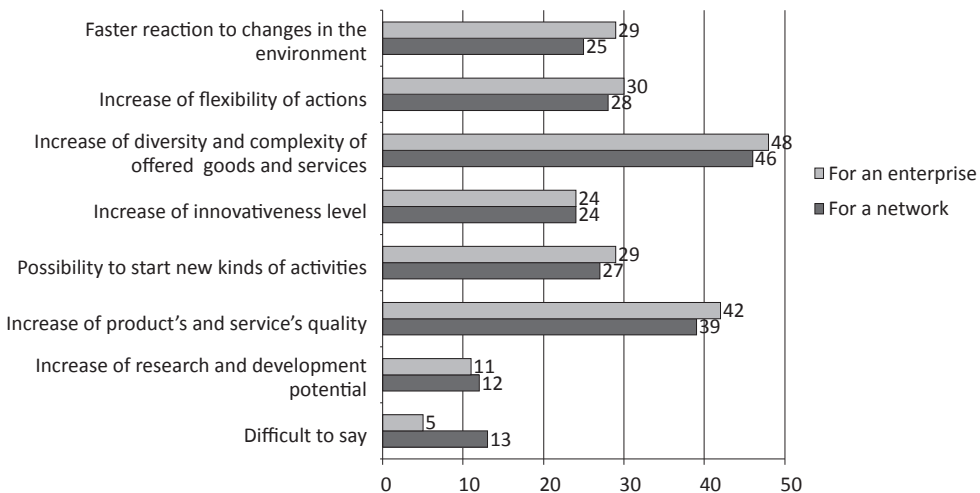
In the network organisations the financial measures of effectiveness of their activities should also be complemented by more qualitative measures relating to the assessment of, e.g.:

- the quality of products and services offered;
- the possibility of introducing an accelerated differentiation of products;
- the pace of innovation's implementation;
- the growth of the research-development potential;
- the level of trust and reciprocity among network organisation's participants;
- the level of loyalty towards other network organisation's participants;
- the level of social capital;
- the scale of development of the network organisation etc.

They form the elements of the organisational effectiveness assessment and are associated on the one hand, with the implementation of the development strategies and on the other hand, with the activities at the operational level of the network organisation and its individual participants.

The empirical studies therefore also assessed the organisational effects, which the respondents achieved through participation in the network. Respondents could choose three categories of effects from the list shown in Fig. 5.12. It is worth noting that the level of indications regarding organisational effects achieved by the enterprises and the networks was essentially similar. The only difference was that networks more often chose the answer “difficult to say”. Among the organisational effects one most frequently pointed to the increase of diversity and complexity of the product and service offer, more than 46–48% of responses. Improve of the quality of the offered products had similarly high percentage of indications, which oscillated around 40–42%. Other types of organisational effects, such as faster response to changes in the environment, increase of flexibility of actions, the ability to enter into new businesses and increase of the level of innovativeness were pointed with the same frequency, varying from 24% to 30%.

**Figure 5.12. The organisational effects achieved by participants of a network organisation in %**



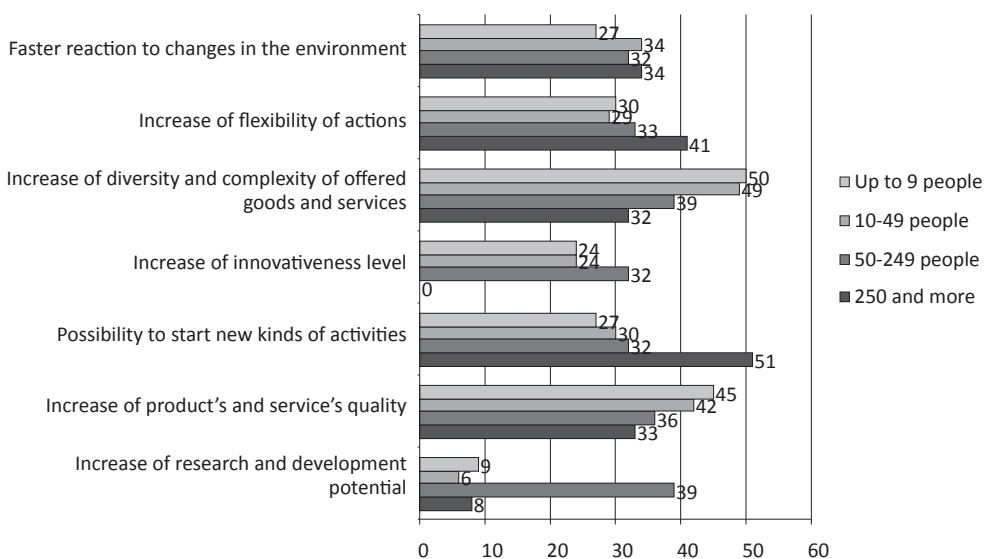
Source: Same as Fig. 5.2.

The least frequently one pointed to growth of the research and development potential. Only 11–12% of respondents mentioned that. Summarising, therefore, one can conclude that functioning within the network organisation usually results in



changes in the product offer, acceleration of the response to changes in the environment and increase of flexibility. However, it does not strengthen their innovativeness and research and development potential. Similar conclusions can be placed by evaluating the results obtained in the scope of the relations between organisational effects achieved by respondents from functioning within the network organisation and selected criteria of their differentiation. Only in relation to medium-sized enterprises one can observe a higher frequency of indications regarding the increase in the level of innovativeness (32% of responses) and the potential of research and development (39% of responses) compared to the responses obtained for all respondents, as well as for other entities separated on the basis of their size (Fig. 5.13). For micro and small enterprises crucial meaning was attributed to the increase of the diversity of the product offer and to improving the quality of products and services. This may be due to the fact that companies in this group of subjects, by joining a network organisation, hope to improve their competitiveness through changes in product offer.

**Figure 5.13. The organisational effects achieved by participants of a network organisation depending on the size of the respondent in %**



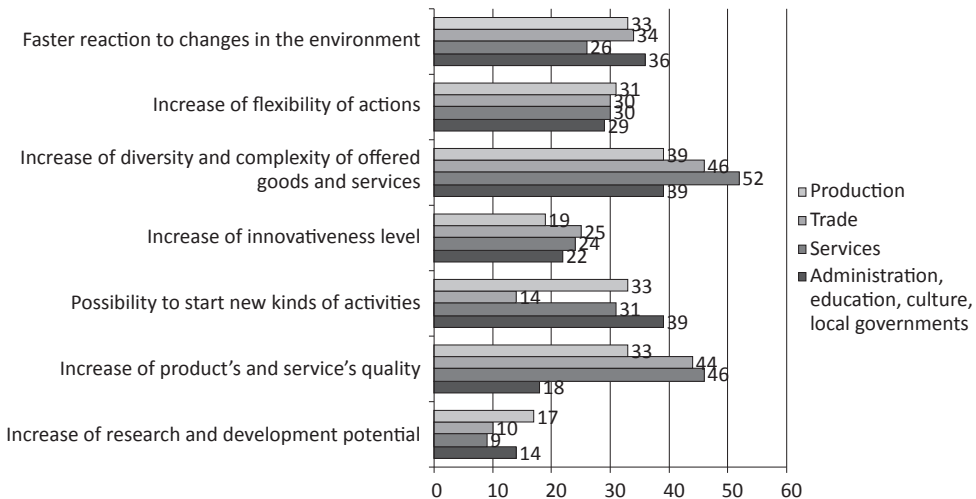
Source: Same as Fig. 5.2.

In turn, large enterprises more than other subjects pointed to the possibility of entering new markets and to the increase of operational flexibility. Thus, expansion into new markets, acquisition of new resources, increase of operational flexibility, are from the perspective of large companies a path to a faster development, but also the

path to improve the level of their competitiveness. Surprising is the fact, that large companies very rarely pointed to the possibility of obtaining organisational effects in the form of increased research and development potential and increased level of modernity (0% of responses). It would seem that the cooperation of these entities within the network organisations could contribute to the positive changes in the area of innovativeness. It is in fact possible to combine resources, capital and potential to be more innovative, to implement innovative solutions etc. However, as economic practice shows, it is not at all an important argument for conducting business within the network organisation.

A similar distribution of responses, as for all surveyed enterprises was obtained for enterprises selected from the point of view of type of their activities (Fig. 5.14).

**Figure 5.14. The organisational effects achieved by participants of a network organisation depending on the type of the respondent's business in %**

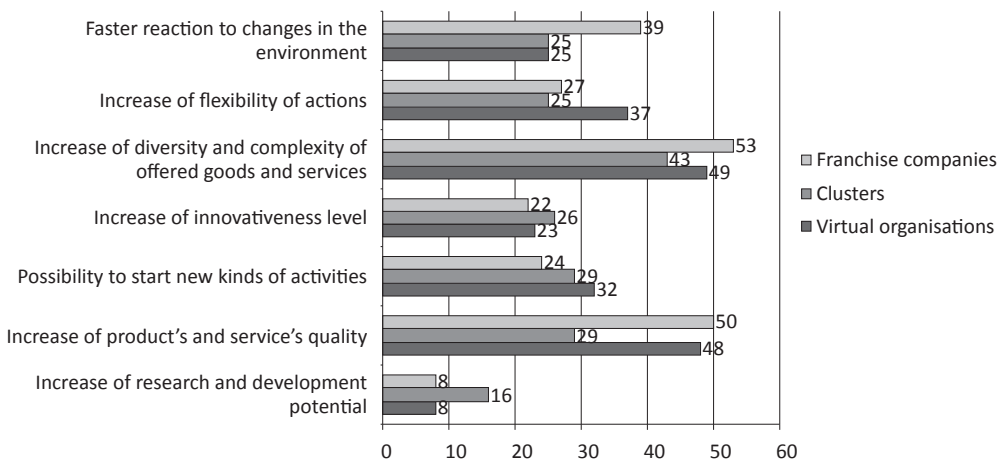


Source: Same as Fig. 5.2.

What is worth noting is the fact that the service companies indicated with high-frequency the increase of diversity, complexity and quality of offered services. When it comes to production companies, basically most of these organisational effects are characterised by a similar level of indications. It ranged about from 31% to 33% for these categories of effects that were most often mentioned by the group of all the respondents. What is interesting, the highest level of indications concerning the growth of innovativeness level characterised trade companies, while production companies had the lowest.

Given the type of the network organisation, to which the surveyed respondents belonged, certain differences in the frequency of achieved effects resulting from operating within network organisation are apparent (Fig. 5.15).

**Figure 5.15. The organisational effects achieved by participants of a network organisation depending on the type of the network in %**

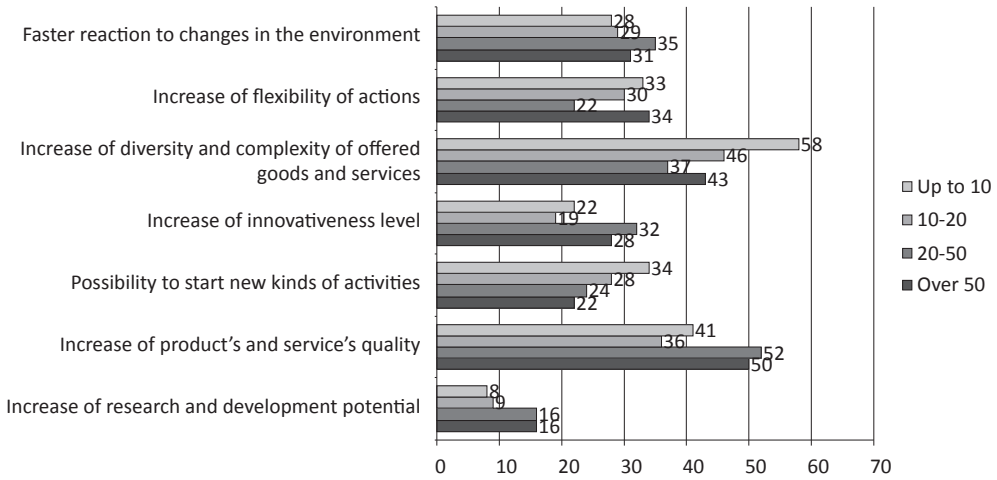


Source: Same as Fig. 5.2.

The franchise and virtual organisations most often pointed to the increase of diversity and complexity of offered goods and services, 53% and 49% of responses respectively. Similarly high percentage of indications was to improve the quality of products (50% and 48%). In clusters these two organisational effects were indicated less frequent with 43% and 29% of responses. The franchise organisations in third place pointed to a faster response to changes in the environment with nearly 39% of answers, 10% more compared to the whole group of respondents. In turn, among virtual organisations the third position was held by the answer “increase of flexibility of actions”, while for the other groups of network organisations this category of organisational effects was characterised by a much lower level of indications. For clusters improving research and development potential and the increase of the level of innovativeness were also important. Percentage of responses in this group of network organisations was higher in comparison to other groups, as well as in relation to the whole group of respondents. This proves to be quite positive, because the reason of creating most of clusters is to increase the level of innovativeness.

By evaluating the organisational effects achieved by surveyed participants of network organisations depending on the size and the range of the network, one can notice some interesting connections (Fig. 5.16, Fig. 5.17).

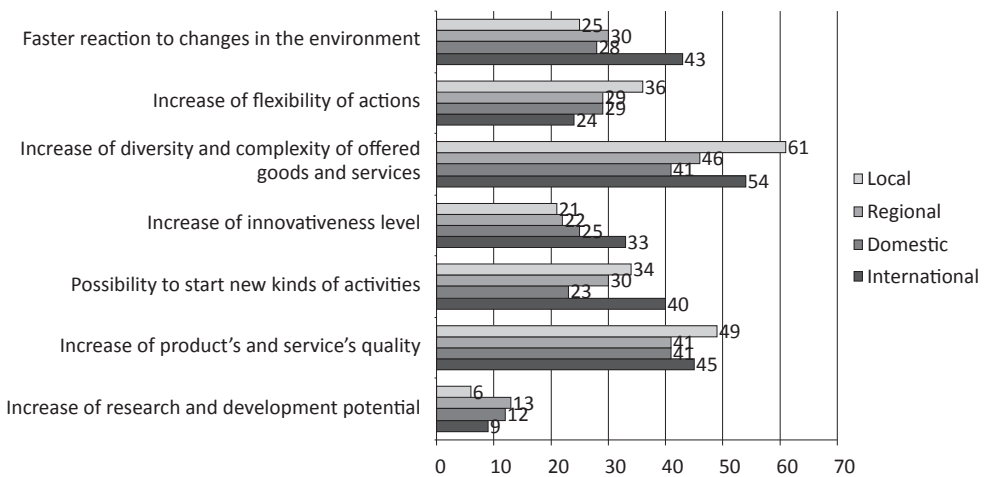
**Figure 5.16. The organisational effects achieved by participants of a network organisation depending on the size of the network in %**



Source: Same as Fig. 5.2.

Among the network organisations with up to 10 participants and with local range of activities one most frequently pointed to the increase of diversity and complexity of offered goods and services, 58% and 61% of responses respectively. It was the highest level compared to the other categories of network organisations and to the distribution of responses in the group of all respondents. So this organisational effect is most visible for enterprises belonging to smaller network organisations.

**Figure 5.17. The organisational effects achieved by participants of a network organisation depending on the range of the network in %**



Source: Same as Fig. 5.2.

It is also worth noting that network organisations of international range more often pointed to the organisational effects like faster reaction to changes in the environment, possibility to start new kinds of activities and increase of innovativeness level. Perhaps only size big enough and reach of the network organisation allows it to achieve such organisational effects.

Activities in the area of innovativeness should be for network organisations of a special significance. Innovations in network organisation may in fact contribute to its development, as well as to increase of its, and of the individual participants of the network, value. It can be achieved through efficient, effective, comprehensive use of resources owned and controlled by the network organisation. The benefits generated from the common resources also contribute to the creation of innovative resources of the organisation. Within these resources one can mention the integration of the components of knowledge, information, human, relational resources of individual partners – participants of the network. Their unique configuration is formed in this way. It is difficult to imitate, thus it enables the improvement of competitiveness.

In relation to the measurement of organisational efficiency of a specific network organisation, it is possible to apply not only the above-mentioned measures, but also measures related to the level of its innovativeness. To do this one can use a variety of measures. For example R.S. Kaplan and D.P. Norton suggest the following measures, which can also be used in network organisations, to assess the level of the companies' innovativeness<sup>4</sup>:

- sales of new products as a percentage of total sales;
- the number of patents owned or controlled;
- the number of new products introduced to the market in comparison with the competition;
- the time needed for the invention and the development of new products;
- return on capital invested in the joint research and development (operating profit from the five-year period in relation to the total cost of development);
- critical time, which determines the time elapsed since the start of the innovative process until one can profit from it.

These are just some of the possibilities for the evaluation of the innovativeness level of the network organisations. Usage of a variety of measures in this regard depends on the specifics of a particular network organisation and the objectives of making such analyses. Different sets of organisational effectiveness measures may be used from the point of view of the whole network organisation, and other from the perspective of its participants. For them, it might be important, how changes their

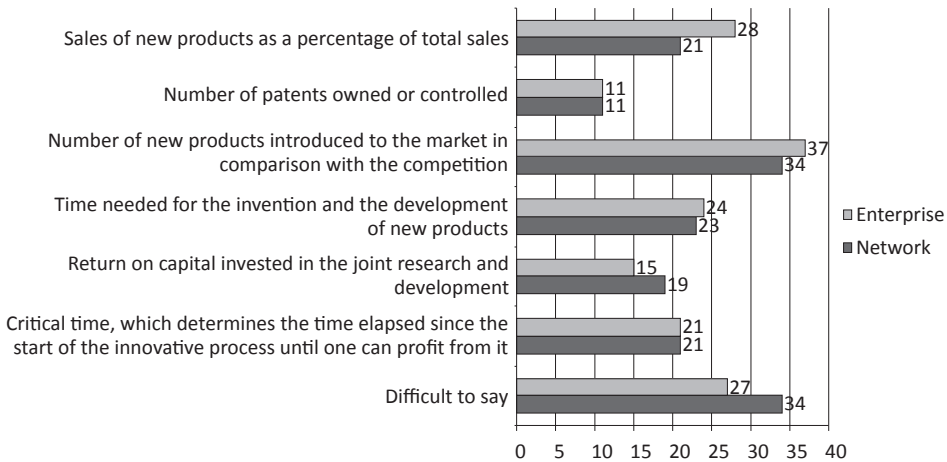
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<sup>4</sup> Kaplan R.S., Norton D.P., *Wdrażanie strategii dla osiągnięcia przewagi konkurencyjnej*, Wydawnictwo Naukowe PWN, Warsaw 2010, p. 103.

development potential, the scale of the achieved economic effects. Whereas for the whole network organisation, it may be more important to determine the level of innovativeness, thereby creating and strengthening competitiveness.

In the conducted empirical studies one have also obtained answers to the question, what measures of innovativeness are used in the practice of functioning of network organisations. Enterprises could choose three most commonly used measures from the list presented in Figure 5.18.

**Figure 5.18. Measures of innovativeness used in %**



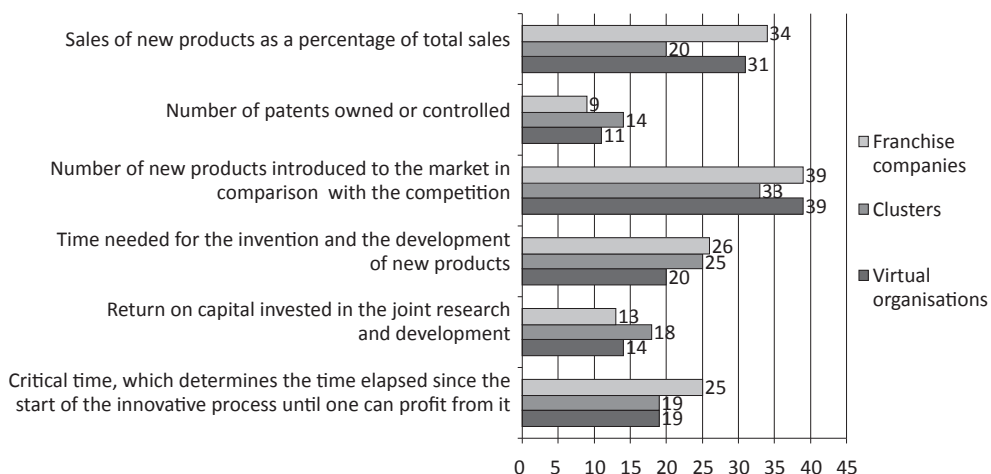
Source: Same as Fig. 5.2.

Over 34% of respondents belonging to the network organisations were not able to select any of the given parameters of assessment of the level of networks innovativeness, and 27% the level of company's assessment. Among these entities, which indicated the use of specific measures of the innovativeness level, the most commonly used measure was the number of new products introduced to the market in comparison with the competition. Over 37% of companies, and 34% of networks pointed to this parameter. In second place among enterprises one pointed to sales of new products as a percentage of total sales, and next was time needed for the invention and the development of new products, which networks selected as second most important. Interesting is the fact that network organisations, in which the respondent operates, pointed more often than the companies to the return on capital invested in the joint research and development. It may reflect the fact that the calculation of the profitability of investment in the joint research and development is carried out in a more conscious way compared to the analysis of these expenditures by an individual

company. The number of patents owned or controlled was likely indicated measures of innovativeness in the surveyed enterprises. It is because companies in Poland do not have these patents in excess, rather little, hence the low level of indications in this regard. Summing up, measures of innovativeness used in network organisations are rather standard and concern these areas of innovativeness of enterprises, which are most visible (product innovations).

Given the nature of the network organisations, to which the surveyed respondents belonged, the differences in the frequency of used innovativeness measures are apparent (Fig. 5.19).

**Figure 5.19. Measures of innovativeness used in network organisations depending on the type of a network in %**



Source: Same as Fig. 5.2.

The most commonly used measure in franchise and virtual organisations is the number of new products introduced to the market in comparison with the competition. More than 39% of the entities from these types of networks chose this parameter of evaluation, for the clusters this level was 33%. Sales of new products as a percentage of total sales received a similarly high level of indications (franchise organisations – 34%, virtual organisations – 31%, clusters – only 20%). In turn, clusters more often than franchise and virtual organisations pointed to return on capital invested in the joint research and development and the number of patents owned or controlled. This may be related to the specifics of cluster's functioning, which are often created in order to conduct innovative actions, to implement a various innovations and to conduct joint research.

## 5.5. Summary

Establishing cooperation with other companies and creating with them network organisations can help to improve the competitiveness of the particular economic entity, as well as to achieve a variety of benefits. In conducted empirical studies, therefore one recognised the positive, but also negative effects perceived by the participants of the network organisations. As positive effects one most often classified increase of market recognition of the network organisation, growth of image and brand recognition and increase of customers' satisfaction and loyalty. These were not only the most common answers from the point of view of companies belonging to the network, but also from the point of view of the entire network organisation. Further places in terms of frequency of indications are occupied by an increase in the level of trust, loyalty and cohesion of the network and the increase in the level of modernity of used technologies. The most commonly pointed negative effects of the functioning within network organisations, are uncertainty of achieving the assumed results and the unequal distribution of costs and benefits resulting from functioning within the network. What is interesting, most often one indicated the lack of negative effects connected with operating in the framework of networks. Perhaps, joining the network organisation is preceded by an analysis of the advantages and disadvantages, and the dominance of the advantages inspires companies to start cooperation within a network.

In the literature on the subject, in which one discusses the issue of assessment of the network organisation's effectiveness, one can come across a lot of different approaches to the understanding of this concept and the methods of measurement of the scale of the achieved efficiency. Categorising the efficiency from the point of view of the competitiveness of network organisations, one can separate criterion of complementarity of effects achieved from the cooperation. Another measure of effectiveness, as the basis for the creation of competitive potential of network organisations, is their specificity combined with the flexibility of resources, structures and business processes. The division of network organisation's efficiency proposed in this paper recognises from one side economic and financial effects, that are tangible and measurable and on the other hand it includes such kinds of effects that can be not easily quantified, but their role in the modern management is rapidly increasing. The measurement of these effects is associated with a qualitative approach, taking into account the scale of the development of the network organisation and its level of innovativeness. Such system of analysis and evaluation of the network organisation's effectiveness was the basis of conducted empirical research.

Increase of market share, cost optimisation and on further positions higher rate of turnover and increased profitability were the most often indicated economic effects



by the respondents of a conducted research. So, expectations related to joining a particular network organisation indeed result in an increased turnover and benefits like cost optimisation. In turn, companies, participants of network organisations pointed to organisational effects like increased diversity and complexity of products and services offered, improved product quality, faster response to changes in the business environment and the ability start new kinds of businesses. Summing up, therefore, one can make the conclusion that functioning within network organisation usually results in changes in the product's offer, acceleration of the reaction to changes in the environment and increase of flexibility. However, it does not strengthen their innovative and research and development potential.

In conducted empirical studies it was also interesting to recognise what measures of innovativeness are used in the practice of the network organisation's functioning. Nearly one third of the respondents were not able to select any measure of innovativeness that they could apply. And those which were indicated most often were related to the number of new products introduced to the market in comparison with the competition and sales of new products as a percentage of total sales. They were therefore of a fairly standard character associated with an innovativeness of a product character.

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## Chapter VI. Innovativeness determinants of network organisations

### 6.1. Introduction

Innovation is an important driving force of economic growth because it leads not only to the emergence of products and services but it also contributes to improvement of the quality and reduction of the prices<sup>1</sup> of goods and services. It is crucial to point out that the countries with a high level of innovativeness have higher levels of economic growth. Also enterprises implementing innovations obtain, in this way, a competitive advantage and increase the value of the company. Many factors, which may provide an opportunity for innovative activity or they may restrict it<sup>2</sup>, affected the innovative behaviours of enterprises and thus their evaluation in terms of their entrepreneurship. Innovations are strongly connected with the knowledge economy. Created and implemented innovations are based on the current state of knowledge, in order not to lead to the stagnation of technological progress, the progress of knowledge is essential.

Modern innovative processes are closely related to knowledge and this relationship has a dual nature. Development of knowledge enables to create innovations, and they then become the basis and the source of new knowledge.

Today knowledge is like human capital, a key corporate asset and it determines its competitiveness. Acquisition and use of knowledge are activities in enterprises that have become not only elements of the strategy, but the foundation of innovativeness strategy or innovation management. Acquisition of knowledge in its various forms is a necessary step of influencing and innovativeness management in the enterprise. The skilful use and processing of knowledge in order it to be a fundament of growth of enterprises' competitiveness, is also very important.

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<sup>1</sup> P. Romer, *Endogenous technical change*, "Journal of Political Economy" November 1990, vol. 7, no. 4, p. 71–103; B. Bosworth, S. Collins, *The empirics of growth: An update*, Brookings Institution and Georgetown University, 2003; N. Bloom, S. Van Reenen, *Patents, real options and firm performance*, "Economics Journal" November 2002, vol. 7, no. 4, p. 629–632.

<sup>2</sup> Szerzej: B. Bojewska, *Zarządzanie innowacjami jako źródło przedsiębiorczości małych i średnich przedsiębiorstw w Polsce*, OW SGH, Warsaw 2009.

The purpose of this chapter is to analyse a broad spectrum of innovative activity of Polish network organisations, to identify the sources and conditions conducive to the development and implementation of business innovation in network enterprises and an attempt to diagnose the impact of innovation on the functioning and development of network organisations.

The following research questions related to the innovativeness of network organisations in the empirical study were raised:

1. Why do network organisations create and implement innovations?
2. Are the network organisations innovative only through the implementation of new and improvement of existing products and technologies or through other type of improving actions?
3. Which types of network organisations have a higher innovative activity?
4. What sources of innovation dominate in network organisations?
5. What are the benefits of implementing innovations in network organisations?

Is the increase in income a really dominant factor around which the benefits of the use of innovation gather in network organisations or maybe are there more differentiated advantages perceived by the participants of the network, which make implementation of innovation an important and cost-effective factor?

Enterprises which are the network organisers and participants at the same time are the analysed population in the study. Respondents answered to the same questions in two ways: by referring to the company in which they work, or that they are the owners and the network in which the company operates. In practice, this meant that the respondents involved in the network organisation answered to the questions relating to the company and to the network, which the company coordinates or is a participant in it.

It is important to point out that the respondents should have accurate and detailed knowledge of their own business and they can provide specific and credible answers. Respondents answering to the questions about the network used their observations and assumptions how network operates in the context of its innovativeness. In the analysis of research problems, one focused on these results, which indicated significant relations and allowed to conduct inference. Therefore, the analyses with similar distributions of responses that do not identify neither significant differences nor draw conclusions were omitted.

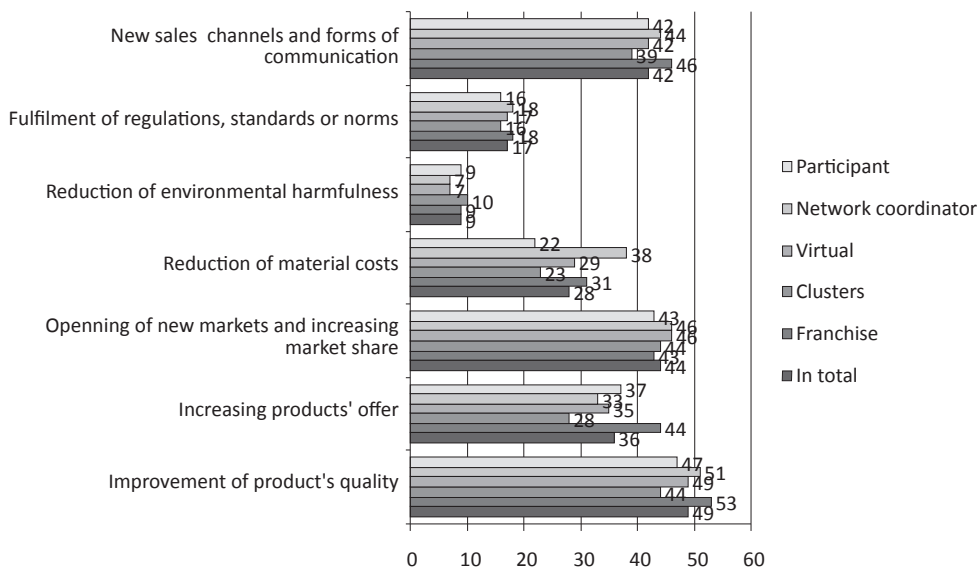
## **6.2. Premises for implementing innovation in network organisations**

Referring to the first research question, an analysis of reasons why the enterprises and networks implement innovations was conducted. Respondents were asked about the reasons for the implementation of innovation in network organisations.

Analysing obtained results, it should be noted that companies introduced innovations in order to: improve the quality of products (49% of responses), open new markets or increase market share (44%) and create new sales channels and forms of communication (42%) (Fig. 6.1). It can be concluded from obtained results that the reduction of harmfulness to environment is not a significant motive for the surveyed companies (9%).

Some differences in terms of the relevance of these reasons for different types of network organisations are visible. Based on these data, one can conclude that the respondents of franchise companies often pointed to improvement of product's quality, increase of the range of products and new distribution channels. However, the opening of new markets or increasing market share was more essential for virtual organisations than to other organisations. There is a clear dominance, for all types of organisations, of improvement of products' quality and expansion of business by opening and exploring new markets, and also offering diversification through expansion of product's range.

**Figure 6.1. Reasons for implementation of innovation in network organisations in %**



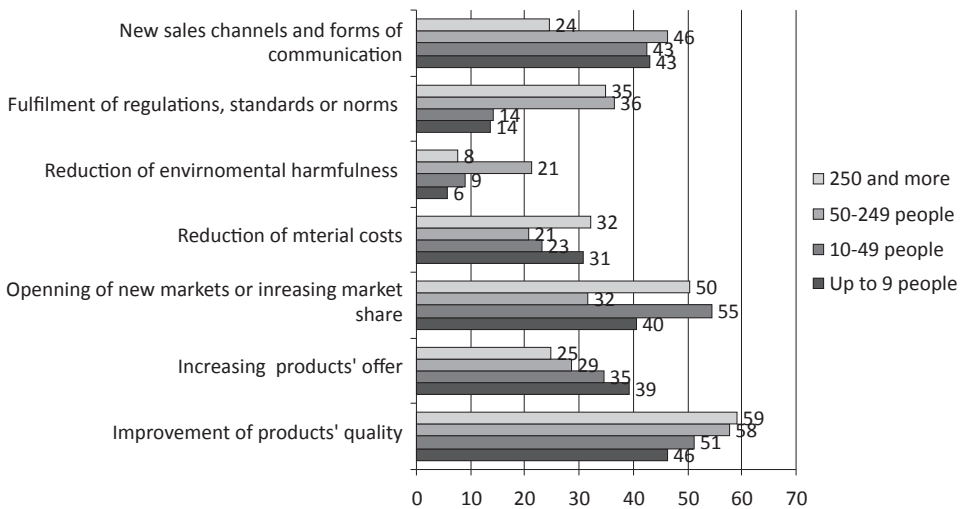
Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=363$ .

Slight differences in the significance of these reasons and the role of the network were also seen in this analysis. The following reasons, such as: improvement of the quality of products, opening new markets or increasing market share and reduction of material costs were more important for network coordinators. In contrast, network participants more often pointed to such factors as increasing the range of products. Network participants more often implemented innovations in order to expand the

range of products; the reduction of material costs has significantly higher importance for the creators than for the participants.

It is important to underline the relationships occurring between the implementation of innovation and the number of employees in the company. Examining the reasons for the implementation of innovation in network organisations, one can conclude that they are similar for micro and small enterprises. 46% of micro companies' representatives stressed the quality of products and 55% of small businesses indicated the opening of new markets or increasing market share (Fig. 6.2).

**Figure 6.2. Number of employees and the reasons for the implementation of innovation in network organisations in %**



Source: Same as 6.1.

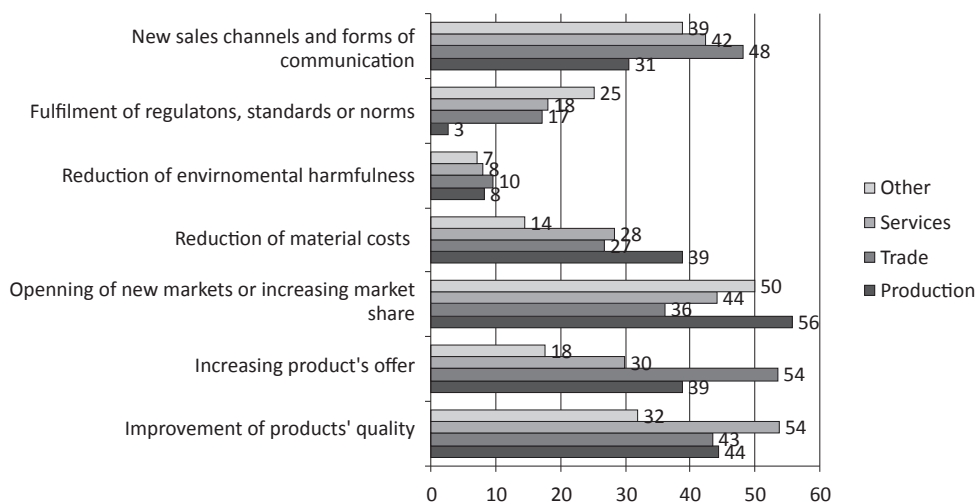
Medium-sized enterprises indicated the motive of improvement of the quality of products (58% of responses). The ecological context appeared in the respondent's answers from medium-sized enterprises. It is interesting that enterprises from this category declared the introduction of innovations in order to reduce harmfulness to the environment (21% of responses) and the fulfilment of the regulations, norms or standards (36% of responses). It should be noted that these are high indications compared to much lower indications of other types of enterprises.

The quality of products (59%) and the opening of new markets (50%) play the dominant role for large companies in terms of implementing innovations. It is worth mentioning that the fulfilment of regulations, norms or standards as the reason of implementing innovations was more important for medium and large enterprises than for micro and small businesses. These groups of companies introduced innovation

more often than others because of adaptation to standards and regulations, and compliance with standards of activities. An interesting fact is that for micro, small and large enterprises the least indications were obtained in terms of the reason of reducing the harmfulness to environment. In all three cases, the percentage of indications exceeded 10%. This could mean that the ecological approach was not a meaningful issue in development strategies and strategies of innovation management and implementation of innovation in Poland. New sales channels and forms of communication were less important for large enterprises compared to enterprises with different size. This may mean that these companies have already have a significant level of market expansion, built on the basis of a significant sales network, innovative methods and ways of acquiring customers, as well as use of modern communication channels so that further investments and activities in this direction are not a strategic direction.

It was also necessary to recognise the importance of particular motives of implementation of innovations and their diversity in terms of the type of business (Fig. 6.3).

**Figure 6.3. Type of business and the reasons for the implementation of innovation in network organisations in %**



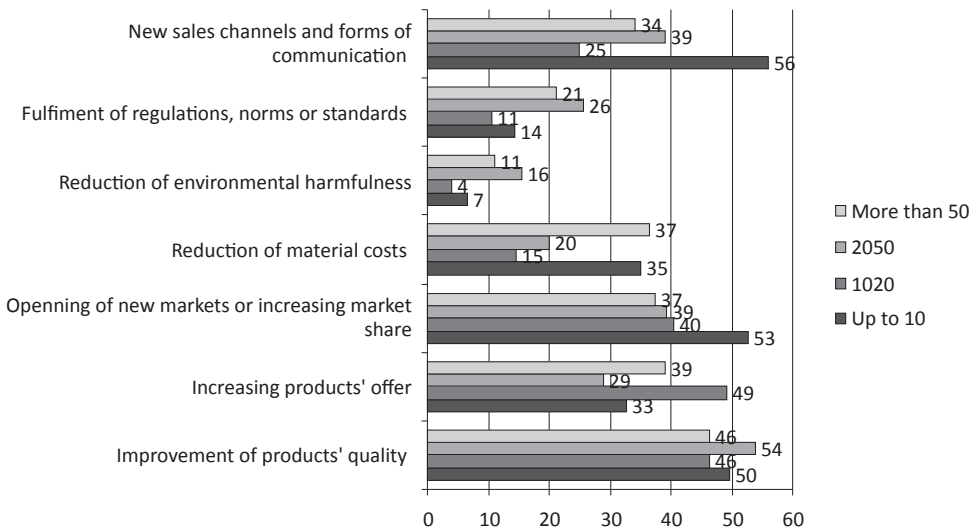
Source: Same as 6.1.

56% of manufacturing companies declared the opening of new markets or increasing market share. Increasing the range of products was the main reason for the introduction of innovative solutions for the trade sector (54%). In turn, service industry most frequently indicated the improvement of the product's quality (54%). The study also showed that the opening of new markets or increasing market share

was the most important for other sectors (administration, education, culture, local governments) – 50%.

Further analysis of the results showed the relationship between the size of the network to which the enterprise belongs and the reasons of implementing innovation (Fig. 6.4). The companies belonging to the small franchises frequently pointed to new sales channels (56%) and the opening of new markets or increasing market share (53%) as reasons of implementing innovative solutions. Improvement of the product's quality (50%) was essential for participants of the small networks – up to 10 participants – in order to increase the competitive position in the market.

**Figure 6.4. Network's size and reasons for introduction of innovation in network organisations in %**



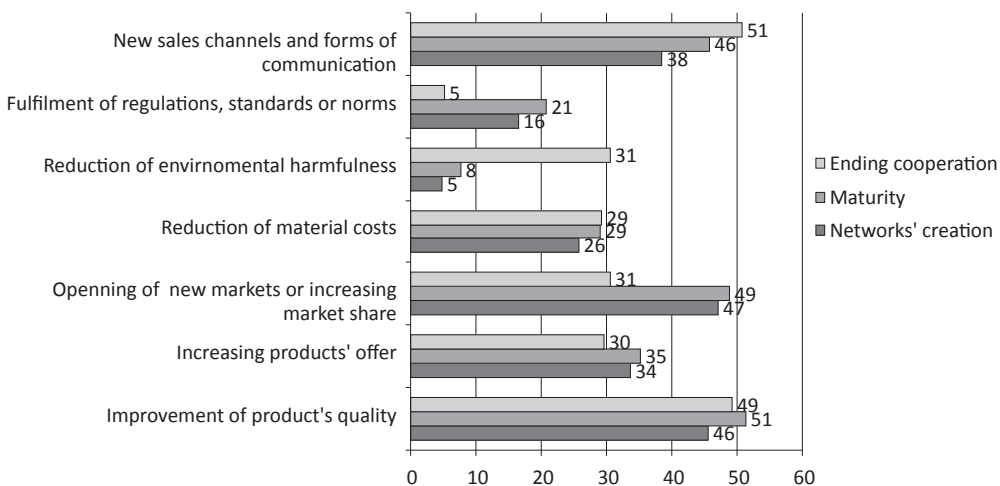
Source: Same as 6.1.

The product's quality and offer were significant for larger networks (46% and 49% of responses). What's more, enterprises belonging to the networks consisting of 20–50 participants pointed to the improvement of the quality of products (54%). 16% of respondents stressed the reduction of harmfulness to the environment. The quality and offer of products (46% and 39%) were the most meaningful factors to the large networks.

Dependence observation between the reasons of implementation of innovation and the stage of network's development to which the company belongs helped to draw the following conclusions (Fig. 6.5).



**Figure 6.5. Reasons of implementation of innovation in network organisations depending on the stage of network's development in %**



Source: Same as 6.1.

