BUSINESS CLUSTERS FOR IMPROVING COMPETITIVENESS AND INNOVATION OF ENTERPRISES - EXPERIENCE OF LATVIA

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Abstract

Purpose - *the purpose of this paper is to examine the experience of the Latvian IT cluster and the Forest industries cluster to evaluate their capacity for innovation and competitiveness.*

Design/methodology/approach *- theoretical and empirical research methods, including an extensive literature review, the IT Cluster company data analysis, the survey of the Latvian Information technology (IT) cluster analysis, and the data analysis of the Latvian Forest industries cluster.*

Findings *- the analysis of the both Latvian clusters shows that they have established effective co-operation platforms for improving competitiveness and innovation capacity. Companies can achieve practical use and benefits employing the concept of clusters. Thus, this is important to promote the development of clusters in different industries using state support, as well as private initiative.*

Originality/value – *This paper argues that cluster environment can positively influence development of companies facilitating their competitiveness and innovation capacity. The analysis of both Latvian clusters reflect the business environment in Latvia, as well as cooperation among enterprises. Findings of the research could be useful for already existing clusters, newly developing clusters, policy makers, as well as researchers.*

Article Type: *Research paper*

Key word(s): *Cluster; cluster initiative; information technology; forest industries; competitiveness; innovation.*

Introduction

The discussion on business clusters has become very active during the last two decades, especially taking into account globalization processes and their impact on economic development. The knowledge and technology intensive economy is increasingly becoming an engine for economic growth of many countries promoting discussions focused on competitiveness and sustainable development, including the development of business clusters, among economic policy makers and researchers more than ever. Today promotion of the development of business clusters or networks of companies, education institutions and other related organisations is an internationally recognized form for improving competitiveness and innovation of companies, especially for those searching for entry into international markets.

There are more than dozen cluster initiatives in Latvia undertaken by business associations of certain industries, as well as ongoing activities for creating new cluster initiatives. The understanding of the cluster's concept differs in Latvia. Mostly, the business clusters are regarded as organized cooperation networks including interconnected companies, related industries, research and education institutions and other institutions concentrated in certain geographic area. Taking into account that there are historically developed strong associations of industries in Latvia those are usually undertaking a coordinating role related to cluster development and networking.

The purpose of this paper is to examine the experience of the Latvian IT cluster initiative and the Forest industries initiative through evaluating their capacity for innovation and competitiveness. The research is based on both, theoretical and empirical research methods, which include an extensive literature review, the IT company data analysis, the survey of the Latvian Information technology (IT) cluster analysis, and the data analysis of the Latvian Forest industries cluster. The data analysis in this paper is based on data of the Central Statistical Bureau of Latvia, data of the Enterprise Register of Latvia and information provided by Latvian IT cluster and Forest industries cluster companies. Findings of the

research could be useful for already existing clusters, newly developing clusters, policy makers, as well as researchers.

Conclusions support the main hypothesis that companies can achieve practical use and benefits employing the concept of clusters and emphasize benefits which can be achieved from clusters development and stresses importance of policy support for cluster development. Thus, this is important to promote the development of clusters in different industries using state support, as well as private initiative. The innovative experience of Latvian clusters could be useful for a practical application by other countries and companies looking for increased competitiveness and innovation capacity.

Practical application of clusters concept, as well as research findings indicate that the emergence of clusters is often a result of a specific initiative. This leads to the hypothesis that the management of cluster plays an important role in facilitating co-operation, co-ordination and free information flow from inside and outside of cluster. In this respect the quality and professionalism of cluster management matters in measuring the performance of the cluster. On the other hand, the national policy fostering cluster development can advance the development of cluster initiatives and influence their performance.

The paper is structured as follows: a literature review summarises the relevant literature and presents the discussion on benefits of localization and specialization of industries. In "Methodology" section, the methods used in research are presented. The findings of the data analysis and survey are presented in the following sections. Finally, the paper concludes with main finding of the research, as well as observed impacts of a cluster framework conditions on company performance.

Literature review on the development of cluster's concept

The benefits of localization of industries or geographic proximity have been widely discussed among researchers and practitioners. Many researchers, such as O'Brien (1992), Cairncross (1997) and Gray (1998), tried to justify that concentration of economic activity in certain areas as a result of globalization is becoming less important with the rapid technological development. Others, such as Krugman (1991), Krugman (1994), Ohmae (1995), Porter (1998b), Coyle (2001), Scott (2001), Solvell (2008), prove exactly the opposite – that globalization increases the importance of localization and regional economy or concentration is becoming more important than national level economic development for international trade and added value creation. With the development of knowledge economy in the beginning of 21st century the discussion on achieving long term economic competitiveness has become even more active. In this respect the discussion on specialized regional clusters as a tool for promoting economic development and improving competitiveness has increasingly become in the focus of economic policy debate and academic research.