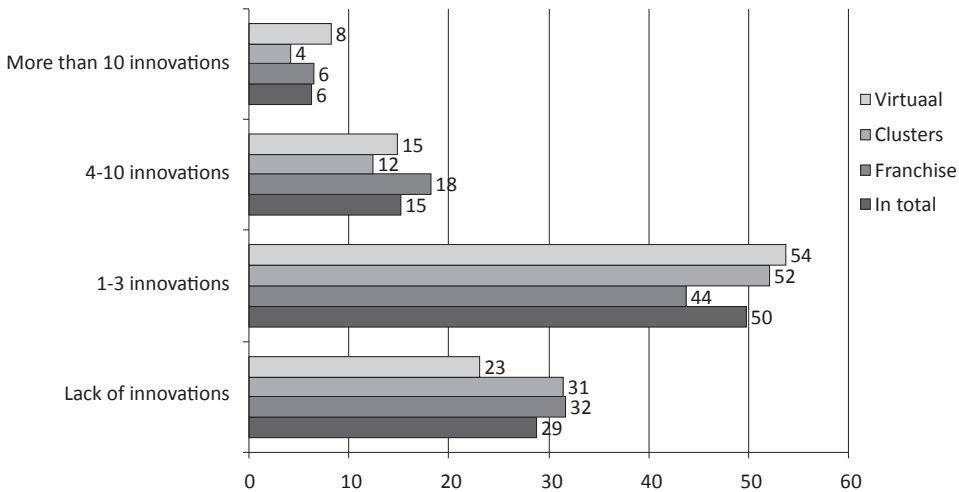
The quality of products (46%) and the opening of new markets or increasing market share (47%) were the main reasons for enterprises belonging to the networks of introduction of innovative solutions. On the other hand, improvement of the products' quality (51%), the opening of new markets or increasing market share (49%) and new sales channels (46%) were the most significant factors from the point of view of respondents from mature networks. In contrast, respondents from franchise companies, functioning in the networks which reward cooperation within the network, indicated primarily new sales channels and forms of communication (51%) and improving the quality of products (49%). Respondents from this group compared to others pointed to the reduction of harmfulness to the environment, as a reason of using the innovation.

### 6.3. Innovative activity of network organisations

The analysis of the innovative activity of the network organisation measured by the number of implemented innovations (Fig. 6.6) is the next stage of research. Based on these data, one can say that half from the total number of respondents, implemented from 1 to 3 innovations (50%) in the period 2007–2012. The study also showed that with the increase in the number of innovations, the number of respondents decreases. Only 21% of respondents declared the implementation of more than 4 innovations in network enterprises. The remaining 29% of network organisations

did not introduce any innovative solutions. This means that one third of companies do not use innovations in business activity and they do not achieve through this way a better competitive position in the market.

**Figure 6.6. Innovative activities of network organisations in %**



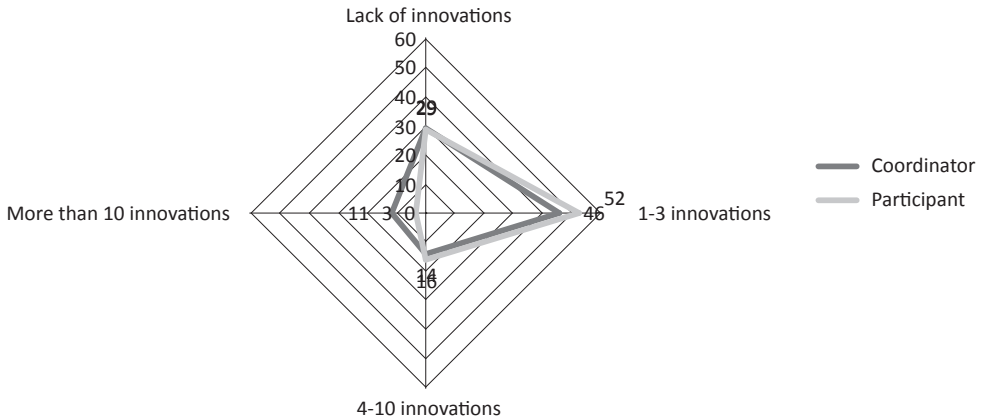
Source: Same as 6.1.

Analysing innovative activity depending on the type of network in which the company operates, one can distinguish virtual organisations, which most often implemented several (1–3 innovations) – 54%. Research showed that a frequent phenomenon was that no innovations were implemented in franchise companies and clusters (32% and 32%). This means that virtual organisations most frequently implement innovations in enterprises which belong to them. 18% of respondents from franchise companies pointed to 4–10 innovations' implementation in enterprises.

It is puzzling that in franchise companies, innovative solutions are more often introduced in the whole network than in a single enterprise. These innovative ideas are applicable in the franchise system and bring improvements for all network participants. Similar situation is in clusters, where network solutions have greater usage than innovations in single enterprises. In contrast, virtual organisations build weaker network ties than in franchises or in clusters. For this reason, innovations are more often implemented in enterprises belonging to virtual organisations.

The analysis of innovative activity is also important in network organisations, depending on the role in the network (Fig. 6.7).

**Figure 6.7. Innovative activity of network organisations depending on the role in network in %**

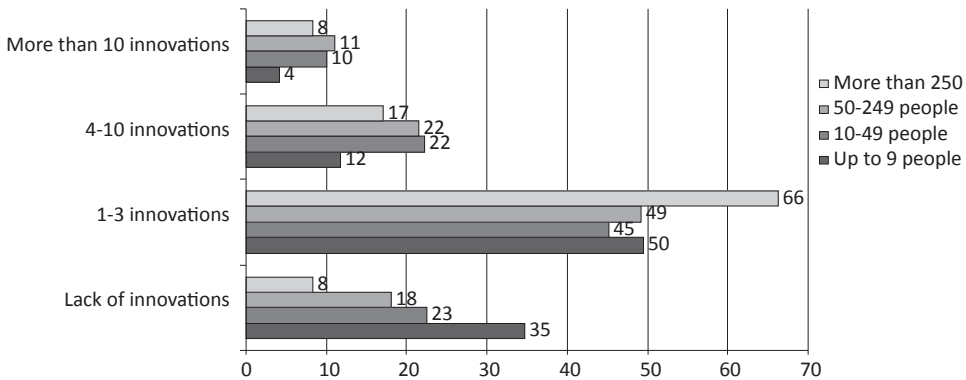


Source: Same as 6.1.

The distribution of responses shows that the same number of network enterprises, playing either the role of coordinator or network participant did not implement any innovations in the analysed period (29%). A statistically significant difference was in the category of introducing more than 10 innovations. It stems from the role which the coordinator plays in the network enterprise. 11% of network coordinators implemented more than 10 innovations in the analysed period in comparison to network participants (3%). Network coordinator implements innovations in his company but also in the network, which he organises. In franchises, innovations are tested in the franchisor's company (network's coordinator), and their diffusion into the franchise system comes after.

Dependences in the area of innovative activity taking place in terms of diversification of the number of employees are visible in the surveyed enterprises (Fig. 6.8). On the basis of the analysed results, one can conclude that no innovations were implemented in the micro enterprises (35% of responses). In contrast, only 8% of large companies didn't introduce any innovations in the analysed period. These enterprises, most often of all respondents, which represent other categories of companies, indicated the implementation of 1 to 3 innovations (66%). 40% of small enterprises usually declared implementing up to 3 innovations. Small enterprises declared the biggest problems with the implementation of innovations that are the least noticeable for large enterprises.

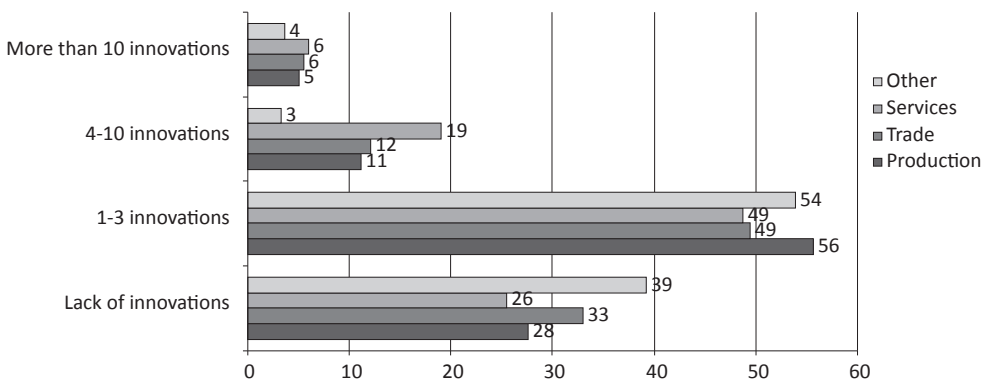
**Figure 6.8. Innovative activity of network organisations depending on the number of employees in %**



Source: Same as 6.1.

Dependences in the area of significance of innovative activity of network enterprises in terms of the type of business are noticed (Fig. 6.9). The distribution of responses shows that most manufacturing companies declare that they have implemented up to three innovations in the analysed period (56%). What's more, several innovations (4–10) were introduced in the service sector – 19%, which is the highest indication in this category. Analysing the results 39% of entities from such sectors as: administration, education, culture and local governments did not implement any innovations. This shows the trend of limiting growth and the increase of level of innovation in public institutions and education sector, where funding and understanding the need for innovation management is lowest.

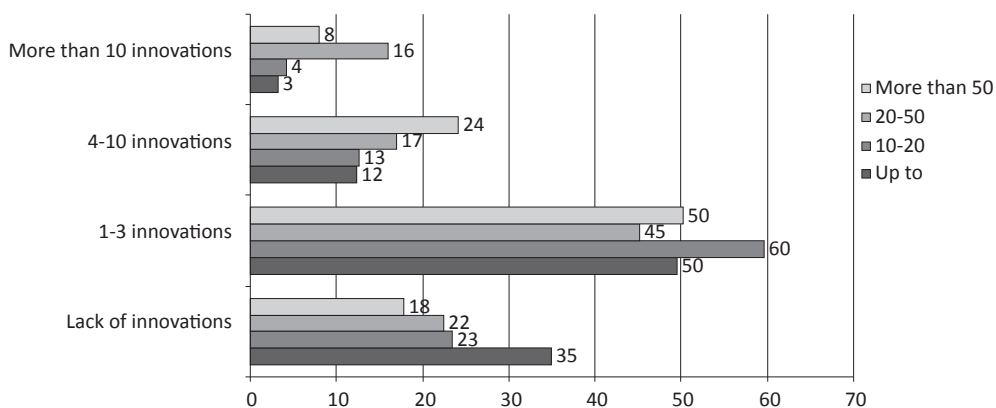
**Figure 6.9. Innovative activities of network organisations depending on the type of business in %**



Source: Same as 6.1.

Taking into account the relations between innovative activity (Fig. 6.10), and the size of the network, one can state that the least innovations are introduced in small enterprises – up to 10 participants (35%). Based on these data, 60% of respondents belonging to a network of 10 to 20 participants pointed to the implementation of several innovations (1–3 innovations). It is worth mentioning that in the medium-sized networks (20–50 participants) 16% of enterprises indicated that they implemented more than 10 innovations, which is more than in other networks. Furthermore, companies belonging to the group of the largest networks, most often declared that they implemented 4–10 innovations (24%). They also least likely stressed the lack of implementation of innovation in the analysed period (18%).

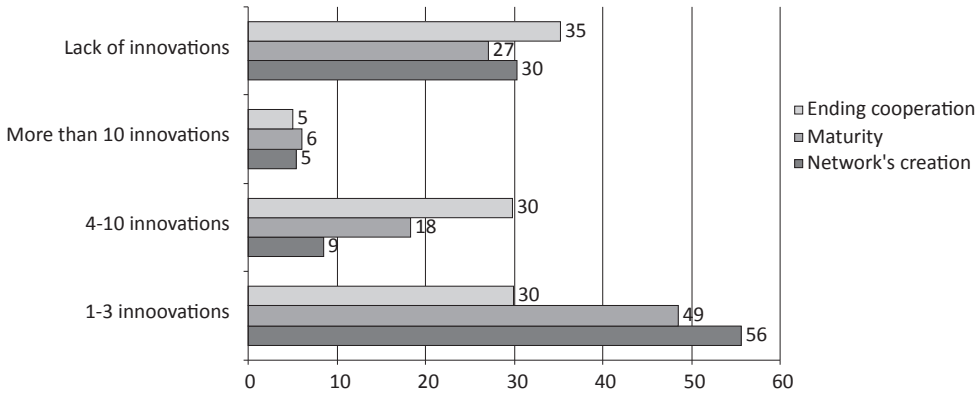
**Figure 6.10. Innovative activity of network organisations depending on the size of network in %**



Source: Same as 6.1.

The innovative activity depending on the stage of network's development to which the enterprise belongs (Fig. 6.11) was taken into account in further analysis. From the analysis concerning networks which are in the stage of their creation, one can conclude that these enterprises implement up to 3 innovations (56%). Further results show that in the networks ending cooperation most often, compared to the other types of networks, one pointed to the lack of implementation of any innovations (35%). On the other hand, in these networks one stressed the implementation of several (4–10) innovations (30%). Based on these data, one can conclude that companies belonging to the mature networks, showed the highest tendency to implement innovations (73% of responses).

**Figure 6.11. Innovative activity of network organisations depending on the stage of network's development in %**



Source: Same as 6.1.

## 6.4. Types of innovations in network organisations

The types of innovations implemented in network organisations are the next stage of the study.

**Figure 6.12. Types of innovations implemented in network organisations depending on the role in the network in %**



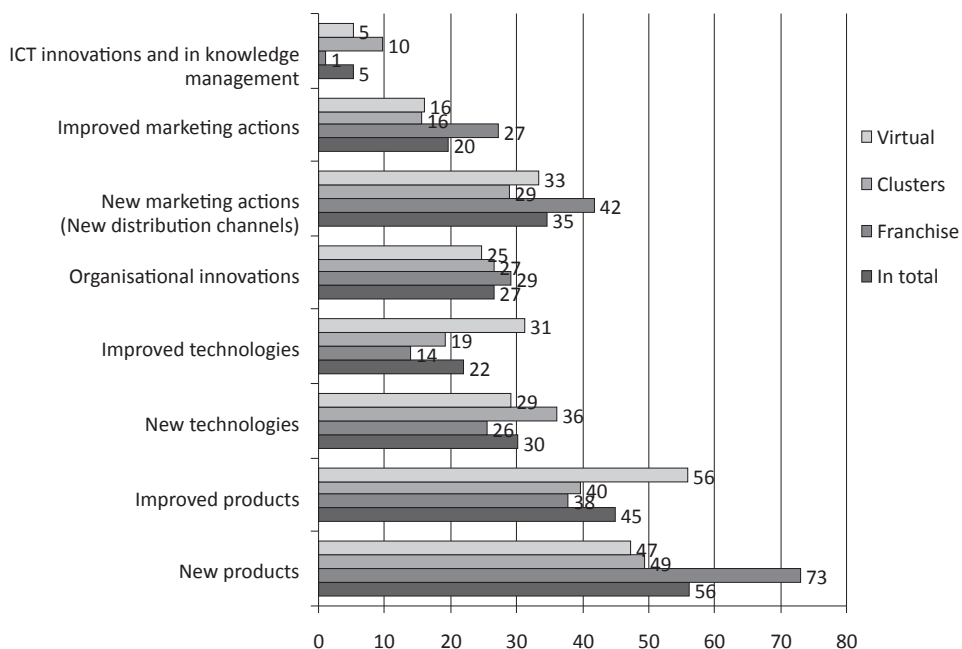
Source: Same as 6.1.

The results showed that both coordinators and participants of the network, indicated similar certain categories of innovation, depending on the role in the network. These types of innovations, such as new products (60% and 54%), improved products (42% and 47%) – Fig. 5.12 got the high number of indications. In further analysis new and improved technologies are distinguished due to the fact that they received significantly more indications among network coordinators. However,

new and improved marketing actions were more important for participants of the networks. ICT innovations and in knowledge management were less significant for both groups of respondents. It is not the type of innovation often used in network organisations.

Differences in the types of innovations implemented in the different types of network organisations are also seen below (Fig. 6.13).

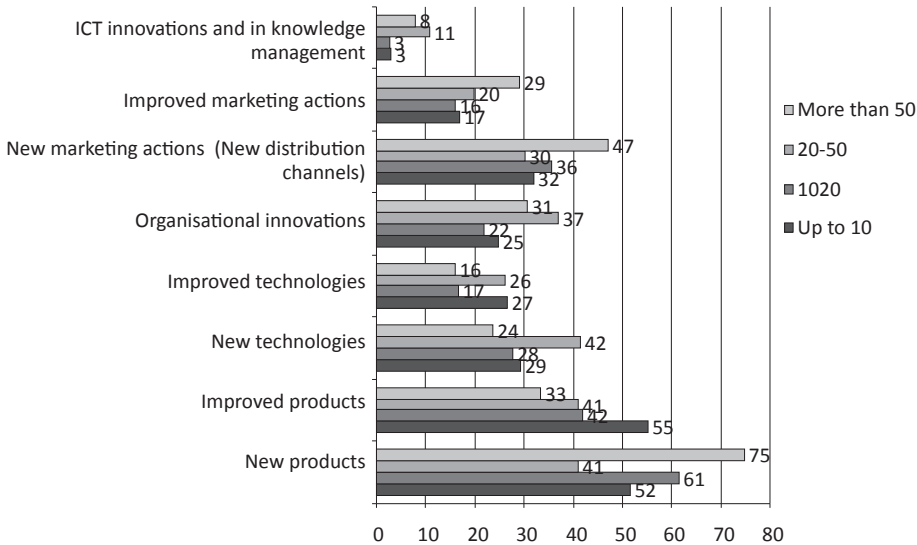
**Figure 6.13. Types of innovations implemented in network organisations in %**



Source: Same as 6.1.

Research has shown that new and improved products (56% and 45%) and new marketing actions (35%) were used by the largest group of companies in analysed period. In contrast, ICT innovations and in knowledge management were the least important and they received only 5% of responses. New products (73%) and new marketing actions (42%) were the most significant for franchise companies. New products (49%) and new technologies (36%) were distinguished in clusters. The study also showed that innovations regarding: improved products (56%) and new products (46%) were the most meaningful in virtual organisations. One should also indicate the type of innovations implemented in network organisations showing some variation relative to the size of the network (Fig. 6.14).

**Figure 6.14. Types of innovations implemented in network organisations depending on the size of the network in %**



Source: Same as 6.1.

Interestingly, a large number of respondents, from all sizes of the networks, pointed to the new or improved products. New technologies are more significant in networks with the number of participants from 20–50 (42%). New and improved marketing actions (new distribution channels) are more significant for large networks, with more than 50 participants (47% and 29%).

The analysis of results regarding the types of innovation due to the type of network's business is presented below (Fig. 6.15).

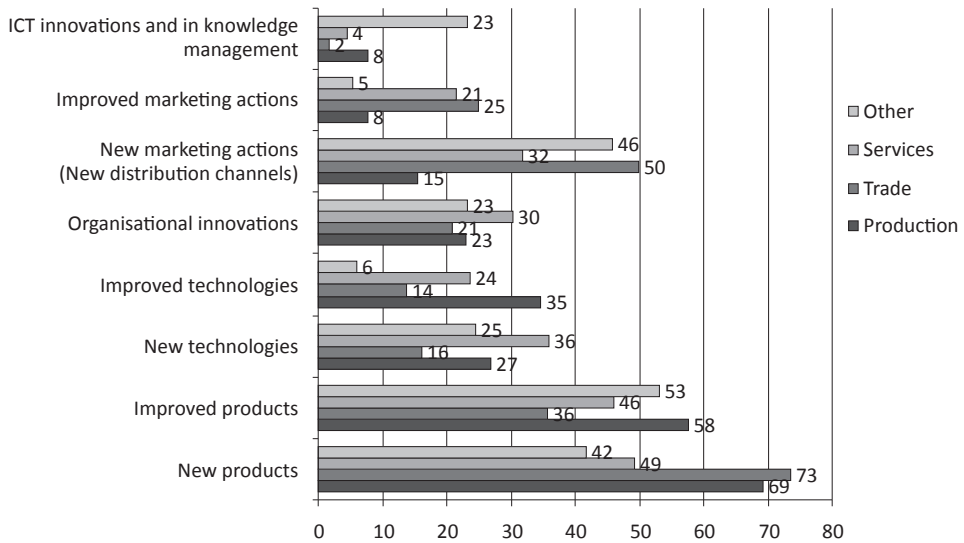
Based on these data, one can conclude that the new products and marketing activities are most relevant to trade entities (73% and 50%). On the other hand, product innovation or new and improved products are also important from the point of view of the service and manufacturing sectors. Innovations related to new and improved technologies (16% and 14%) were the least important for network enterprises, which results from the nature of this type of activity. What is worth mentioning is that respondents from sectors: administration, education, culture, and local governments, among others, pointed to the implementation of innovations in the field of ICT and knowledge management (23%). However, only 6% of respondents from this sector indicated improved technology.

The recognition of the different types of implemented innovations depending on the number of employees in the enterprise (Fig. 6.16) was also crucial. In all groups of enterprises, respondents stressed innovations in the field of new and improved products. But 37% of respondents from large enterprises indicated new technologies.



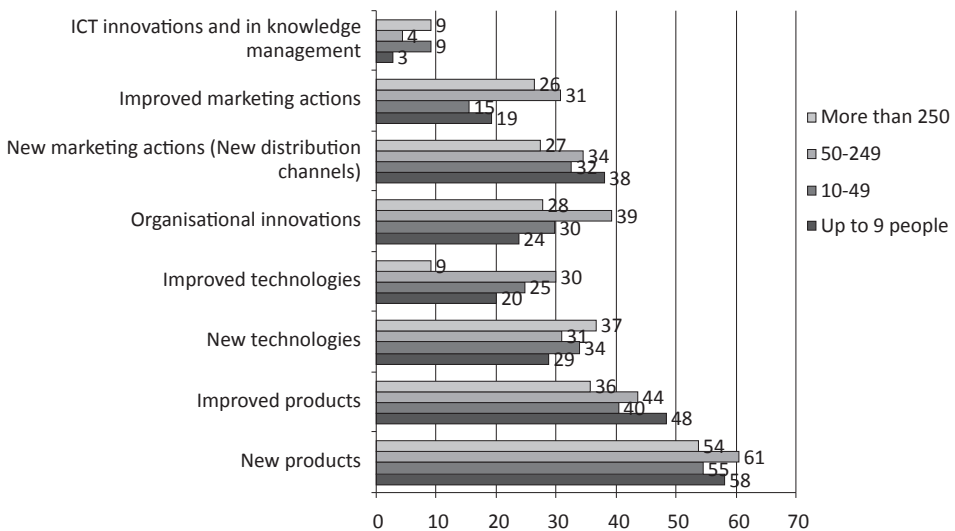
Large companies tend to invest in new technologies and they spend on them a lot of money. On the other hand, from the point of view of medium-sized companies, organisational innovations were the most important ones (39%).

**Figure 6.15. Types of innovations implemented in network organisations depending on the business sector in %**



Source: Same as 6.1.

**Figure 6.16. Innovative activity of network organisations depending on the number of employees in %**

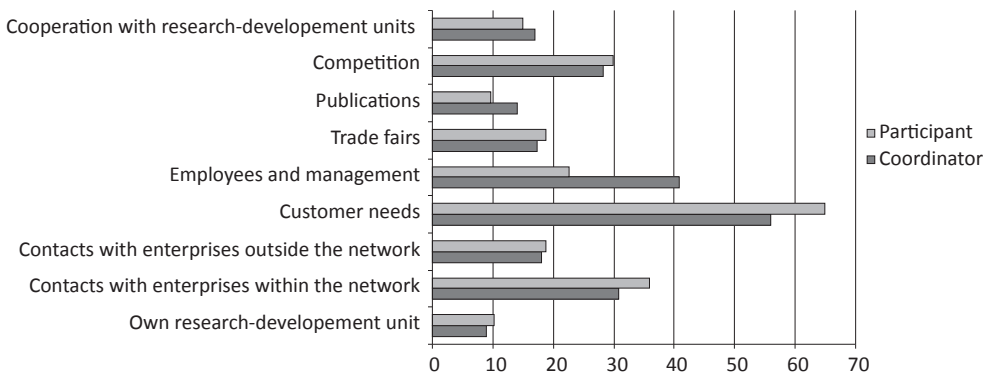


Source: Same as 6.1.

## 6.5. Sources of innovation in network organisations

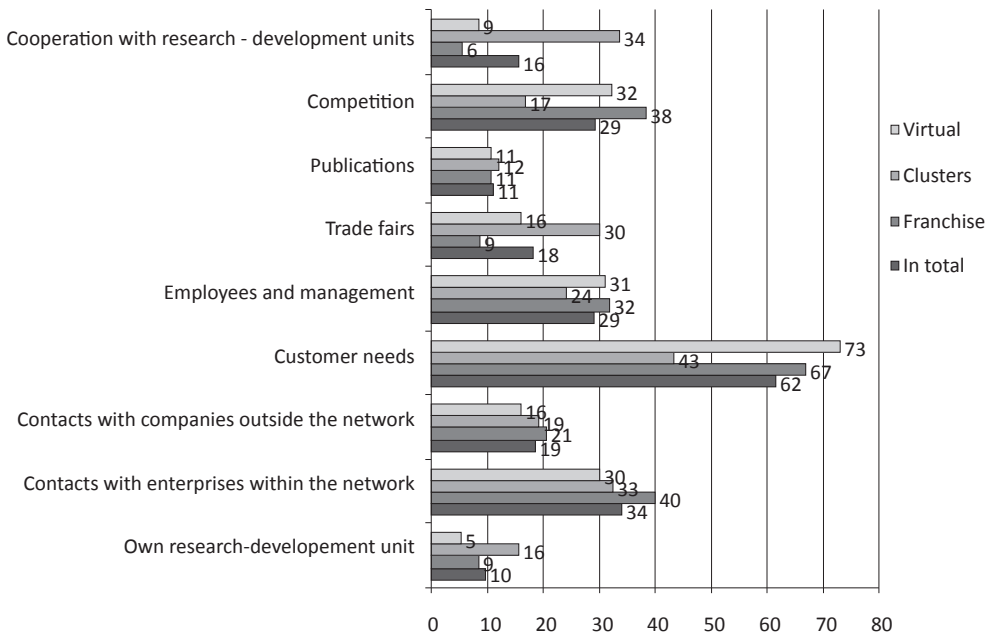
Research regarding sources of innovation in network organisations is very important to verify the research questions. One must therefore identify the sources of innovation from the point of view of the role played in the network (Fig. 6.17). Research has shown that for the coordinator and the participant of the network the sources of innovations are similar. Interesting is that employees and management are more often the sources of innovation for the network coordinators (40%) than for network participants (24%). On the other hand, customer needs are more important for network participants than for the coordinators. It is worth mentioning that the contacts with the companies within the network play a greater role as a source of innovation for the network participants than for their coordinators.

**Figure 6.17. Sources of innovation in network organisations depending on the role in the network in %**



Source: Same as 6.1.

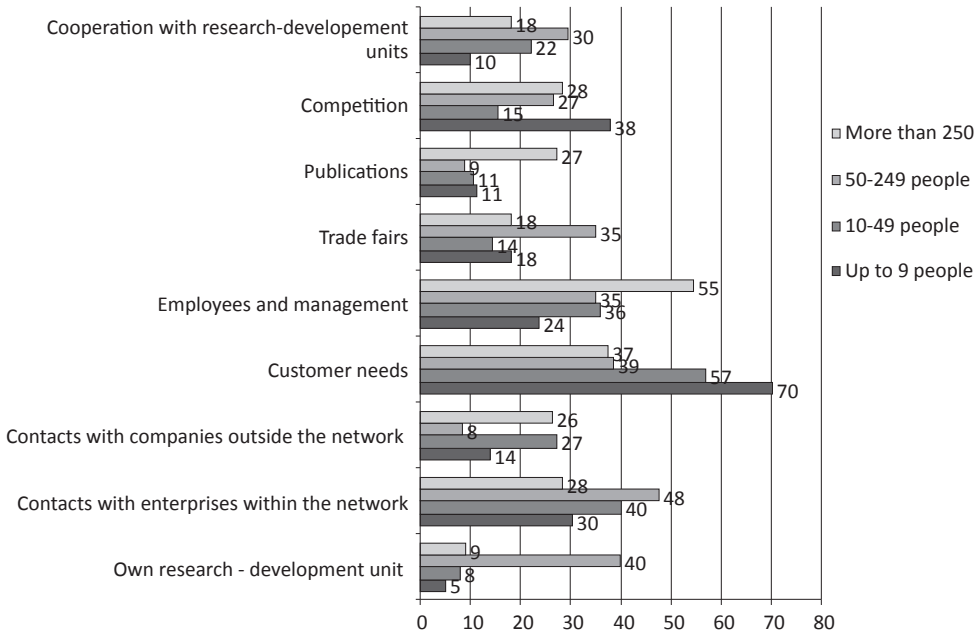
Some differences regarding sources of innovation, depending on the network to which the surveyed enterprise belongs (Fig. 6.18) are seen below. The results highlighted that customer needs are the dominant sources of innovation in network organisations. Companies belonging to virtual organisations (73%) most often pointed to this category. Contacts with enterprises within the network are the next source. Interestingly, they were the most important in franchise organisations (40%). Competition as a source of innovation was more often declared by the franchise companies than the others (38%). Cooperation with own research and development units (16%), trade fairs (30%) and cooperation with R&D units (34%) were more significant for clusters than for other networks.

**Figure 6.18. Sources of innovation in network organisations in %**

Source: Same as 6.1.

Based on these data one can conclude that the clusters are characterised by creating innovation with the use of R&D units. In contrast, franchise and virtual organisations are mainly focused on the search for sources of innovation among customers and competitors. One should also indicate the relations regarding the sources of innovation in terms of number of employees. An analysis of the sources of innovation in enterprises belonging to the network due to the number of employees in the company was presented below (Fig. 6.19). Based on the obtained results, one can state that, sources of innovation defined as: customer needs (70%) and competition (38%) were the most essential in the companies belonging to the category of micro. On the other hand, from the perspective of small businesses, customer needs (57%) and contacts with companies within the network (40%) were the most important factors. In contrast, medium-sized enterprises as the origin of innovation indicated their research and development units (40%) and the customer needs (39%). It is interesting that the trade fairs and cooperation with R&D units were most often indicated by respondents from medium-sized enterprises (35% and 30%). Employees and management (55% of responses) and publications (27%), as the source of implemented innovations, were very crucial only for large companies.

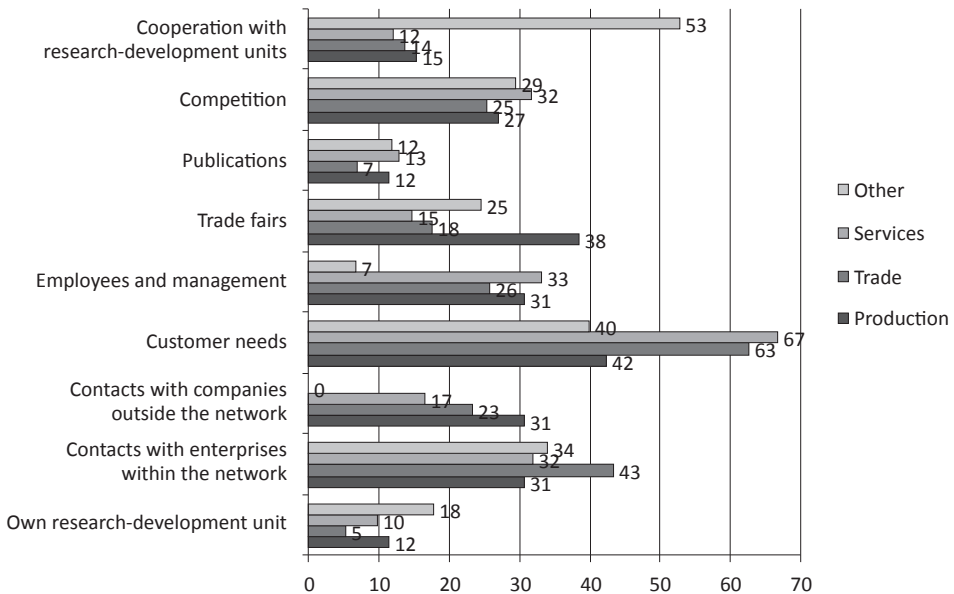
**Figure 6.19. Sources of innovation in network organisations depending on the number of employees in %**



Source: Same as 6.1.

Another area of research concerned the sources of innovation in terms of type of conducted business by companies belonging to the network (Fig. 6.20). According to indications of production enterprises, innovations implemented during the analysed period derived from the analysis of the needs of customers (42%) and trade fairs (38%). Customer needs (67%) and contacts with companies within the network (43%) were very important for trade companies. According to the analysis of data, customer needs (67%) and employees and management (33%) were significant for the service sector. Employees and executives (33%) were the most meaningful. In contrast, administration, education, culture and local governments pointed to cooperation with R&D units (53%) and the customer needs (40%), as the sources of innovation. An interesting fact is that the public sector does not treat employees and managers (9%) and contacts with companies from outside the network (0%) as sources of innovation.

**Figure 6.20. Sources of innovation in network organisations depending on the sector of business in %**

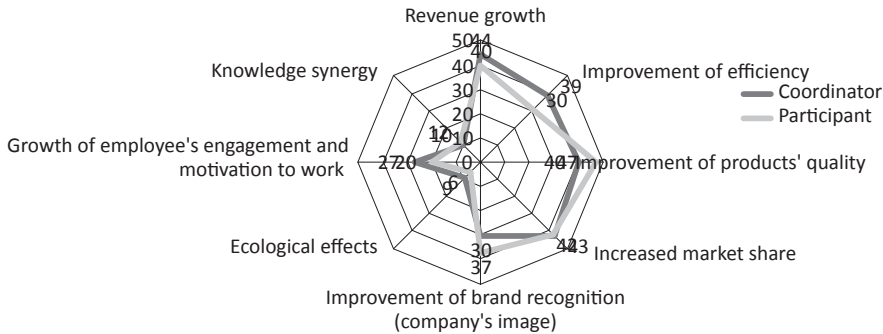


Source: Same as 6.1.

## 6.6. Benefits of implementing innovations in network organisations

Another area of research concerned the benefits of implementation of innovations in the surveyed network enterprises (Fig. 6.21). The results indicated that the coordinators of network's connections and their participants pointed to the same individual categories of benefits. Benefits such as: increase in revenues, improvement of productivity, increased market share, ecological effects, increase in employees' engagement are very important for network organisers. In contrast, network participants more often pointed to the improvement of product quality, improvement of image and brand recognition and synergy of knowledge.

**Figure 6.21. The benefits of implementing innovations in network organisations depending on the role in the network in %**

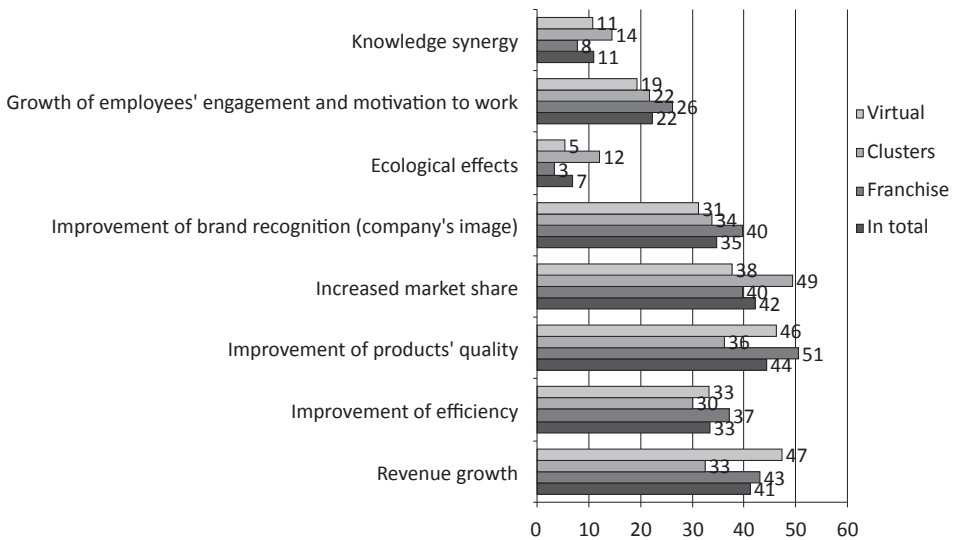


Source: Same as 6.1.

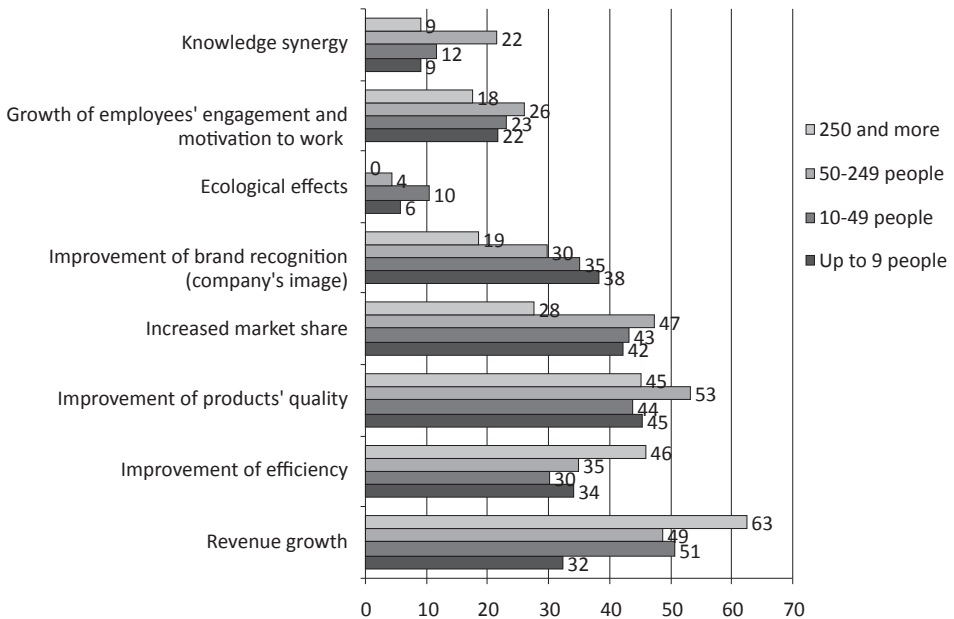
According to results indicated by the respondents on the benefits of implementation of innovation in 2007–2012, one can conclude that improvement of the quality of products has the greatest importance (44% of responses), (Fig. 6.22). Increased market share (42%) and the growth of revenues (41%) were distinguished in further analysis. Ecological effects (7%) and the synergy of knowledge (11%) were not mentioned as benefits of implementing innovation.

The results highlighted that the improvement of the quality of products (51% and 46%) and the revenue growth (43% and 47%) were very important for franchise and virtual organisations. On the other hand, from the point of view of clusters, the benefits can be defined as: increased market share (49%) and improvement of product's quality (36%). It is worth noting that respondents from analysed companies mainly declared the ecological effects and synergy of knowledge as the benefits of enterprises belonging to the clusters.

One should also indicate the distribution of the benefits of implementing innovations due to the number of employees in the enterprise (Fig. 6.23). The distribution of responses showed that benefits from implementing innovations for micro enterprises were focused around improving the quality of products (45%) and increased market share (42%). It is worth mentioning that a group of these companies is paying the most attention to improving the image of the company, as the benefit from the implementation of innovation.

**Figure 6.22. The benefits of implementing innovations in network organisations in %**

Source: Same as 6.1.

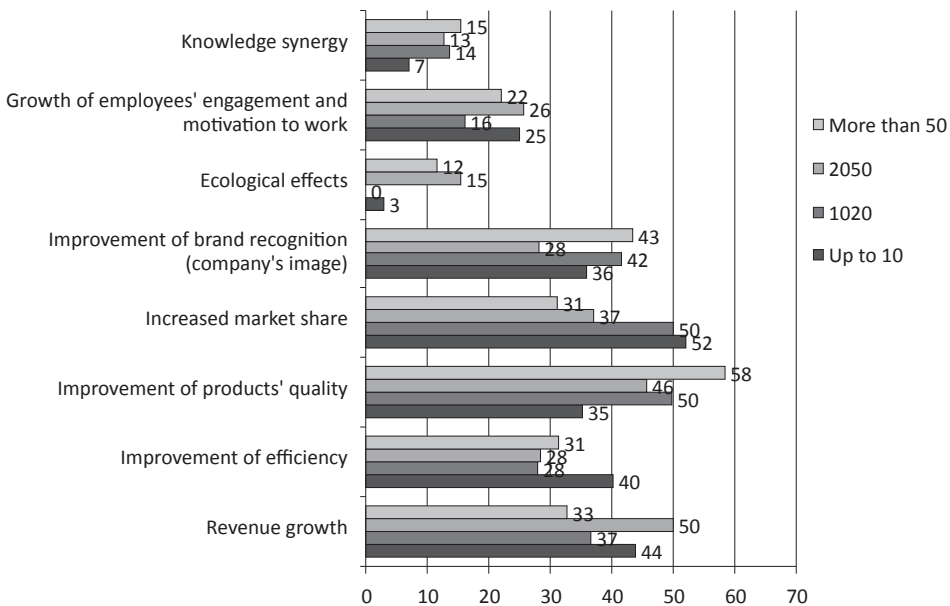
**Figure 6.23. The benefits of implementing innovations in network organisations depending on the number of employees in %**

Source: Same as 6.1.

The studies also showed that small enterprises appreciate the benefits such as revenue growth (51%) and improvement of product's quality (44%). In further analysis one distinguished medium-sized enterprises, which pointed to improvement of the product's quality (53%) and revenue growth (49%). Noteworthy is the fact that a group of these companies most frequently among others indicated a growth of employees' engagement (26%) and the synergy of knowledge (22%), as the benefits coming from the use of innovation. In turn, from the point of view of large enterprises, revenue growth (63%) was essential. Worth noting is the fact that only 28% of large enterprises noted the increased market share as a result of the implementation of innovations. Also, the improvement of recognition and brand's image was not significant for large companies.

Another area of research was to analyse the distribution of answers to the question relating to the benefits of implementing innovation, depending on the size of the network to which analysed enterprise belongs (Fig. 6.24).

**Figure 6.24. Benefits of implementing innovations in network organisations depending on the size of the network in %**



Source: Same as 6.1.

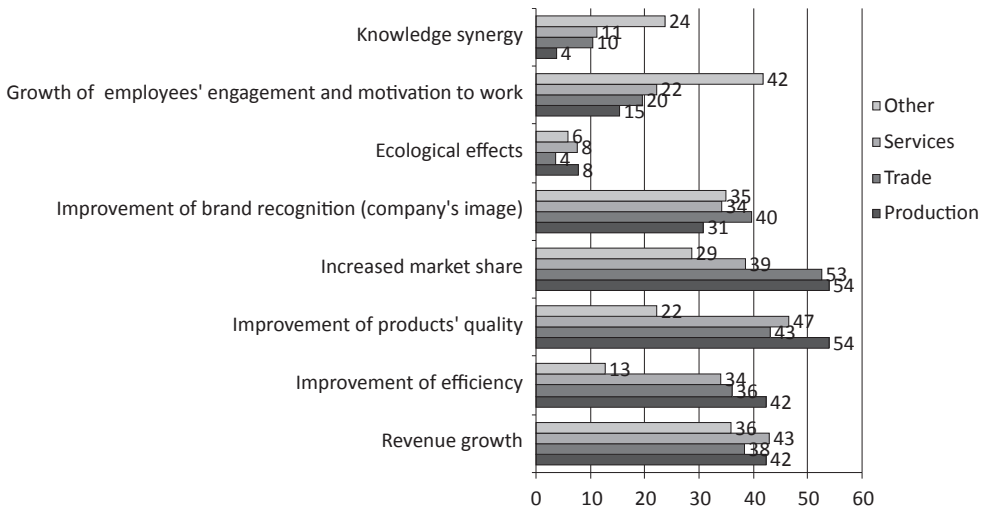
The distribution of responses shows that the increased market share (52%) is very important for small networks, while increased market share (50%) and improvement of product's quality (50%) are significant for networks of 10 to 20 participants. In contrast, medium-sized networks mainly indicated revenue growth (50%) and



large ones pointed to the improvement of product's quality (58%). Interestingly ecological effects are useful for enterprises belonging to the medium-sized networks (20–50 participants).

Figure 6.25 shows the importance of the various benefits of using innovation and its diversity in terms of the type of business.

**Figure 6.25. The benefits of implementing innovations in network organisations depending on the business sector in %**



Source: Same as 6.1.

The responses highlighted that improvement of the product's quality (54%) and increased market share (54%) are benefits of implementing innovations in manufacturing and trade companies. In contrast, companies operating in the services most frequently pointed to the improvement of product's quality (43%) and revenue growth (50%) (Fig. 5.28). On the other hand, from the point of view of administration, education, culture and local governments a growth of the engagement of employees is the greatest benefit from the implementation of innovation (42%).

## 6.7. Summary

Innovations are the most important driving force of economic development. They are essential tools of entrepreneurship, and this entrepreneurship is expressed in constant search for new combinations of production factors in order to become the engine of economic progress. In order to introduce innovations and adapt better

to the market's needs and to the changing environment, the openness to changes is very significant. The condition of existence and development of each enterprise is the ability to adapt its own volatility to environmental changes. This volatility is also associated with various types of corporate restructuring (creative, anticipatory, adaptive and repair), which forces changes in all spheres of enterprises' business.

Innovations have become a key issue on a global scale, as well as the scale of micro in particular enterprises and network organisations. Innovativeness is a key condition for increasing the attractiveness of goods and services, which entails the development of the market and exports, and thus determines the competitive position of the enterprise. At the present time in the global economy innovations are implemented by all companies: reputable, with well-established position in the market, and new – entering the markets. Some companies conduct comprehensive innovative activities by creating network organisations to exploit the potential, resources and skills of all participants of the network. In the modern economy, companies that devote time and effort to search for innovation in all areas of their businesses and implement them more often are successful in the market. Innovativeness can be regarded as the most important challenge of the future. The aim of competing companies may be to create a system of innovation control, in this way the implementation of innovation would be the permanently inscribed in the strategy of the enterprises.

The presented research shows that innovation plays an important role in network organisations. They are an important element contributing to improve the range and quality of products, but also they create new sales channels and forms of communication.

To sum up, one can state that most often, just a few innovations were implemented in network organisations in the years 2007–2012. This is an element that should be stimulated in the enterprises functioning within networks, so that they can strengthen their market position. Innovations regarding new and improved products and new marketing actions, which could also apply to new distribution channels, strongly dominate. It should be noted that the ecological approach is not the motive for the implementation of innovation for the network enterprises. It is important to point out that the reduction of material costs is not the dominant factor which promotes the implementation of innovation in network enterprises.

Analysis of the results showed that network companies are innovative by using various types of innovative solutions. First of all, they use product and marketing innovations, which allow the companies to improve product's quality and the use of modern activities and marketing tools.

According to the analysis of innovative activity of analysed types of networks, one can conclude that virtual organisations are extremely innovative. They, as well as individual organisations belonging to the virtual organisations, introduce the most diverse innovations.

To sum up, it should be noted that during the analysis of the studies, one found that sources of innovation are not significantly varied in different types of analysed network organisations. Customer needs are the dominant source of innovation. Further categories of sources of innovation are significantly less indicated by the respondents. An interesting continuation of this study would be to check from where this structure of prioritising the sources of innovation arises and what the specific reasons of this behaviour are.

When it comes to the benefits of the implementation of innovation in network enterprises, the revenue growth is the third category indicating the benefits of implementation of innovation in enterprises belonging to networks in the period 2007–2012. The most important factors are: improvement of the product's quality and increased market share, constituting the positive effects of implementing innovative solutions in network organisations.

An important conclusion from the study is a lower innovative activity in the educational sector than in other sectors, fewer sources of innovation and number of implemented innovations. This leads to the use of activities aimed at the development and implementation of strategies leading to change of this situation and to gaining experience from other sectors. What's more, the situation of differentiation of innovative activity of large and small enterprises is very important. Rarer and weaker enterprises' participation in the network can be an important factor of their limited involvement in the management of innovation strategies.

An analysis of innovation activity due to the maturity of the network leads to interesting conclusions. Particularly interesting is the fact that the companies belonging to the matured networks showed the greatest tendency to implement innovations, which may result from the high level of awareness and experience of the whole network and the individual companies in the implementation and recognition of the importance of innovative activities on their own and in cooperation with partners. This means that smaller companies should derive benefits from participation in the network, to which one can also include a growing awareness. Innovation is an important, if not the most important factor contributing today to the growing competitiveness of the company in the market.

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## **Chapter VII. Innovativeness determinants of franchise organisations**

### **7.1. Introduction**

It is important to point out when analysing business networks, that franchise companies (franchise networks) are one of the types of network organisations. In a global economy, franchises are developing dynamically, allowing to achieve a competitive advantage and global expansion. In the modern world franchise organisations are present on almost all continents and in almost all sectors of the economy. Nowadays franchise systems have to face the growing competition and increasing market saturation of products and services offered by enterprises and enterprise networks. The way for franchise organisations to meet these challenges, is the diversity of their offers in relation to competitors and matching them to the needs of customers. They can do this by creating and implementing innovations.

Franchise organisations developing in the economy become the target of a number of empirical analyses. The significance of conditions and the degree of innovativeness of enterprises that are members of the franchise's ties were determined in the present study. The research problem was formulated as: the level of innovativeness of franchise companies, sources and innovative activity, as well as the benefits of the implementation of innovation and the factors stimulating and limiting the development of innovation in franchises. The research assumptions related to innovativeness of franchise organisations were adopted. They arise from the nature of the franchise and rules of franchise relations. Franchise relies on standard solutions implemented in the global economy through the creation of a single franchise unit, the implementation of proven business concepts and building relations based on cooperation of financially and legally independent economic entities. The following assumptions were presented in the study:

- innovations are implemented in franchise companies to enhance the competitive position of the network and of all its participants (franchisors and franchisees);
- the introduction of new products or services and the use of new marketing actions are the main type of innovations in franchise organisations;

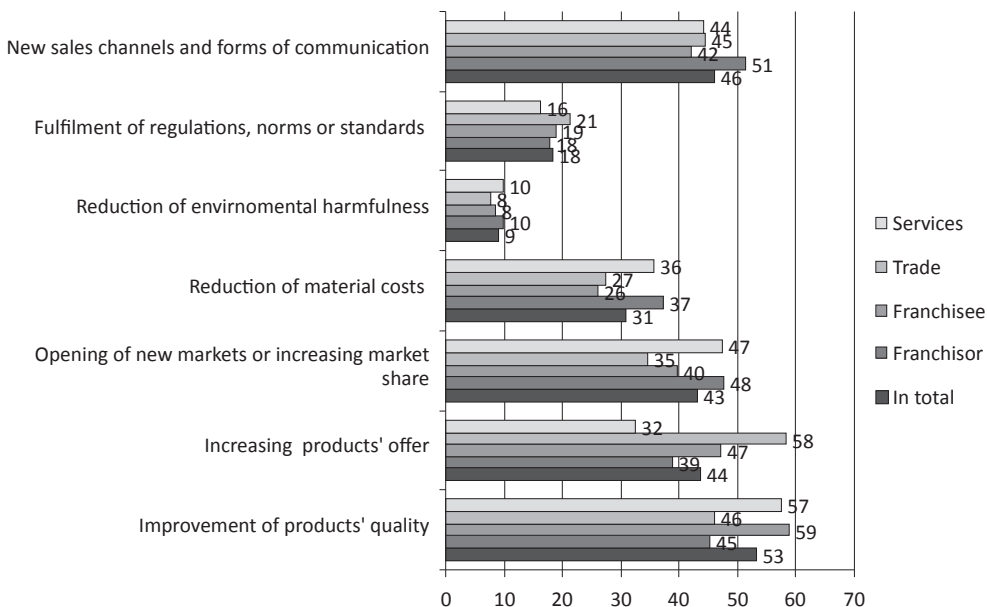
- participants of franchise are the main source of its innovations.

The study population included enterprises which were network's organisers (franchisors) and network's participants (franchisees). The study population consisted of 121 enterprises, 51 of them were franchisors (creators and network's organisers), and 70 represented the franchisees. Respondents answered the questions in two ways: by referring to the enterprise in which they work, or which they own and by referring to the network in which the company operates. In practice, this meant that the franchisors (network's organisers) answered the questions relating to enterprise itself and to the system, which the company coordinates. In contrast, the franchisees, which are network participants, provided answers from the perspective of their own franchise unit and franchise system, in which the institution operates. If we have a closer look, we discover that respondents who are franchisors, had knowledge about their own business and created system, and therefore they were able to provide more specific and credible answers. In contrast, the franchisees answering questions about the network were guided by their observations and conjectures of how the network is functioning and not by any specific data. In the analysis of the research problem one focuses on these results, which indicated significant relationships and allowed the verification of accepted research problems. Therefore, one omitted the analyses showing similar distributions, which did not allow to identify significant differences or to draw conclusions.

## 7.2. Premises for implementing innovations in franchise organisations

Referring to the first stage of research, one performed the analysis of reasons why franchise companies and franchise networks implement innovations. Analysing the results, one can conclude that in total franchise organisations introduce innovations in order to improve the quality of products (53% of respondents), to use new sales channels and forms of communication (46%), to increase the range of products (44%), to open new markets or increase market share (43%) (Fig. 7.1).

It is worth mentioning that opening of new markets or increasing market share (48% of responses) and new sales channels and forms of communication (51%), as well as the reduction of material costs (37%) are very important for franchisors. These categories derive from the essence of the franchise and from the role for which the companies implement strategy of growth through franchise. Because of this fact indications of franchisors in mentioned categories of responses were more frequent than of franchisees.

**Figure 7.1. Reasons of implementing innovations in franchise organisations in %**

Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=121$ .

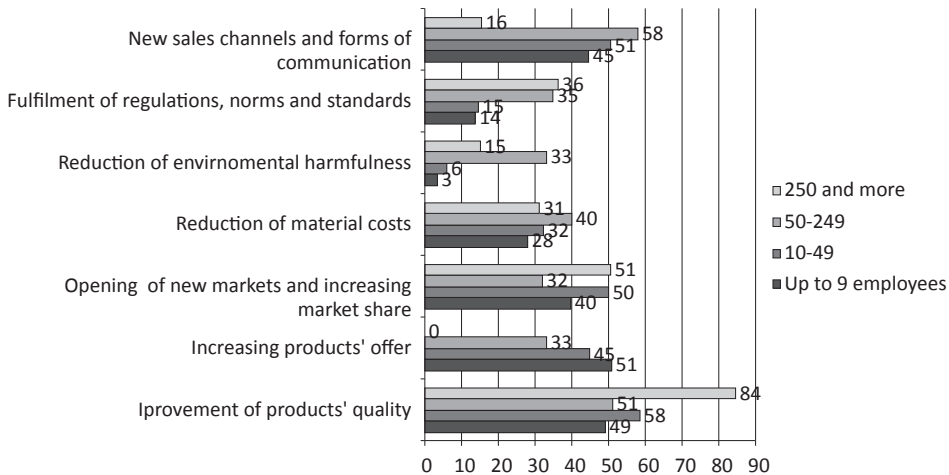
In contrast, network participants, franchisees, often pointed to the categories associated with the product and its offer, as motives of implementation of innovations. This is related to the characteristics of the franchise and the factors that are relevant to the franchisee. Increasing the range of products' offer (58% of responses) is very important in implementation of innovations in the franchise companies operating in the trade sector. It is an important factor in the trade, in which the creation and implementation of innovations are to increase the competitive position of the company. The results showed that the improvement of product's quality (57%), the opening of new markets or increase of market share (47%) were more often indicated in service sector.

Examining the reasons for the introduction of innovation in franchise organisations one can conclude that for micro and small enterprises they are similar. Respondents from the micro enterprises declared the increase of the range of products (51%), and small businesses indicated the improvement of product's quality (58%) (Fig. 7.2).

Medium-sized enterprises stressed new sales channels and forms of communication (58%). The ecological context appeared in the answers of respondents from medium-sized enterprises. It is interesting that for this category of enterprises, the implementation of innovations in order to reduce the harmfulness was indicated by 33% of respondents – most common from all types of businesses. The quality of

products (84%) plays the dominant role for large companies in terms of implementing innovations. In general, one can say that the fulfilment of regulations, norms and standards, as the motive of implementing innovations was more important for medium and large enterprises than for micro and small businesses. In contrast, increasing the range of products was not indicated by the respondents from large companies.

**Figure 7.2. The reasons for the introduction of innovations in franchise organisations depending on the number of employees in %**

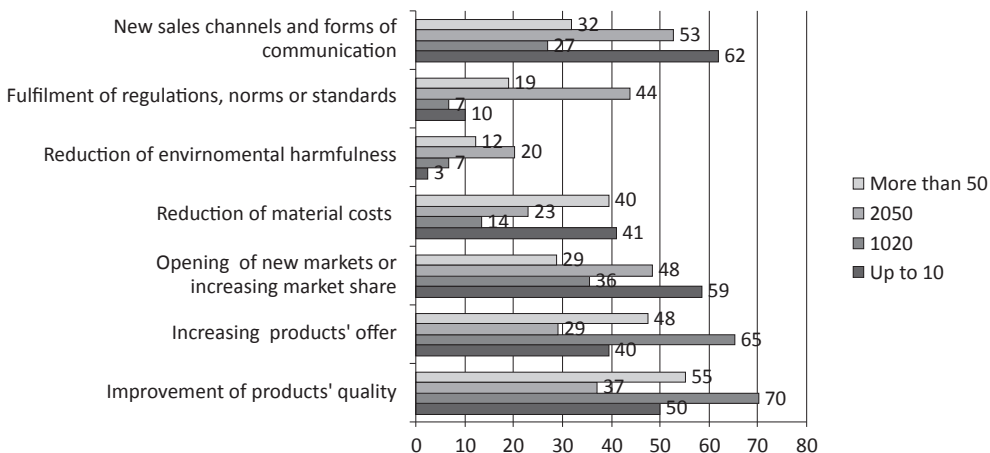


Source: Same as Fig. 7.1.

The reasons for implementation of innovations and their interdependence with stages of network development were significant in the study (Fig. 7.3). New sales channels (62%), opening of new markets or increasing market share (59%) as reasons for the introduction of innovations were most often stressed by enterprises belonging to the small network franchises. Creating new opportunities to increase the competitive position on the market is significant for small network's participants with up to 10 participants. Categories associated with the products' quality and offer (respectively 70% and 65% of responses) were meaningful to slightly larger networks (10–20 participants). What's more, companies belonging to the networks with 20–50 participants pointed to new distribution channels (53%), opening of new markets or increasing market share (48%). And also, only they emphasised the importance of fulfilment of the regulations, norms or standards (44%). Factors relating to the quality and range of products' offer (55% and 48%) are important for implementation of innovations in large networks.



**Figure 7.3. The reasons for implementation of innovations in franchise companies depending on the size of the network in %**

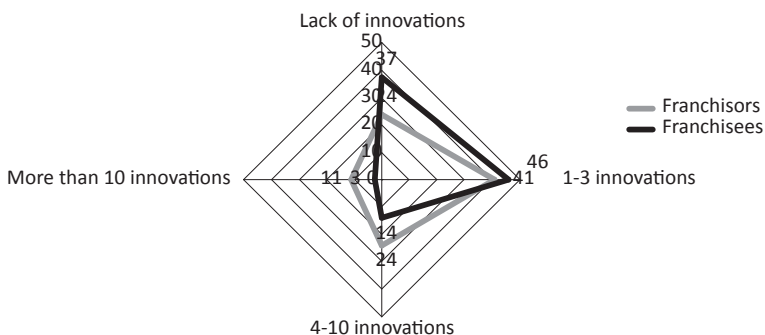


Source: Same as Fig. 7.1.

### 7.3. Innovative activity of franchise organisations

The survey on innovative activity was conducted in the further analysis. The results showed that quarter of franchisors and more than one-third of franchisees did not implement innovations in their enterprises in the years 2007–2012 (Fig. 7.4). The data shows that almost half of surveyed franchisees (46%) introduced from 1 to 3 innovations in the analysed period. Franchisors more often stressed the implementation of 4 to 10 innovations in the declared period (24%). Network coordinators also more often reported implementing more than 10 innovations. The analysis shows that the innovative activity of franchisors is higher than network’s participants when implementing more than 4 innovations.

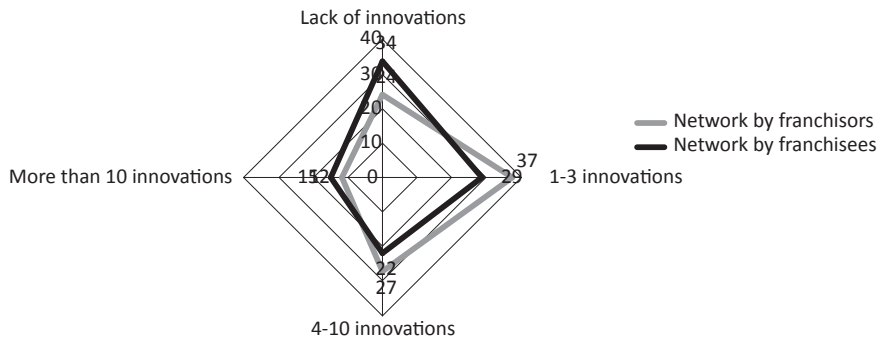
**Figure 7.4. Innovative activity of franchise organisations in %**



Source: Same as Fig. 7.1.

Figure 7.5 presents the analysis of innovative activities of franchise networks.

**Figure 7.5. Innovative activity of franchise networks in %**



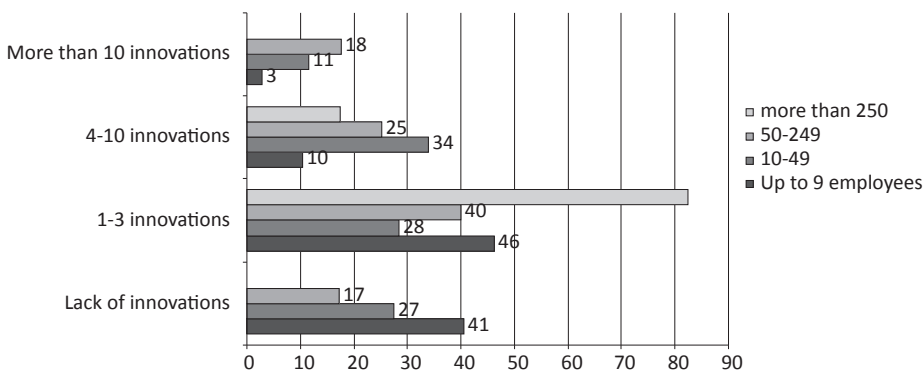
Source: Same as Fig. 7.1.

On the basis of obtained results, one can state that in the opinion of franchisees, 34% of the networks did not implement any innovations, and 29% used 1–3 innovations in the development of the company, while 22% of the networks introduced 4–10 innovations. The creators of network – the franchisors – declared that 24% of the networks do not use innovations and 37% of the networks implemented 1–3 innovations. In contrast, 27% of networks introduced 4–10 innovations, and only 12% of respondents implemented more than 10 innovations. Narrowing the scope, one can conclude that from the perspective of franchisors, the picture of innovative activity is more positive than from the perspective of franchisees.

Further analysis of the study shows that no innovations were implemented in the micro enterprises (41% of responses). Furthermore, all large enterprises introduced at least one innovation, therefore answer “no innovations were implemented” was not indicated (Fig. 7.6).

These enterprises, compared to the group of all respondents most often expressed the implementation of 1 to 3 innovations (82%). Small enterprises most frequently pointed to implementation of 4–10 innovations (34%). More than 10 innovations were introduced by medium-sized enterprises (18%). Medium-sized enterprises most often stated the implementation of up to 3 innovations (40%). Small businesses in comparison to large enterprises had the biggest problems with the introduction of innovations. Innovativeness barriers are associated with the size of the company and are higher for micro and small businesses.

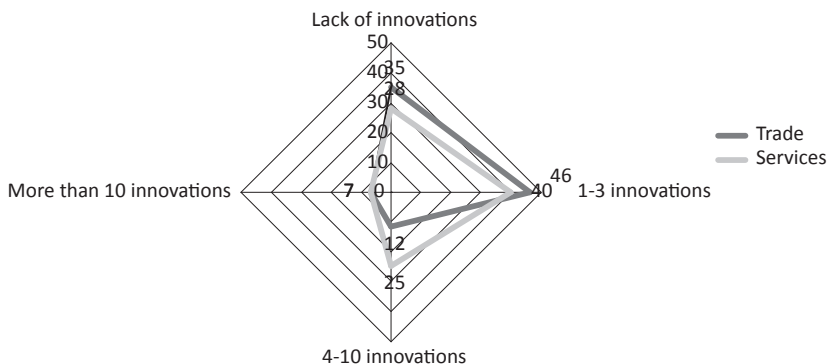
**Figure 7.6. Innovative activity of franchise companies depending on the number of employees in %**



Source: Same as Fig. 7.1.

The analysis of innovative activity of franchise companies due to the type of business they conduct is presented below (Fig. 7.7). It is worth mentioning that more trading companies declared that they did not implement any innovations in the years 2007–2012 (35%). Observations show that the respondents representing trade sector often pointed out that they introduced 1–3 innovations (46%). In contrast, one quarter of the service companies implemented 4–10 innovations.

**Figure 7.7. Innovative activity of franchise companies depending on the type of business in %**

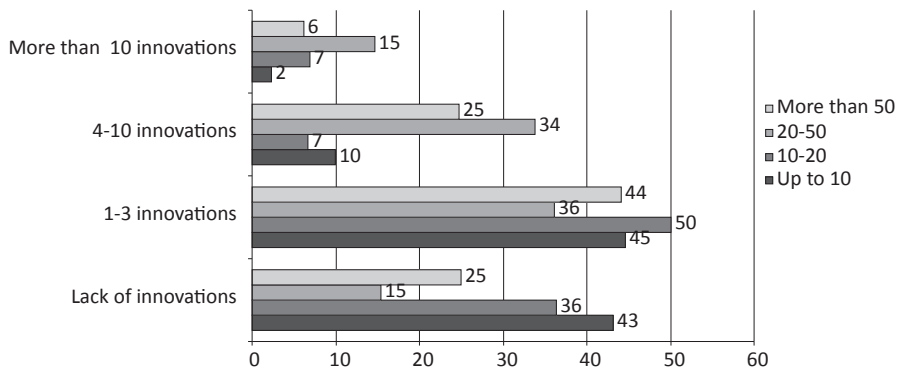


Source: Same as Fig. 7.1.

Innovative activity of franchise companies depending on the size of networks was essential. It allows to draw a conclusion that the majority of companies operating in small networks (up to 10 participants) did not implement any innovations in the analysed period (43%). (Fig. 7.8). The implementation of several innovations (1–3 innovations) was most frequently indicated among respondents belonging to

a network of 10 to 20 participants (50%). Further analysis showed that in medium networks with 20–50 participants enterprises indicated the implementation of 4–10 innovations (34%) and over 10 innovations (15%). One can draw conclusions from the results of the study that with the increase of network's size to which the company belongs, the number of implemented innovations did not increase in the period 2007–2012. Enterprises belonging to the networks with more than 50 participants, most often declared that they implemented 1–3 innovations (44%). What's more, they least likely declared the lack of implementation of innovations in the analysed period (25%). On the other hand, companies belonging to small networks to a greater extent declared that they implemented up to 3 innovations (45%).

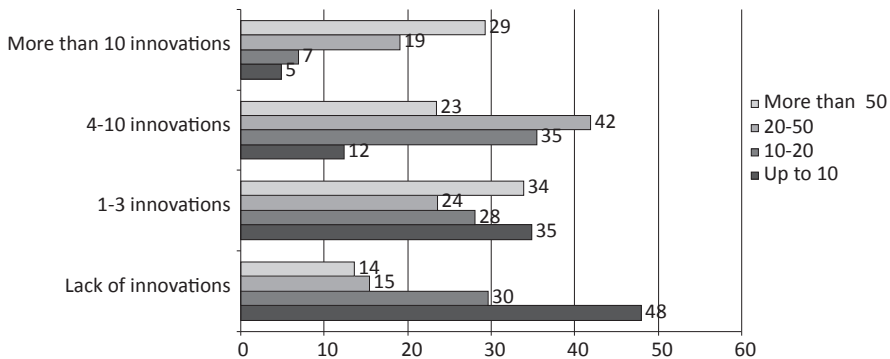
**Figure 7.8. Innovative activity of franchise companies depending on the network's size in %**



Source: Same as Fig. 7.1.

Observation of the relation between the size of a franchise network, and its innovative activity shows that almost 50% of respondents belonging to small networks declare the lack of implementation of any innovations in the network (Fig. 7.9).

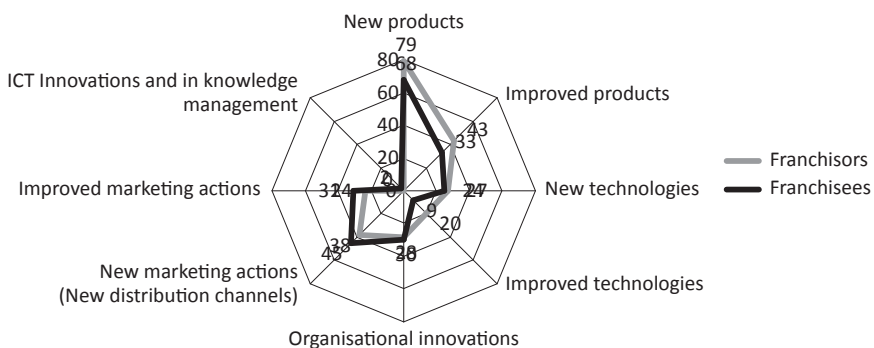
Based on these data, it can be concluded that larger networks with 20 participants perform better due to the lack of implementations (15% and 14% respectively). The representatives of the smallest and largest networks pointed to the introduction of up to 3 innovations (35% and 34%). Respondents from medium-sized networks (20–50 participants) implemented the average number (4–10) of innovations – 42%. An interesting fact is that the majority of responses in the category of implementation of more than 10 innovations were provided by representatives of large companies (29%). In conclusion, small networks less often introduce any innovations and if one managed to implement them, they are not numerous (up to 3). Generally, one can say that with the increase of size of the network, the frequency of declared implementations of innovations increases.

**Figure 7.9. Innovative activity of franchise networks depending on the network's size in %**

Source: Same as Fig. 7.1.

## 7.4. Types of innovations in franchise organisations

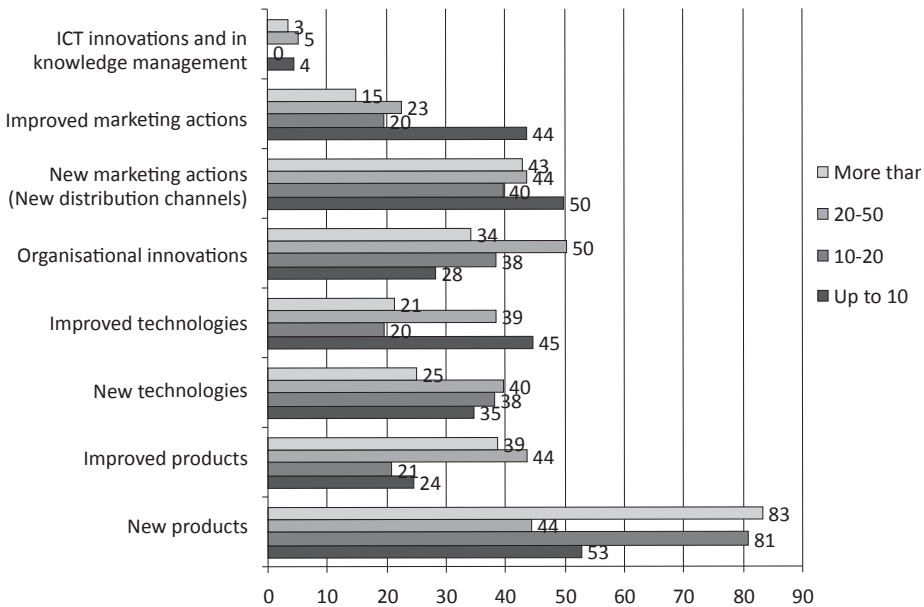
Another aspect of the research was to analyse the categories of innovations implemented in enterprises (Fig. 7.10). Innovations of new and improved products are the most important for franchisors (79% and 43%). On the other hand, new products (68%) and new marketing actions (45%) are crucial for franchisees. Following types of innovations: organisational innovations, new and improved marketing efforts (new distribution channels), improved marketing and innovations of ICT were indicated more often by franchisees than by franchisors. It should also be noted that improved technology, ICT and knowledge management innovations are least significant both for franchisors and franchisees.

**Figure 7.10. Types of innovations implemented in franchise companies in %**

Source: Same as Fig. 7.1.

In terms of types of innovations implemented in networks, differences due to the network's size are also visible. On the basis of the obtained data, one can state that new and improved products are the most numerous categories, which appears in a large number of responses in all types of networks (Fig. 7.11). Organisational innovations are very crucial in networks with the number of participants from 20–50 (50%). New and improved marketing (new distribution channels) are significant for small networks with up to 10 participants (50% and 44%). This results from the fact that small networks need these innovations for the development of building a competitive advantage in the market.

**Figure 7.11. The types of innovations implemented in franchise networks depending on the network's size in %**



Source: Same as Fig. 7.1.

Another area of research issues concerned the types of innovations and conclusions due to the type of business of franchise companies (Fig. 7.12). What's interesting, new and improved products are essential for entities operating in trade (85% and 41%). New distribution channels (50%) are very important, so as to increase the number of trade points. Product innovations are significant for the service sector. However organisational innovations (40%), new technologies (37%) and improved marketing actions (36%) are more meaningful to them than to trade companies. Franchise companies from service sector base their competitive position not only

on the elements associated with the product but also on other categories of innovations. This results from the nature of the service sector and franchise companies operating in the market. Their business concept is based on offering services and products, therefore complete business concept with a detailed know-how is required. In contrast, trade in the franchise, to a large extent is based on offering co-branded products in unitary points of sale.

**Figure 7.12. The types of implemented innovations in franchise companies depending on the business sector in %**

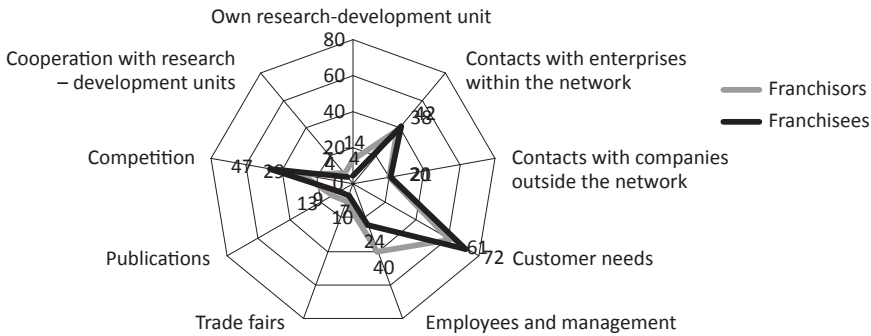


Source: Same as Fig. 7.1.

## 7.5. Sources of innovation in franchise organisations

Identification of the sources of innovation in franchise organisations was the next important stage of research. Both the franchisors and franchisees frequently stressed the needs of customers as a source of innovation – 61% and 72% of respondents (Fig. 7.13) – it is quite interesting and positive result. In further analysis one highlights another sources of innovation indicated by the donors and recipients – contacts with enterprises within the network – 38% and 42% of the responses. Employees and management of company are the second and the most important factor declared by franchisors (40%). This is crucial due to the fact that the franchisor is the organiser and coordinator of the network, so its employees are involved in the creation and implementation of innovations in the company and in the entire franchise system. In contrast, the franchisees more often pointed to the competition as a source of innovation in the company (47%).

**Figure 7.13. Sources of innovation in a franchise company in %**

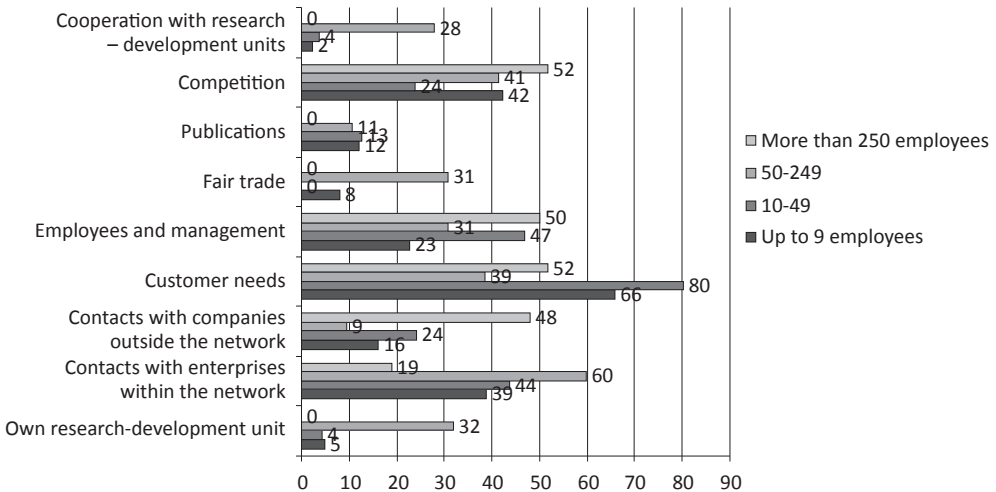


Source: Same as Fig. 7.1.

Own research and development unit was indicated only by 14% of franchisors and 4% of franchisees. Research showed that cooperation with research-development units is significant only for 7% of franchisors and 4% of franchisees. Thus, knowledge and experience of specialised entities is rarely used in the franchise. On the basis of obtained results one can conclude that there is also scope for greater use of contacts with enterprises within the network in order to create innovation in the franchise.

One should also mention the relations occurring between the sources of innovation in franchise companies, and the number of employees in the company (Fig. 7.14).

**Figure 7.14. Sources of innovation in franchise companies depending on the number of employees in %**



Source: Same as Fig. 7.1.

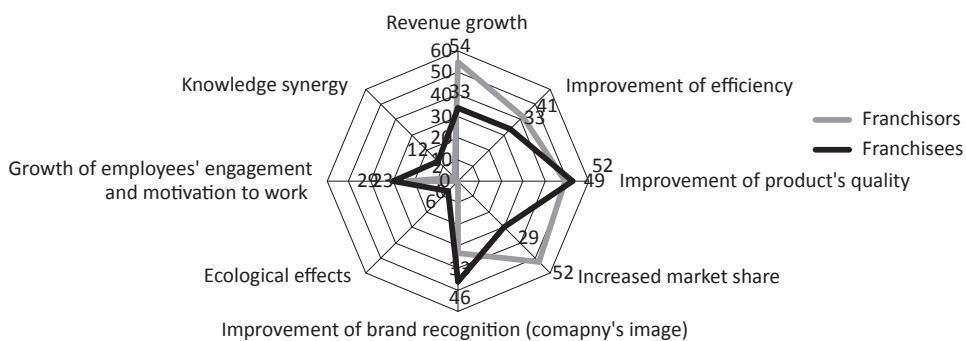


Sources of innovation defined as: customer needs (respectively 66% and 52%) and competition (respectively 42% and 52%) are extremely important for micro and large companies. Customer needs are significant for small businesses (80%). However, business contacts within the network are the most frequently stressed source of innovation (60%) by medium-sized companies. It is interesting that own R&D unit and cooperation with R&D units are most often reported by respondents from medium-sized enterprises (respectively 32% and 28%). In contrast, contacts with companies from outside the network are substantial only for large companies (48% of responses). The study also showed that medium-sized enterprises more often indicated fair trades than the others (31%).

## 7.6. Benefits of implementing innovations in franchise companies

A further analysis of the research focuses on the benefits of implementing innovations in franchise organisations (Fig. 7.15). Increased revenues (54%), increased market share (52%), improved product quality (49%), as the results of implementing innovation are very important for franchisors.

**Figure 7.15. The benefits of implementing innovation in franchise organisations in %**



Source: Same as Fig. 7.1.

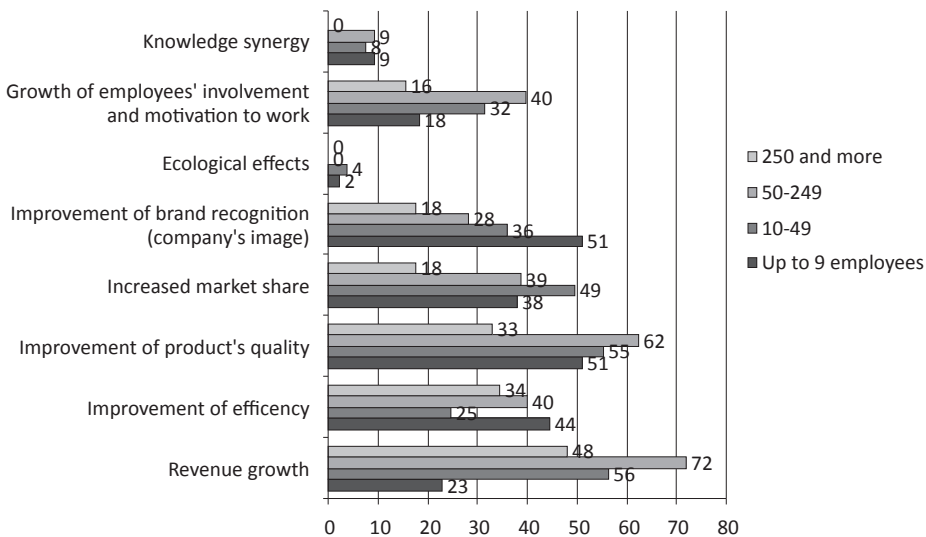
Knowledge synergy (2%) and ecological effects (0%) were the least frequently indicated by respondents. The results also highlighted that the implementation of innovations did not cause the growth of employees' engagement and their motivation (23% of franchisors).

Participants of the network, franchisees, most often pointed to the improvement of product quality (52%) and brand recognition (46%), as a result of the implementation of innovations. From the distribution of responses results that these factors are more

significant for franchisees than for franchisors. The growth of employees' involvement and motivation (29%) are meaningful to franchisees. Based on these data one can say that particularly an increase in revenues (33%) was indicated more frequently by franchisors than by franchisees. The study also showed that the franchisees appreciated importance of synergy of knowledge as the benefit of innovation more than the franchisors.

Some differences in the significance of these benefits, depending on the size of the enterprise are noticeable in the study (Fig. 7.16). For micro enterprises, the benefits of implementing innovations were focused on such improvements as: quality of products (51%) and brand recognition (51%). It is important to stress out that the group of these companies are turning their attention to the improvement of the image of the company. The revenue growth was most important for the other companies. The study also showed that the improvement of product's quality was significant for small enterprises (55%). From the distribution of responses resulted that medium-sized enterprises indicated the improvement of the product's quality (62%) and most often among other companies pointed to the growth of employees' involvement and their motivation (40%). However, large companies declared the improvement of efficiency (34%) and product's quality (33%) as benefits of implementing innovation. Worth noting is the fact that only 8% of the surveyed companies stressed the synergy of knowledge, and 3% – ecological effects. Thus, from the point of view of the franchise organisations, they are not essential benefits that occur after the implementation of innovations.

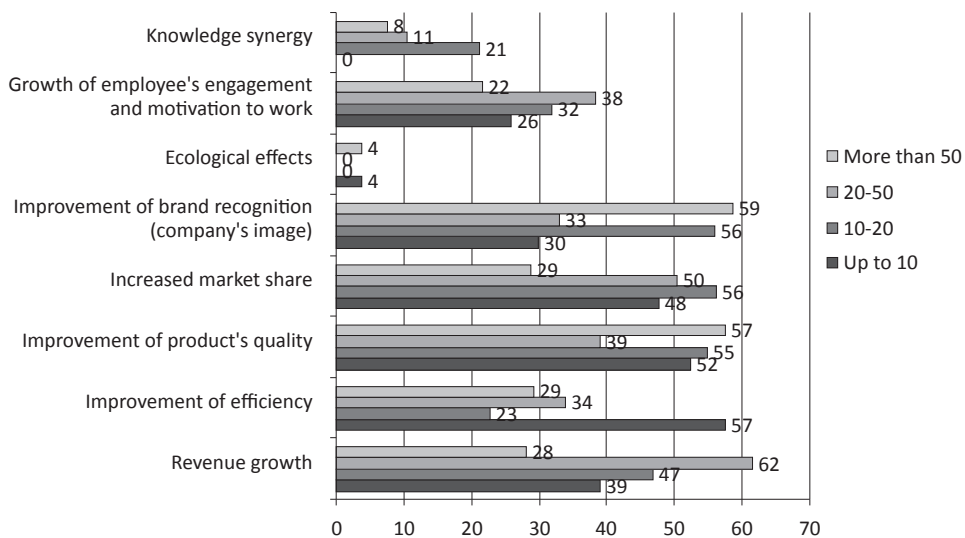
**Figure 7.16. The benefits of the implementation of innovation in franchise companies depending on the number of employees in %**



Source: Same as Fig. 7.1.