The concept of clusters in the business management and practice was actualised by Prof. Michael Porter of the Harvard Business School (HBS) in his book "*The Competitive Advantage of Nations"* (Porter, 1990). The initially established concept of cluster by M.Porter describes an industrial cluster as unification of several industries based on buyer-supplier relations, similar technologies, distribution channels or similar qualifications of employment. M.Porter in his book offers two cluster definitions on vertical and horizontal clusters, but does not take into account the importance of geographic location. After further development of the clusters concept in his numerous following publications, including Porter (1998a), Porter (1998b), Porter (1998c), Porter (2000), Porter (2001), Porter (2003), clusters are described as groups of interconnected firms, suppliers, related industries and institutions that arise in certain locations. These clusters are geographical concentration of interconnected companies, specialised suppliers, service providers and associated institutions in particular field. Specialized regional clusters have been arising in locations with enough resources and competence, where companies can fully explore competitive advantages over other places.

Academic discussion on benefits of economic specialisation and localisation started long before Prof. Porter developed his concept – at the end of 19th century by Alfred Marshall (Marshall, 1980) who has described his observations on concentration of specialized industries in his book "Principles of Economics". Later studies by Brusco (1982), Piore et all (1984), Czamanski et all (1979) and others on industrial districts and research on industrial and regional economics were describing clusters as groups of industries related by flows of goods and services.

During 1990ies Porter's first cluster concept was used as a basis by other researchers, such as Enrait (1992), Redman (1991), Rosenfeld (1995), Rosenfeld (1997), Jacobs et all (1996), as well as others in discussing and further elaborating the concept of cluster. There has also been a criticism of Porter's cluster concept by Rosenfeld (1995), Rosenfeld (1997) and Martin et all (2003), and others emphasising lack of precise formulation of most important concepts used in the cluster definition, such as *regional proximity* or *collaborative and competitive linkages,* as well as expressing different concerns – for example that cluster industries might become overspecialized.

Despite frustrations around the concept of cluster it has become an important tool for promoting economic development and competitiveness of enterprises. Firstly, clusters are important because they allow companies to be more productive and innovative than they could be operating in isolation. Secondly, clusters are important because they can reduce barriers to entry and promote new business creation relative to other more dispersed locations. (Porter 2000, pp. 253-274) As a result, clusters have increasingly become in the focus of economic policy debate and academic research.

An elastic approach of clusters concept has promoted its practical application. The Clusters' Greenbook (Solvell 2003) comprises and analyses 250 cluster initiatives from the whole world. The following so called Clusters' Bluebook (Ketels et all 2006) comprises 1400 cluster initiatives and extended analysis on 450 cluster initiatives. These extensive studies, as well as the Clusters' Redbook (Solvell 2008) and the Clusters Whitebook (Andersson et all 2004) can serve as handbooks for every clusters researcher and practitioner.

Methodology

Data analysis

Quantitative or data analysis includes the Latvian Enterprise Register data on 18 out of 19 Latvian IT cluster members[1] from 2006 to 2008 considering that the IT cluster has established an independent management structure in 2005. Data of one company Oracle Latvia is not available at the Latvian Enterprise Register since this is the representative office of Oracle in Latvia and can not represent the whole company.

The data on IT cluster companies is available from the year 2000 and they are used to compare the growth of the IT cluster with the whole IT sector. The data collected and provided by both, the Latvian IT cluster and the Latvian Forest industry cluster, are used in addition to the company data. In addition, data from Central Statistical Bureau of Latvia and the Latvian Ministry of Agriculture are used to evaluate the overall performance of the IT sector of Latvia analyse the performance of the Latvian Forest industry.

Cluster survey

The qualitative analysis is based on the expert survey and interviews including the data of 16 out of 19 Latvian IT cluster companies (response rate 84%). The purpose of the IT cluster expert survey was to evaluate cluster performance indicators and the impact of cluster specific conditions on company performance. The expert survey data is not available on two companies established only a year ago and for the Oracle representative office in Latvia.

[1] The data analysis does not include "Oracle Latvia", which has a representative status in Latvia.

The IT cluster expert survey includes more than 20 indicators which helps to characterise cluster framework conditions in 5 main areas:

1. access to human resources with specific skills and competences;
2. entrepreneurial activity;
3. impact of the state regulatory framework;
4. promotion of innovation;
5. cooperation between companies.

The survey is designed to support hypothesis that co-operation of cluster companies in areas of innovation and knowledge transfer is an important factor which has direct impact on innovative capacity of cluster. In this regard the survey includes questions which permit to evaluate opinion of enterprises on their participation in the cluster, impact of cluster on company performance and level of co-operation within the cluster. In turn, cluster support policy has indirect impact on co-operation between companies and importance of cluster activities.

The Latvian IT cluster initiative

According to the definition of the Latvian IT cluster it is a long term collaboration project between geographically united ICT sector firms of Latvia. The goal of establishing the IT cluster is to enhance co-operation between members of the cluster, to promote IT related export and to facilitate the creation of favourable business environment for promoting investment and innovation.

The initiative of the Latvian IT cluster was started with the support of the ES PHARE[2] program in the year 2000. In the beginning the IT cluster was established at the Latvian Information and Communication Technologies Association (LICTA) which supported its activities. However, the cluster members understood that it can not operate independently for the benefit of its members without own management structure. In 2005 the Latvian IT cluster members decided to establish an independent management organisation represented by the Cluster Members' Meeting, Cluster Board and the Executive Director.