By analysing research one can identify the benefits of implementing innovation depending on the size of the network to which analysed company belongs (Fig. 7.17). The presented results show that the improvement of the efficiency (57%) was important for small networks, while increased market share (56%) and improvement of brand awareness (56%) was essential for networks of 10 to 20 participants. Medium-sized companies pointed to the growth in revenues (62%) and large ones indicated the improvement of brand recognition (59%) and product's quality (57%).

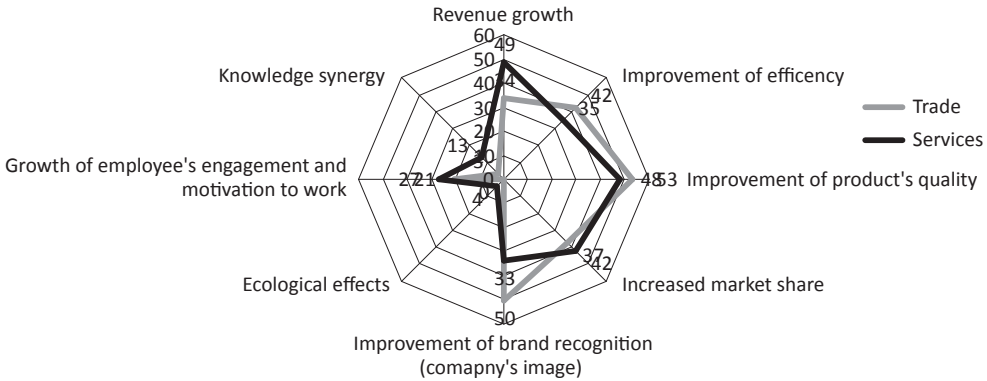
**Figure 7.17. Benefits of implementing innovation in franchise companies depending on the network's size in %**



Source: Same as Fig. 7.1.

It is worth mentioning the relations occurring between the benefits of the implementation of the innovation and the business sector (Fig. 7.18). Companies operating in trade sector frequently indicated the improvement of the quality of products (53%) and brand recognition (50%). In contrast, the importance of revenue growth (49%) and improvement of product's quality (48%) as benefits of implementing innovation in franchise companies were often emphasised by the service sector. It should also be noted that service companies more often than commercial ones pointed to the synergy of knowledge (13%) and ecological effects (4%).

**Figure 7.18. The benefits of implementing innovation in franchise companies depending on the business sector in %**



Source: Same as Fig. 7.1.

## 7.7. Factors encouraging and limiting innovative activity of franchise organisations

Another stage of the research study was aimed at determining the factors encouraging and limiting the innovative activity of enterprises and franchise networks. The factors were presented and respondents were asked to indicate the ones that were encouraging or limiting the implementation of innovation in organisations. Due to the broad spectrum of responses, the categories relating directly to the franchise are most important. However all categories were analysed, but in the presentation of results one focused on the most significant outcomes.

First, the analysis of overall responses regarding factors that encourage innovative activity in relation to franchise businesses and network in which they operate were presented below (Fig. 7.19). The results showed that marketing (30%), the exchange of information between the franchisor and the franchisee (29%), staff's qualifications and experience (26%), competition in the market (26%) and franchisor's actions (26%) were indicated by franchises. The above mentioned factors are a driving force of innovation in franchise organisations. Only 9% of respondents stressed the franchisee's actions, as a factor that stimulates innovation. Thus, they are not the stimulus of innovative activity in enterprises operating in franchises. This means that the respondents do not believe that the franchisees can contribute to creating innovation in franchises.

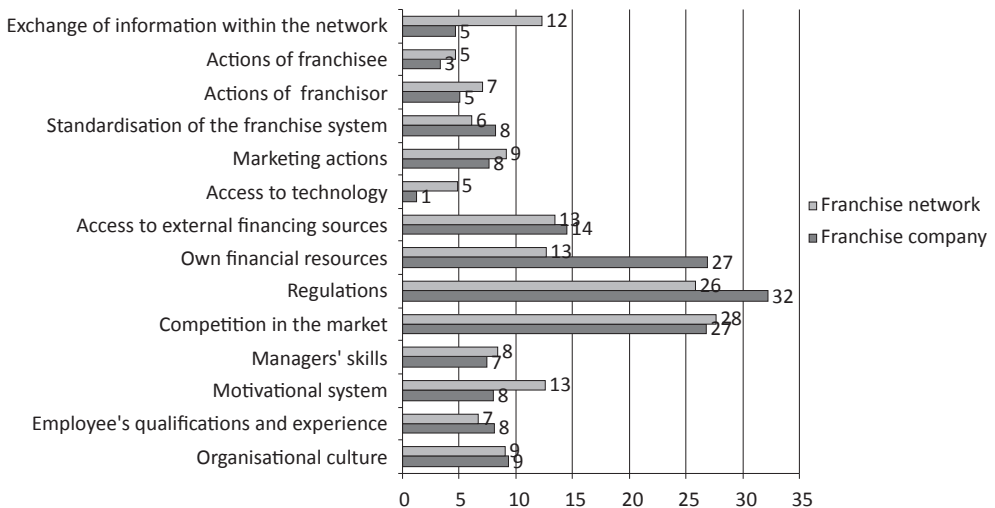
**Figure 7.19. Factors encouraging innovative activity of enterprises and franchise networks in %**



Source: Same as Fig. 7.1.

What's more, it was important to recognise the importance of individual factors and their impact on innovative activity in the franchise (Fig. 7.20). First, the respondents referring to the companies indicated primarily limiting factors such as: regulations (32%), competition in the market (27%) and their own financial resources (27%). On the other hand, they declared the same factors limiting the creation and implementation of innovations taking into account the network in which they operate. One can conclude that regulations, competition in the market and a lack of funds are barriers to innovation in the franchise.

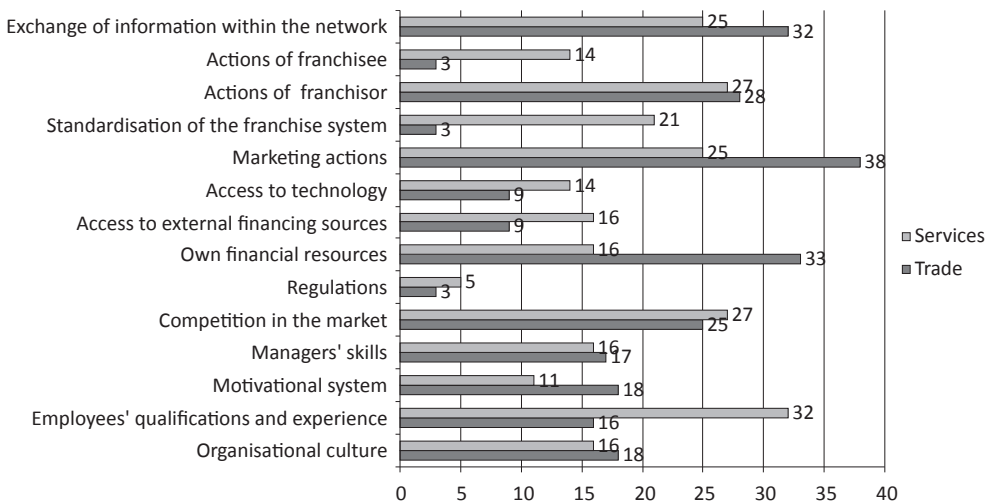
**Figure 7.20. Factors limiting innovative activity of enterprises and franchise networks in %**



Source: Same as Fig. 7.1.

According to the study of factors encouraging innovative activity of franchise companies, one focuses on the analysis due to the business sector (Fig. 7.21). The distribution of responses shows that the following factors: marketing (38%), own financial resources (33%) and the exchange of information within the network (32%) were the most important factors for the trade companies. The results highlighted that companies operating in the service sector pointed to the staff's qualifications and experience (32%), competition in the market (27%) and actions of the franchisor (27%) as factors stimulating the innovation process. When comparing responses of trade enterprises to service ones, one can notice that own capital and marketing are significant factors for the trade sector. In the service sector more attention is paid to qualified employees and the actions of the franchisor, although not to such an extent as to effectively activate in this way the innovative activity of franchise companies.

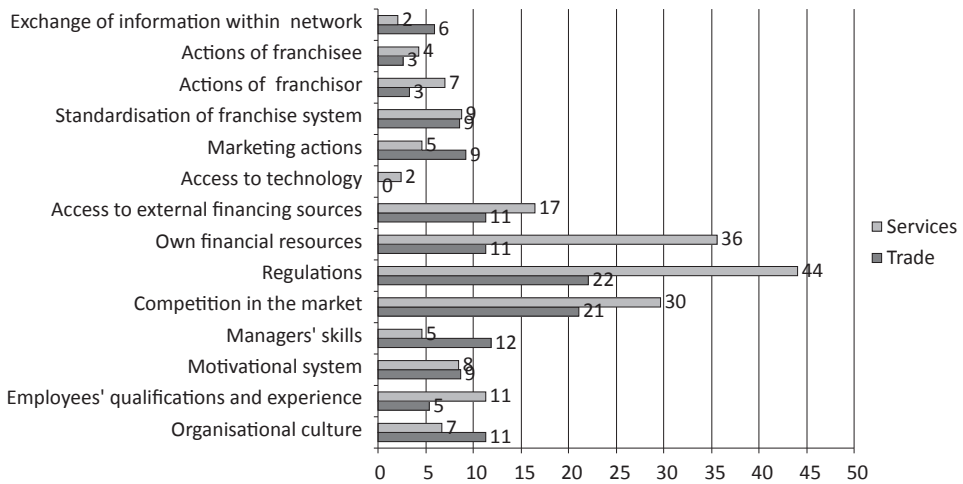
**Figure 7.21. Factors encouraging the innovative activity of franchise organisations depending on the type of business in %**



Source: Same as Fig. 7.1.

On the other hand, from the point of view of the factors limiting the innovative activity of the franchise companies depending on the sector in which they operate, one should distinguish that both trade and service companies pointed to regulations (respectively – 22% and 44%) and competition in the market (respectively – 21% and 30%) (Fig. 7.22). Only service companies greatly indicated own financial resources (36%), as a factor limiting innovation in the franchise. In contrast, trade companies to a greater extent pointed to the managers' skills (12%), as a category limiting the creation of innovation in franchise companies.

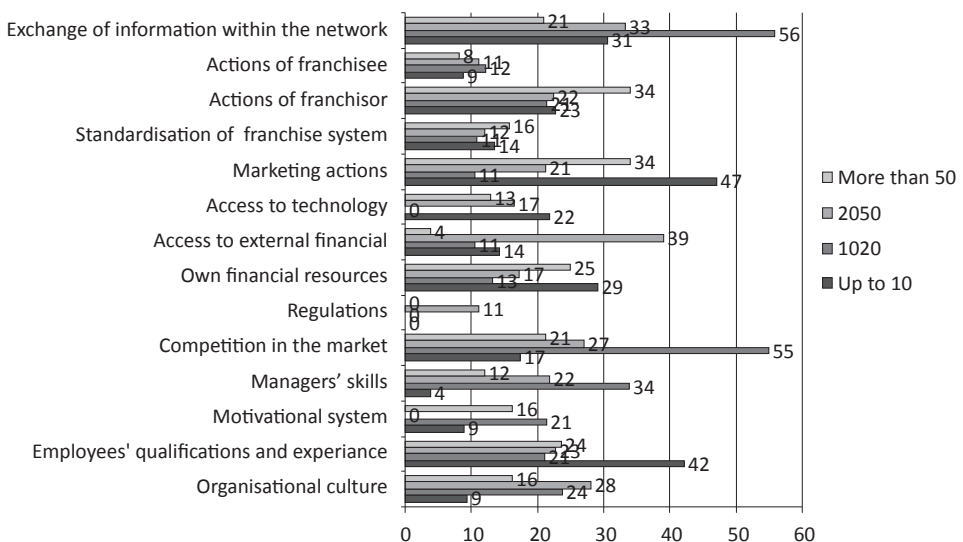
**Figure 7.22. Factors limiting the innovative activity of franchise organisations depending on the type of business in %**



Source: Same as Fig. 7.1.

It is worth pausing to consider that the analysis of the importance of individual factors encouraging innovative activity in terms of network's size, to which the company belongs, plays significant role in the study (Fig. 7.23). The obtained data show that for small networks, marketing actions (47%), the competences of employees (42%) and the exchange of knowledge and experience within the network (31%) are extremely important factors.

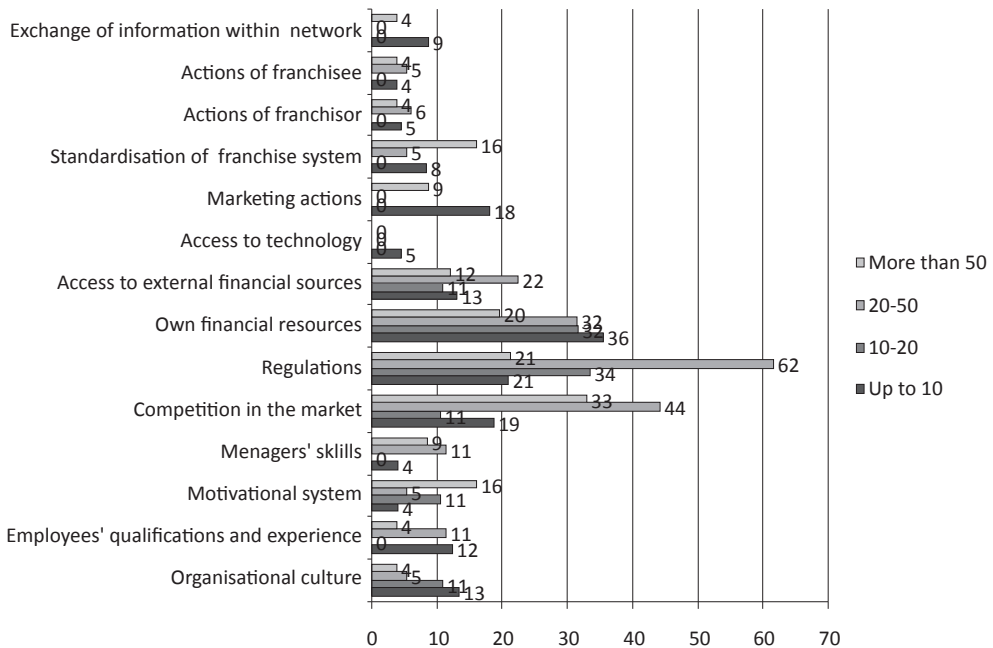
**Figure 7.23. Factors encouraging the innovative activity of franchise organisations depending on the network's size in %**



Source: Same as Fig. 7.1.

It is worth mentioning that these organisations are in the stage of growth, so creation of the greatest possible growth potential based on the limited financial and human resources is important for them. Employees were essential only for small networks. In contrast, the average size networks (from 10 to 20 participants) indicated competition in the market (55%) and the exchange of knowledge within the network (56%) as factors stimulating innovation. The findings suggest that representatives of medium-sized networks to the greatest extent pointed to the importance of the exchange of information between the franchisor and the franchisees. Sequentially, important is the fact that the larger networks (from 20 to 50 participants) perceive access to external sources of financing (39%) and knowledge (33%) as stimulating factors. The possibility of obtaining financial resources plays crucial role for them in comparison to members from other networks. Based on these data, one can conclude that respondents representing large networks (over 50 participants) indicated such factors as: marketing (34%) and franchisor's actions (34%).

**Figure 7.24. Factors limiting the innovative activity of franchise organisations depending on the network's size in %**



Source: Same as Fig. 7.1

In the following analysis, the factors limiting an innovative activity depending on the network's size were presented (Fig. 7.24). Interestingly, regulations



were a distinguishing negative factor for networks of all sizes. Furthermore, own financial resources, lack of capital allowing for the creation and implementation of innovations were significant for small, medium and large (up to 50 participants) networks. If we have a closer look, we discover that competition in the market was the next negative factor (44%) in networks of more than 20 participants and marketing actions (18%) were a limiting factor among small networks. On the other hand, from the point of view of large networks, it is worth considering that standardisation of the franchise system, as a limiting factor of innovation, was indicated by the large networks. This is due to the fact that large networks want to implement innovation, but it is difficult for them to introduce innovative solutions due to the standardisation of the franchise system and a unified concept of running the system.

## 7.8. Summary

The presented research shows that innovation plays an important role in franchise organisations. Innovations provide them with an important element contributing to improvement of products' quality and offer, but also they create new distribution channels and forms of communication. Most often, just a few innovations were implemented in franchises in the studied period 2007–2012. It is therefore an area that should be stimulated in franchise companies, in order to strengthen their competitive position in the market. The results of the study suggest that innovations concerning new products and new marketing actions, which include the development of new distribution channels, dominate. It is important from the point of view of the franchise, as it may be itself such an innovation for the enterprise (network's creator).

The study also showed that, in general innovative activity is significant in franchise networks. The following conclusions were drawn from the study: franchise companies implementing innovations are driven by motives that allow companies from this industry to improve the product' offer and quality. Furthermore, the participants of franchises are interested in new forms of sales by implementing innovation to their companies, which undoubtedly contributes to the improvement of their competitive position. It is also evidenced by the fact that when introducing innovations, franchise companies point to the benefits of their implementation, allowing the improvement of franchise system's brand recognition and image, increased market share and improvement of the quality of products offered in franchise networks.

The results allow us to conclude that in franchise networks and enterprises most commonly used innovations are connected with new products and creation of new marketing actions, as well as new distribution channels. Franchise organisations

introduce new products in the systems, which are the most commonly, used innovations in systems operating internationally. On the other hand, it has already been mentioned that the implementation of the franchise in the company, for the first time, is also a marketing innovation (in distribution channels).

Narrowing the scope, franchise companies stressed customer needs as sources of innovation and research assumptions pointed to contacts within the franchise network, as the genesis of the process of creating innovation. Contacts with network participants were the second largest source of innovation for respondents, taking into account franchise company and franchise network. It should be noted that in response to a question about the factors conducive to innovative activity, respondents frequently pointed to the exchange of information between the franchisor and the franchisees, as an incentive encouraging to stimulate and implement innovative activity. The results of the research suggest that, customer needs and exchange of information flowing from franchisor – network organiser to franchisee – network participant is the most important factor when implementing innovation in the franchise. In contrast, a wide exchange of knowledge between participants of networks operating in foreign markets, in countries with a high level of franchise relationship's development – has not been yet a stimulus for Polish companies to create and implement innovations in enterprises and franchises. From the point of view of innovation sources, franchise companies mainly perceive the origin of the implementation of innovative solutions in the needs of customers, while they do not properly appreciate the role of contacts with enterprises within the network, both horizontal and vertical. It is worth mentioning that knowledge synergy in franchise company could contribute to the creation of the competitive position of the entire franchise system and of all the participants of this relationship.

If we have a closer look, we can see that franchise network's creators, pointed to marketing and competencies of employees as factors conducive to innovation. In contrast, the franchisees indicated in particular actions of the franchisor and the exchange of information, as the main factors encouraging innovative activity of franchise enterprises. This is consistent with the essence of the franchise and the significant role of the organiser of the franchise system in creating the market position of the network. Human resources of franchisor are also a valuable source of innovation. However, knowledge is the most important and essential factor for franchisees. Know-how transferred by franchisor, is a main advantage of franchise's development model over conducting independent business activity by the entrepreneur.

On the basis of obtained results, it can be concluded that the respondents did not declare actions of franchisees, as a factor significantly influencing innovative activity, both in franchise company and the network in which it operates. This means that the respondents believe that franchisees generally do not contribute to creating the

innovation in the franchise. It is worth pausing to consider that franchisees are the driving force of implementing innovation strategy in countries with a franchise – established relationships in the economy. This results from specificity of the franchise, where franchisee receives a complete- standardised concept of doing business to implement it in his own franchise. He is an everyday executor of the concept of the franchisor, which allows him to see things that need an improvement, on the other hand, he has a permanent contact with customers and knows their preferences and needs. Furthermore, franchisees play crucial role in creating innovation in franchises abroad, they are the creators and originators of many modern and new solutions in the franchise. They have contact with the customer, and may also contribute by confronting their experience with knowledge of the franchise system, to create new solutions, products and technologies. Such solutions can be tested with the approval of the franchisor and implemented in the entire franchise system after being positively verified.

In the future franchise systems in Poland will be largely based on the model of open innovations (*open learning networks*), which will stimulate the exchange of information, knowledge and experiences between participants of the network, and thus contribute to building competitive advantage. Thus, franchisees will become a valuable source of information on possible innovative solutions, ready to implement the system, and their experiences can be discounted in the whole system.

From the observations of the relations in franchise organisations regarding innovative activities, one can draw general conclusions that the main objective of enterprises in the current economy is to create competitive advantages to achieve a better competitive position than other companies, franchise systems or networks. In order to achieve this, the best action one can take, is to connect at least two franchise systems in order to create a competitive advantage by achieving synergies based on individually developed concepts and business experiences. The cooperation of Mc Donald's fast food chains, Carrefour's discount system and BP petrol stations are Polish examples of such actions.

Narrowing the scope, the concept of innovation is essential in franchise relations. It is apparent that there are no sudden or fundamental innovations in franchise systems implying transformation. Such significant as the new commercial concept – the first supermarket in 1957 or discount stores in the early 80's of the twentieth century. Innovation in the context of the franchise can be described as a progressive innovation or regular modernisation consisting primarily of improvements to existing processes, daily operations, programs reducing costs, and to more efficient logistics processes<sup>1</sup>. It's hard to find revolutionary innovative solutions related to franchise

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<sup>1</sup> H.P. Liebmann, T. Foscht, T. Angerer, *Innovation in Retailing: Gradual or radical innovations of business*, "The European Retail Digest" 2003, no. 37, p. 55–60.

systems, due to the nature of the franchise relationship. Most frequently they rely on upgraded products or the introduction of a new product. Rarely one is considering introducing franchise in an enterprise and treating it as a new distribution channel. Analysing innovations in franchises, one should also point out the fact that innovations are rather gradual than radical. Often innovations in franchise relationships are implemented on the market, while originally coming from other countries or other 'non-franchise' networks or from other sectors of the economy.

In the future, the franchisors should look for new concepts, product offers, ways to provide services and to introduce changes in the stage of creating, organising, and testing of the franchise system, and not during the existence of the franchise relationship, because it is difficult for franchisees to adopt to changes in franchise systems during 'franchisor-franchisee' cooperation. This applies especially to radical changes and processes relating to the principles of functioning of the franchise system. It is easier for potential franchisees to enter into the new system and use the innovations than to implement radical changes in the franchise cooperation. Innovation management in franchise can be difficult when the network has already been functioning. It is important to underline that franchisee is an independent entity obliged to run a franchise unit in accordance with the guidelines of the franchisor, and these guidelines and rules are given at the beginning of their cooperation. As time passes it is harder to make changes within the franchise system. Then one should update the franchise's operating manual, and even then the changes may meet with resistance of franchisees, and thus with limited effect of innovation. On the one hand, franchisors must create innovations and implement them in the system, on the other hand, they have to convince franchisees to the validity of new ideas. Especially, if their implementation requires from employees the involvement of resources to upgrade the unit or make changes imposed by the franchisor. In this case having its own units by the franchisor, that can be treated like testing facilities of new innovations and of consumer's reactions to them is very important. If the innovations are successful they might be eventually implemented in the entire network.

To sum up, innovations in franchises are associated with implementing a new concept, product, or service and are intended to improve the relations of franchise system with its ultimate customers. In contrast, innovations related to the network organisation are intended for improving the franchisor – franchisee relationships. This approach has a dual character in relation to consumers and franchisees, because the franchisor has two types of customers: the final consumers and franchisees. The level of contractual regulations between a franchisor and a franchisee in terms of intellectual property, the benefits for the cooperating parties and other conditions of implementing innovations are also important.

It is apparent that the creation of complex solutions and delivery of innovative concepts to consumers through franchise companies will allow to create needs and preferences of customers, which in turn will lead to increase of competitive advantage of these systems.

## Bibliography

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## Chapter VIII. Innovativeness determinants of virtual organisations

### 8.1. Introduction

Requirements of the market and competition cause that new models of organisation built on the principle of alliances within the sector, market, competence and others, which always lead to a model of the network organisation, must appear. In such a model, virtual organisations embedded in a cross-organisational (network) collaboration operate and are recognised today as one of the most crucial forms of XXI century's organisational cooperation<sup>1</sup>. Companies often face the dilemma of how to work more efficiently. The model of virtual organisation is perceived as the future organisation rather than consistent, complete theory associated with this model. The idea already appeared in the nineties, but in practice it has arisen recently, so that one has started to put an interest in an empirical examination of the implications of this type of cooperation for enterprises<sup>2</sup>.

The purpose of this chapter is to determine the conditions of innovativeness of virtual organisations in Poland, to identify the sources and conditions conducive to the development and implementation of innovations in virtual enterprises and to try to diagnose the impact of innovation on the functioning and development of virtual organisations. In this study, the following questions regarding the innovativeness of virtual organisations were raised:

1. What are the main ways of implementing innovation in enterprises belonging to virtual organisation and in virtual organisations?
2. Do virtual organisations indicate a high innovative activity?
3. What are the main sources of innovation in virtual organisations?
4. What are the benefits of implementing innovation in virtual organisations?

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<sup>1</sup> M. Warner, M. Witzel, *Zarządzanie organizacją wirtualną*, Oficyna Ekonomiczna, Warsaw 2005.

<sup>2</sup> J. Niemczyk, K. Olejczyk, *Organizacja wirtualna*, [in:] *Zarządzanie przedsiębiorstwem w turbulentnym otoczeniu*, (ed.) R. Krupski, PWE, Warsaw 2005.

In the context of virtual organisations, 121 entities took part in the study. Respondents answered to the same questions in two ways: by referring to the company in which they work or are the owners of and regarding the virtual organisation, in which the company operates. In practice, this meant that respondents engaged in a virtual organisation answered questions relating to the company and to the virtual organisation that the company coordinates or is a participant in it.

## 8.2. Premises for implementing innovations in virtual organisations

Determining the reasons why the virtual organisations implement innovations, it should be noted that companies in virtual organisations introduce innovations in order to: improve the quality of products (49% of responses), open of new markets (46%) and create new communication channels and forms of selling (42%). As the study shows reduction of environmental harmfulness is the least important factor for enterprises in virtual organisations (7%). What is worth mentioning that virtual organisations introduce innovations in order to improve the quality of products (33% of all respondents), open of new markets (50%) and create new communication channels and forms of selling (40%). Reduction of environmental harmfulness is also not a priority for them (6%).

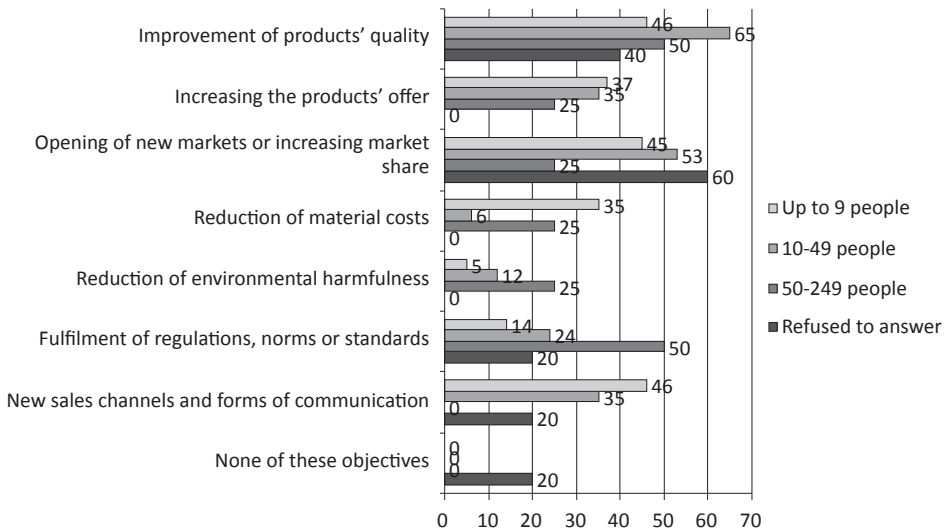
An interesting comparison is the analysis of reasons of the innovations' implementation taking into account the diversity of the size of enterprises (Fig. 8.1). What is worth mentioning, small and medium enterprises (10–49 and 50–249 employees) put the greatest emphasis on the improvement of products' quality. This is also important from the viewpoint of 65% and 50% of the respondents and entities from micro enterprises (46%), for whom the participation in the network is associated with hope for significant benefits.

The opening of new markets (53%) and the creation of new communication channels and forms of sale (35%) were significant factors for small enterprises. Indeed, the reduction of environmental harmfulness was less indicated by all groups of enterprises, as well as the reduction of material costs, which was particularly low in small enterprises, for which it is not an important factor for the implementation of innovation, as study shows. It is worth mentioning that fulfilling the regulations, norms and standards is one of the motivator to implement innovations indicated by 50% of larger companies.

Answers regarding virtual organisation itself are slightly different (Fig. 8.2). New sales channels and forms of communication turn to be the most important factors in the virtual organisation from the point of view of micro enterprises (45%), as well as opening of new markets or increasing market share (54%) and the products' offer (32%).

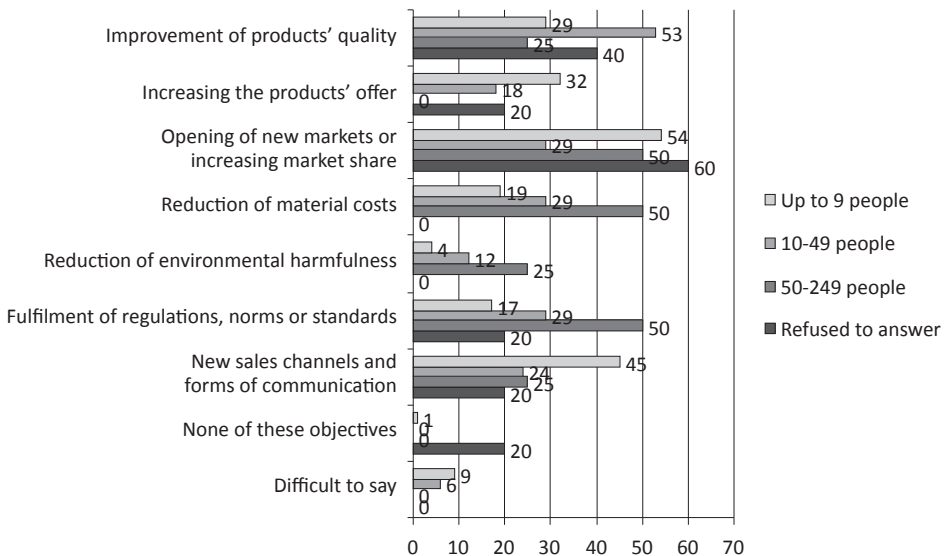


**Figure 8.1. Reasons of implementing innovations depending on the size of the company belonging to the virtual organisation in %**



Source: Own research 2013, Department of Enterprise Management, Institute of Management,  $N=121$ .

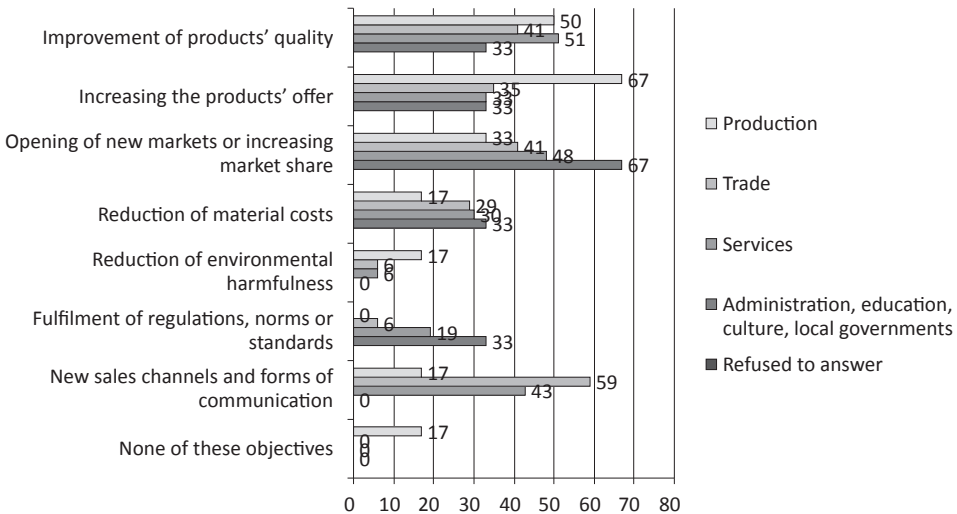
**Figure 8.2. Reasons of implementing innovations depending on the size of the virtual organisation in %**



Source: Same as 8.1.

Fulfilment of regulations, norms and standards by larger companies turns out to be still extremely crucial. Reasons of implementing innovations depend on the business sector of enterprise belonging to virtual organisations (Fig. 8.3).

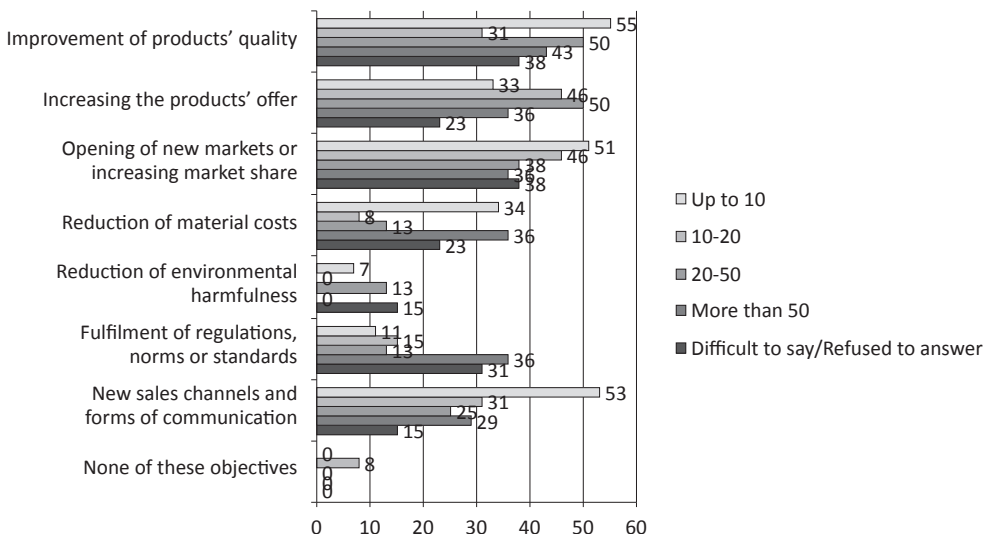
**Figure 8.3. Reasons of implementing innovations depending on the sector of enterprise belonging to the virtual organisation in %**



Source: Same as 8.1.

Manufacturing companies operating within virtual organisations are primarily focusing on the goal of increasing the products' offer (67%), improvement of products' quality is also significant for them (50%) and to a lesser extent (33%) opening new markets and increasing shares. Improvement of products' quality and opening of new markets and increasing shares (equally 41%) as well as increasing products' offer (35%) are equally important reasons for the trade sector. Improvement of products' quality (51%) and opening of new markets and increased market share (48%) are the main motivators in the service sector. Not only the size of the companies themselves, but also the size of the network are crucial from the point of view of the factors affecting the implementation of innovation (Fig. 8.4.).

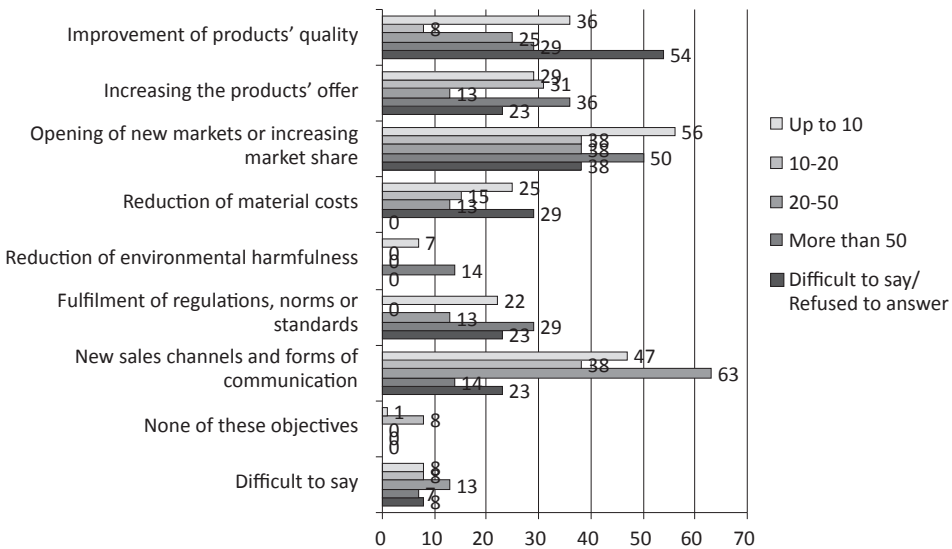
**Figure 8.4. Reasons of implementing innovations depending on the network's size – the enterprise's perspective in %**



Source: Same as 8.1.

For companies belonging to the virtual organisation, the size of this network is mainly meaningful to improve the products' quality in small networks (up to 10 companies – 55%) and large ones (20–50 companies – 50%). In the smallest organisations, companies pay attention to the possibility of opening new markets and increasing market share (51%), as well as the possibility of using new communication and sales channels (53%). The improvement of products' quality (43%), as well as the reduction of material costs (36%), as well as the fulfilment of regulations and standards (also 36%) are essential determinants in the largest networks, with over 50 participants. This is an interesting conclusion that allows one to note the relation between the sense of the need to fulfil the norms and standards by large companies, and the same factor when companies recognise that large virtual organisations must also comply with such standards.

When it comes to virtual organisation, the companies stated that the opening of new markets (50%) and increasing the products' offer (36%) are the most important reasons for large virtual organisations. For large networks, opening of new markets (38%) and an access to new sales channels and forms of communication (63%) are the key motives of the introduction of innovation.

**Figure 8.5. Reasons of implementing innovations depending on the network's size in %**

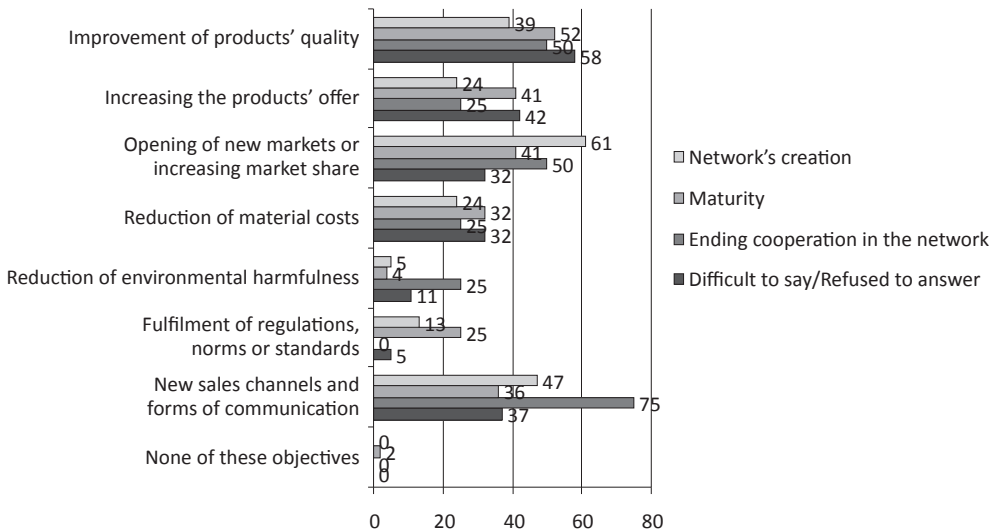
Source: Same as 8.1.

This structure is similarly shaped for small networks – where the opening of new markets (56%) and access to new sales channels and forms of communication (47%) are the main reasons of innovativeness. Reasons, for which organisations and enterprises introduce innovations, depend also on the stage of network's development. The study showed (Fig. 8.6.) that for companies belonging to virtual organisations, which are in the stage of network's creation (the initial stage) the main reasons are: opening of new markets and increasing market share (61%) and access to new sales channels and forms of communication (47%).

Mature virtual organisations cause that companies are focused on expanding their business (41%), but also on improving the quality of offered products and services (52%). In the case of networks ending their activity, concentration of enterprises on new sales channels and forms of communication (75%) are statistically significant differences, which can be explained by the search for new opportunities of further conduction of business. Again reduction of environmental harmfulness is the least important factor in the entire cross-section of companies; what's more, networks ending their cooperation declare taking this factor into account (25%), which is a statistically significant difference compared to other results.

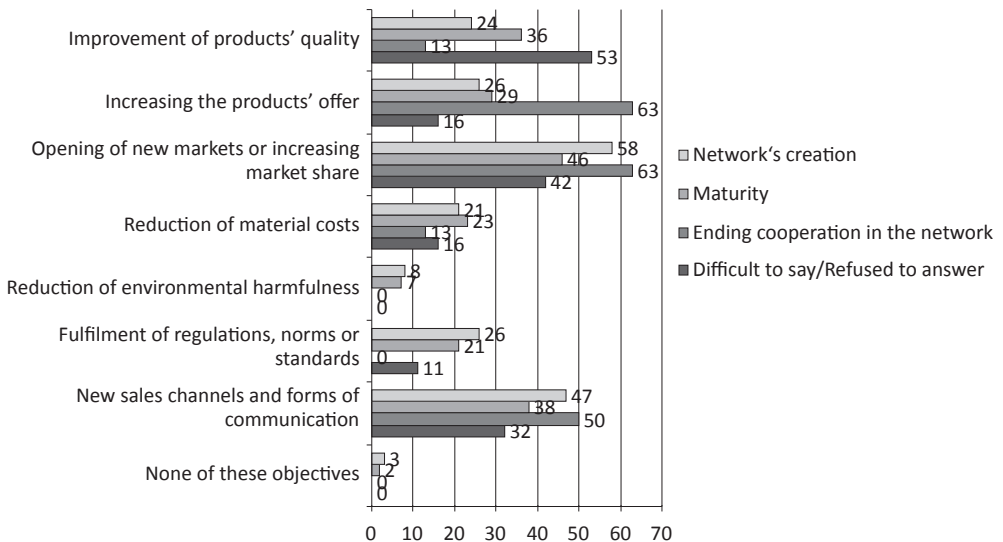
As Figure 8.7 shows opening of new markets and increasing market share (58%) and access to new channels of communication and sales (47%) are key factors in the implementation of innovation for virtual organisation in the creation stage.

**Figure 8.6. Reasons of implementing innovations in enterprise belonging to the virtual organisations depending on the stage of network's development in %**



Source: Same as 8.1.

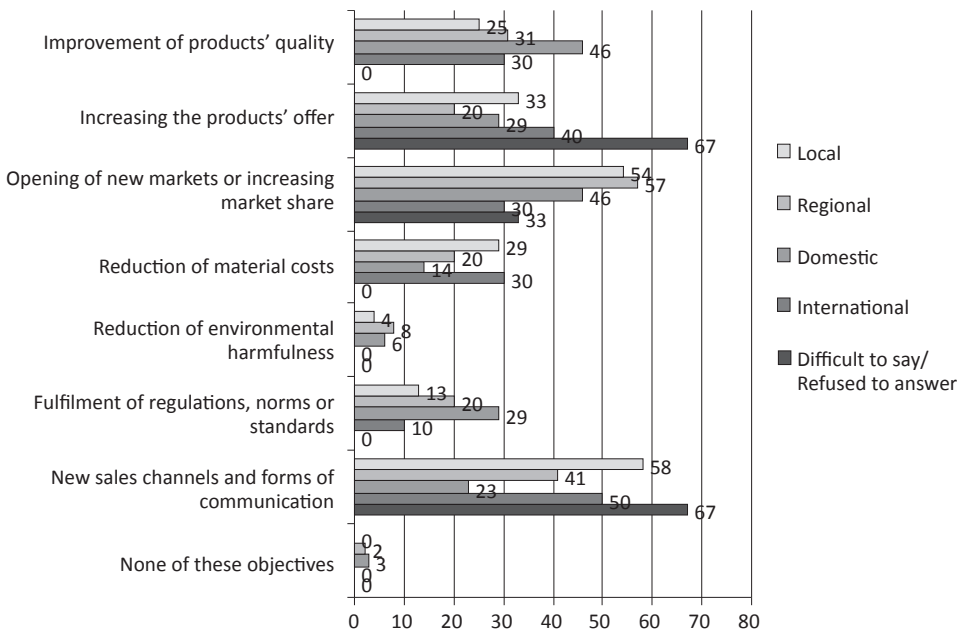
**Figure 8.7. Reasons of implementing innovations depending on the stage of network's development in %**



Source: Same as 8.1.

A similar situation is seen in mature networks which are motivated to increase innovativeness by opening of new markets and increasing market share (46%) and access to new channels of communication and sales (38%). An interesting phenomenon is that organisations in the stage of ending their cooperation are motivated to implement further innovations by increasing the products' offer, opening of new markets and increasing market shares (both factors are 63%) and they are statistically significant compared to other factors. Analysing proinnovative reasons in the context of network's range, businesses in local networks mostly (71% of responses) depend on opening new markets and increased market share. This is a statistically significant difference. Opening of new markets and increased market share (54%), as well as the creation of new communication and sales channels (58%) are key motivators. The similar situation concerns regional organisations.

**Figure 8.8. Reasons of implementing innovations depending on the network's range – virtual organisation's perspective in %**



Source: Same as 8.1.

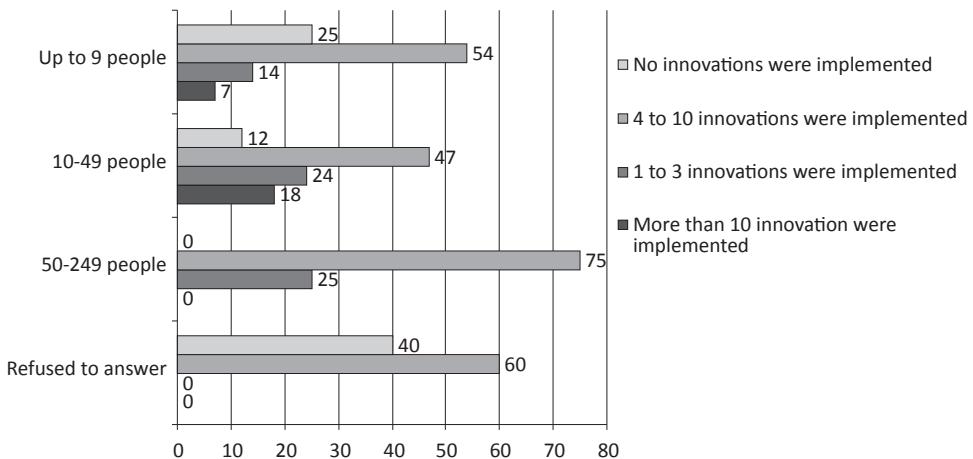
An interesting observation is that the fulfilment of rules and norms and standards (29%), as well as improvement of the products' quality (46%) are more important factors for domestic organisations than for other organisations. International virtual organisations focus on the new channels of communication and sales (50%),

increasing the products' offer (40%), improving the products' quality and opening of new markets in order to look for new business opportunities (30%).

### 8.3. Innovative activity of virtual organisations

The next part of the empirical study focuses on the innovative activity of enterprises belonging to virtual organisations, and these virtual organisations themselves. Figure 8.9 shows the innovative activity of enterprises belonging to the network in the context of the size of these companies.

**Figure 8.9. Innovative activity of enterprises belonging to virtual organisations depending on the size of the company in %**

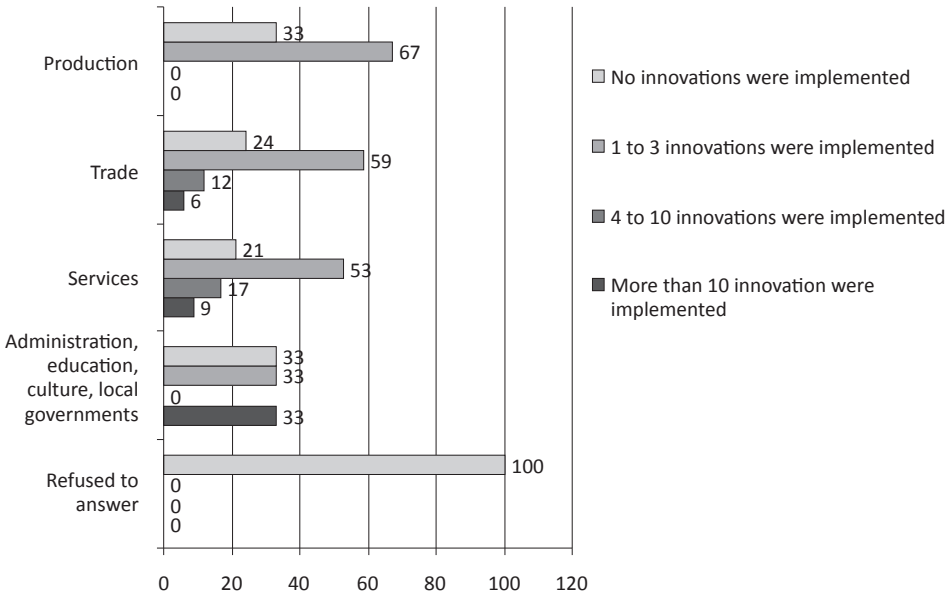


Source: Same as 8.1.

Researchers have shown that majority of innovations, more than 10, were introduced in small enterprises that belonged to virtual network organisation (18% of responses). The most common indications for all types of companies in terms of size are 1–3 innovations introduced during the analysed period. It was as much as 75% of responses for medium companies, 54% for micro enterprises and 47% of responses for small ones. One can say that innovations were introduced in companies belonging to virtual organisations at a standard level, but numerous implementations took place selectively.

Also the business sector influences innovative activity in virtual networks. Figure 8.10 shows these dependencies on the basis of the research results.

**Figure 8.10. Innovative activity of enterprises belonging to virtual organisations depending on the business sector in %**



Source: Same as 8.1.

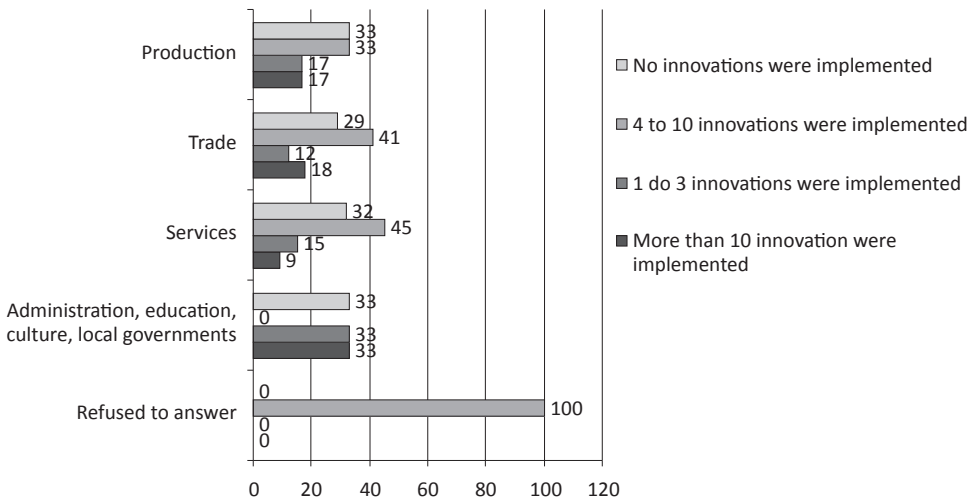
According to researches, enterprises belonging to virtual networks from following sectors: administration, education, culture, local governments implemented most innovations (33%), because they declared implementation of over 10 innovations in the considered period. Companies from all sectors (production, trade, services) introduced a minimum of 1 to 3 innovations in the analysed period. Companies are reluctant to declare the absence of any implementations.

Figure 8.11 presents the situation of network's innovative activity in the context of its business sector.

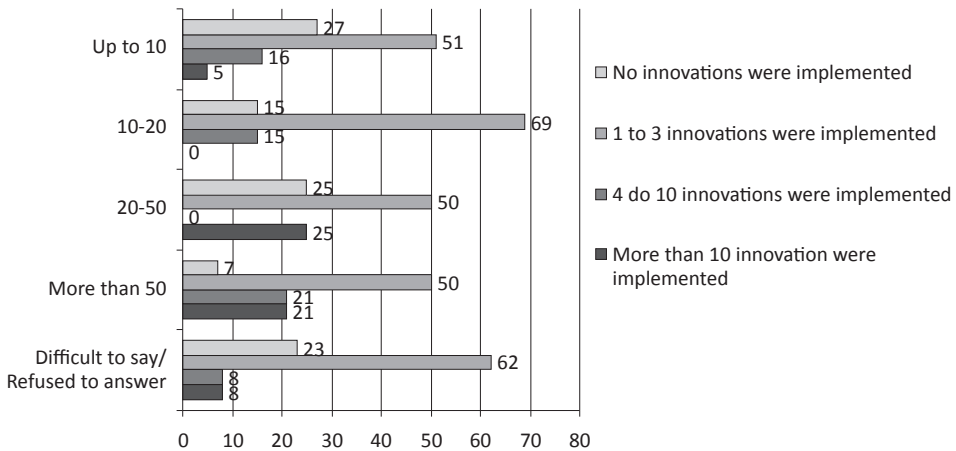
Majority of innovations were implemented in such sectors as: administration, education, culture and local government – 33% of responses for more than 10 innovations implemented during the analysed period. In both cases, however, the same indications were recorded for the other variants of implementations – 1–3 and 4–10. This may prove the fact that innovations in the analysed sector are implemented but the dynamics and intensity depend on the specific institution. Virtual organisations, as a group, most often indicated the implementation of 1 to 3 innovations, while service sector pointed to this answer most frequently (45%).

The size of the network also influences an innovative activity within virtual organisations (Fig. 8.12).



**Figure 8.11. Network's innovative activity depending on the business sector in %**

Source: Same as 8.1.

**Figure 8.12. Innovative activity of enterprises belonging to the virtual organisation depending on the network's size in %**

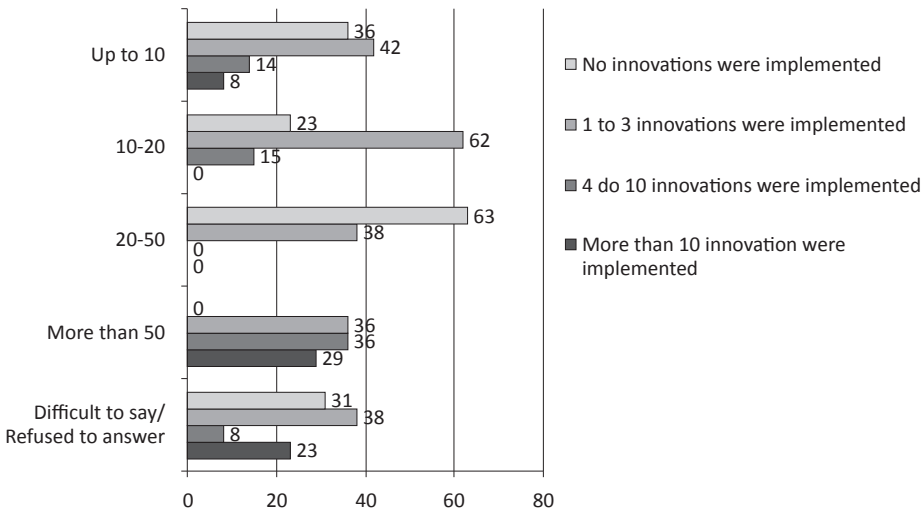
Source: Same as 8.1.

Most innovations (10 or more) were introduced by enterprises belonging to the large networks with 20 to 50 network members (25%) and by very large networks (over 50 participants) – 21% of responses. Enterprises from all types of networks due to the size confirmed that they implemented a minimum of 1 to 3 innovations in the considered period. One can claim that the size of the network enables and enhances the access of enterprises to innovations and creates a pro-innovative culture that

affects the mobilisation to the implementation of innovations in enterprises within virtual organisation.

The network of virtual organisations itself (Fig. 8.13) is also more pro-innovative, if it exceeds 50 participants. 29% of respondents stressed the implementation of more than 10 innovations. The indicator regarding implementation from 1 to 3 innovations was high for all sizes of the virtual organisations: 62% for the networks of 10 to 20 participants, 42% for small networks (10 participants), and 36% and 38% for large and very large networks.

**Figure 8.13. Network's innovative activity depending on the network's size in %**



Source: Same as 8.1.

Based on the conducted study one can conclude that innovativeness is present in virtual network organisations which implement innovations at some minimum level, while the size of the network promotes development and more numerous implementations of innovations within the entire network.

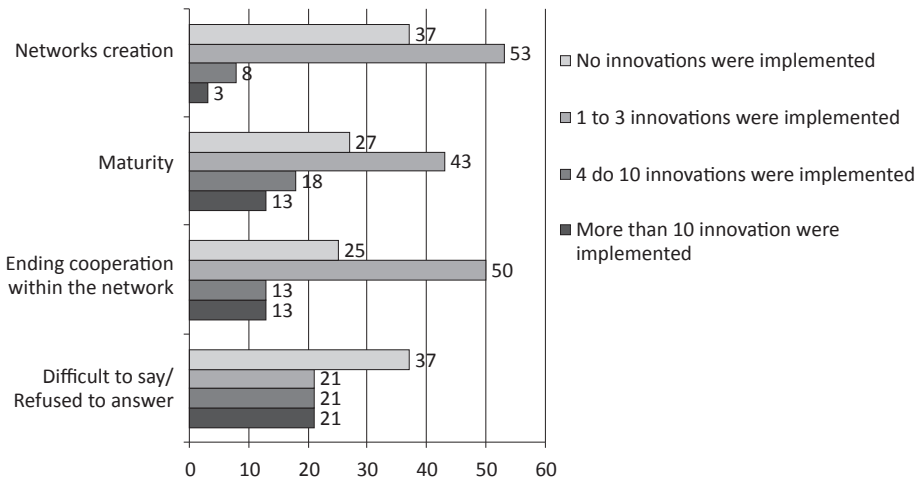
Innovative activity of the network is also dependent on its stage of development (Fig. 8.14).

Virtual network organisations which are in the maturity stage, and end cooperation within the network stated most implementations of innovations in the declared period (13%). They declared 10 or more implementations. Respondents indicated that their networks implemented a minimum of 1 to 3 innovations in this period. It can be concluded that innovative activity in virtual networks takes place during the period of network's activity. It is surprising that it is the most active only in the later stages of the organisation's functioning. One can conclude that the organisational activity

and the agreement about principles of cooperation that includes forms of financing of research-development and innovative activities take place during the first stage.

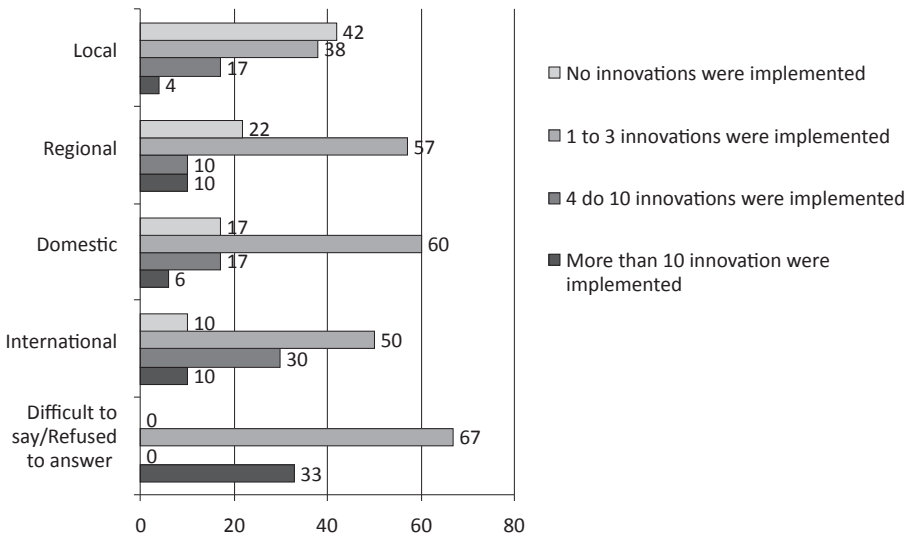
From the perspective of companies most innovations are implemented in the units belonging to the international and regional networks (Fig. 8.15).

**Figure 8.14. Network's innovative activity depending on the stage of network's development in %**



Source: Same as 8.1.

**Figure 8.15. Innovative activity of the network depending on the network's range – the perspective of enterprises in %**

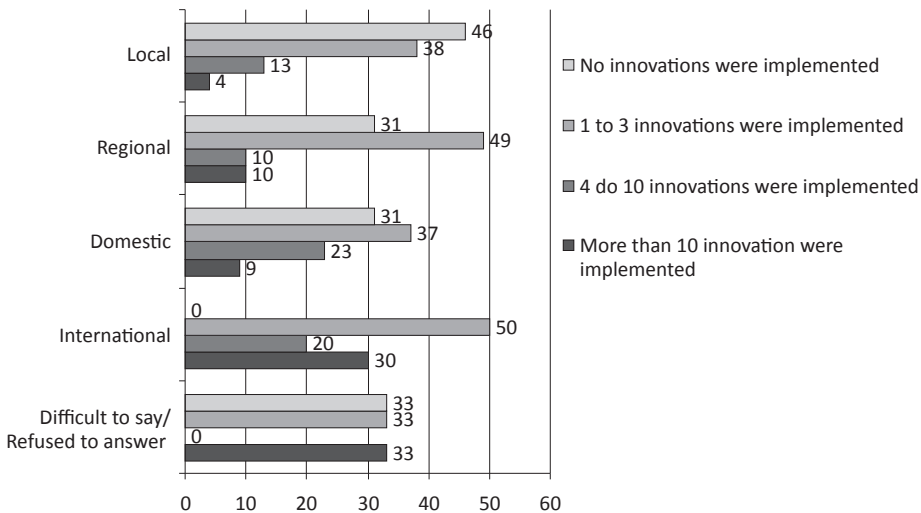


Source: Same as 8.1.

Numerous companies (38% belonging to local networks, 57% from regional networks, 60% from domestic networks (it may be related to the intensive implementation of the National Innovation Strategy and its regional functional programs), 50% from international ones) belonging to all types of virtual organisations depending to the range declared from 1 to 3 innovations. From the above conclusions results that network's range favours the implementation of innovation by companies belonging to the given virtual organisation.

When it comes to the implementations in virtual organisations as a whole (Fig. 8.16), one can confirm the trend that most innovations (10 or more) are introduced by international networks: 50% – 1 to 3 innovations, 30% – 10 or more innovations, 20% – 4 to 10 innovations. On the other hand, 46% of respondents from local networks declared the lack of implementations, which can be associated with the smallest dynamics, mobility, and innovation accessibility, a support for them and the fact that they are least flexible and resourceful entities belonging to this type of organisation.

**Figure 8.16. Innovative activity depending on the network's range in %**



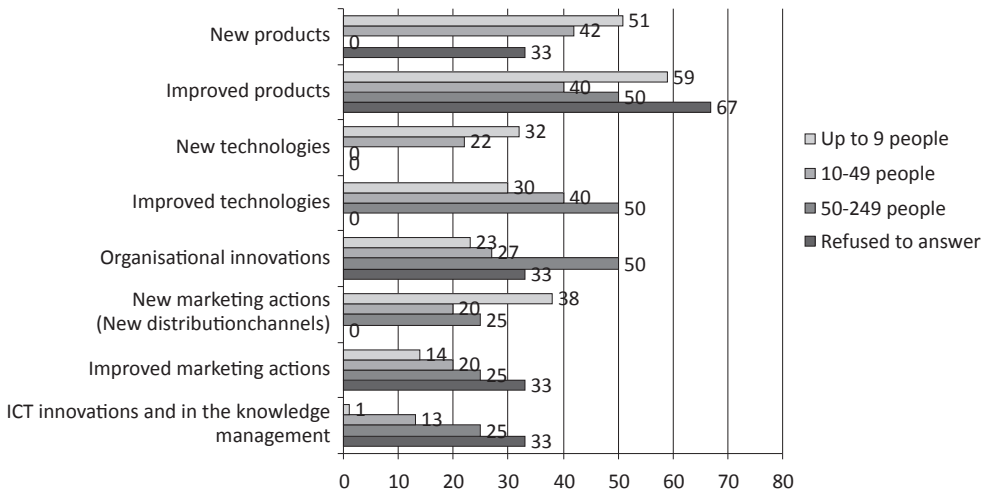
Source: Same as 8.1.

## 8.4. Types of innovations in virtual organisations

The types of innovations that have been implemented by companies operating within virtual organisations and in virtual organisations themselves are other very important issues of empirical studies.

As figure 8.17 shows the types of implemented innovations in enterprises belonging to virtual organisations depend on the size of the companies.

**Figure 8.17. Types of innovations in enterprises belonging to virtual organisations depending on the size of enterprise in %**



Source: Same as 8.1.

It is worth mentioning that improved products (59%), as well as new products (51%), and new marketing actions, understood as new distribution channels (38%) are the most commonly implemented types of innovations in micro enterprises (up to 9 people). Unfortunately, just a few of small enterprises under research indicated ICT innovations and in the knowledge management (1%). One can conclude that these innovations are not relevant to micro entities, though it is surprising, because these innovations should be important for the whole virtual organisation.

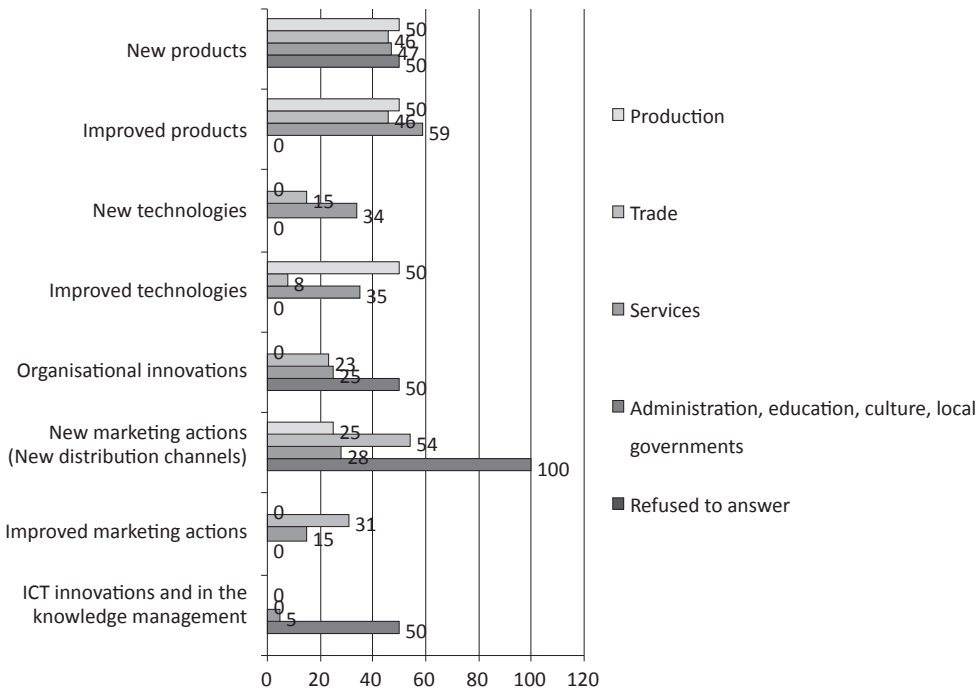
Small enterprises (from 10 to 49 people) in virtual organisations gain the opportunity most of all to implement new products (47%) and improved products (40%), as well as they improved already owned and existing technologies (40%). Also they put the smallest weight on new ICT technologies and on the area of knowledge management (13%).

Medium companies (from 50 to 249 people) pointed to the improvement of existing technologies and products, as well as organisational innovations (each got 50% of responses) as the main types of implemented innovations. Each of other examples of innovations got 25% of answers, while new products and new technologies were not mentioned – 0%. On this basis it can be concluded that larger companies, thanks to their participation in virtual organisations, have the opportunity of professionalisation

of their current activities and of implementation of specific innovations that improve a product, technologies and processes that have already existed in the enterprise. Medium companies particularly improve their marketing actions (25%).

The sector of enterprises' business belonging to virtual organisations also affects the types of implemented innovations just like other aspects of innovative activities (Fig. 8.18).

**Figure 8.18. Types of innovations in enterprises belonging to virtual organisations depending on the business sector in %**

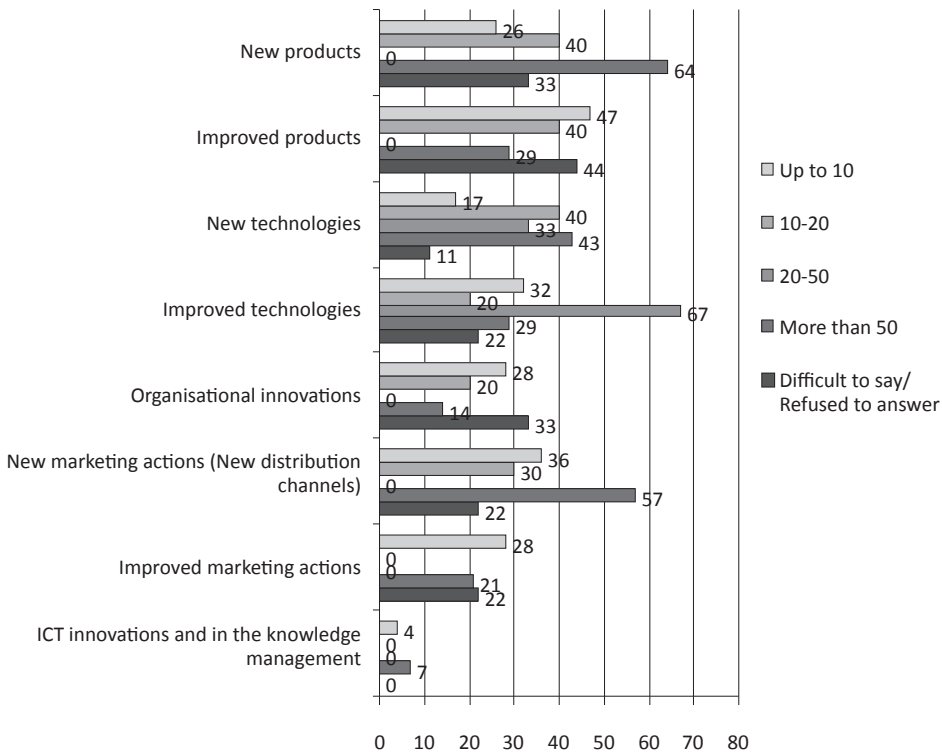


Source: Same as 8.1.

Vast majority of responses within all sectors has been recorded for innovations in the development of existing products: production – 50%, trade – 46%, services – 59%, and new products: production – 50%, trade – 46%, services – 47%. Also important innovations, for the commercial sector, are these in the field of new marketing actions and new distribution channels (54%); enterprises in the manufacturing sector through their participation in virtual organisations are trying to improve their technology (50%) and also to focus on innovations in marketing (25%). The service sector implements organisational innovations more often compared to other sectors (23%), apart from such sectors like: administration, culture, education and local governments, where many processes and organisational improvements are currently

introduced (50%). Marketing innovations (100%), as well as ICT and in knowledge management dominate in this sector. New technologies and generally improving marketing efforts are the least often indicated types of implemented innovations. It can be concluded that through participation in virtual organisations marketing and introduction of many new solutions are becoming more important for companies. Figure 8.19 shows the types of implemented innovations in virtual organisations depending on the size of the organisation.

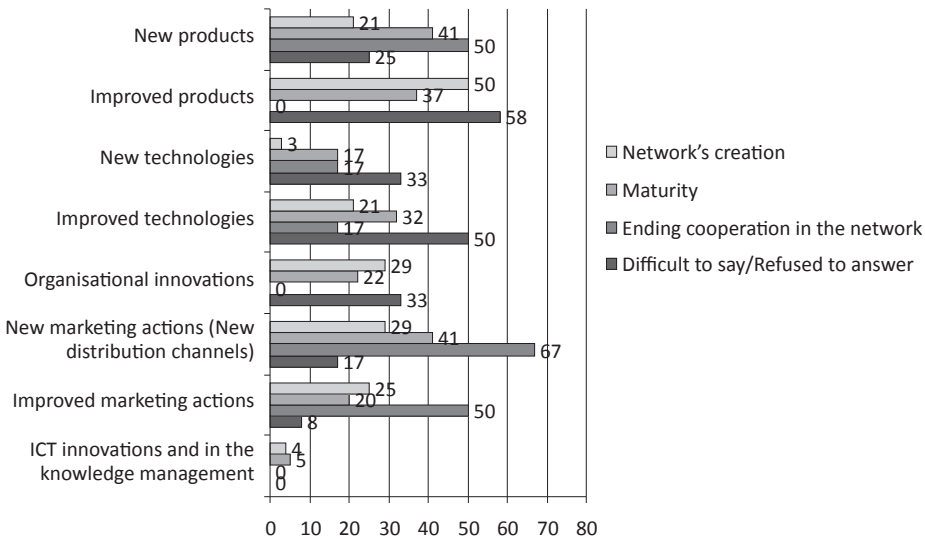
**Figure 8.19. Types of implemented innovations in virtual organisations depending on the network's size in %**



Source: Same as 8.1.

Summing up the obtained results, 67% of respondents from large virtual organisations stressed improved technologies, which suggests that they need them to cooperate and raise their own competitiveness. 44% of respondents from small companies indicated the improvement of products, new products – 26%, organisational innovations – 33%, improved marketing actions – 22%, new marketing actions – 22% and improved technologies – 22%. Type of innovations on which virtual organisations focus also depends on the stage of development of the organisation (Fig. 8.20).

**Figure 8.20. Types of innovations in the virtual organisation depending on the stage of network's development in %**



Source: Same as 8.1.

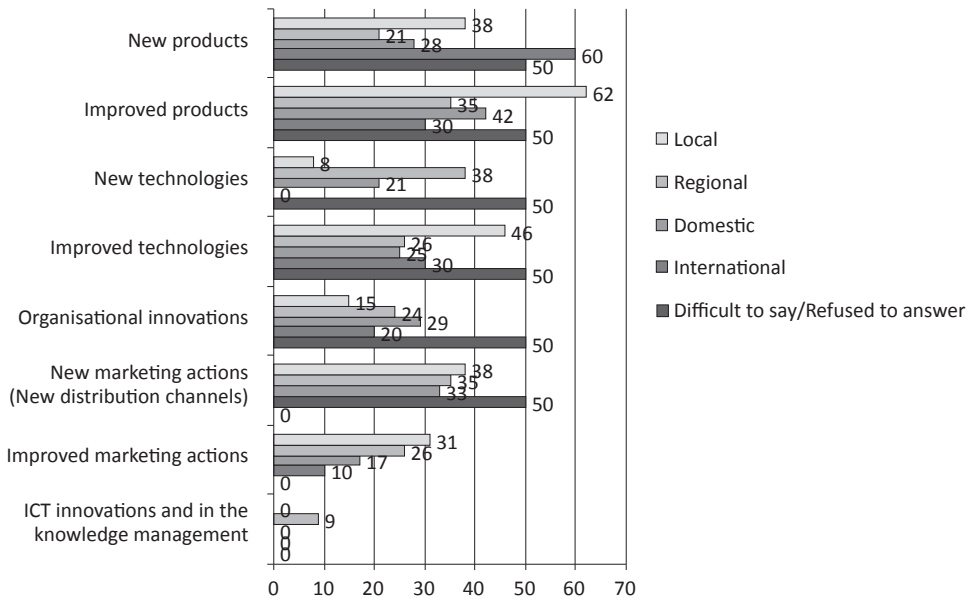
Young networks in the stage of creation of virtual organisations primarily improve their products (50%), implement new technologies (33%) and organisational innovations (29%). Mature networks introduce new products (41%) and new marketing actions (41%), in this way searching for new distribution channels. In contrast, virtual organisations in the stage of ending cooperation are primarily focused on implementing new marketing actions, searching for new, expanded distribution channels (67%), and improving already existing marketing actions (50%) and on innovations in the area of new products. Figure 8.21 presents the types of implemented innovations in the virtual organisation in the context of the network's range.

Virtual organisations with international scope of activities implement many innovations related to new marketing actions and new distribution channels (50%) and introduce most new products (60%). One can conclude that their aim is to secure competitiveness and visibility in the market by focusing on activities that increase the chances of obtaining business. Domestic organisations are primarily focused on products and marketing. They improve existing (42%) and implement new products (38%), as well as introduce new marketing actions (33%).

It would seem that large virtual organisations will be active and pro-innovative in new and ICT technologies and in knowledge management. Throughout the study, striking is the fact that the rate of ICT innovations and in knowledge management is low. Other answers concerning improved products and technologies as well as marketing actions turn out to be quite consistent also for regional and local networks.



**Figure 8.21. Types of implemented innovations in the virtual organisation depending on the network's range in %**



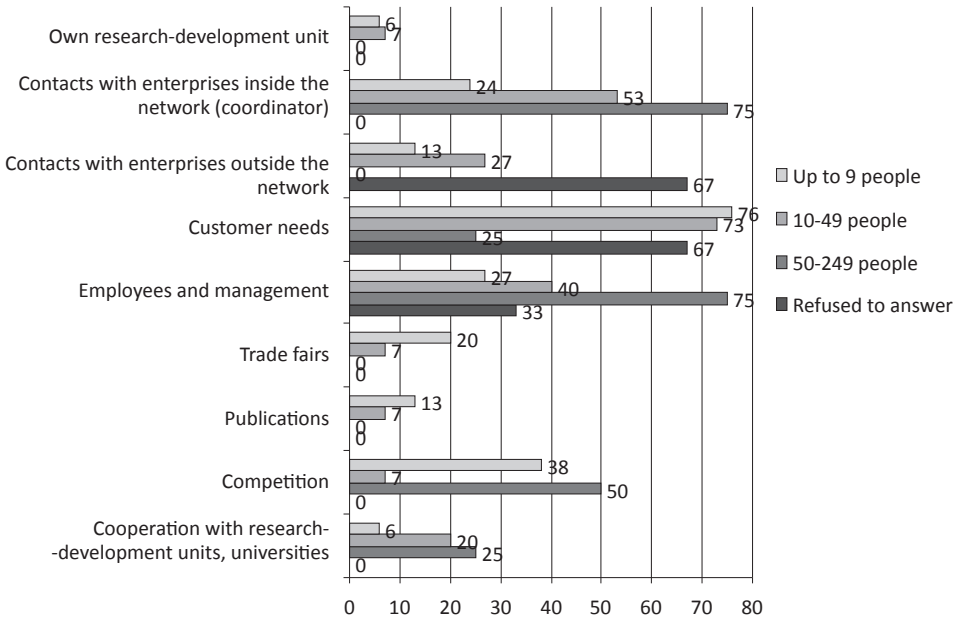
Source: Same as 8.1.

## 8.5. Sources of innovation in virtual organisations

The sources of innovation in enterprises belonging to virtual organisations, and the entire virtual organisations are the next subject of analysis. It is one of the most interesting aspects of the research because it clearly allows the identification of the impact of virtual organisation on the company, the size of the diffusion of innovation and the importance of enterprise's functioning within a network. At the beginning of the analysis one will present the sources of innovation in enterprises belonging to virtual organisations due to the size of these companies (Fig. 8.22).

The needs of customers, employees and management, the internal network's contacts and competition are the most frequently indicated sources of innovation by the companies. For medium companies, these sources appear to be clearly defined: 75% of responses for contacts with companies within the network and the employees and management. Besides, the competition received 50% of respondents' answers also as an important source of innovation in the surveyed enterprises. The needs of customers (73%), the internal network's contacts (53%), and inspiration and knowledge coming from employees and management (40%) are the main sources of innovation indicated by the small-sized enterprises.

**Figure 8.22. Sources of innovation in enterprises belonging to the virtual organisation depending on the size of enterprises in %**

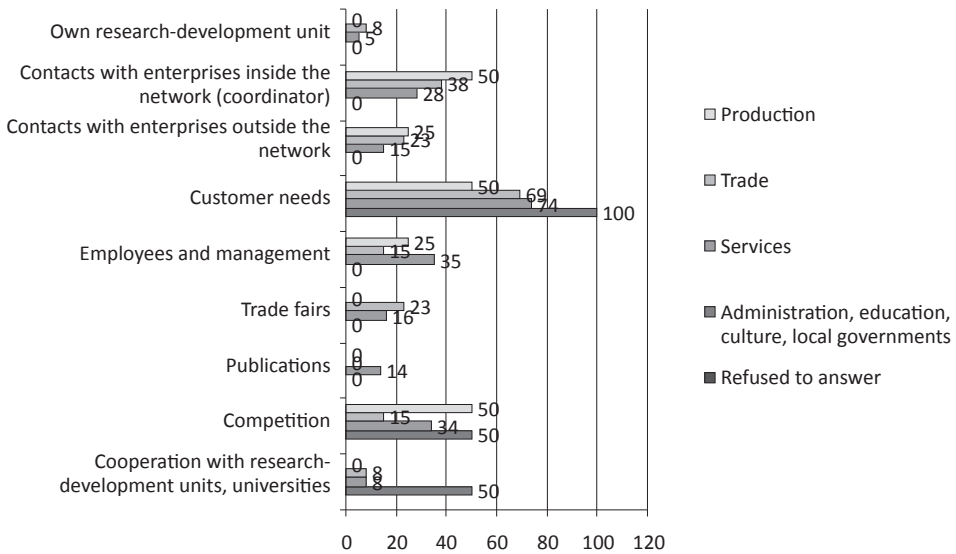


Source: Same as 8.1.

The needs of customers (76%), competition (38%) and employees and management (27%) were the main sources of innovation for micro enterprises. 24% of respondents indicated the contacts inside the network. Summing this up, one can conclude that contacts inside the network are very crucial for enterprises which are looking for innovations (or inspirations, diffusion), but market and enterprise's customers are the main sources. Figure 8.23 shows sources of innovation in enterprises belonging to virtual organisations depending on the sector of enterprise's business.

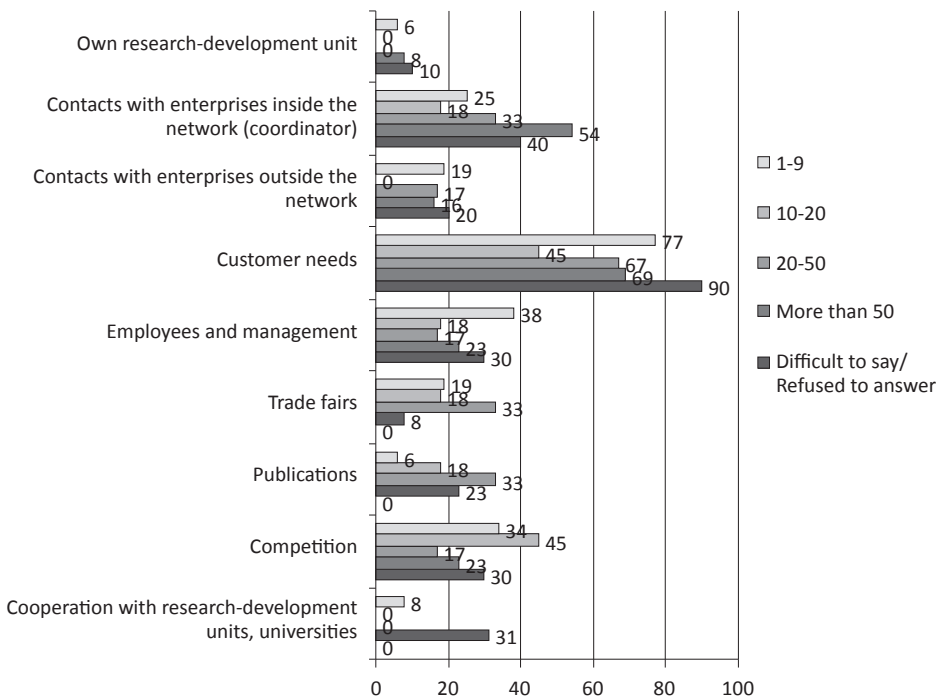
The most common indications related to the sources concerning the needs of clients and contacts within the network. Most responses regarding the needs of customers as a key source of innovation were recorded in sectors like: education, culture and local governments (100%). 74% of respondents from service sector, as well as 69% from trade sector and 50% from manufacturing sector answered in the same way. The manufacturing sector derives innovation equally from the competition, and from inside network's contacts. Trade is based on inside network's contacts (38%), as well as on those outside the network (23%). The size of the network to which the firm belongs is connected with the sources which drive the innovation (Fig. 8.24).