In fact, in 2005 the Latvian IT cluster was fully re-established and it became legally and organizationally independent structure. The IT cluster still has close relationship with LICTA. Several members of the Latvian IT cluster are also members of LICTA. The Latvian IT cluster acts as a cluster initiative uniting only those IT companies which have shown initiative to establish the cluster and to co-operate within the cluster.

In 2005, the agreement to establish the IT cluster was reached between 10 companies (Lattelecom Technologies, Tilde, Rix Technologies, Micro Links, Exigen Services, DZC, Exigen Latvia, Exigen Services DATI, SAF Tehnika, Data Pro). In 2006, another three IT companies (DPA, ZZ Dats, FMS) joined the cluster.

In 2007, the non-profit organization “The Latvian Information Technology Cluster” was founded by 17 IT companies.

In 2009, another three new members (Complete Payment Systems, Blue Bridge Technologies, AA Projekts) joined the IT cluster and one company (SAF Tehnika) decided to leave the cluster.

In 2010, the Latvian IT cluster was represented by 19 leading Latvian IT companies.

The Latvian IT cluster is actively cooperating with academic partners – universities, research centers and scientific institutions, professional associations and state institutions.

The data analysis of the IT cluster confirms that participation of the Latvian leading IT companies in the cluster has an important impact on conditions of cluster co-operation. Turnover, profits and number employees of five leading IT cluster companies during the period of time from 2006 to 2009 constituted on average 70-80% of all IT cluster companies

[2] PHARE – *Poland, Hungary, Assistance for Reconstructuring Economies*, the European Union assistance program for the former Soviet Union block countries which regained their independence at the end of 1980ies and beginning of 1990ies.

respective indicators, except for profits in 2008 as shown in Figures 1 and 2. Profits of the five leading IT companies constituted 132% of total profits, because loses of one company were extremely high and influenced decrease in total profits.

This should be noted that the overall profitableness indicator of IT cluster companies rapidly decreased from 9,29 to 2,31 during the period of time from 2006 to 2008. However, decrease in the overall profitableness has not influenced productivity of five leading IT companies, where it was much higher than in other companies and during 2006 – 2008 constituted on average 20-23% which testify efficiency of these companies. Please, see Figure 2.

Based on the report data of 2008 the IT cluster turnover constituted 85 million Lats which were distributed between 17 IT cluster enterprises in the following proportions: one company - over 20 million; 3 companies – 10-20 million Lats; 4 companies – 2-10 million Lats; 5 companies – 100-300 thousand Lats. IT cluster data analysis indicates that the cluster total turnover constitutes around one third of the whole Latvian IT market.

In 2007 the increase of the IT cluster turnover constituted 133% comparative to 2006. Increase in the total IT cluster turnover could be also explained by the fact that additional 4 companies joined the IT cluster in 2007. In 2008 the increase in cluster turnover was only 103,6% comparative to 2007. According to the IT cluster data 52% of turnover was made by IT services, 36% by software and 12% by hardware sales.

The IT cluster growth reflects the growth of the whole IT sector which has increased fivefold from 2000 to 2008 or from 52 million Lats to 270 million Lats respectively. During the period of time from 2005 to 2008 the IT sector profits increased from 9,3 million Lats to 17,7 million Lats[3].

In 2008, there where 18 members in the IT cluster, of which 6% were established less than one year ago, 6% of all companies were in business 1-3 years; 11% - 3-5 years; 33% - 5-10 years, but most of companies or 44% had experience in the IT business more than 10 years. This testifies that companies of the IT cluster are well experienced and operate on the Latvian IT market from the beginning of its development. Positively, that there are also very young IT companies in the IT cluster which recognize a need for co-operation to create competitive products and services for national and international markets.

In 2008 the average number of employees of the whole IT cluster (18 companies) was 2200 which is distributed between companies as follows: over 100 employees – 6 companies; 50-100 employees – 3 companies; 10-50 employees – 4 companies; less than 10 employees – 5 companies. In comparison, there were 2017 employees in the IT cluster in 2007, but in 2006 - 1578 employees. Increase in the number of employees of the IT cluster from 2006 to 2008 can be explained by increase in the number of companies of the IT cluster, as well as by the total turnover increase in absolute numbers. However, during the same time (2006-2008) the total profits per one employee and overall productivity of the IT cluster have fallen. The decrease in turnover per one employee can be explained by more rapid increase in number of employees, but profit reduction per one employee is related to decrease in total profits, which in 2008 constituted only 34% of the profit indicator reached in 2006.

Most of the leading Latvian IT companies are members of the cluster. Their participation in the cluster indicates that IT companies acknowledge importance of the cluster and associate themselves with the cluster. The survey results indicate that all companies, except one, recognize that participation in the cluster is important for company development.