**Figure 8.23. Sources of innovation in enterprises belonging to virtual organisations depending on the sector of enterprise's business in %**



Source: Same as 8.1.

**Figure 8.24. Sources of innovation in enterprises belonging to the virtual organisations depending on the network's size in %**

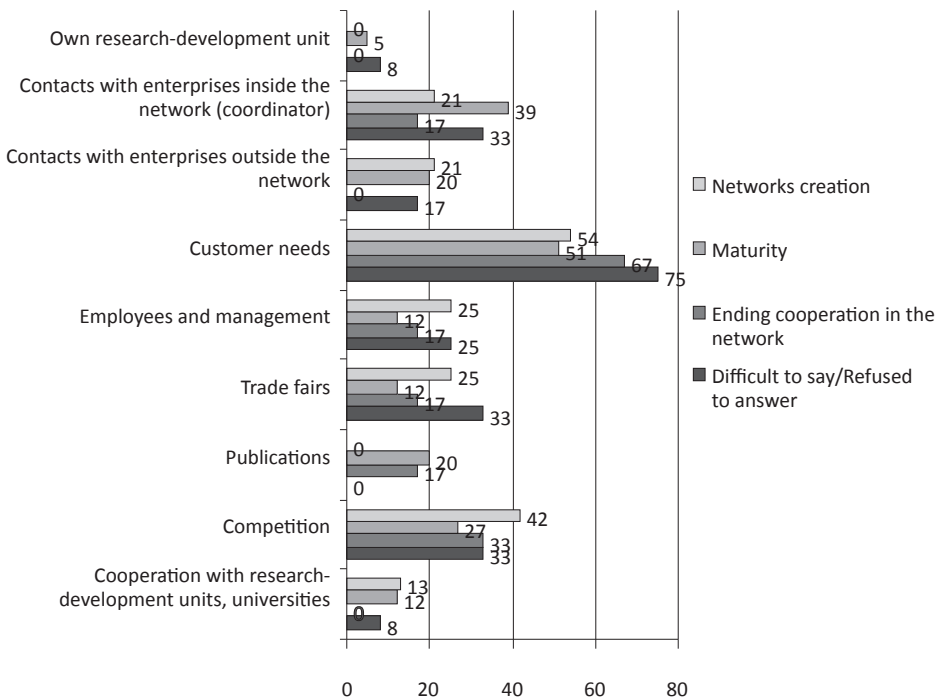


Source: Same as 8.1.

The needs of customers were the most commonly stated responses by companies belonging to virtual organisations of all sizes – 77% of responses from small virtual organisations, 45% from medium ones, 67% from large and 69% from very large ones. Other indications focused just on contacts with companies within the network and on the competition. The importance of contacts with enterprises within the network was noted for very large networks – 54%, large – 33%, small – 25% and medium ones – 18%. Competition was an important pro-innovative source for 34% of small networks, for 45% of medium ones, for 17% of large and for 23% of very large ones.

To sum up, therefore, one can say that customers and partners in the network are significant sources of innovation. The stage of development of virtual organisation also affects the sources of innovation (Fig. 8.25).

**Figure 8.25. Sources of innovation in virtual organisations depending on the stage of network's development in %**

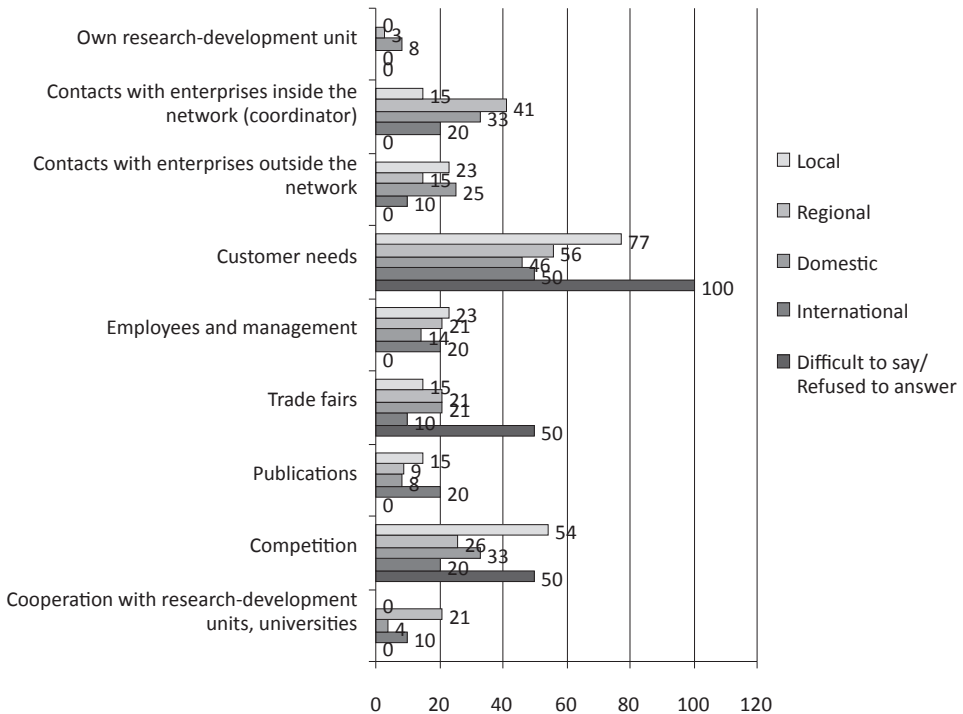


Source: Same as 8.1.

The answers, as in the whole of this part of the study, are focused on the needs of customers, contacts with the companies within the network and the competition. Customer needs are important in every stage of virtual organisations' development – 54%

of indices for the stage of network's creation, 51% – for the maturity stage, 67% – for the stage of ending the cooperation. Competition (42%), trade (25%) and contacts with companies inside and outside the network (21%) are significant in the stage of network's creation. Contacts with enterprises within the network (39%) and the competition (27%) are extremely significant for the development of innovativeness in mature virtual organisations. Competition is the second important source of innovation for organisations ending cooperation in mature virtual organisations (33%), which is an indicator of intensive observation of the external market and current trends. The range of virtual organisations influences the sources of innovation (Fig. 8.26).

**Figure 8.26. Sources of innovation in virtual organisations depending on the network's range in %**



Source: Same as 8.1.

Virtual organisations with international range mostly derive from the knowledge of the customer needs (50%), as well as from competition and from partnering companies within virtual organisations (20%). Organisations of national range benefit similarly from the knowledge of customers and market share (46%) and from businesses outside the network (25%) and from virtual organisations to which they

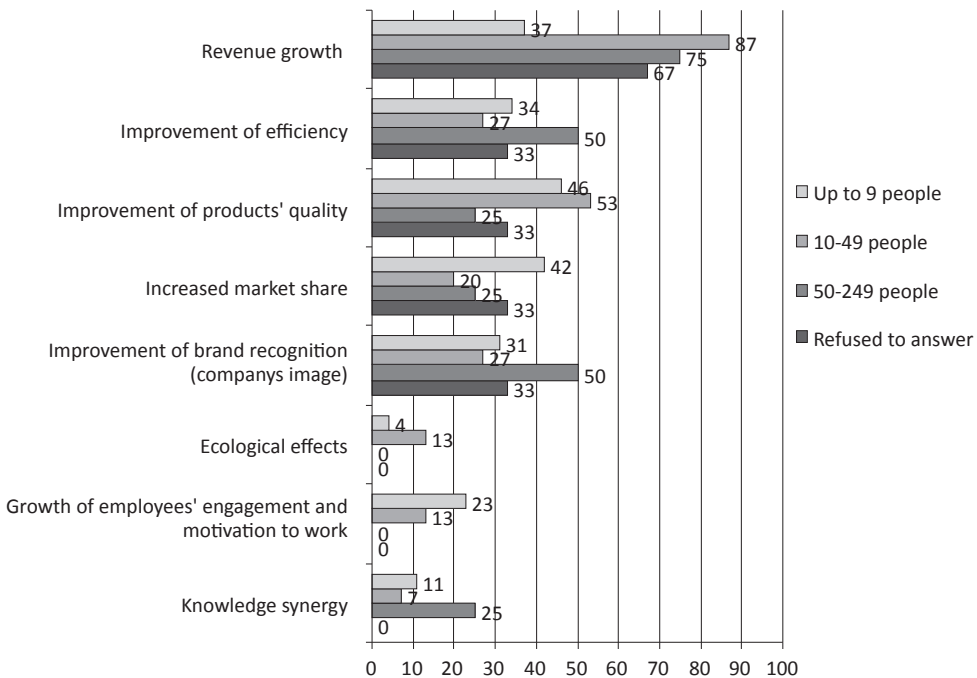
belong (20%). Customer needs (56%), contacts within the network (41%) and competition (26%) are the main sources for domestic networks. Local networks clearly put emphasis on understanding the customer needs (77%), competition (54%), but also on employees and management (23%).

In conclusion, it should be noted that the sources of innovation in virtual organisations and enterprises belonging to them are rather consistent and relate primarily to four factors: knowledge about customers and markets, corporate partners outside the network and within its virtual organisation, as well as employees and management.

## 8.6. Benefits of implementing innovations in virtual organisations

The benefits, which virtual enterprises and organisations derive from implemented innovations, were an important studied area. The first step in the analysis was to verify the benefits for enterprises due to the size of these companies (Fig. 8.27).

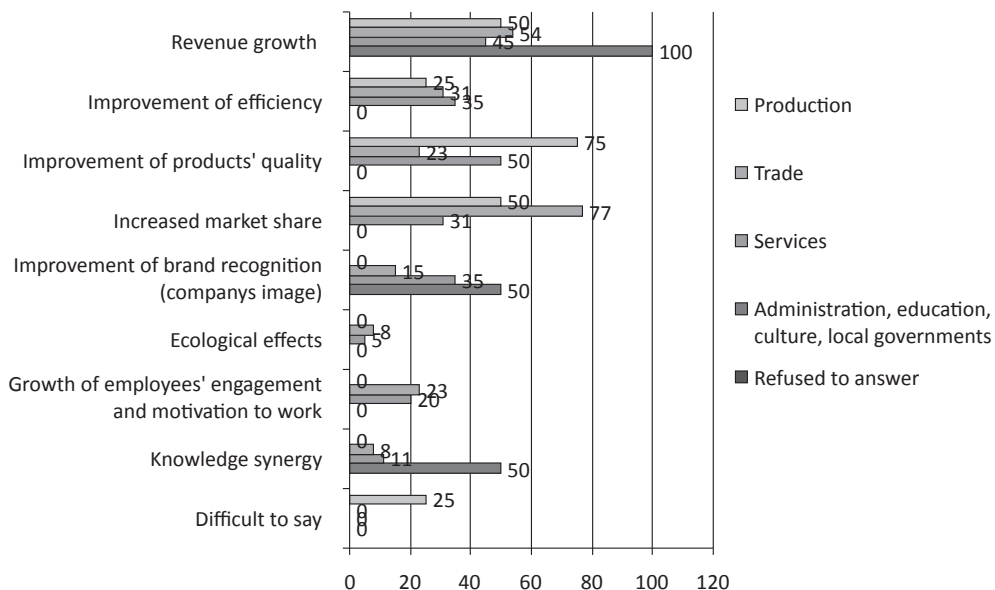
**Figure 8.27. The benefits of implementing innovations for enterprises belonging to the virtual organisation depending on the size of the enterprise in %**



Source: Same as 8.1.

Research have shown that the increase in revenue is the greatest benefit from the implementation of innovation for enterprises belonging to virtual organisations – 87% of respondents from small enterprises, 75% from medium and 37% from micro ones. Improvement of the products' quality (46%) and increased market share (42%) are also clear benefits for small enterprises. Small-sized enterprises further notice the improvement of products' quality (53%) and efficiency (27%). The least indicated are: ecological effects, increase of employees' engagement and motivation to work, and knowledge synergy. Figure 8.28 shows the benefits from implementing innovations for enterprises belonging to virtual organisations depending on the business sector.

**Figure 8.28. The benefits of implementing innovations for enterprises belonging to virtual organisations depending on the business sector in %**



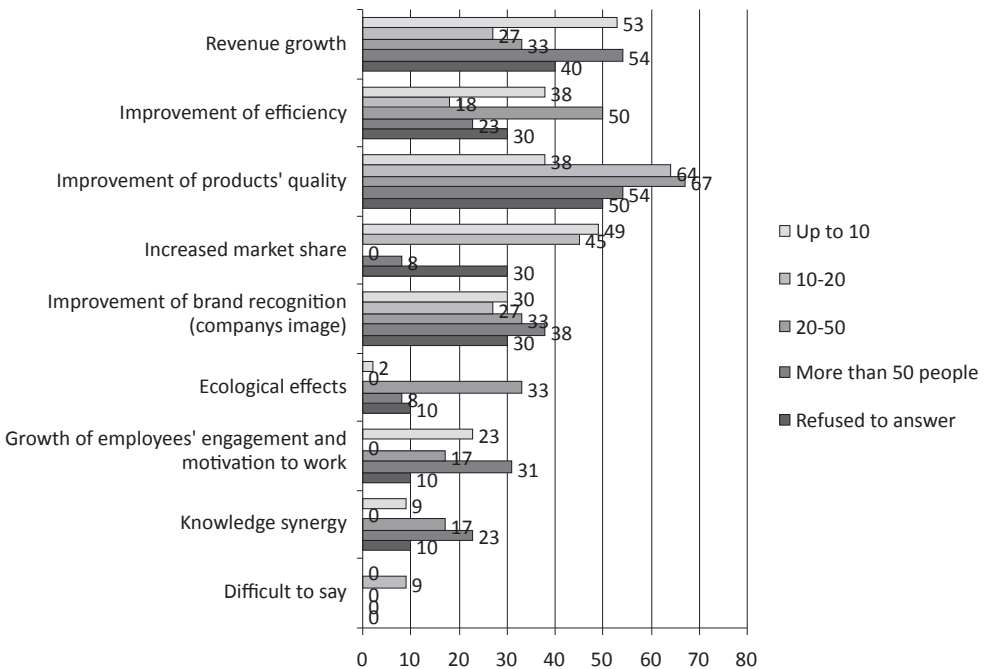
Source: Same as 8.1.

The increase in revenues (100%) and the knowledge synergy (50%) were clearly emphasised by respondents from government, education, culture and local government sector. They confirmed the improvement of brand's recognition affecting the image (50%). The improvement of the products' quality (50%), revenue growth (45%) and equally improvement of brand's recognition and efficiency (35%) were the most important benefits for the commercial sector. For trade companies the most important result of implementing innovation was the increased market share (77%) and revenue growth (54%), as well as improvement of efficiency. The improvement of the quality of products (75%), increased market share and increase in revenues (50%),

as well as improvement of productivity (25%) were the benefits from being a part of the virtual organisation for the manufacturing sector.

One can conclude that the benefits of revenue growth, increased market share and knowledge synergies are important, but not the most important and do not apply equally to all types of virtual organisations and sectors. The benefits of implementing innovations were also dependent on the size of the network to which the enterprise belongs (Fig. 8.29).

**Figure 8.29. The benefits of implementing innovations for enterprises belonging to virtual organisations depending on the network's size in %**



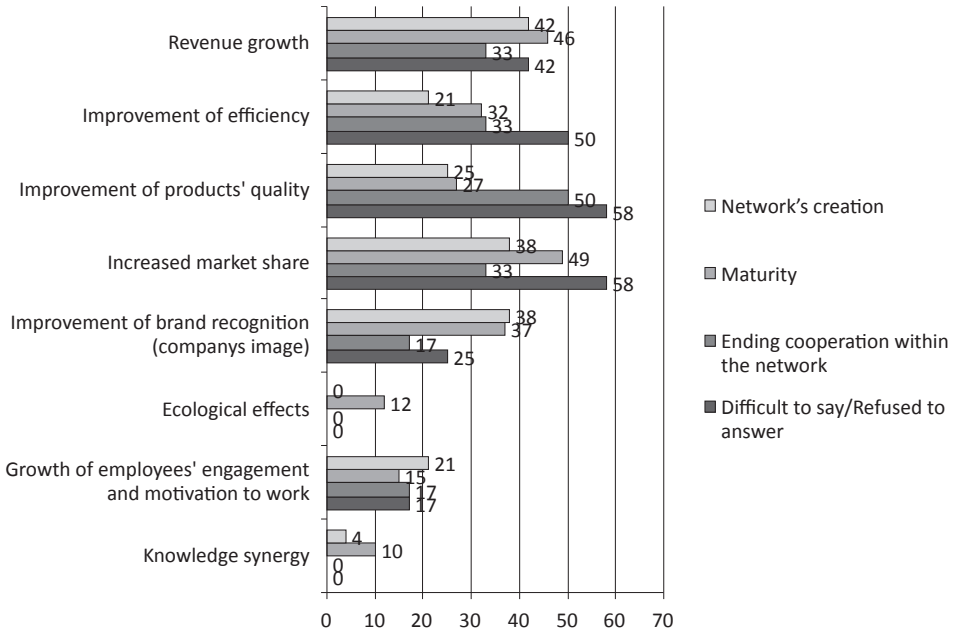
Source: Same as 8.1.

The increase in revenues (53%), increase in market share (49%) and improving products' quality (38%) were the most important benefits in small networks. Improvement of products' quality (64%), increased market share (45%) and equally the improvement of brand recognition and increase in revenues (27%) very extremely significant benefits for medium-sized organisations. The improvement of products' quality (67%), increase of awareness and importance of the brand's image (33%) and, surprisingly, environmental effects (33%) were essential for large organisations.



The improvement of the products' quality and growth of revenues (54%), as well as improvement of brand's awareness (38%) were key benefits for the largest virtual organisations. The next figure shows the benefits for virtual organisation from implementing innovations due to the stage of organisational development (Fig. 8.30).

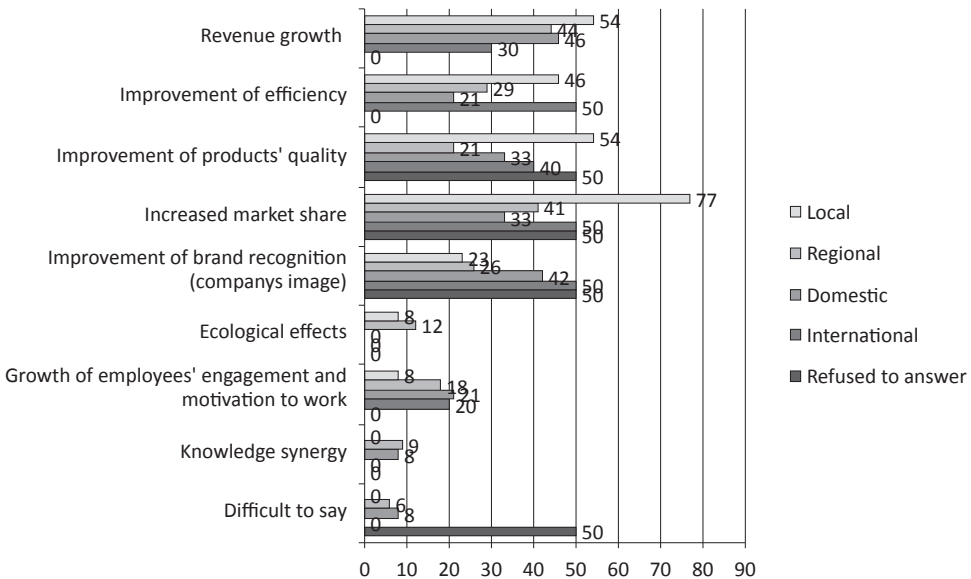
**Figure 8.30. The benefits of implementing innovations for virtual organisations depending on the stage of its development in %**



Source: Same as 8.1.

During the creation stage, virtual organisations mostly indicated benefits that include an increase in revenues (42%), increased market share (38%) and improvement of product's quality (25%). In the maturity stage virtual organisations confirm that increased market share (49%), revenue growth through innovation in the organisation (46%) and the impact of cooperation on knowledge and brand's image (37%) are extremely important benefits. The quality of products (50%), revenue growth (33%) and improvement of efficiency (32%) are essential benefits in the stage of ending cooperation within the network. It surprises that there are no indications for ecological effects and the knowledge synergy. Figure 8.31 presents the benefits of implementing innovation in virtual organisations due to their range.

**Figure 8.31. The benefits of implementing innovations in virtual organisation depending on its range in %**



Source: Same as 8.1.

What is interesting, expanded, increased market share (77%), revenue growth (54%) and improving product's quality (54%) were the most meaningful benefits to local networks. An increase in revenues (44%), increased market share (41%) and improvement of efficiency (29%) are essential benefits for regional networks. For domestic virtual organisations revenue growth (46%), improvement of brand recognition (42%) and improvement of products' quality and increased market share (33%) were key areas. For organisations with international range, the most necessary factors were to improve brand's recognition and image and increased market share (equally 50%). Improvement of efficiency (50%), revenue growth (30%) and growth of employees' engagement (20%) turned out to be the key factors.

To sum up, one can conclude that raised research questions about the factors, which are the key benefits of implementing innovations within virtual organisations, have been confirmed only in terms of revenue growth and increased market share. These responses occurred most frequently, though unevenly. There were no responses concerning knowledge synergy.

## 8.7. Summary

The aim of the empirical study was to determine the innovative activity of virtual organisations in Poland, sources and conditions conducive to the development and implementation of innovation in network companies and attempt to diagnose the impact of innovation on the functioning and development of virtual organisations.

Key research questions related to the innovativeness of virtual organisations were raised in an empirical study.

The first question concerned the motives (reasons) of implementing innovations. The main motives for the implementation of innovation in enterprises belonging to virtual organisations and virtual organisations are to improve the quality of products, to open new markets, to increase market share and to create new channels of communication and forms of selling. These factors turned out to be crucial for implementing innovation and for pro-innovative policies for both companies and for the networks.

The next research question related to whether virtual organisations have a high innovative activity, that is, if they mostly implemented from 4 to 10 innovations in the considered period, or often even more than 10 innovations. Studies have shown that majority of innovations were implemented by enterprises from sectors like: administration, education, culture and local government belonging to the virtual network (33%), as it was more than 10 declarations of implementation of innovations in the considered period. Companies from all sectors (manufacturing, trade, services) introduced in the analysed period a minimum of 1 to 3 innovations. Companies are reluctant to declare the absence of any implementations. The answer to the research question was positive, because in general, throughout the study, the most common indications related to implementation from 1 to 3 innovations in the considered period, and not, as assumed a minimum of 4 or more.

The next research question concerned the answer whether the main sources of innovation in virtual organisations are partners belonging to the network, other companies and organisations that are in the network, as well as the virtual organisation itself. The obtained response was negative, because as studies have shown the knowledge of the market and the needs of customers, competition and other companies belonging to the virtual organisation are major factors constituting the source of innovation.

The last area of research concerned the benefits of implementing innovation. Research has shown that the benefits of revenue growth, increased market share and knowledge synergies are important, but not the most significant and do not apply equally to all types of virtual organisations and sectors of virtual organisations. It was rather surprising that knowledge synergy received very few indications.

Research indicated an interesting phenomenon taking place in the environment of virtual organisations. In largest organisations, with over 50 participants the quality of products, reduction of material costs and fulfilling norms and standards, were most important factors, which contradicts the common assertion that knowledge sharing and diffusion of innovation are the most significant. This is an interesting fact that allows one to see the relationship between the need to fulfil the norms and standards by large companies, and the same factor when companies recognise that large virtual organisations must also comply with such standards. Analysing pro-innovative motives in the context of network's range, businesses in local networks area mainly depend on opening new markets and increasing market's share, which in turn is a positive conclusion, as virtual organisations apparently allow their expansion.

International virtual organisations develop new channels of communication and sales, increase product offer and improve the quality of products and open ways to new markets in search for new business opportunities. This causes the development of the domestic market and increases the competitiveness of local businesses.

Most innovations (10 or more) are implemented by companies belonging to the large networks, with 20 to 50 members and very large networks (with over 50 participants). Based on the study one can conclude that innovativeness is a present subject in virtual organisation networks, which implement innovations at some minimum level, while the size of the network promotes development and more frequent implementations of innovations within the entire network. The least indications relate to ICT innovations and those in the area of knowledge management (1%). One can conclude that these innovations are not important for small businesses; it is surprising because they should be relevant within the entire virtual organisation, but the study did not confirm this.

It is worth mentioning that the service sector more often implements organisational innovations in comparison to the other sectors, though, it falls behind administrative, cultural, educational and local governments sector, where many processes and organisational improvements are implemented. One can state on the basis of the conducted research that participants of virtual organisations start to attach a greater importance to marketing and they implement many new activities.

Narrowing the scope, virtual organisations in stage of their creation primarily improve their products, implement new technologies and organisational innovations. Mature networks introduce new products and new marketing actions, in this way searching for new distribution channels. In contrast, virtual organisations in the stage of ending cooperation are focused primarily on introducing new marketing actions and on the search for new, expanded distribution channels, as well as on improving existing marketing actions and on innovations in terms of new products. Customers, market and partners operating within the same network are an important source of

innovation for most enterprises operating in networks. It can be concluded that the sources of innovation in virtual organisations and enterprises belonging to them are rather consistent and relate primarily to four main factors: knowledge about customers and markets, corporate partners outside the network and within their virtual organisation, as well as employees and management.

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## Chapter IX. Innovativeness determinants of clusters

### 9.1. Introduction

Innovative activity is based on engaging companies in all kinds of scientific, technical, organisational, financial and commercial activities that lead or supposed to lead to implementation of innovation. Not all actions are of innovative character and they are not all new, but they are necessary for implementation of innovations. Innovative activities also include research and development (R&D), which is not directly related to the creation of a specific innovation, but plays extremely significant role in the search for innovations.

Clusters can play an important role in the stimulation of innovative activities. In Poland, in recent years, clusters have grown in popularity, reflecting the changes in the perception of cooperation between companies and the world of science and appreciating, albeit very slowly, the importance of R&D. Clusters are also a part of a policy of supporting the development of regions.

Today, innovation is seen as an opportunity for companies against changes in the market – increasing competition, globalisation, the development of the knowledge society or the effects of the crisis.

Innovation is the transformation of an idea into a new product that is possible to sell, into the operating process or into a new service. Innovation includes all activities of scientific, technical, organisational, commercial and financial nature required to effectively develop and introduce innovative products to the market, to commercially use new or improved processes and equipment or to introduce new services<sup>1</sup>.

Innovations facilitate the process of adaptation to social, economic and technological changes. As often noted, innovations are an opportunity for entrepreneurs to implement their own, bold and ambitious dreams and ideas.

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<sup>1</sup> B. Hollins, S. Shinkins, *Zarządzanie usługami. Projektowanie i wdrażanie*, PWE, Warsaw 2009, p. 329.

As P.F. Drucker stated company which does not implement innovations inevitably ages and declines<sup>2</sup>.

Innovations require the knowledge society that is a society which, as noted by M. Grzybowski, TODAY creates conditions, to present TOMORROW ideas and products, which no one even thought about YESTERDAY, which DAY ATER TOMORROW may turn out to be obsolete and requiring new ideas. This is a society that consciously recognises knowledge as a key factor for social and economic growth<sup>3</sup>.

United Nations Industrial Development Organization – UNIDO defines clusters as regional and territorial concentrations of companies producing and selling similar or complementary products, and thus forced to overcome similar problems and challenges. This situation causes the creation of specialised suppliers of machinery and raw materials, the development of specialised competences, skills and faster development of specialised and personalised services<sup>4</sup>.

According to M. Porter clusters are geographic concentrations of interconnected companies, specialised suppliers (including services' providers), enterprises from other related sectors and industries and economic environment institutions (e.g. universities, chambers of commerce) mutually competing and cooperating<sup>5</sup>.

The first studies in Poland on clusters took place after 1989, when one started to observe formation of the characteristic industrial groups. According to a study by the Institute for Market Economics 18 cluster's structures located in 8 provinces were found<sup>6</sup>.

It should be mentioned that in Poland a working group on cluster policy is functioning. It aims to develop the directions and guidelines for cluster policy in Poland until 2020 on the basis of the conclusions and recommendations resulting from the previously implemented policy in areas affecting the development of clusters in Poland and by taking into account the domestic and foreign experiences and good practices<sup>7</sup>. As rightly assumed, defining future cluster's policy requires a diagnosis of the current state of clusters, cluster's initiatives and of their coordinators.

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<sup>2</sup> P.F. Drucker, *Innowacja i przedsiębiorczość. Praktyka i zasady*, PWE, Warsaw 1992.

<sup>3</sup> M. Grzybowski, *Rola klastrów naukowo-przemysłowych w aktywizacji gospodarczej regionów*, Akademia Morska w Gdyni, Gdynia 2011, [http://www.kwiatkowski.edu.pl/Zjazd/2011/2011\\_Grzybowski\\_Rola\\_klastrów\\_naukowo\\_przemysłowych.pdf](http://www.kwiatkowski.edu.pl/Zjazd/2011/2011_Grzybowski_Rola_klastrów_naukowo_przemysłowych.pdf).

<sup>4</sup> *SME Cluster and Network Development in Developing Countries: The experience of UNIDO*, Private Sector Development Branch, "Working Paper" 1999, no 2, [in:] M. Górzyński, W. Pander, P. Koć, *Tworzenie związków kooperacyjnych między MSP oraz MSP i instytucjami otoczenia biznesu*, PARP, Warsaw 2006.

<sup>5</sup> M.E. Porter, *The Competitive Advantage of Nations*, Macmillan Press, Hampshire and London 1990; M.E. Porter, *Porter o konkurencji*, PWE, Warsaw 2001, p. 259.

<sup>6</sup> M. Kozak, *Klastry – wyzwanie dla rozwoju MŚP w Polsce*, "E-mentor" 2009, no. 1.

<sup>7</sup> Szerzej: *Raport otwarcia nt. polskiej polityki klastrowej*, PARP, [http://www.pi.gov.pl/PARPFiles/file/klastry/Tresci\\_stale/Raport\\_otwarcia\\_nt\\_polskiej\\_polityki\\_klastrowej.pdf](http://www.pi.gov.pl/PARPFiles/file/klastry/Tresci_stale/Raport_otwarcia_nt_polskiej_polityki_klastrowej.pdf), access: 10.06.2013.



In order to identify determinants of innovativeness of clusters, a quantitative study, with the use of a questionnaire, was conducted. Interviews were carried out based on a prepared database of cluster's coordinators<sup>8</sup> including 198 companies.

One was looking for the answers for the following research questions:

1. Do entrepreneurs see their chance for development by joining the clusters?
2. What degree of interest in innovation do clusters and entrepreneurs who are their participants show?
3. What are the types and sources of innovations?
4. What is the role of the knowledge in innovative activities, is it a priority?
5. What are the benefits of implementing innovations in clusters?

It was assumed that the situation of clusters and enterprises belonging to them is dependent on features such as cluster's size, range of operation, sector (type of business) and stage of development.

For the purpose of the research one has used a quota sampling. One has selected quotas (specified number of interviews in line with the structure of the population) with accordance to a province and a type of institution participating in the cluster: enterprises, scientific-research units, business environment institutions. 121 clusters out of 198 participating in the study were classified for the analysis.

## 9.2. Characteristics of clusters as network

Clusters were formed mainly by enterprises – 79%, the smallest share was held by scientific-research units (9%). Business environment institutions accounted for 12%. Respondents (enterprises) had different roles in clusters. Every third respondent was the coordinator (the organiser) of the network, the rest (67%) were clusters' participants.

In the years 2007–2012 associations were the most common clusters' coordinators (45%). They included mainly micro-enterprises, which provided services and were located in the cities of up to one hundred thousand people, contained from 10 to 20 participants (higher difference statistically significant at a level of 0.05 in relation to the total population), were in the stage of their creation or maturity and were of a local range. In every fifth cluster trade company was a coordinator. Medium and large firms, engaged in trade were the main participants of clusters, which contained up to 10 participants (higher difference statistically significant at a level of 0.1 in relation to the total population), were in the stage of maturity and had domestic range.

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<sup>8</sup> [http://www.pi.gov.pl/parp/chapter\\_86197.asp?soid=5365588F929645E2AD11B43904D7EB79](http://www.pi.gov.pl/parp/chapter_86197.asp?soid=5365588F929645E2AD11B43904D7EB79) [access: 25.03.2013].

The share of science and technology parks, Agricultural Market Agency (ARR), universities or scientific-research institutes was almost equal (7–8%).

Clusters whose participants were companies, were varied as to the number of participants. Every third consisted of up to 10 participants (33%). 17% had between 10 to 20 participants, 13% between 20 and 50 (it was a higher difference statistically significant at the level of 0.05% in relation to the total population), and 12% had over 50 participants.

Clusters were in different stages of development. 41% were in maturity stage, 36% in the stage of creation of the cluster, 7% in the stage of ending cooperation. 16% could not give a definite answer.

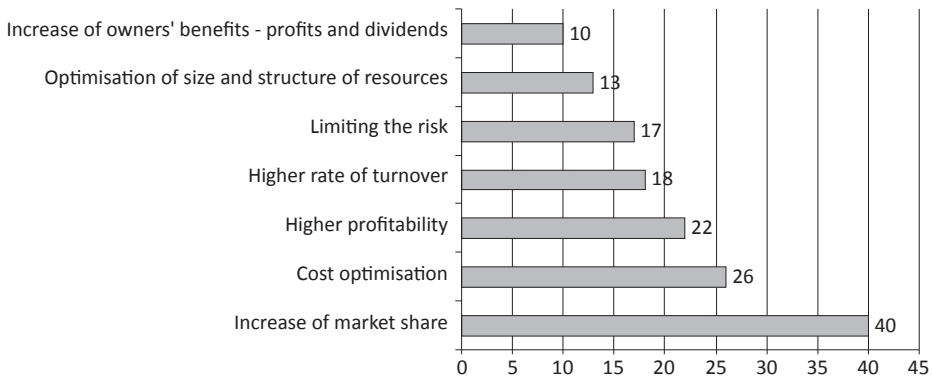
Most often clusters were of regional range (48%, it was a higher difference statistically significant at the level of 0.05% in relation to the total population), then domestic (28%), local (12%) and international (8%). Responses “difficult to say” accounted for 4%.

Concept of management may have an important significance for the functioning of clusters' participants and clusters themselves. Comparison of the results for these two groups of respondents indicates that these concepts are often similar. And so:

- 22% of clusters' participants and 23% of clusters pointed to strategic management;
- accordingly: 25% and 24% pointed to human capital management;
- accordingly: 22% (lower difference statistically significant at the level of 0.1 in relation to the total population) and 22% pointed to knowledge management;
- accordingly: 38% and 35% pointed to innovation management;
- accordingly: 12% and 11% pointed to change management;
- accordingly: 41% and 31% pointed to project management;
- accordingly: 5% and 8% pointed to value management;
- accordingly: 23% and 22% process management.

Enterprises variously assessed the economic effects coming from the accession to the cluster. Most companies reported an increase in market share (40% of responses). In second place one specified costs optimisation (26% of responses, lower difference statistically significant at the level of 0.05 in relation to the total population). The smallest importance was attributed to the increase of owners' benefits (profits and dividends) and optimisation of the size and structure of resources – Figure 9.1. Every fifth company could not give a definite answer (higher difference statistically significant at the level of 0.05 in relation to the total population). Respondents could indicate up to three factors.

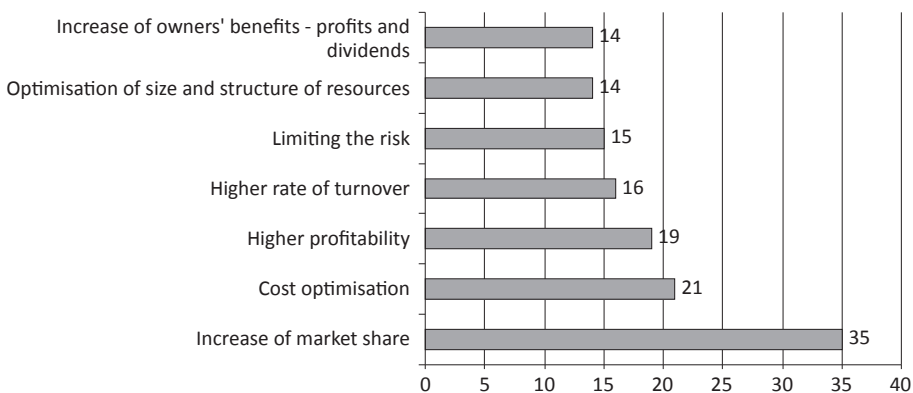
**Figure 9.1. Economic effects from the enterprise's participation in the cluster (% of responses)**



Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH,  $N=121$ .

Similar question was referred to the clusters, in order to find the answer for the question what economic effects from the fact of creation of clusters they find significant. Similarly, as in the case of companies, the first place went to factor of increasing the market share (35% of responses, lower difference statistically significant at the level of 0.1 in relation to the total population). In second place was the higher profitability (21% of responses), and in the third optimisation of costs (19% of responses). Just as companies, also clusters attributed the smallest economic effects to the increase of owners' benefits (profits and dividends) and to optimisation of the size and structure of resources (Fig. 9.2). Almost every third cluster (30%) could not give a definite answer (higher difference statistically significant at the level of 0.05 in relation to the total population).

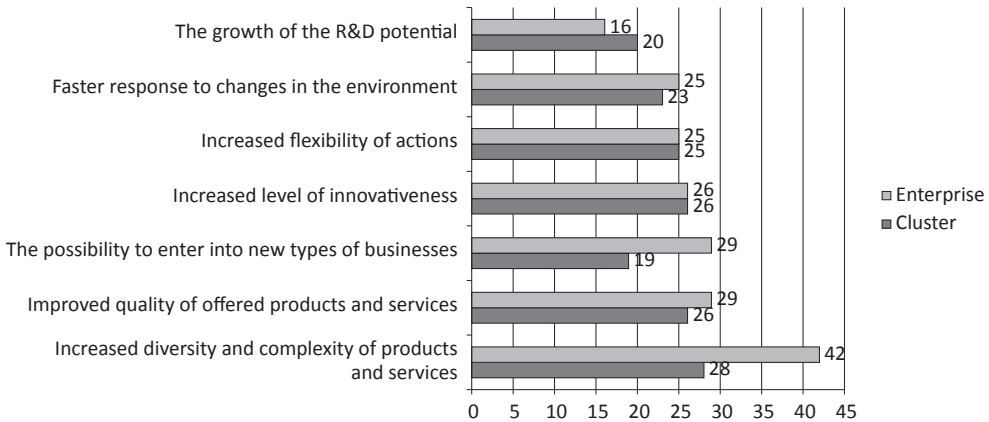
**Figure 9.2. Economic effects for clusters from the fact of their creation (% of responses)**



Source: same as Fig. 9.1.

Apart from economic effects one can also speak about the organisational ones. Among them one distinguished: a faster response to changes in the environment, increased flexibility of actions, increased diversity and complexity of products and services, increased level of innovativeness, the possibility to enter into new types of businesses, improved quality of offered products and services, the growth of the R&D potential. The test results are shown in Figure 9.3.

**Figure 9.3. Organisational effects connected to clusters (% of responses)**



Attention: Respondents (enterprises and clusters) could choose up to three effects.

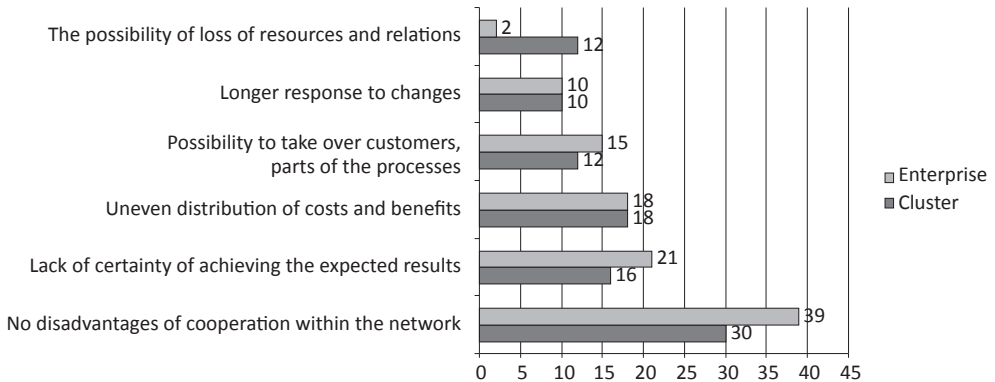
Source: Same as Fig. 9.1.

Clusters more often indicated the improved quality of products and services (36% of responses, lower difference statistically significant at the level of 0.1 in relation to the total population), and enterprises indicated the increased diversity and complexity of products and services (42% of responses). Clusters in second place pointed to the increased diversity and complexity of products and services (28% of responses). Enterprises in the second place indicated equally two factors: improved quality of products and services and the opportunity to enter into new types of businesses (equally 29% of responses). The smallest importance respondents (both clusters and companies) attributed to the increased R&D potential as an organisational effect resulting from the fact of creation and participation in the cluster.

As with any collaboration, also within a cluster, it can bring positive results for the company and for the cluster itself, but there might be also some negative effects. Satisfactory is the fact that 30% of the clusters and 39% of companies said they did not see any disadvantages of cooperation within the network. Enterprises more often indicated a lack of certainty of achieving the expected results (21% of

responses compared to 16% of responses on the side of the clusters), and the possibility to take over customers, parts of the processes (respectively: 15% and 12%). Equally one noted the uneven distribution of costs and benefits (18% of responses) and longer response to changes (10% of responses). Clusters definitely more often pointed to the possibility of loss of resources and relations (12% vs. 2% of responses by enterprises) – Figure 9.4.