According to the IT cluster survey results more thank 60% of cluster companies (10) work in the area of software and applications development, 3 companies work in the are of IT

[3]The information and communication technology (ICT) sector is defined according to the Organization for Economic Co-operation and Development (OECD) according to NACE 1.1. red. economic activity classification (NACE 1.1 red). The IT sector data analysis is based on the following: NACE 7133;7210;7221;7222;7230;7240;7250;7260 – computer related services and computer related activities.

infrastructure solutions, 2 companies work in the area of IT education and training.

More than 80% of respondents consider that companies have good chances to attract highly qualified employees, except one company which thinks that such chances are small. This indicates that in most of the cases Latvian IT companies can attract highly qualified labour force quite easy.

The export promotion is one of the most important goals mentioned in the IT cluster conception. According to the information provided by the Latvian IT cluster, in 2007, the export of the Latvian IT cluster reached 32,4% of its total turnover, but the average annual export growth in 2007 comparative to 2006 was 7,15%[4].

The results of IT cluster survey reflected in the Figure 3 testify that 70% of all IT cluster members export their products and/or services. However, 50% of all IT cluster companies export only 25% of their total output. 36% of IT cluster companies export more than 50% of their products or services. According to the Figure 4 most of the IT cluster companies are planning to increase their export volumes over the next 5 years. Around 44% of all companies are planning to increase their exports from 25% to 50% of total output, and another 44% are planning to export more than 50% of their output. These results indicate that around a half of all IT cluster companies work only for the local market, but large proportion of cluster companies have a great potential for export development. Clearly, the export promotion will be one of the most important tasks of the IT cluster in the near future.

The results of IT cluster survey testify that investment in research and development (R&D) is recognized as an important factor for successful and innovative performance of IT cluster companies. According to the data of the Latvian IT cluster the average R&D investment of the IT cluster companies in 2007 was 10,5% of their total turnover which is higher that in the whole IT sector (7%-9%).

According to the IT cluster survey and Figure 5, in 2008, 8 companies have invested in R&D up to 10% of their annual turnover, 4 companies have invested in R&D from 11% to 20% of their annual turnover, but 3 companies have invested in R&D over 30% of their annual turnover. 90% of all respondents have indicated that co-operate with other IT companies in R&D and innovation. At the same time, all respondents indicate that they have implemented innovation related activities during the last 2 years to improve their performance by the following extent: 4 companies – 0-25%; 6 companies – 25-50%, 3 companies – 50-75%; 3 companies – 75-100%. These findings indicate that innovation and improvements made the IT cluster companies are very much related to their own targeted investment in R&D activities. Co-operation in the R&D area with other IT cluster members might be less significant considering that IT cluster companies are natural competitors which can very much influence decisions by companies to co-operate with others on such an important aspect in business development as the innovation. This is significant factor of development that the most innovative IT companies are members of the cluster. However, in the case of the Latvian IT cluster the cluster specific business conditions might have stimulating effects, but they do not play a major role in fostering innovation of cluster enterprises.

One of the most important achievements of the Latvian IT cluster in co-operation with the University of Latvia is the establishment of the National Board of the International Software Testing Qualification Board (ISTQB® www.istqb.org). The main objectives of the National Board are providing high level certification according to ISTQB® standards in software testing, developing testing certification in Latvia, promoting testing as a profession in Latvia, exchanging ideas and concepts with international software testing experts. The Latvia ISTQB is the only one of its kind in the Baltic States[5].

Despite very positive indicators of the Latvian IT cluster in the area of innovation less than half of survey respondents (44%) evaluate the co-operation with R&D institutions as

[4] Latvian Information technology cluster, http://www.is.lv
[5] Latvian Information technology cluster, http://www.is.lv

good, 28% of respondents think that co-operation with R&D institutions is insufficient, but 19% do not have an opinion on this issue.

Positive, that 75% of all survey respondents consider that achievements of the Latvian IT cluster are compatible with the world level achievements.

The unique IT cluster feature is co-operation between competitive and export oriented companies which are natural competitors in the internal market of Latvia. Results of the IT cluster survey show that all companies of the IT cluster, except one, recognize that they compete with other companies of the cluster. In addition, 80% of all IT cluster companies compete with IT companies in the Baltic Sea Region.

However, companies of the IT cluster acknowledge that they will be able to compete on the global market only by joining forces. According to the information provided by the Latvian IT cluster the cluster companies have started practical co-operation in the areas, such as introduction of common standards for ensuring quality and project management, working out a common model of competence, collecting information on potentially accessible human resources for ensuring effective implementation of joint projects, co-operation between enterprises, professional education centres and universities, co-operation with state institutions to promote IT sector development, joint strategic planning, joint market research, joint marketing activities to promote the image of the Latvian IT sector in international target markets, joint co-ordination activities with potential clients and joint activities for attracting new clients.

One of the most important goals of the IT cluster survey was to evaluate the impact of the IT cluster on its member companies. In fact, the survey results indicate that participation of the IT cluster companies in joint activities could be more active. According to Figure 6 IT cluster companies mostly co-operate in purchasing activities (56%), marketing and branding activities (22%), as well as activities related to the development of business friendly environment (11%), market research activities and activities related to accessing new markets (11%). Opportunities to co-operate on operation developing activities, such as subcontractor initiatives, development of new logistic opportunities and new productions methods, are not yet exploited.