**Figure 9.4. Negative effects connected to clusters (% of responses)**

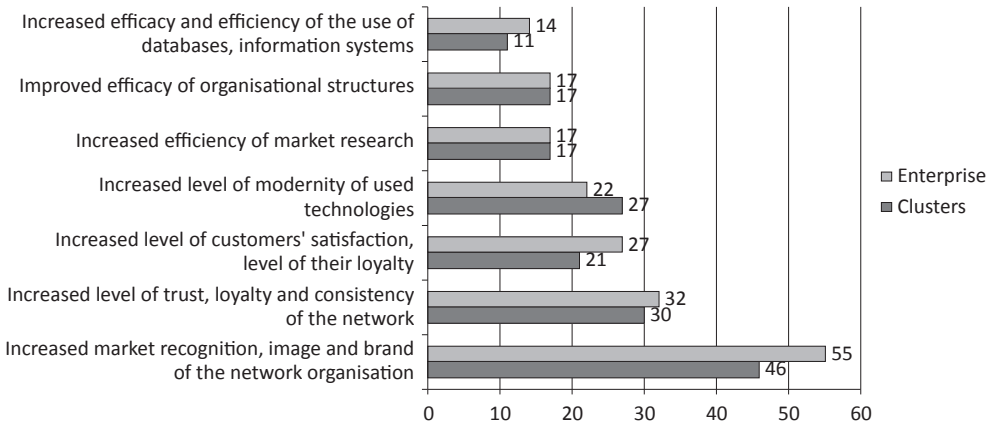


Attention: Respondents (enterprises and clusters) could choose up to three effects.

Source: Same as Fig. 9.1.

One have also sought to identify the benefits of functioning within a network. Both clusters and companies indicated three benefits, which they considered most important, that is: increased market recognition, image and brand of the network organisation, (46% of responses in clusters and 55% of responses in enterprises), increased level of trust, loyalty and consistency of the network (30% and 32% of responses) and increased level of customers satisfaction, level of their loyalty (21% and 27% of responses). Equally important (17% of responses) clusters and enterprises found two factors: the increased efficiency of market research and improved efficacy of organisational structures. Least respondents identified increased efficacy and efficiency of the use of databases, information systems (11% and 14% of responses).

**Figure 9.5. Benefits for enterprises and clusters from the existence of network**  
(% of responses)



Source: Same as Fig. 9.1.

Benefits from cooperation within clusters and from their regional advantage can be considered on three planes:

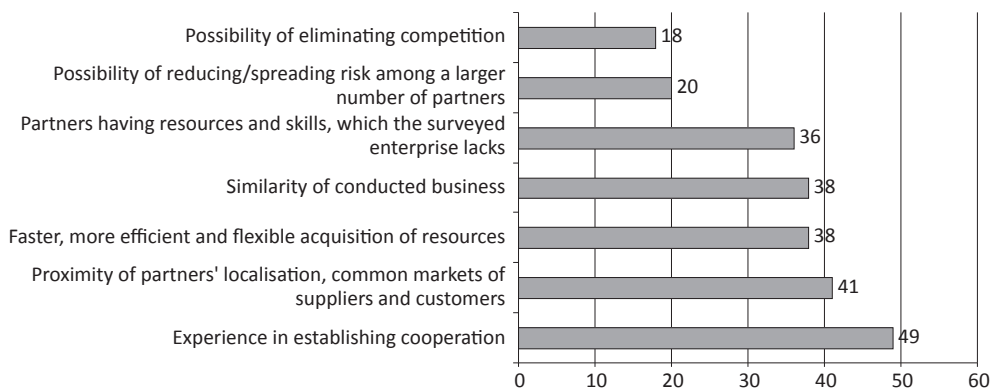
- a strong connection between companies and their environment – technological and business base;
- geographical proximity of the entities forming the cluster, i.e. companies, research units, R&D centres, financial institutions and others, affecting the development of the given region;
- the size of the cluster, and in principle the number of entities in its structure – the more companies, employees, specialised institutions, the greater self-sufficiency (independence) of the cluster. This structure does not require purchasing products or services from outside, thus smaller the chance of benefits from getting out innovative activity is<sup>9</sup>.

It was reasonable to recognise, what inspired the companies to cooperate within clusters. Experience in establishing cooperation was considered the most important factor (49% of responses, lower difference statistically significant at the level of 0.1 in relation to the total population). Over 40% of respondents indicated factors of proximity of partners' localisation, common markets of suppliers and customers, and slightly less (equally 38% of responses) indicated factors, such as faster, more efficient and flexible acquisition of resources and similarity of conducted business, which should be related to benefits, which can be obtained by cooperation within

<sup>9</sup> <http://www.docstoc.com/docs/17900626/Knowledge-Based-Industrial-Clustering...Outline> [access: 5.06.2012].

a cluster. The smallest importance was assigned to: the possibility of reducing / spreading risk among a larger number of partners (20% of responses) and the possibility of eliminating competition (18% of responses, lower difference statistically significant at the level of 0.1 in relation to the total population), and therefore companies do not see in this area advantages of the functioning within a network (Fig. 9.6).

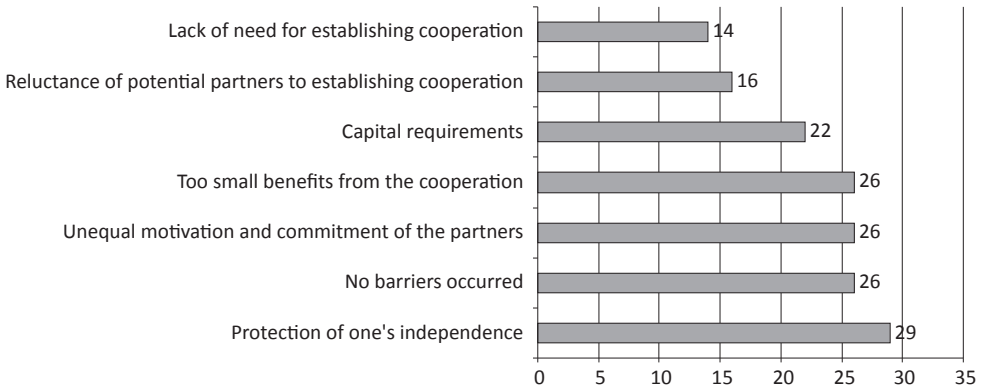
**Figure 9.6. Factors encouraging enterprises to cooperation within a cluster (% of responses)**



Source: Same as Fig. 9.1.

In addition to the benefits of belonging to the cluster, entrepreneurs also encountered the barriers when establishing cooperation with the cluster. The highest importance was assigned to protection of one's independence (29% of responses). But 26% of respondents claimed that no barriers occurred. One can assume that these are the companies fully aware of the benefits of participation in the cluster, and of the principles of cluster's functioning. Too small benefits from the cooperation and unequal motivation and commitment of the partners were further mentioned and received the same number of indices. It is worth noting that 10% of respondents (higher difference statistically significant at the level of 0.1 in relation to the total population) gave the answer "difficult to say", so companies were not able to define the barriers, but also they did not say that they did not occur (Fig. 9.7). Every fifth respondent drew attention to the capital barrier, while 14% of respondents indicated the lack of need. Because respondents were companies which are members of clusters, it can be assumed that they meant next steps regarding participation in other clusters.

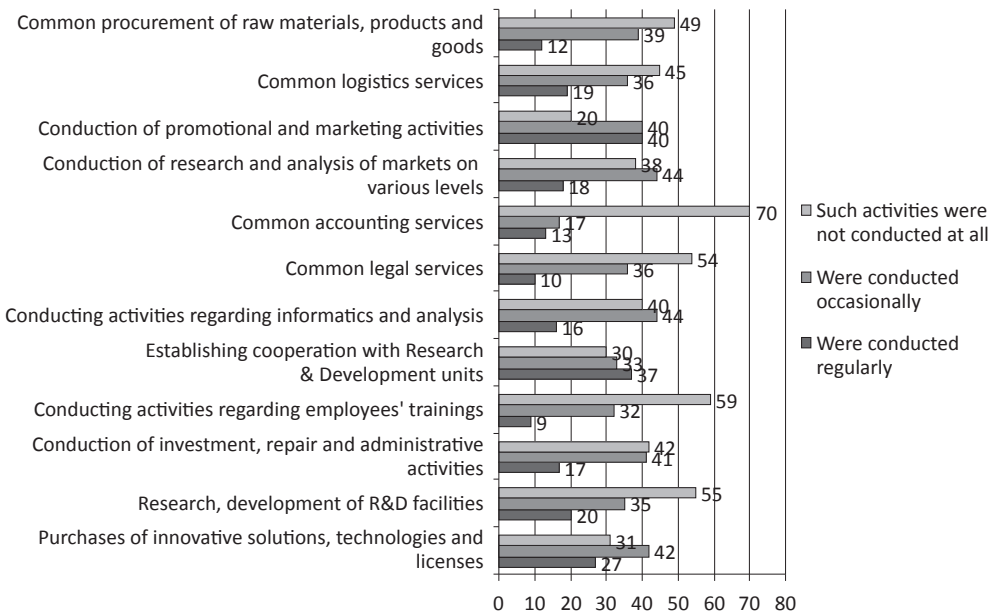
**Figure 9.7. Barriers, that occurred while establishing cooperation between an enterprise and a cluster (% of responses)**



Source: Same as Fig. 9.1.

Cooperation within the cluster is also about undertaking joint activities in various areas of the companies' functioning. The activity of the respondents in the different areas of potential cooperation was diverted, varying from the regular to the lack of specific activities (Fig. 9.8).

**Figure 9.8. Joint activities undertaken within a cluster (% of responses)**



Source: Same as Fig. 9.1.



Surveyed companies within the cluster definitely did not implement common accounting services (70% of responses), but also a lot of companies did not jointly conduct investment, repair activities (59% of responses), purchases of innovative solutions, technologies and licenses (55% of responses, higher difference statistically significant at the level of 0.1 in relation to the total population) or did not use common legal services (54% of responses).

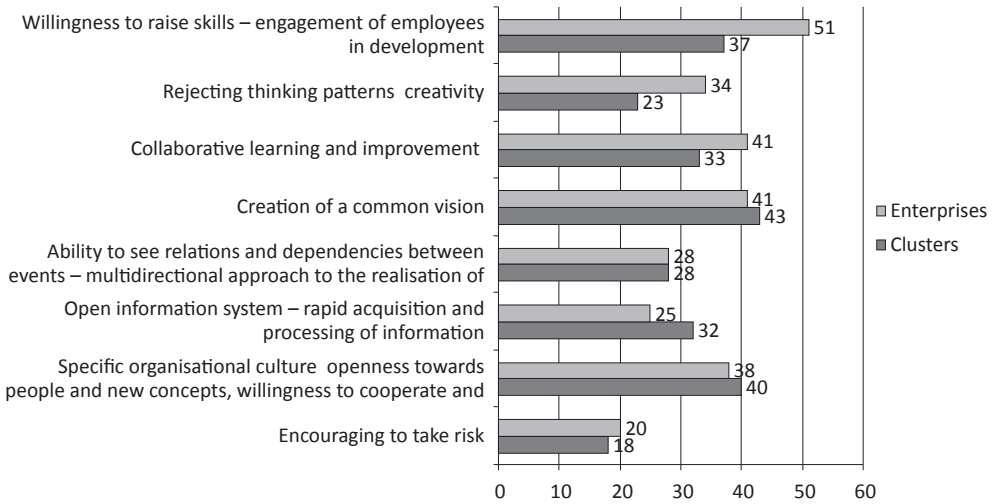
In contrast, most often one conducted joint promotional and marketing activities (40% of responses), employees' trainings (37% of responses) or established cooperation with Research & Development units (27% of responses, higher difference statistically significant at the level of 0.1 in relation to the total population).

Conduction of activities regarding informatics and analysis (44% of responses), conduction of research and analysis of markets on various levels (44% of responses), establishing cooperation with Research & Development units (42% of responses, higher difference statistically significant at the level of 0.1 in relation to the total population), research, development of R&D facilities (41% of responses, higher difference statistically significant at the level of 0.1 in relation to the total population), conduction of promotional and marketing activities (40% of responses) were commonly undertaken most often, but occasionally.

One has considered the recognition of clusters' features, from the perspective of their participants and of clusters themselves, to be an interesting cognitive element. The survey results indicate a somewhat different perception of these features by the two groups of respondents (Fig. 9.9).

Enterprises distinguished in particular: willingness to upgrade skills – engagement of employees in development (51% of responses), collaborative learning and improvement and creation of a common vision (equally 41% of responses). One could say that participation in a cluster is seen by the company as an opportunity to develop, derive benefits from functioning within the network, but also to act in accordance with the principle “two heads are better than one”. Open information system – rapid acquisition and processing of information (25% of responses) and encouraging to take risk (20% of responses) were considered least important. Remaining 5% of respondents did not point to any of the mentioned factors.

**Figure 9.9. Features characterising clusters from the perspective of the enterprise and the network**

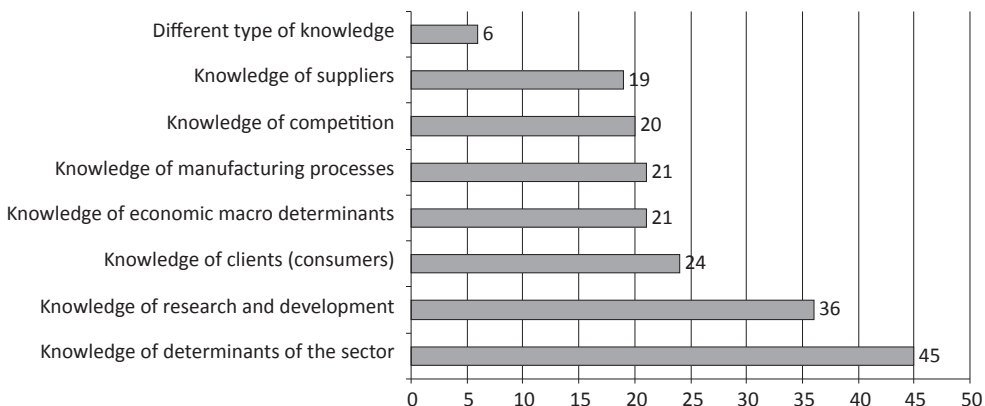


Source: Same as Fig. 9.1.

In turn, clusters pointed to: creation of a common vision (43% of responses), specific organisational culture – openness towards people and new concepts, willingness to cooperate and to share information (40% of responses) and willingness to upgrade skills – engagement of employees in development (37% of responses). The least important were: rejecting thinking patterns – creativity (23% of responses) and encouraging to take risk (18% of responses). 14% of respondents did not point to any of these factors.

Knowledge of the various areas of functioning both businesses and clusters is essential for the functioning and development of these entities. Respondents were asked about the scope of the exchange of knowledge within the cluster. Almost half of the respondents believed that it is limited to certain kinds of knowledge, but every third entrepreneur declared that the scope of knowledge exchange is unlimited. 12% felt that there was no exchange of knowledge between network participants. Remaining respondents gave no clear answer.

By far the greatest importance was attributed to the knowledge of determinants of the sector (45% of responses, higher difference statistically significant at the level of 0.1 in relation to the total population), and knowledge of the research and development (36%, higher difference statistically significant at the level of 0.1 in relation to the total population). The least significant was the exchange of knowledge concerning suppliers (19%, lower difference statistically significant at the level of 0.05 in relation to the total population). The results are presented in Figure 9.10.

**Figure 9.10. Areas of knowledge exchange within clusters (% of responses)**

Source: Same as Fig. 9.1.

It is worth stressing out, that according to the declarations of every second respondent knowledge exchange within the cluster is free of charge. Every fifth respondent stated that payable is exchange of unique and key knowledge, and free of charge is exchange of universal and irrelevant knowledge. 13% of respondents declared that the exchange of any kind of knowledge is chargeable.

Desirable was the exchange of knowledge of “peer to peer” type, in other words, any direction of the exchange. This answer was given by 55% of respondents. Every fifth respondent stated that it was the flow of knowledge from the initiator/coordinator of the network to the other participants. The least frequently one pointed to the flow of knowledge from the other members of the network to the initiator/coordinator of the network. Every tenth respondent could not identify a clear answer.

Diversified was also the level of formalisation of knowledge transfer. 46% of respondents said that the exchange of knowledge takes place in a non formalised way, 29% stated that formalisation applies only to the exchange of unique and key knowledge, and 12% that the exchange of any kind of knowledge is strictly formalised (defined by rules and procedures). 12% of respondents did not give a definite answer.

Knowledge is dependent on the preferences of a cluster and an enterprise in a given period. Respondents were asked to identify the dominant way of acquiring and using knowledge. The results are shown in Table 9.1.

**Table 9.1. Ways of acquiring and using knowledge by enterprises and clusters to which they belong (% of responses)**

Way of acquiring knowledge	Cluster	Enterprise	Way of using knowledge	Cluster	Enterprise
	% of responses			% of responses	
Acquisition of knowledge from outside/from cluster's environment	12	21	Internal use of knowledge – for internal needs of an enterprise/ cluster	21	25
Creation of knowledge by enterprise's employees/cluster's participants	17	12	Transfer of knowledge to outside (to other participants of the network and/or other entities in the environment) or (outside the cluster)	3	8
Acquisition of knowledge from both sources equally	59	58	Both ways of using knowledge equally	63	60
Difficult to say	12	9	Difficult to say	13	7

Source: Same as Fig. 9.1.

The vast majority of clusters (59% of responses) and companies (58% of responses) acquired the knowledge from both the outside, as well as it was created by the cluster's participants or employees of the company. A larger proportion of companies (21%) than in the case of clusters (12%) acquired knowledge from outside, while clusters from the environment. Larger proportion of clusters obtained knowledge from cluster's participants than in the case of enterprises obtaining knowledge from employees of the company. 12% of clusters and 9% of enterprises did not give a definite answer (higher difference statistically significant at the level of 0.05 in relation to the total population).

In the case of the use of knowledge most clusters (63%) and companies (60%) reached both for internal sources of knowledge or transferred knowledge outside (to other participants of the network and/or other entities in the environment) or (outside the cluster). 21% of clusters and 25% of companies indicated internal use of knowledge (for internal needs of the enterprise).

One also tried to obtain information, what is the dominant strategy for knowledge management. The results are shown in Table 9.2.

In the case of clusters, the most commonly implemented strategy was the development of cooperation between experts from the specific field of knowledge (20% of responses). One implemented equally (10% responses) strategy of integration of subcontractors having specific knowledge around the dominant participant of the network and knowledge diversification strategy – finding new uses for existing knowledge. It should be stressed out that 35% (1/3 of responses) of respondents indicated the answer “difficult to say” and 15% of clusters did not implement any knowledge management strategy. Strategy of exchange of knowledge on a commercial basis (buying or selling) had by far the lowest use (5% of responses).

The situation was slightly different in the case of enterprises. 37% of them did not have a dominant strategy of knowledge management. Simultaneously, one used

the knowledge codification strategy- storing knowledge in various types of documents and databases and knowledge personalisation strategy – oral transmission of knowledge between employees. 17% of companies did not have any knowledge management strategy, and 13% could not give a definite answer (one can assume that they increased the percentage of those who do not have such a strategy). Among other companies almost the same number applied one or another strategy (difference of two percentage points in favour of knowledge codification strategy- storing knowledge in various types of documents and databases).

To conclude this area of research, one asked to assess the level of advancement of knowledge management. The results are shown in Table 9.3.

**Table 9.2. Dominant strategy of knowledge management in cluster and in enterprise – a participant of a cluster (% of responses)**

Cluster to which an enterprise belongs	Responses in %	Enterprise	Responses in %
No strategy of knowledge management is implemented	15	No strategy of knowledge management is implemented	17
Strategy of integration of subcontractors having specific knowledge around the dominant participant of the network	10	Knowledge codification strategy- storing knowledge in various types of documents and databases	17
Strategy of development of cooperation between experts from the specific field of knowledge	20	Knowledge personalisation strategy – oral transmission of knowledge between employees	15
Strategy of exchange of knowledge on a commercial basis (buying or selling)	5	Both strategies are implemented simultaneously	37
Knowledge diversification strategy – finding new uses for existing knowledge	10	Difficult to say	13
Difficult to say	35		

Source: Same as Fig. 9.1.

**Table 9.3. Assessment of the level of advancement of knowledge management in the enterprise and in the cluster to which it belongs (% of responses)**

Network to which enterprise belongs	Responses in %	Enterprise	Responses in %
Network as a whole does not have a defined strategy of knowledge management; lack of internally unified information system	33	We have not identified the strategy of knowledge management yet; we do not have a specialised computer software	36
Network is under a process of creating of standardised knowledge management system	22	We are creating knowledge management system and necessary computer software	30
A fully merged and integrated knowledge management system exists across the network	23	We own a fully merged and integrated knowledge management system supported by modern IT solutions	22
Difficult to say	22	Difficult to say	12

Source: Same as Fig. 9.1.

Every third cluster did not have a defined strategy of knowledge management and internally unified information system. More than every third company said it has not identified the strategy of knowledge management yet and did not have a specialised computer software. More than every fifth cluster, and almost every third company declared that they were under a process of creating of standardised knowledge management system and necessary computer software. It should be noted, however, that 23% of clusters had a fully merged and integrated knowledge management system across the network, and 22% of enterprises had fully merged and integrated knowledge management system supported by modern IT solutions. The reasons for the lack of a clear answer („difficult to say”) can be of two types – either the respondents did not have sufficient knowledge in this area, or they did not want to admit that they had no defined strategy of knowledge management, there was also no specialised computer software or internally unified information systems.

### 9.3. Premises for implementing innovations in clusters

According to the definition of Central Statistical Office of Poland (GUS) innovative activity includes a number of activities of such character as: scientific (research), technical, organisational, financial and trade (commercial), whose aim is to develop and implement innovations<sup>10</sup>. Innovativeness is recognised as an organisation’s ability to permanently seek, implement and disseminate innovation. As one points out, today broadly defined innovativeness should become a major creative force in every organisation inscribed in its management system and culture.

Cluster’s or enterprise’s innovativeness can be defined as the ability to efficiently allocate resources in order to shape the optimal configuration of competitive advantages, it contains an element of efficiency, as well as the time factor, which influences the shape of optimal configuration of competitive advantages<sup>11</sup>. Innovativeness depends on many factors such as: type of ownership, type of business, industry, size of organisation, culture and organisational structure.

The development of clusters and enterprises as its members in the years 2007–2012, was affected by various factors related to the environment. Enterprise’s environment consists of the variety of phenomena, processes and institutions that shape its interchangeable relations, sales opportunities, scope of operations and growth prospects

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<sup>10</sup> Compare: *Sprawozdanie o innowacjach w przemyśle za lata 2006–2008*, Central Statistical Office of Poland (GUS) (Form).

<sup>11</sup> I. Bielski, *Przebieg i uwarunkowania procesów innowacyjnych*, Ośrodek Postępu Organizacyjnego Sp. z o.o., Bydgoszcz 2000.

that make up the internal and external environment<sup>12</sup>. Clusters and companies attributed the greatest importance to: business integration, which gives new growth opportunities and new opportunities for collaboration, for creating networks of companies (respectively: 46% and 40% of indices) and for significant changes of technical, social and economic character in the environment differing from the past experiences of companies (e.g. the Internet as the most important source of acquisition of information, new technologies, change of regulations) (respectively: 33% and 36%).

Among the other conditions one listed:

- increasing dependence on the environment, for example conduction of business in an open economy – dependence on competition, customers, suppliers, prices of raw materials: 30% of indices by clusters and 26% of indices by enterprises (lower difference statistically significant at the level of 0.05 in relation to the total population);
- increase of rate of change of the environment (fast pace of environmental changes forces companies to be flexible) – respectively: 26% (lower difference statistically significant at the level of 0.1 in relation to the total population) and 28% (lower difference statistically significant at the level of 0.05 in relation to the total population);
- increasing complexity of the environment, e.g. new market niches, new products, new groups of customers – respectively: 32% and 35%;
- technological progress – respectively 29% and 36%;
- increasing importance of human capital – respectively: 18% and 26%;
- increase of social environmental awareness – respectively: 17% and 15% (higher difference statistically significant at the level of 0.05 in relation to the total population).

In case of clusters 10% of respondents could not give a definite answer.

The obtained results indicate that clusters do not appreciate the growing importance of human capital as factor associated with the environment, which would play a very large role in their development, in implementation of innovations. Even less importance was attributed to the increase of social environmental awareness. This can be explained by the fact that not all cluster's activities are directly related to ecology. In addition, social environmental awareness is not too high.

Effective use of knowledge was important for clusters and companies. Knowledge acquisition is the process involving both knowledge creation within the organisa-

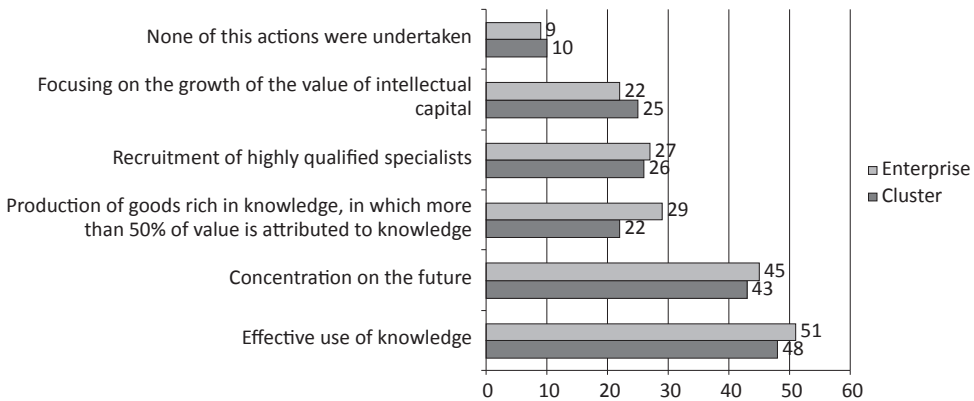
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<sup>12</sup> K. Wach, *Regionalne otoczenie małych i średnich przedsiębiorstw*, Uniwersytet Ekonomiczny w Krakowie, Cracow 2008.

tion, as well as the acquisition of knowledge from outside<sup>13</sup>. Clusters are catalysts of innovative processes, therefore knowledge is a priority. 48% of clusters and 51% of companies indicated these factors (Fig. 9.11). In the second place entities pointed to the focus on the future: respectively 43% (lower difference statistically significant at the level of 0.1 in relation to the total population) and 45% of responses. Undoubtedly, the economic crisis influenced such attitude of respondents who were responsible for the management of the company. In third place among companies (29% of responses) one pointed to the actions associated with the production of goods rich in knowledge, in which more than 50% of value is attributed to knowledge. Not much less importance was assigned to human capital – the recruitment of highly qualified specialists. Human capital has become the most valuable asset of the company in the twenty-first century. In the twentieth century these were machinery and equipment, together with methods of their use in the production process, specified rules of hierarchical organisation<sup>14</sup>. In marketing of services one emphasises that human capital, including highly qualified specialists, is the only factor which can not be copied, reproduced.

It is to stress out, that intellectual capital is important from the perspective of enterprise management in order to improve the quality of conducted business and effective use of its intellectual resources<sup>15</sup>.

**Figure 9.11. Actions undertaken in cluster and in enterprises in years 2007–2012 (% of responses)**



Source: Same as Fig. 9.1.

<sup>13</sup> G. Gierszewska, *Zarządzanie wiedzą w przedsiębiorstwie*, Oficyna Wydawnicza Politechniki Warszawskiej, Warsaw 2011, p. 98–124.

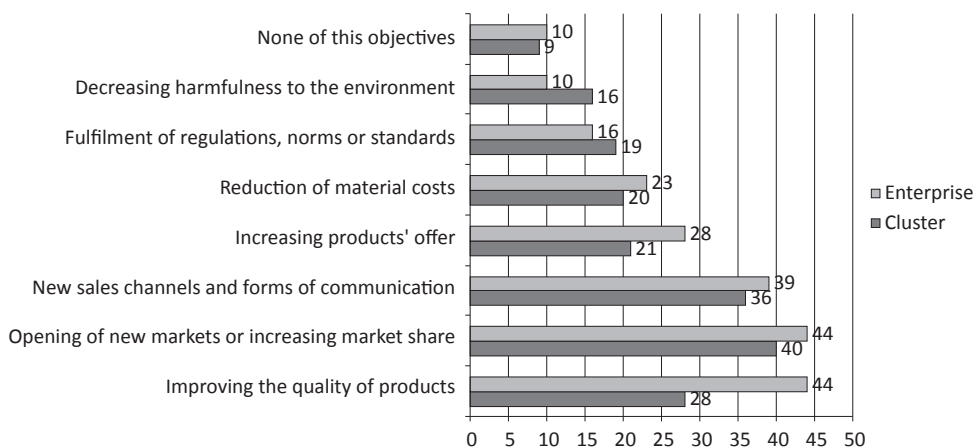
<sup>14</sup> P.F. Drucker, *Zarządzanie w XXI wieku*, MUZA, Warsaw 2000, p. 141.

<sup>15</sup> Compare: A. Ujwary-Gil, *Kapitał intelektualny a wartość rynkowa przedsiębiorstwa*, CH&Beck, Warsaw 2009.



In the case of clusters, the most significant reasons for introducing innovations were: the opening of new markets or increasing market share (40% of responses) and new sales channels and forms of communication (36% of responses). Important were (20% of responses or more): improving the quality of products (28% of responses), increasing products offer (21% of responses) and reduction of material costs (20% of responses). Less crucial reasons were (less than 20% of responses): fulfilment of regulations, norms or standards (19% of responses), decreasing harmfulness to the environment (16% of responses). Answers “none of them” represented 9% of indices (Fig. 9.12).

**Figure 9.12. Reasons for introducing innovations by clusters and enterprises (% of responses)**



Source: Same as Fig. 9.1.

One analysed the various reasons for implementing innovations by clusters, as in the case of enterprises, taking into account their features. And so:

- clusters mainly consisting of 20 to 50 participants, which are in the stage of creation, with an international range, operating in the cities with up to one hundred thousand residents pointed to the improvement of products' quality as the most important reason for implementation of innovations;
- clusters mainly consisting of 10 to 20 participants, which are in the stage of maturity, with a domestic range, operating in the cities with over one hundred thousand residents pointed to the increase of products' offer;
- clusters mainly consisting of more than 50 participants, which are in the stage of maturity, with a domestic or international range, operating in the cities with over one hundred thousand residents pointed to the opening of new markets or increasing market share;

- clusters mainly consisting of up to 10 participants, which are in the stage of ending cooperation, with a local range, operating in the cities with up to one hundred thousand residents pointed to the reduction of material costs;
- clusters mainly consisting of up to 10 participants, which are in the stage of ending cooperation, with a regional range, operating in the cities with up to one hundred thousand residents pointed to the decrease of environmental harmfulness;
- clusters mainly consisting of up to 10 participants, which are in the stage of creation, with a local range, operating in the cities with over one hundred thousand residents pointed to the fulfilment of regulations, norms and standards;
- clusters mainly consisting of up to 10 participants, which are in the stage of maturity, with an international range, operating in the cities with up to one hundred thousand residents pointed to the new sales channels and forms of communication.

Enterprises implemented innovations mainly in order to improve the quality of products and open new markets or increase market share (equally 44% of responses), but also due to the new sales channels and forms of communication (39% of responses). One considered the following reasons for important (over 20% of responses): increasing products' offer and reduction of material costs. Less important reasons were: fulfilment of regulations, norms or standards and decreasing environmental harmfulness. Every tenth respondent pointed to the "none of these objectives".

One analysed the various reasons for enterprises implementing innovations, taking into account their features. And so:

- companies which were cluster's coordinators, employed from 50 to 249 employees (medium companies), provided services, cluster to which they belonged consisted of 20–50 participants and was in the stage of maturity or ending cooperation, had regional range, companies operated in the cities with up to one hundred thousand residents pointed to the increase of products' quality as the main reason for implementation of innovations;
- companies which were cluster's participants, employed from 50 to 249 employees (medium companies), conducted trade business, cluster to which they belonged consisted of 10–20 participants and was in the stage of ending cooperation, had regional range, companies operated in the cities with up to one hundred thousand residents pointed to the increased product's offer;
- companies which were cluster's coordinators, employed from 10 to 49 employees (small companies), conducted production business, cluster to which they belonged consisted of more than 50 participants and was in the stage of maturity, had international range, companies operated in the cities with up to one hundred thousand residents pointed to the opening of new markets and increasing market share;

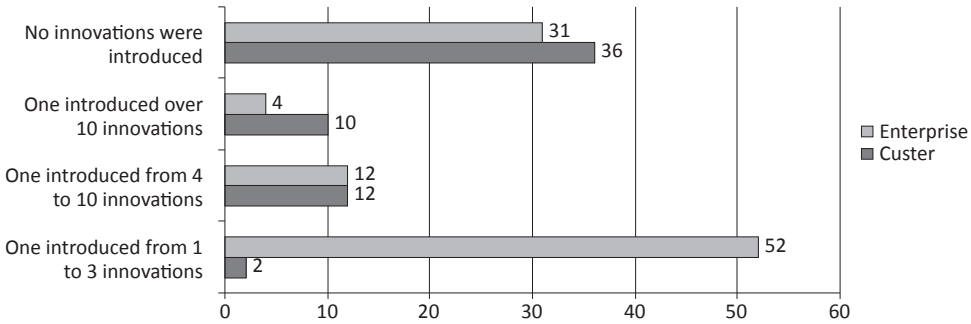
- companies which were cluster's coordinators, employed over 250 employees (large companies), conducted production business, cluster to which they belonged consisted of 20–50 participants and was in the stage of ending cooperation, had local range, companies operated in the cities with up to one hundred thousand residents pointed to the reduction of material costs;
- companies which were cluster's coordinators, employed up to 49 employees (micro and small companies), conducted trade business, cluster to which they belonged consisted of over 50 participants and was in the stage of ending cooperation, had regional range, pointed to the decrease of environmental harmfulness;
- companies which were cluster's coordinators, employed over 250 employees (large companies), conducted production business, cluster to which they belonged consisted of 20–50 participants and was in the stage of ending cooperation, had local range, companies operated in the cities with up to one hundred thousand residents pointed to the reduction of material costs;
- companies which were cluster's participants, employed over 50 employees (medium and large companies), conducted business in such sectors as: administration, education, culture, local governments, cluster to which they belonged consisted of up to 10 participants and was in the stage of creation, had international range, companies operated in the cities with up to one hundred thousand residents pointed to the fulfilment of regulations, norms and standards;
- companies which were cluster's coordinators, employed from 50 to 249 employees (medium companies), conducted trade business, cluster to which they belonged consisted of up to 10 participants and was in the stage of maturity, had international range, companies operated in the cities with up to one hundred thousand residents pointed to the new sales channels and forms of communication.

## 9.4. Innovative activity of clusters

The aim of the study was the identification of innovative activity of clusters and companies that were participants of clusters in years 2007–2012. Three thresholds for respondents who answered positively were provided: one introduced from 1 to 3 innovations; one implemented from 4 to 10 innovations; one introduced more than 10 innovations.

Among the respondents, the largest number of indications for clusters (42%) and businesses (52%) was assigned to the answer: one introduced from 1 to 3 innovations. 36% of clusters and 31% of enterprises in years 2007–2012 did not implement any innovations (Fig. 9.13).

**Figure 9.13. Innovative activity of clusters and enterprises in years 2007–2012**  
(% of responses)



Source: Same as Fig. 9.1.

The analysis of answers was deepened by taking into consideration criteria characterising clusters and enterprises. And so:

- one introduced from 1 to 3 innovations – in the case of clusters this type of innovative activity was characteristic of clusters that consisted of primarily medium companies (49–249 employees), related to services or administration, education, culture or local governments sector, with up to 10 participants, in the stage of creation and having an international range. It was also characteristic for small enterprises (10 to 49 employees), involved in the production or in administration, education, culture or local governments sector, operating in cities with up to one hundred thousand residents, participants of clusters, which consisted of more than 50 participants, were in the stage of creation, had a regional range;
- one introduced from 4 to 10 innovations – in the case of clusters this type of innovative activity was characteristic of clusters that consisted of primarily large companies, related to trade sector, consisted of 20–50 participants, in the stage of maturity and having an regional range. It was also characteristic for medium (50 to 249 employees) and large (over 249 employees) enterprises, involved in service sector, operating in cities with over one hundred thousand residents, participants of clusters, which consisted of more than 50 participants, was in the stage of ending cooperation, had an international range;
- one introduced over 10 innovations – in the case of clusters this type of innovative activity was characteristic of clusters that consisted of large companies, related to services or administration, education, culture or local governments, with up to 10 participants, in the stage of creation and having an international range. It was also characteristic for large enterprises (over 249 employees), involved in the production sector, operating in cities with over one hundred thousand residents, coordinators of clusters, which consisted of 20–50 participants, were in the stage of ending cooperation, had international range;

- no innovations were introduced- in the case of clusters this type of innovative activity was characteristic of clusters that consisted of primarily medium companies (50–249 employees), related to production sector, operating in cities with over one hundred thousand residents, with up to 20 participants, in the stage of ending cooperation and having a domestic range. It was also characteristic for micro enterprises (up to 9 employees), involved in the services or in administration, education, culture or local governments sector, coordinators of clusters, which consisted of up to 10 participants, were in the stage of ending cooperation, had a local range;

## 9.5. Types of innovations in clusters

An important issue from the point of view of the studied subject is to identify the types of innovations that dominated in years 2007–2012 in the researched clusters and enterprises. As already mentioned, innovation may concern new products or product enhancements, new technologies, organisational innovations, new marketing actions (new distribution channels), improvement of marketing or ICT innovations and in knowledge management. Respondents could choose up to three answers. The test results are shown in Figure 9.14.

**Figure 9.14. Types of dominant innovations in years 2007–2012 in enterprises and clusters to which they belong (% of responses)**



Source: Same as Fig. 9.1.

Product-related innovations: new products (31% of responses), improved products (31% of responses) and new marketing actions (29% of responses) and organisational innovations (28% of responses) dominated in clusters. Innovations related to the product: new products (49% of responses), improved products (40% of responses) and to new technologies (36% of responses) also dominated in enterprises. The smallest importance both in clusters and enterprises was attributed to ICT innovations and in knowledge management (respectively 13% and 10% of responses). A slightly larger proportion of indications concerned improved marketing actions (19% and 16% of responses) and improved technologies (18% and 19% of responses).

Also in this case one analysed types of innovations taking into account the features of the researched entities:

- new products: this kind of innovation dominated in clusters, which mainly consisted of large companies operating in the sector of: administration, education, culture or local governments, which had from 10 to 20 participants, where in the stage of creation, of local range. This innovation also dominated in large companies (250 or more employees), related to the production sector, operating in cities of less than one hundred thousand residents, participants of clusters of international range, with 10–20 participants and in the stage of ending cooperation;
- improved products: this kind of innovation dominated in clusters, which mainly consisted of medium companies operating in the service sector, which had over 50 participants, where in the stage of maturity, of local range. This innovation also dominated in large companies, related to the production sector, operating in cities of less than one hundred thousand, participants of clusters of local range, with up to 20 participants and in the stage of maturity;
- new technologies: this kind of innovation dominated in clusters, which mainly consisted of large companies operating in the sector of: administration, education, culture or local governments, which had from 20 to 50 participants, where in the stage of ending cooperation, of regional range. This innovation also dominated in large companies (250 or more employees), related to the trade sector, operating in cities of less than one hundred thousand residents, coordinators of clusters of international range, with 20–50 participants and in the stage of ending cooperation;
- improved technologies: this kind of innovation dominated in clusters, which mainly consisted of large companies operating in the production sector, which had over 50 participants, where in the stage of maturity, of international range. This innovation also dominated in medium companies, related to the production sector, operating in cities of less than one hundred thousand, coordinators of clusters of international range, with up to 10–20 participants and in the stage of ending cooperation;
- organisational innovations: this kind of innovation dominated in clusters, which mainly consisted of large companies operating in the sector of: administration,

education, culture or local governments, which had over 50 participants, where in the stage of maturity, of international range. This innovation also dominated in large companies, related to the trade sector, operating in cities of more than one hundred thousand residents, coordinators of clusters of international range, with over 50 participants and in the stage of ending cooperation;

- new marketing actions: this kind of innovation dominated in clusters, which mainly consisted of micro and small companies (up to 49 employees) operating in the trade sector, which had over 50 participants, where in the stage of maturity, of local range. This innovation also dominated in small companies (10–49 employees), related to the trade sector, operating in cities of less than one hundred thousand residents, coordinators of clusters of international range, with 20–50 participants and in the stage of maturity;
- improved marketing actions: this kind of innovation dominated in clusters, which mainly consisted of large companies operating in the trade sector, which had over 50 participants, where in the stage of ending cooperation, of local or domestic range. This innovation also dominated in large companies, related to the trade sector, operating in cities of more than one hundred thousand residents, both participants and coordinators of clusters of domestic range, with over 50 participants and in the stage of maturity;
- ICT innovations and in knowledge management: this kind of innovation dominated in clusters, which mainly consisted of micro companies (with up to 9 employees) operating in the trade sector, which had from 20 to 50 participants, where in the stage of creation, of regional range. This innovation also dominated in large companies, related to the sector of: administration, education, culture or local governments, operating in cities of more than one hundred thousand, participants of clusters of local or international range, with at least 20 participants and in the stage of creation.

## 9.6. Sources of innovation in clusters

Another research issue was to identify the most important sources of innovations in clusters and enterprises in the years 2007–2012.

41% of the clusters and 33% of enterprises pointed to the contacts with the companies within the cluster. Among the companies dominated large ones, related to service sector, located in the cities of up to one hundred thousand residents, cluster's coordinators. In the case of clusters – had over 50 participants, were in the maturity stage and of local range.

36% of clusters and 34% of enterprises indicated the cooperation with R&D units as the main source of innovations in years 2007–2012. This source dominated in the



large companies (250 or more employees), operating in the sector of: administration, education, culture, local governments, located in the cities of up to one hundred thousand residents, cluster's coordinators. Also, it dominated in clusters with more than 50 participants, in the stage of creation and of domestic range.

26% of clusters and 43% of enterprises indicated needs of clients as the main source of innovations. This source dominated in the micro companies (up to 9 employees), operating in the service sector, located in the cities of more than one hundred thousand residents, cluster's participants. Also, it dominated in clusters with 20–50 participants, in the stage of maturity and of regional range.

26% of clusters and 24% of enterprises indicated employees and management as the main source of innovations. This source dominated in the large companies, operating in the production sector, located in the cities of more than one hundred thousand residents, cluster's coordinators. Also, it dominated in clusters with over 50 participants, in the stage of maturity and of international range.

19% of clusters and 30% of enterprises indicated trade fairs as the main source of innovations in years 2007–2012. This source dominated in the medium companies (50–249 employees), operating in the production sector, located in the cities of up to one hundred thousand residents, cluster's participants. Also, it dominated in clusters with 10–20 participants, in the stage of ending cooperation and of local range (higher statistical significance at the level of 0.05 in relation to the total population).

24% of clusters and 19% of enterprises indicated contacts with enterprises form outside the cluster as the main source of innovations in years 2007–2012. This source dominated in small companies (10–49 employees), operating in the production sector, located in the cities of up to one hundred thousand residents, cluster's coordinators. Also, it dominated in clusters with over 50 participants, in the stage of creation and of regional range.

17% of both clusters and enterprises indicated competition as the main source of innovations. This source dominated in the micro companies (higher difference statistically significant at the level of 0.1 in relation to the total population), operating in the trade sector, located in the cities of up to one hundred thousand residents, cluster's participants. Also, it dominated in clusters with over 50 participants, in the stage of maturity and of domestic range.

14% of clusters and 16% of enterprises indicated own R&D unit as the main source of innovations. This source dominated in the large companies, operating in the sector of: administration, education, culture, local governments, located in the cities of more than one hundred thousand residents, cluster's participants. Also, it dominated in clusters with up to 10 participants, in the stage of maturity and of international range.

9% of clusters and 12% of enterprises indicated publications as the main source of innovations. This source dominated in the large companies (250 and more employees),



operating in the sector of: administration, education, culture, local governments, located in the cities of more than one hundred thousand residents, cluster's coordinators. Also, it dominated in clusters with over 50 participants, in the stage of maturity and of domestic range.

The aim of the study was the identification of factors limiting and conducive to innovative activity of clusters and companies. The results are shown in Table 9.4.

**Table 9.4. Factors limiting and conducive to innovative activity of companies and clusters (% of responses)**

Factors conducive to innovative activity	Cluster	Enterprise	Factors limiting innovative activity	Cluster	Enterprise
	% responses			% responses	
Qualifications and experience of employees	28	35	Legal regulations	36	43
Access to external sources of financing	33	29	Own financial resources	22	28
Access to technologies	27	29	Competition on the market	19	17
Competition on the market	14	28	Access to external sources of financing	13	16
Own financial resources	14	22	Motivational system	6	11
Marketing actions	26	18	Abilities of managers	5	10
Abilities of managers	13	18	Regional initiatives supporting clusters	8	8
Organisational culture	6	16	Qualifications and experience of employees	8	7
Domestic initiatives supporting clusters	23	14	Access to technologies	12	6
Regional initiatives supporting clusters	10	11	Organisational culture	9	6
Motivational system	5	8	Marketing actions	3	6
Legal regulations	5	5	Domestic initiatives supporting clusters	1	6

Source: Same as Fig. 9.1.

One has conducted a deepened analysis of the factors which have received over 20% of indices for factors conducive to innovation and more than 10% of responses in the case of the factors limiting innovation.

Qualifications and experience of employees as a factor encouraging innovative activity was indicated primarily by clusters with 20 to 50 participants, that were in a stage of ending cooperation, of local range, while it was indicated as a limiting factor by clusters with up to 10 participants, which were in the stage of creation, of regional range, as well as medium companies (50–249 employees), operating in the service sector, located in cities up to and over one hundred thousand residents, which were cluster's coordinators.

Access to external sources of financing was indicated primarily by clusters with over 50 participants (higher difference statistically significant at the level of 0.05 in relation to the total population), that were in a stage of maturity, of domestic range, as well as medium companies (50–249 employees), operating in the sector of: administration, education, culture, local governments, located in cities with up to and over one hundred thousand residents, which were cluster's coordinators (higher difference statistically significant at the level of 0.05 in relation to the total population).

Access to technology was indicated primarily by clusters with 2–50 participants, that were in a stage of maturity, of local range, as well as large companies (250 and more employees), operating in the production, located in cities with up to and over one hundred thousand residents, which were cluster's coordinators.

Marketing actions as a factor encouraging innovative activity was indicated primarily by clusters with up to 10 participants (higher difference statistically significant at the level of 0.05 in relation to the total population), that were in a maturity stage, of local range.

Domestic initiatives supporting clusters were indicated primarily by clusters with 20–50 participants, that were in a stage of maturity, of international range, as well as medium companies (50–249 employees), operating in the production sector, located in cities with over one hundred thousand residents, which were cluster's participants.

Own financial resources were indicated primarily by large companies (250 and more employees), operating in the trade sector, located in cities with over one hundred thousand residents, which were cluster's coordinators.

By contrast, among factors limiting innovative activity one indicated in particular:

- legal regulations: clusters having over 50 participants, which are in the stage of ending cooperation, of international range, as well as medium companies (49–249 employees), operating in the production sector, located in cities with over one hundred thousand residents, which were cluster's coordinators;
- own financial resources: clusters having up to 10 participants, which are in the stage of maturity, of domestic range, as well as large companies (250 and more employees), operating in the sector of: administration, education, culture, local governments, located in cities with over one hundred thousand residents, which were cluster's coordinators;
- competition on the market: clusters having up to 10 participants, which are in the stage of maturity, of local range, as well as micro companies (up to 9 employees), operating in the service sector with over one hundred thousand residents, which were cluster's participants;
- access to external sources of financing: clusters having over 50 participants, which are in the stage of maturity, of domestic range, as well as medium companies

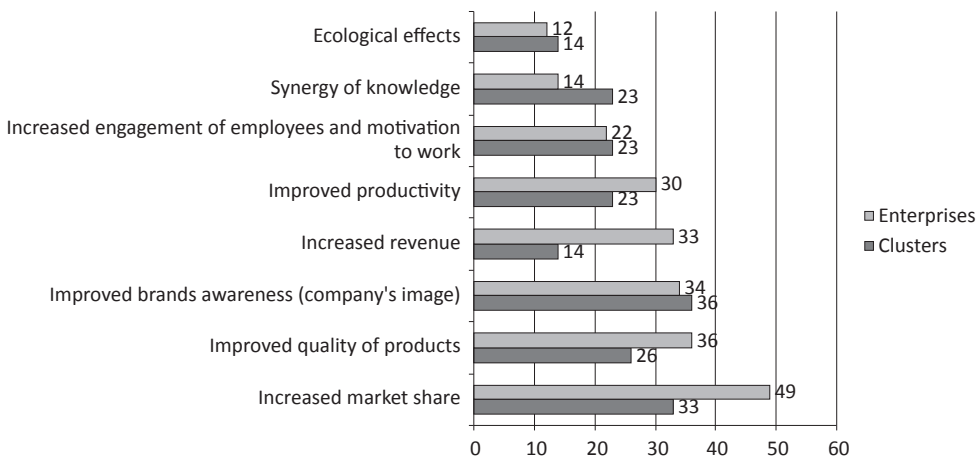
(50–249 employees), operating in the trade sector, which were cluster's coordinators;

- access to technology: clusters having 10 to 20 participants, which are in the stage of ending cooperation (higher difference statistically significant at the level of 0.05 in relation to the total population), of regional range;
- motivational system: large companies (250 and more employees), operating in the service sector or in the sector of: administration, education, culture, local governments, located in cities with over one hundred thousand residents, which were cluster's coordinators,

## 9.7. Benefits of implementing innovations in clusters

In addition to the discussed issues one asked the question about the benefits of implementing innovations in the years 2007–2012. Respondents could indicate up to three most important of the following potential benefits: increased revenue, improved productivity, improved quality of products, increased market share, improved brand awareness (corporate image), ecological effects, increased engagement of employees and motivation to work, synergy of knowledge. The results are shown in Figure 9.15. It should be noted that 20% of clusters and 12% of companies did not give a clear answer.

**Figure 9.15. Benefits of implementing innovations in companies and clusters in years 2007–2012**



Source: Same as Fig. 9.1.

One analysed the benefits from implementation of innovations taking into account the characteristics of clusters and enterprises.

Increased market share (33% of clusters and 49% of companies) was mainly indicated by following clusters: network's size was up to 10 participants, that were in the stage of maturity, of domestic range, as well as medium enterprises (50–249 employees), operating in the trade sector, located in cities with over one hundred thousand residents, which were cluster's participants.

Improved quality of products (26% of clusters and 36% of companies) was mainly indicated by following clusters: having from 10 to 20 participants, that were in the stage of creation, of local range (higher statistical significance at the level of 0.05 in relation to the total population), as well as large enterprises (250 and more employees), operating in the production sector, located in cities with up to one hundred thousand residents, which were cluster's participants.

Improved brand awareness, corporate image (36% of clusters and 34% of companies) was mainly indicated by following clusters: having up to 10 participants (higher statistical significance at the level of 0.1 in relation to the total population), that were in the stage of ending cooperation, of regional range, as well as micro enterprises (up to 9 employees), and small ones (10–49 employees), operating in the production sector or in the sector of: administration, education, culture, local governments, located in cities with up to one hundred thousand residents, which were cluster's participants.

Increased revenues (34% of clusters and 33% of companies) were mainly indicated by following clusters: having from 10 to more than 50 participants, that were in the stage of ending cooperation, of local and international range, as well as large enterprises (250 and more employees, higher statistical significance at the level of 0.05 in relation to the total population), operating in the production sector, located in cities with up to one hundred thousand residents, which were cluster's coordinators.

Improved productivity, company's image (23% of clusters and 30% of companies) was mainly indicated by following clusters: having over 50 participants, that were in the stage of maturity, of international range, as well as large enterprises (250 and more employees), operating in the production sector, located in cities with up to one hundred thousand residents, which were cluster's participants.

Increased engagement of employees and motivation to work (23% of clusters and 22% of companies) was mainly indicated by following clusters: having over 50 participants, that were in the stage of creation, of international range, as well as micro enterprises (up to 9 employees), operating in the sector of: administration, education, culture, local governments (higher statistical significance at the level of 0.1 in relation to the total population), located in cities with up to one hundred thousand residents, which were cluster's coordinators.

Synergy of knowledge (23% of clusters and 14% of companies) was mainly indicated by following clusters: having over 50 participants, that were in the stage of creation, of domestic or international range, as well as medium enterprises (50–249 employees), operating in the trade sector (higher statistical significance at the level of 0.1 in relation to the total population), located in cities with over one hundred thousand residents, which were cluster's coordinators.

Ecological effects (14% of clusters and 12% of companies) was mainly indicated by following clusters: having over 50 participants (higher statistical significance at the level of 0.05 in relation to the total population), that were in the stage of ending cooperation (higher statistical significance at the level of 0.05 in relation to the total population), of international range, as well as micro enterprises (up to 9 employees) and small ones (10–49 employees), operating in the service sector, located in cities with up to one hundred thousand residents, which were cluster's coordinators.

A. Pomykalski in the analysis of innovativeness suggests to take into account the following indicators and criteria<sup>16</sup>:

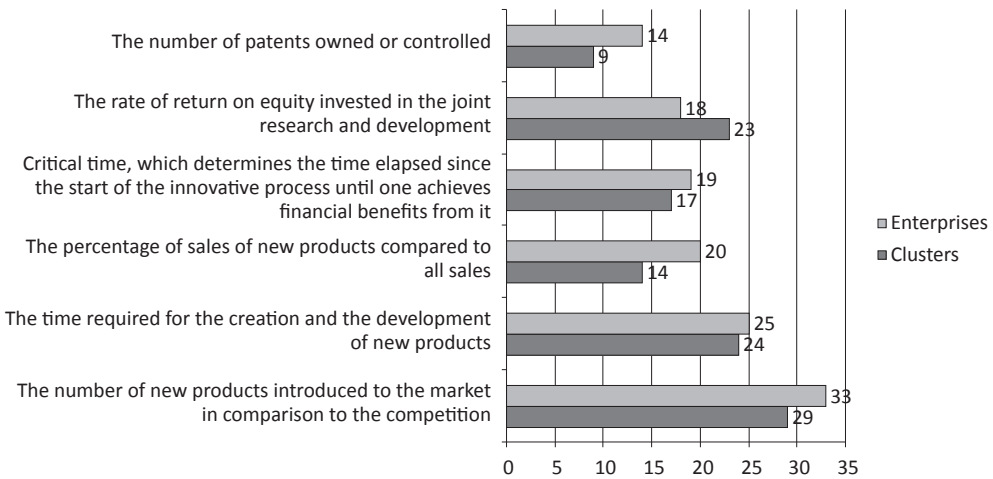
- different kinds of measures of specific effects of actions – such as the number of patents applied for, number of scientific publications, as an indicator of “produced knowledge”;
- the number of new products as the success rate of product innovations;
- measurements of quality of operations – such as consumer's satisfaction surveys;
- effects of strategic success, where all activities of the company are somehow being improved and where at least some of these benefits can be attributed directly or indirectly to innovations, e.g. an increase of revenues or market share, increased profitability etc.

One has also referred in the study to the measures of innovativeness used by companies and clusters. Following indicators and criteria were specified: 1) the percentage of sales of new products compared to all sales; 2) the number of patents owned or controlled; 3) the number of new products introduced to the market in comparison to the competition; 4) the time required for the creation and the development of new products; 5) the rate of return on equity invested in the joint research and development; 6) critical time, which determines the time elapsed since the start of the innovative process until one achieves financial benefits from it.

Respondents could indicate up to three answers (Fig. 9.16).

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<sup>16</sup> A. Pomykalski, *Innowacje*, Politechnika Łódzka, Łódź 2001.

**Figure 9.16. Measures of innovativeness in enterprises and in clusters (% responses)**

Source: Same as Fig. 9.1.

In the case of clusters two measures received more than 20% of responses: the number of new products introduced to the market in comparison to the competition (29% of responses), the time required for the creation and the development of new products (24% of responses).

Companies primarily use three measures of innovativeness (more than 20% of responses). They are: the number of new products introduced to the market in comparison to the competition (33% of responses), the time required for the creation and the development of new products (25% of responses) and the percentage of sales of new products compared to all sales (20% of responses).

## 9.8. Summary

Summing up, the clusters mostly consisted of up to 10 participants, associations were the network's coordinators, they were in the stage of maturity and of regional range. Most clusters and enterprises, among economic effects, reported an increase in market share, while among organisational effects clusters more often indicated the improvement of the quality of offered products and services, while companies pointed to the increase of the diversity and complexity of products and services. It is worth noting that 30% of the clusters and 39% of companies do not see the disadvantages of cooperation within the network. However, they see the lack of certainty of achieving the expected results. Both clusters and companies stressed three main benefits: increased market recognition, its image and brand, increased level of trust, loyalty, consistency of the network and increase of customers' satisfaction, their level

of loyalty. Clusters and companies attributed the greatest meaning to: business integration, which gives new opportunities of development and collaboration, creating networks of companies and major changes in technical, social, economic environment, which are different from previous experiences of companies.

Enterprises were encouraged to cooperate in clusters mainly because of its experience in establishing cooperation, but also the proximity of localisation of partners, common markets of suppliers and customers. However they have a fear of losing their independence. Every fourth respondent did not notice any barriers.

Enterprises among clusters' features emphasised in particular: readiness to upgrade skills – engagement of employees in development, collaborative learning and improvement and the creation of a common vision. In turn, clusters pointed to: the creation of a common vision, a specific organisational culture – openness to people and new ideas, willingness to cooperate and to share information and willingness to upgrade skills – engagement of employees in development.

Clusters are the catalysts of innovative processes, therefore knowledge is a priority. This factor was indicated by both every second cluster and company, but it is also important to focus on the future. According to most entrepreneurs, the scope of knowledge exchange within the cluster is limited to certain kinds of knowledge, especially about the determinants of a sector and about research and development. Exchange of each type of knowledge within the cluster is mostly free. Preferred is the exchange of knowledge of “peer to peer” type, in other words, any direction of the exchange. Most exchange of knowledge takes place in a non-formalised way. Knowledge was acquired both from the outside, as well as it was created by enterprises' employees or participants of the cluster. Clusters and enterprises most often reached after both internal sources of knowledge or they transferred it outside (to other members of the network and/or other entities in the environment or outside the cluster). The clusters most often implemented strategy of the development of cooperation between experts from the given field of knowledge and in the case of enterprises more than one third of them did not have a dominant strategy for knowledge management.

In the case of clusters, the most important reasons for introducing innovations were: opening of new markets or increasing market share. This factor was indicated mainly by clusters having from 20 to 50 participants, which were in the stage of creation and of international range. Most numerous were the clusters and companies that introduced from 1 to 3 innovations. 36% of clusters and 31% of enterprises in years 2007–2012 did not introduce any innovations. The main objective of implementing innovations by companies was to improve the quality of products and to open new markets or increase market share. The improvement of the quality of the products was indicated mainly by companies which acted as the coordinators of the cluster, that were of medium size, operated in the service sector, the cluster to which they

belonged consisted of 20–50 participants and was in the stage of maturity or ending cooperation, had regional range. Opening of new markets or increasing market share were pointed mainly by companies which acted as a coordinators in the cluster, that were of small size, operated in the production sector, the cluster to which they belonged consisted of more than 50 participants and was in the stage of maturity, had international range.

In clusters and enterprises dominated innovations associated with new product. This innovation prevailed in clusters, which consisted of mainly large companies operating in the sector of: administration, education, culture or local governments, having 10 to 20 participants, being in the stage of creation and of local range. It also dominated in large companies, operating in the production sector, which were participants of international clusters that consisted of 10–20 participants and was in the stage of ending cooperation.

Among the most important sources of innovations in clusters and enterprises in years 2007–2012 one indicated contacts with the companies within the cluster. Among the companies dominated large ones, operating in the service sector, which were coordinators of the clusters. In the case of clusters – they consisted of over 50 participants, were in the maturity stage and of local range. One pointed to qualified and experienced staff as the main factor supporting innovative activity in clusters and enterprises. This factor was indicated, above all by clusters that consisted of 20 to 50 participants, which were in a stage of ending cooperation and of local range, as well as by medium companies that operated in service sector and were cluster's coordinators.

In turn, among the factors limiting innovative activity one highlighted in particular the legal regulations: in case of clusters, they had over 50 participants, were in a stage of ending cooperation and of international range, while the companies were of medium size, operating in the production sector and were network's coordinators.

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# Appendix no. 1

**Table no. 1. Characteristics of research sample**

Enterprise's feature	Detailed category	Number of respondents	% of respondents
1. Number of employees in the enterprise	1. Up to 9 employees	214	59,0
	2. 10 – 49 employees	98	27,0
	3. 50 – 249 employees	28	7,7
	4. More than 249 employees	12	3,3
	5. Refused to answer	11	3,0
2. The type of enterprise's business	1. Production	36	9,9
	2. Trade	85	23,4
	3. Services	209	57,6
	4. Administration, education, culture, local governments	28	7,7
	5. Refused to answer	5	1,4
3. Network's type	1. Franchise	121	33,3
	2. Cluster	121	33,3
	3. Virtual	121	33,3
4. Enterprise's role in the network	1. Coordinator	131	36,1
	2. Network participant	232	63,9
5. Number of network's participants	1. Up to 10	154	42,4
	2. 10 – 20	47	13,0
	3. 20 – 50	59	16,2
	4. More than 50	62	17,1
	5. Refused to answer	41	11,3
6. The stage of network's development	1. Network's creation	128	35,3
	2. Maturity	164	45,2
	3. Ending cooperation in the network	20	5,5
	4. Refused to answer	51	14,0
7. Network's range	1. Local	70	19,3
	2. Regional	125	34,4
	3. Domestic	127	35,0
	4. International	33	9,1
	5. Refused to answer	8	2,2

Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH, N=363.

## Appendix no. 2

**Table no. 1. Characteristics of research sample – network’s type, enterprise’s role in the network in %**

Enterprise’s feature		Network’s type to which analysed enterprise belongs			Enterprise’s role in the network	
		Franchise	Cluster	Virtual	Coordinator	Participant
In total		121	121	121	131	232
Number of employees Network’s size	Up to 9	55	43	79	52	64
	10–49	28	40	24	31	25
	50–249	10	10	30	11	6
	More than 250	5	5	4	5	2
	Up to 10	34	33	60	50	38
	10–20	11	17	11	13	13
	20–50	17	25	7	22	13
	More than 50	26	13	12	10	21
The stage of development	Network’s creation	39	36	31	37	34
	Maturity	48	41	46	50	42
	Ending cooperation	3	7	7	4	7
Network’s range	Local	26	12	20	12	23
	Regional	15	48	40	36	34
	Domestic	48	28	29	38	33
	International	10	8	8	11	7
The type of business	Production	1	24	5	8	11
	Trade	45	12	14	19	26
	Services	50	45	78	63	55
	Administration, education, culture, local governments	4	17	2	8	8

\* The numbers do not add up to 100% due to the fact that some respondents did not give any answers.

Source: Own research 2013, Department of Enterprise Management, Institute of Management SGH, N=363.

# List of figures

- Figure 1.1. The importance of the environment’s characteristics  
in the development of network organisations (% of responses) ..... 19
- Figure 1.2. The importance of the environment’s characteristics  
in the development of network organisations depending on the type  
of network organisation (% of responses) ..... 22
- Figure 1.3. The importance of the environment’s characteristics  
in the development of network organisations depending  
on the number of employees in enterprises belonging to the network  
(% of responses) ..... 24
- Figure 1.4. The importance of the environment’s characteristics  
in the development of network organisations depending  
on the network’s participants type of business (% of responses) ..... 24
- Figure 1.5. The importance of the environment’s characteristics  
in the development of network organisations depending  
on the number of network’s participants (% of responses) ..... 25
- Figure 1.6. The importance of the environment’s characteristics  
in the development of network organisations depending on the stage  
of network’s development (% of responses) ..... 25
- Figure 1.7. The importance of the environment’s characteristics  
in the development of network organisations depending  
on the network’s range (% of responses) ..... 26
- Figure 1.8. The importance of management concepts in the development  
of network organisations (% of responses) ..... 29
- Figure 1.9. The importance of management concepts in the development  
of network organisations depending on the type of network  
organisation (% of responses) ..... 30
- Figure 1.10. The importance of management concepts in the development  
of network organisations depending on the number of employees  
in enterprises belonging to the network (% of responses) ..... 31
- Figure 1.11. The importance of management concepts in the development  
of network organisation depending on enterprise’s type of business  
belonging to the network (% of responses) ..... 32
- Figure 1.12. The importance of management concepts in the development  
of network organisations depending on the number of network’s  
participants (% of responses) ..... 33

Figure 1.13. The importance of management concepts in the development of network organisations depending on the stage of network development (% of responses) .....	34
Figure 1.14. The importance of management concepts in the development of network organisations depending on the network's range (% of responses) .....	35
Figure 1.15. The benefits of the projects' realisation in the network organisations (% of responses) .....	38
Figure 1.16. The benefits of the projects' realisation in the network organisations depending on the type of the network organisation (% of responses) ..	39
Figure 1.17. The benefits of the projects' realisation in the network organisations depending on the number of employees of the network's participant (%of responses) .....	40
Figure 1.18. The benefits of the projects' realisation in the network organisations depending on the type of the business of the network's participant (% of responses) .....	40
Figure 1.19. The benefits of the projects' realisation in the network organisations depending on the number the network's participants (% of responses)	41
Figure 1.20. The benefits of the projects' realisation in the network organisations depending on the stage of network's development (% of responses) ...	42
Figure 1.21. The benefits of the projects' realisation in the network organisations depending on the network's range (% of responses) .....	42
Figure 2.1. Factors encouraging enterprises to cooperate within the network organisations .....	50
Figure 2.2. Factors encouraging companies to cooperate within the network depending on the size of the respondent in % .....	52
Figure 2.3. Factors encouraging companies to cooperate within the network depending on the type of respondents' business in % .....	52
Figure 2.4. Factors that encourage enterprises to establish cooperation within the network depending on the type of the network in % .....	53
Figure 2.5. Factors encouraging companies to cooperate within the network depending on the number of network's participants in % .....	54
Figure 2.6. Factors encouraging companies to cooperate within the network depending on its range in % .....	55
Figure 2.7. Barriers when establishing and conducting cooperation within network organisations in % .....	56
Figure 2.8. Barriers when establishing and conducting cooperation within network organisations depending on the size of the respondent in % ...	58

Figure 2.9. Barriers when establishing and conducting cooperation within the network organisation depending on the type of respondents business in % .....	59
Figure 2.10. Barriers when establishing and conducting cooperation within the network organisation depending on the type of the network in % .	59
Figure 2.11. Barriers when establishing and conducting cooperation within the network organisation depending on the number of its participants in % .....	60
Figure 2.12. Barriers when establishing and conducting cooperation within the network organisation depending on its range in % .....	61
Figure 2.13. Frequency of conducting joint actions by the companies belonging to the network organisation in % .....	62
Figure 2.14. Regularly conducted joint activities within the network organisation depending on the type of the network in % .....	65
Figure 3.1. The activities of the network organisations as the knowledge organisations (% of responses) .....	75
Figure 3.2. The activities of the network organisations as the knowledge organisations depending on the type of network organisation (% of responses) .....	75
Figure 3.3. The activities of the network organisations as the knowledge organisations depending on the number of employees in enterprises belonging to the network (% of responses) .....	76
Figure 3.4. The activities of network organisations as knowledge organisations depending on type of activities of the enterprises belonging to the network (% of responses) .....	77
Figure 3.5. The activities of the network organisations as the knowledge organisations depending on the number of network participants (% of responses) .....	78
Figure 3.6. The activities of the network organisations as the knowledge organisations depending on the stage of network's development (% of responses) .....	79
Figure 3.7. The activities of network organisations as knowledge organisations depending on the network's range (% of responses) .....	79
Figure 3.8. Characteristics of network organisations as learning organisations (% of responses) .....	83
Figure 3.9. Characteristics of network organisations as learning organisations depending on the type of network organisation (% of responses) .....	84
Figure 3.10. Characteristics of network organisations as learning organisations depending on the number of employees in enterprises belonging to the network (% of responses) .....	85

Figure 3.11. Characteristics of network organisations as learning organisations depending on the activities of the enterprises belonging to the network (% of responses) .....	86
Figure 3.12. Characteristics of network organisations as learning organisations depending on a number of participants of the network (% of responses) .....	87
Figure 3.13. Characteristics of network organisations as learning organisations depending on the stage of network's development (% of responses) ...	87
Figure 3.14. Characteristics of network organisations as learning organisations depending on the network's activities (% of responses) .....	88
Figure 3.15. Instruments for the development of network organisations as learning organisations (% of responses) .....	91
Figure 3.16. Instruments for the development of network organisations as learning organisations depending on the type of network organisation (% of responses) .....	92
Figure 3.17. Instruments for the development of network organisations as learning organisations depending on a number of employees in enterprises belonging to the network (% of responses) .....	93
Figure 3.18. Instruments for the development of network organisations as learning organisations depending on the activities of the enterprises belonging to the network (% of responses) .....	94
Figure 3.19. Instruments for the development of network organisations as learning organisations depending on a number of network's participants (% of responses) .....	95
Figure 3.20. Instruments for the development of network organisations as learning organisations depending on a stage of network's development (% of responses) .....	95
Figure 3.21. Instruments for the development of network organisations as learning organisations depending on the activities of the network (% of responses) .....	96
Figure 4.1. The ways of acquiring knowledge at the enterprise's level (single network unit) .....	104
Figure 4.2. The way of acquiring knowledge by enterprises depending on their role in the network .....	105
Figure 4.3. The way of acquiring knowledge by enterprises depending on their size .....	105
Figure 4.4. The way of acquiring knowledge by enterprises depending on the type of business .....	106
Figure 4.5. The way of acquiring knowledge by enterprises depending on the type of the network .....	106



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Figure 4.6. The way of acquiring knowledge by enterprises depending on the size of the network .....	107
Figure 4.7. The way of acquiring knowledge by enterprises depending on the network's range .....	107
Figure 4.8. The way of acquiring knowledge by enterprises depending on the stage of network's development .....	108
Figure 4.9. The process of acquiring knowledge at the level of the whole network .	108
Figure 4.10. The way of using knowledge at the enterprise's level (single network unit) .....	109
Figure 4.11. The way of using knowledge by enterprises depending on the size of the network .....	110
Figure 4.12. The way of using knowledge by enterprises depending on the role in the network .....	110
Figure 4.13. The way of using knowledge by enterprises depending on the type of the network .....	111
Figure 4.14. The way of using knowledge by enterprises depending on the network's range .....	111
Figure 4.15. The way of using knowledge by enterprises depending on the stage of network's development .....	112
Figure 4.16. The way of using knowledge by enterprises depending on the type of business .....	112
Figure 4.17. The way of using knowledge by enterprises depending on their size ..	113
Figure 4.18. The way of using knowledge at the whole network's level .....	113
Figure 4.19. The scope of knowledge exchange in network organisations .....	115
Figure 4.20. Areas of knowledge exchange in the network .....	116
Figure 4.21. The direction of knowledge flow within the network .....	117
Figure 4.22. The level of payment for knowledge exchange .....	118
Figure 4.23. The level of knowledge exchange formalisation in network organisations .....	119
Figure 4.24. Decision-maker of knowledge exchange in the network organisations	120
Figure 4.25. Knowledge management strategies that are used at the level of a single enterprise .....	122
Figure 4.26. Knowledge management strategies implemented at the enterprise's level depending on the role that it plays in the network .....	122
Figure 4.27. Knowledge management strategies implemented at the enterprise's level depending on its size .....	123
Figure 4.28. Knowledge management strategies implemented by the enterprise depending on the size of a network .....	123

Figure 4.29. Knowledge management strategies implemented by the enterprise depending on the stage of network's development .....	124
Figure 4.30. Knowledge management strategies implemented by the enterprise depending on the network's range .....	124
Figure 4.31. Knowledge management strategies used by enterprises depending on the type of business .....	125
Figure 4.32. Knowledge management strategies used by enterprises depending on the type of the network .....	125
Figure 4.33. Knowledge management strategies used at the level of the whole network .....	126
Figure 4.34. The advancement level of knowledge management system at the level of the single network unit (enterprise) .....	127
Figure 4.35. The advancement level of building knowledge management system in the enterprise depending on its size .....	128
Figure 4.36. The advancement level of building knowledge management system in the enterprise depending on the size of the network to which the enterprise belongs .....	128
Figure 4.37. The advancement level of building knowledge management system in the enterprise depending on the stage of network's development ..	129
Figure 4.38. The advancement level of building knowledge management system in the enterprise depending on the network's range .....	129
Figure 4.39. The advancement level of building knowledge management system in the enterprise depending on the type of the network .....	130
Figure 4.40. The advancement level of building knowledge management system in the enterprise depending on its role in the network .....	130
Figure 4.41. The advancement level of building knowledge management system in the enterprise depending on the type of business .....	131
Figure 4.42. The advancement level of building knowledge management system at the level of whole network .....	131
Figure 4.43. The advancement level of building knowledge management system at the level of a single enterprise compared to its innovativeness .....	133
Figure 4.44. The advancement level of building knowledge management system at the level of whole network compared to its innovativeness .....	133
Figure 4.45. Knowledge management strategies at the level of a single enterprise compared to its innovativeness .....	134
Figure 4.46. Knowledge management strategies at the level of the whole network compared to its innovativeness .....	135
Figure 5.1. Effects of network organisations .....	140
Figure 5.2. Positive effects of functioning within a network organisation in % .....	143

Figure 5.3. The positive effects of the functioning within the network organisation depending on its type in % .....	144
Figure 5.4. Negative effects of functioning within a network organisation in % ...	145
Figure 5.5. The negative effects of functioning within network organisation depending on the type of network in % .....	146
Figure 5.6. Economic and financial effects achieved from operating within network organisation in % .....	147
Figure 5.7. The economic and financial effects achieved by participants of a network organisation depending on the respondent's size in % ...	148
Figure 5.8. The economic and financial effects achieved by participants of a network organisation depending on the respondent's type of business in % .....	149
Figure 5.9. The economic and financial effects achieved by participants of a network organisation depending on the type of network in % ....	150
Figure 5.10. The economic and financial effects achieved by participants of a network organisation depending on the network's size in % .....	150
Figure 5.11. The economic and financial effects achieved by participants of a network organisation depending on the network's range in % ...	151
Figure 5.12. The organisational effects achieved by participants of a network organisation in % .....	152
Figure 5.13. The organisational effects achieved by participants of a network organisation depending on the size of the respondent in % .....	153
Figure 5.14. The organisational effects achieved by participants of a network organisation depending on the type of the respondent's business in %	154
Figure 5.15. The organisational effects achieved by participants of a network organisation depending on the type of the network in % .....	155
Figure 5.16. The organisational effects achieved by participants of a network organisation depending on the size of the network in % .....	156
Figure 5.17. The organisational effects achieved by participants of a network organisation depending on the range of the network in % .....	156
Figure 5.18. Measures of innovativeness used in % .....	158
Figure 5.19. Measures of innovativeness used in network organisations depending on the type of a network in % .....	159
Figure 6.1. Reasons for implementation of innovation in network organisations in % .....	165
Figure 6.2. Number of employees and the reasons for the implementation of innovation in network organisations in % .....	166
Figure 6.3. Type of business and the reasons for the implementation of innovation in network organisations in % .....	167

Figure 6.4. Network's size and reasons for introduction of innovation in network organisations in % .....	168
Figure 6.5. Reasons of implementation of innovation in network organisations depending on the stage of network's development in % .....	169
Figure 6.6. Innovative activities of network organisations in % .....	170
Figure 6.7. Innovative activity of network organisations depending on the role in network in % .....	171
Figure 6.8. Innovative activity of network organisations depending on the number of employees in % .....	172
Figure 6.9. Innovative activities of network organisations depending on the type of business in % .....	172
Figure 6.10. Innovative activity of network organisations depending on the size of network in % .....	173
Figure 6.11. Innovative activity of network organisations depending on the stage of network's development in % .....	174
Figure 6.12. Types of innovations implemented in network organisations depending on the role in the network in % .....	174
Figure 6.13. Types of innovations implemented in network organisations in % ...	175
Figure 6.14. Types of innovations implemented in network organisations depending on the size of the network in % .....	176
Figure 6.15. Types of innovations implemented in network organisations depending on the business sector in % .....	177
Figure 6.16. Innovative activity of network organisations depending on the number of employees in % .....	177
Figure 6.17. Sources of innovation in network organisations depending on the role in the network in % .....	178
Figure 6.18. Sources of innovation in network organisations in % .....	179
Figure 6.19. Sources of innovation in network organisations depending on the number of employees in % .....	180
Figure 6.20. Sources of innovation in network organisations depending on the sector of business in % .....	181
Figure 6.21. The benefits of implementing innovations in network organisations depending on the role in the network in % .....	182
Figure 6.22. The benefits of implementing innovations in network organisations in % .....	183
Figure 6.23. The benefits of implementing innovations in network organisations depending on the number of employees in % .....	183
Figure 6.24. Benefits of implementing innovations in network organisations depending on the size of the network in % .....	184

Figure 6.25. The benefits of implementing innovations in network organisations depending on the business sector in % .....	185
Figure 7.1. Reasons of implementing innovations in franchise organisations in % .	191
Figure 7.2. The reasons for the introduction of innovations in franchise organisations depending on the number of employees in % .....	192
Figure 7.3. The reasons for implementation of innovations in franchise companies depending on the size of the network in % .....	193
Figure 7.4. Innovative activity of franchise organisations in % .....	193
Figure 7.5. Innovative activity of franchise networks in % .....	194
Figure 7.6. Innovative activity of franchise companies depending on the number of employees in % .....	195
Figure 7.7. Innovative activity of franchise companies depending on the type of business in % .....	195
Figure 7.8. Innovative activity of franchise companies depending on the network's size in % .....	196
Figure 7.9. Innovative activity of franchise networks depending on the network's size in % .....	197
Figure 7.10. Types of innovations implemented in franchise companies in % .....	197
Figure 7.11. The types of innovations implemented in franchise networks depending on the network's size in % .....	198
Figure 7.12. The types of implemented innovations in franchise companies depending on the business sector in % .....	199
Figure 7.13. Sources of innovation in a franchise company in % .....	200
Figure 7.14. Sources of innovation in franchise companies depending on the number of employees in % .....	200
Figure 7.15. The benefits of implementing innovation in franchise organisations in % .....	201
Figure 7.16. The benefits of the implementation of innovation in franchise companies depending on the number of employees in % .....	202
Figure 7.17. Benefits of implementing innovation in franchise companies depending on the network's size in % .....	203
Figure 7.18. The benefits of implementing innovation in franchise companies depending on the business sector in % .....	204
Figure 7.19. Factors encouraging innovative activity of enterprises and franchise networks in % .....	205
Figure 7.20. Factors limiting innovative activity of enterprises and franchise networks in % .....	205

Figure 7.21. Factors encouraging the innovative activity of franchise organisations depending on the type of business in % .....	206
Figure 7.22. Factors limiting the innovative activity of franchise organisations depending on the type of business in % .....	207
Figure 7.23. Factors encouraging the innovative activity of franchise organisations depending on the network's size in % .....	207
Figure 7.24. Factors limiting the innovative activity of franchise organisations depending on the network's size in % .....	208
Figure 8.1. Reasons of implementing innovations depending on the size of the company belonging to the virtual organisation in % .....	217
Figure 8.2. Reasons of implementing innovations depending on the size of the virtual organisation in % .....	217
Figure 8.3. Reasons of implementing innovations depending on the sector of enterprise belonging to the virtual organisation in % .....	218
Figure 8.4. Reasons of implementing innovations depending on the network's size – the enterprise's perspective in % .....	219
Figure 8.5. Reasons of implementing innovations depending on the network's size in % .....	220
Figure 8.6. Reasons of implementing innovations in enterprise belonging to the virtual organisations depending on the stage of network's development in % .....	221
Figure 8.7. Reasons of implementing innovations depending on the stage of network's development in % .....	221
Figure 8.8. Reasons of implementing innovations depending on the network's range – virtual organisation's perspective in % .....	222
Figure 8.9. Innovative activity of enterprises belonging to virtual organisations depending on the size of the company in % .....	223
Figure 8.10. Innovative activity of enterprises belonging to virtual organisations depending on the business sector in % .....	224
Figure 8.11. Network's innovative activity depending on the business sector in % ..	225
Figure 8.12. Innovative activity of enterprises belonging to the virtual organisation depending on the network's size in % .....	225
Figure 8.13. Network's innovative activity depending on the network's size in % ..	226
Figure 8.14. Network's innovative activity depending on the stage of network's development in % .....	227
Figure 8.15. Innovative activity of the network depending on the network's range – the perspective of enterprises in % .....	227
Figure 8.16. Innovative activity depending on the network's range in % .....	228

Figure 8.17. Types of innovations in enterprises belonging to virtual organisations depending on the size of enterprise in % .....	229
Figure 8.18. Types of innovations in enterprises belonging to virtual organisations depending on the business sector in % .....	230
Figure 8.19. Types of implemented innovations in virtual organisations depending on the network's size in % .....	231
Figure 8.20. Types of innovations in the virtual organisation depending on the stage of network's development in % .....	232
Figure 8.21. Types of implemented innovations in the virtual organisation depending on the network's range in % .....	233
Figure 8.22. Sources of innovation in enterprises belonging to the virtual organisation depending on the size of enterprises in % .....	234
Figure 8.23. Sources of innovation in enterprises belonging to virtual organisations depending on the sector of enterprise's business in % ..	235
Figure 8.24. Sources of innovation in enterprises belonging to the virtual organisations depending on the network's size in % .....	235
Figure 8.25. Sources of innovation in virtual organisations depending on the stage of network's development in % .....	236
Figure 8.26. Sources of innovation in virtual organisations depending on the network's range in % .....	237
Figure 8.27. The benefits of implementing innovations for enterprises belonging to the virtual organisation depending on the size of the enterprise in % .....	238
Figure 8.28. The benefits of implementing innovations for enterprises belonging to virtual organisations depending on the business sector in % .....	239
Figure 8.29. The benefits of implementing innovations for enterprises belonging to virtual organisations depending on the network's size in % .....	240
Figure 8.30. The benefits of implementing innovations for virtual organisations depending on the stage of its development in % .....	241
Figure 8.31. The benefits of implementing innovations in virtual organisation depending on its range in % .....	242
Figure 9.1. Economic effects from the enterprise's participation in the cluster (% of responses) .....	251
Figure 9.2. Economic effects for clusters from the fact of their creation (% of responses) .....	251
Figure 9.3. Organisational effects connected to clusters (% of responses) .....	252
Figure 9.4. Negative effects connected to clusters (% of responses) .....	253
Figure 9.5. Benefits for enterprises and clusters from the existence of network (% of responses) .....	254

Figure 9.6. Factors encouraging enterprises to cooperation within a cluster (% of responses) .....	255
Figure 9.7. Barriers, that occurred while establishing cooperation between an enterprise and a cluster (% of responses) .....	256
Figure 9.8. Joint activities undertaken within a cluster (% of responses) .....	256
Figure 9.9. Features characterising clusters from the perspective of the enterprise and the network .....	258
Figure 9.10. Areas of knowledge exchange within clusters (% of responses) .....	259
Figure 9.11. Actions undertaken in cluster and in enterprises in years 2007–2012 (% of responses) .....	264
Figure 9.12. Reasons for introducing innovations by clusters and enterprises (% of responses) .....	265
Figure 9.13. Innovative activity of clusters and enterprises in years 2007–2012 (% of responses) .....	268
Figure 9.14. Types of dominant innovations in years 2007–2012 in enterprises and clusters to which they belong (% of responses) .....	269
Figure 9.15. Benefits of implementing innovations in companies and clusters in years 2007–2012 .....	275
Figure 9.16. Measures of innovativeness in enterprises and in clusters (% responses) .....	278



## List of tables

Table 2.1. Regularly conducted joint activities within the network organisation depending on the respondent's size and type of business in %	64
Table 2.2. Regularly conducted joint activities within the network organisation, depending on the type of network, the number of participants and its range in %	66
Table 3.1. Selected instruments for the development of a learning organisation	90
Table 4.1. The scope of examining individual parameters of knowledge management in relation to a single network unit (enterprise) and the whole network	102
Table 4.2. All answers to research questions	136
Table 9.1. Ways of acquiring and using knowledge by enterprises and clusters to which they belong (% of responses)	260
Table 9.2. Dominant strategy of knowledge management in cluster and in enterprise – a participant of a cluster (% of responses)	261
Table 9.3. Assessment of the level of advancement of knowledge management in the enterprise and in the cluster to which it belongs (% of responses)	261
Table 9.4. Factors limiting and conducive to innovative activity of companies and clusters (% of responses)	273
Table no. 1. Characteristics of research sample	283
Table no. 1. Characteristics of research sample – network's type, enterprise's role in the network in %	284