To some extent, resistance of IT cluster companies to co-operate on different joint activities could be explained by very low policy priorities regarding facilitation of the business friendly environment and very low state support for clustering. Results of the IT cluster survey testify that most of companies negatively evaluate the work of state institutions:

1. 37% have expressed opinion that work of the Competition Council is of a poor quality;
2. 56% of survey respondents have expressed opinion that the process of issuing permits and licences for different business activities is of a poor quality;
3. 56% have evaluated that the process of reviewing applications and complains by state institutions is of a poor quality;
4. 68% have evaluated the State Revenue Service work as of a poor quality;
5. 68% have evaluated that court procedures are of a poor quality;
6. 76% have expressed opinion that the procurement procedure is of a poor quality;
7. 80% have consider that activities related to granting state support are of a poor quality;
8. 81% have evaluated the protection of personal data and confidentiality of information as of a poor quality;
9. 87% have considered that distribution of the EU funds is of a poor quality;
10. 94% have evaluated that the process of adoption or amending normative acts is of a poor quality;
11. 94% have expressed opinion that activities related to creation of a business friendly environment are of a poor quality.

The IT cluster survey results reflecting very negative attitude towards work of the state institutions, Parliament and justice system with regard to promotion of entrepreneurial activity

testify that legal framework and state policy conditions are not favourable for entrepreneurship.

Positive that even despite unfavourable business conditions 31% of survey respondents have indicated that there are quite many IT company start-ups in Latvia. However, most of respondents (70%) think that chances for foreign companies enter the Latvian IT market are low. Most of the survey respondents (87%) recognize that the most important precondition for starting a new enterprise in Latvia is the start capital; 48% consider that business incubators and technology parks are important preconditions for starting a new business; 40% think that assistance of a consultant from the state institution is quite important factor for those interested to start a business; 25% have indicated that the assistance of a private consultant is important.

In addition, around 80% of survey respondents have indicated that state support is very important for cluster creation and development.

Forest industries cluster of Latvia

Similarly as in the case of the Latvian IT cluster, also the Latvian Forest industry cluster launched its first initiative in the framework of the EU PHARE program, in the year 2000. The Forest industry of Latvia includes forestry, woodworking, furniture production, as well production of paper and paper products. There are ~2000 interrelated companies working in the Forest industry, specialised suppliers, service providers and other related institutions. In 2008, there were 48 000 people or more than 5% of all labour market participants working for the Forest industry of Latvia[6].

Since 2000, the Latvian Forest industry achieved very rapid development, especially during the period of time from 2004 to 2007, when the Forest industry output increased by 54% and the added value of the Forest industry increased by 34% respectively. Taking into account global economic recession and worsening of economic conditions in Latvia since the end of 2007, also the added value of the Forest industry has reduced by 14% in 2008 comparative to 2007.

In 2008, the Forest industry contribution in the Latvian GDP was around 4%[7]. The largest sector of Forest industry is wood processing (woodworking, furniture, paper and paper products) which contributes around 2% in the GDP of Latvia[8].

The structure of Forest industry cluster, which is established and operates in the framework of the Forest industry federation, is reflected in the Figure 7. The Forest industry federation acts as the cooperation platform for 6 sectoral associations representing the Forest industry. The Forest industry federation works in the triple helix approach which is typical for cluster organisations. However, members of the Forest industry federation do not associate themselves with a cluster, but mostly perceive the Forest industry cluster as a business project. In 2009, with the support of the Forest industry federation, the Furniture and related industries cluster was established to apply for state support for promotion of the Latvian furniture export and for increasing international competitiveness of the Forest industry.

According to the Latvian Forest industry federation the main purpose of the Forest industry cluster is to promote and strengthen co-operation between forest sector and all related industries taking into account important aspects for improving competitiveness of this industry – woodworking and wood processing enterprises, associations of industries, institutions of education and research, related and support sectors (construction, trade, energy, transport, logistics, IT, etc.). Activities of the Forest industry cluster are targeted at competitive and sustainable development of its companies to promote their export capacity and to increase proportion of added value in their output.

[6] Ministry of Agriculture of the Republic of Latvia (2009) Forest industry in Latvia (Meža nozare Latvijā), Riga, Latvia, pp.4-5

[7] Ministry of Agriculture of the Republic of Latvia (2009) Forest industry in Latvia (Meža nozare Latvijā), Riga, Latvia, p.3

[8] Ministry of Agriculture of the Republic of Latvia (2009) Forest industry in Latvia (Meža nozare Latvijā), Riga, Latvia, p.4

The co-operation partner of the Forest industries cluster is the University of Agriculture – the only university in Latvia which provides education for specialists in woodworking and forestry.

The scientific co-operation takes place within the cluster to develop new innovative products. This co-operation is facilitated by well-developed dialogue between the Latvian Forest Industry Federation, the State Institute of Wood Chemistry and the Institute of Forestry Science. In result of the co-operation the Institute of Forest and Wood Products Research and Development with accredited and notified testing laboratories has been established.

In 2008, the Forest industry contributed 19% of the total export volume of Latvia. Starting from 2003 the share of Forest industry exports has been decreasing, because of faster increase in exports of other industries, especially machine building and metalworking. Also, the demand for Forest industry products on domestic market has been increasing which has slightly reduced exports. However, the Forest industry is the only industry in Latvia which has had stable and positive export and import balance in the long run[9].

Wood processing is the biggest export sector in Latvia with two-thirds of its output being exported. Main export markets for this sector are in the European Union member states (Sweden – 17%, Great Britain – 12%, Germany – 11%, Estonia – 10%)[10]. Considering that external competitiveness is an extremely important factor for the wood processing sector having improved access to international marketplace, as well as knowledge and information on external markets is extremely important for the competitiveness of companies of this sector. Competitors of the Forest industries cluster are not local companies, but other European regions. Therefore, this is very important for the Latvian Forest industries cluster to assess situation on external markets regularly, especially in markets of the Nordic region.

The Latvian Forest industry federation is providing necessary assistance for companies helping with necessary market research, market prognosis, statistics and information on local and international markets. Recent diversification in product range, and the desire to improve profit margins, have seen Latvian producers increasing their direct presence in more remote markets like the USA and Japan. In addition, the Latvian Forest industries cluster closely co-operates with Lithuanian forestry sector enterprises which are partly represented by this cluster.

Members of the Forest industry cluster are benefiting from the creation of network of associations and enterprises which represent the platform for cooperation and information exchange involving higher education and research institutions. In addition, companies of the Forest industry cluster are benefiting from the support of the Federation, joint marketing and international cooperation activities, human resource development and knowledge management. The creation of the Forest industry cluster or the cooperation network has helped to strengthen the all sub-sectors of this industry, which, in turn, has positively influenced competitiveness of companies and increased the contribution of forest industries in GDP of Latvia.

Considerable opportunities to increase the added value of produced goods to be exported still exist because a detailed analysis of wood processing sector shows that it is dominated by enterprises of primary wood processing and the sector in total is insufficiently integrated. Current topical issues recognized by the Latvian Forest industry federation are: increasing efficiency of forestry and its resource base; increasing proportion of value added products; investment in increase of energy independence. Also, promoting the concept of cluster in practice could help to strengthen cooperation between firms which quite often do not perceive themselves as a cluster.

[9] Ministry of Agriculture of the Republic of Latvia (2009) Forest industry in Latvia (Meža nozare Latvijā), Riga, Latvia, p.3
[10] Latvian Forest industry federation, http://www.latvianwood.lv

Conclusions

The research of the Latvian IT cluster and the Latvian Forest industry cluster supports the hypothesis that companies can achieve practical use and benefits employing the concept of clusters, because they stimulate competitiveness, as well as export and innovation capacity. In addition, the cluster can provide a platform for interaction and exchange for companies with similar business interests which are natural competitors.

Development of clusters quite often is associated with specific initiatives. In this respect, the cluster management has an important role for providing necessary co-ordination, co-operation, and information exchange, both, within the cluster and in co-operation with external partners. Therefore, quality and professionalism of the cluster management are significant factors for analysing cluster performance indicators. The Latvian IT cluster and Forest industry cluster structures and organizational systems are completely different, but both of them ensure effective cluster management.

The Latvian IT cluster and Forest industry cluster research was performed to evaluate cluster performance indicators, as well as the impact of cluster framework conditions on company performance. The main results of the Latvian IT cluster analysis are the following:

1. Participation of most of the leading Latvian IT companies in the IT cluster testify that these companies recognize the importance of the cluster for their business activity.
2. Positive that there are mature companies, as well as very young companies participating in the cluster, which signifies that both, well-experienced and also newly created companies, recognize the importance of co-operation for creating competitive products and services, and for accessing foreign markets.
3. Participation of the Latvian leading IT companies in the cluster and their comparatively large share in the total turnover, profits and employment of the IT cluster (78%-80%) considerably influence business conditions of the IT cluster. Profitability indicators of the leading IT companies testify the efficiency of these companies.
4. Main activity of around a half of IT cluster companies are on the local market, but most of IT cluster companies have a considerable export potential. Therefore, export promotion will be one of the most important tasks of the IT cluster in the near future.
5. Innovation and different improvements of IT cluster companies are very much related to their own well targeted investment in R&D. Considerable amount of R&D investment by the IT cluster companies indicate that IT cluster members are leading companies in innovation of the whole IT sector. Cluster framework conditions are stimulating for promoting innovation, but they do not play the major role for innovation. Considering that IT cluster companies are also competing with each other undertaking joint projects in such a sensitive area as innovation could be complicated.
6. Participation of IT cluster companies in different joint activities does not happen very actively. The sceptical attitude towards participation in joint activities could be an indicator for a very low state support for cluster development and for promoting business friendly environment.
7. Most of IT cluster companies negatively evaluate work of state institutions, parliament and court system in relation to facilitation of business activity which testify that currently the state policy framework is unfavourable for business development.
8. Around one third of all respondents have indicated that there are quite many IT company start-ups in Latvia, but chances for foreign IT companies to enter the Latvian market are considered as low. IT cluster companies consider that the most important factor for starting a new company is the start capital to establish a company. Also, business incubators and technology parks, state institution support and assistance of a private consultant are considered as quite important factors.

The important achievement of the Forest industry cluster is the creation of co-operation network of companies and related associations which provides a platform for collaboration

and information exchange involving education and research institutions. Companies of the Forest industry cluster can optimize their expenses by exploiting an opportunity to participate in joint international activities, to implement joint marketing activities, to benefit from an access to specialized labour force, to receive regular specific information important for activities in domestic and international markets. The establishment of the Forest industry cluster has helped to strengthen the whole forest industry which, in turn, has positively influenced competitiveness of enterprises and increased the proportion of the forest industry added value in the GDP of Latvia.

The main benefits of the IT cluster and the Forest industry cluster from the cluster framework are the following:

1. Possibility of co-operation between similar companies which are natural competitors, possibility to find new partners.
2. Possibility to participate in co-operation networks with other competitive export oriented companies, related associations, institutions of education and research, as well as other related institutions.
3. Possibility for practical co-operation and for joining forces in bigger projects than it would be possible if acting alone.
4. Effective cluster management system which facilitates and speeds up access of companies to new technologies.
5. Improved access to new information.
6. Improved knowledge and information on external markets, possibility to participate in joint marketing and branding activities which helps to reduce individual costs.
7. More friendly business environment, as well as support for creation of new companies.
8. Possibility to increase turnover and income, as well as to improve export capacity.
9. Improved access to specialised labour force and specific knowledge.
10. Improved competitiveness of all respective industry and individual companies which provides greater benefits for companies themselves, as well as for the national economy.

Opposite from the IT cluster the Forest industry cluster companies do not associate themselves with the cluster. Thus, introducing the cluster concept in practice could help to strengthen co-operation between companies which often do not perceive themselves as a part of cluster.

Knowledge and practical experience of Latvian business cluster initiatives could be useful for policy makers, as well as for entrepreneurs in different countries looking for improved competitiveness and long-term sustainable development.

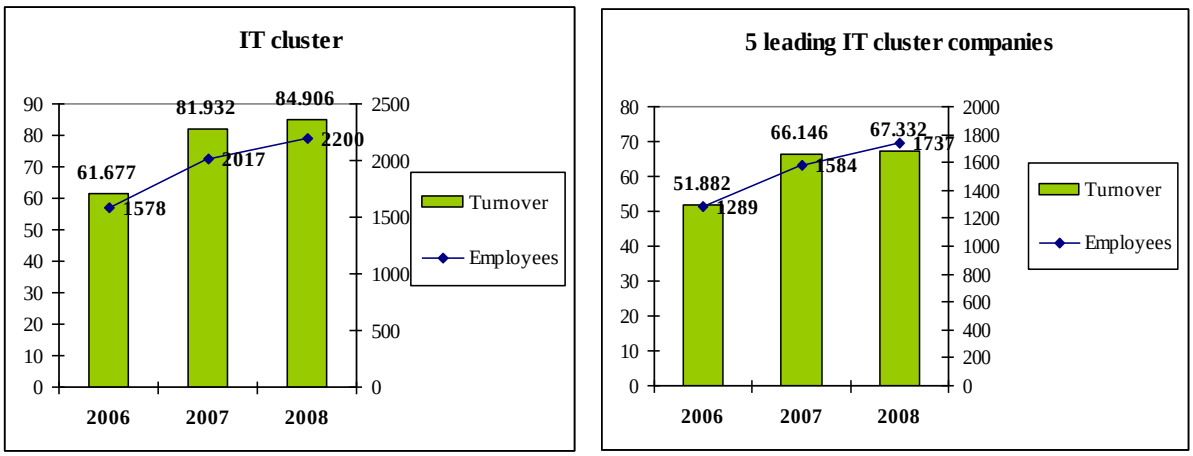

Figure 1: Changes in IT cluster turnover (million Lats) and number of employees (2006 - 2008)

Source: Latvian Enterprise Register, authors' own calculations

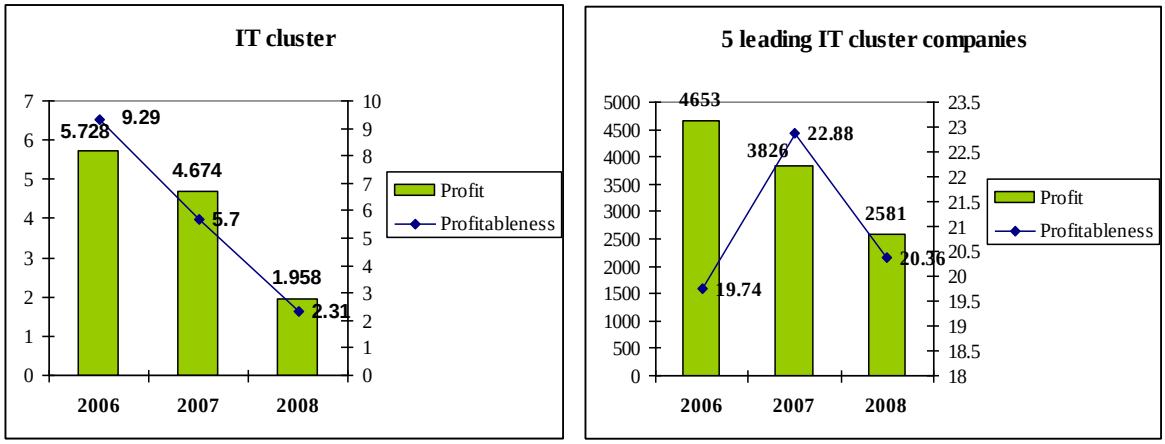

Figure 2: Changes in IT cluster profits (million Lats) and profitableness (2006-2008)
Source: Latvian Enterprise Register, authors' own calculations

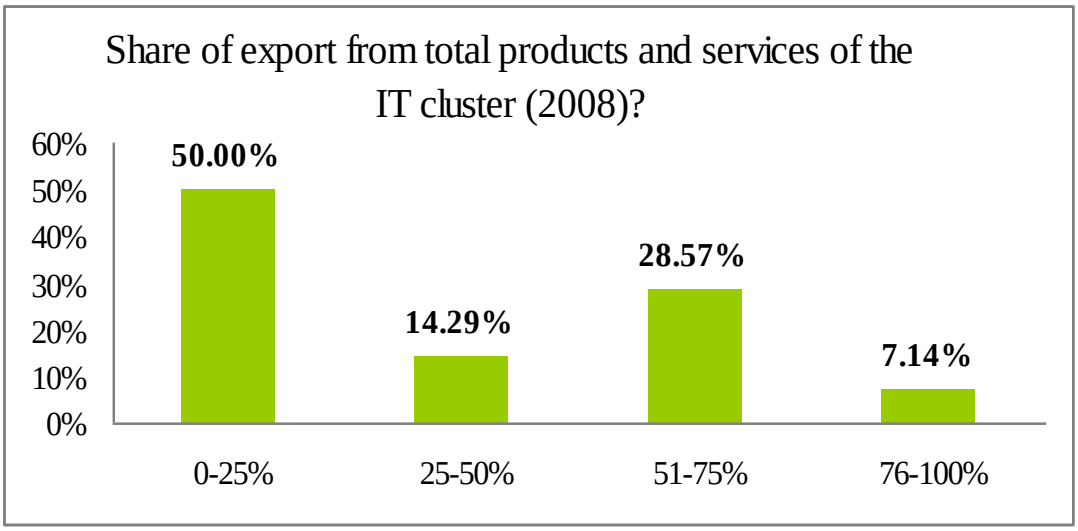

Figure 3: Share of export from total products and services of the IT cluster (2008) (%)
Source: IT Cluster expert survey data

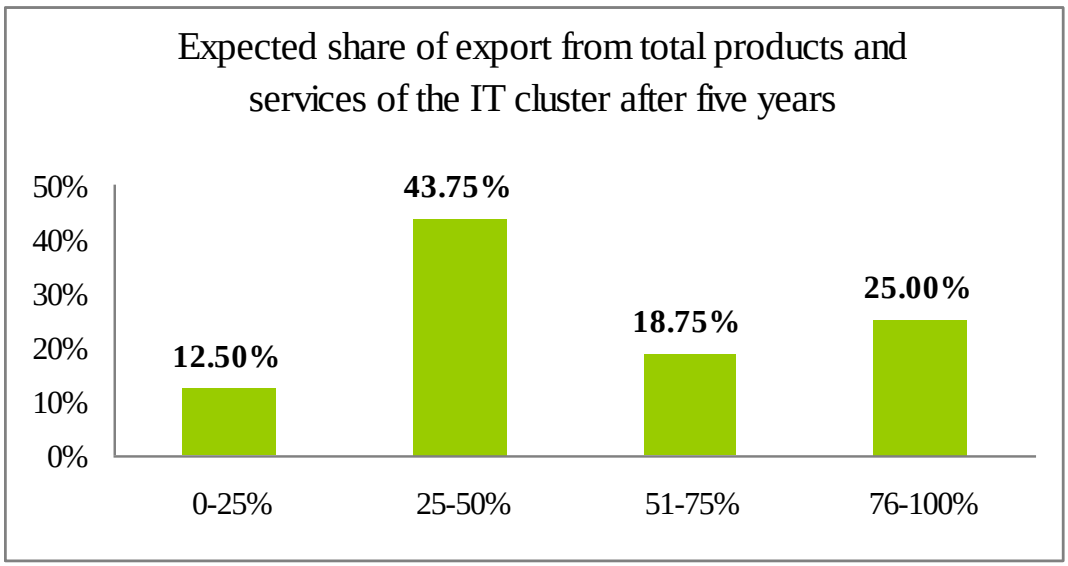

Figure 4: Expected share of export from total products and services of the IT cluster after five years
Source: IT Cluster expert survey data

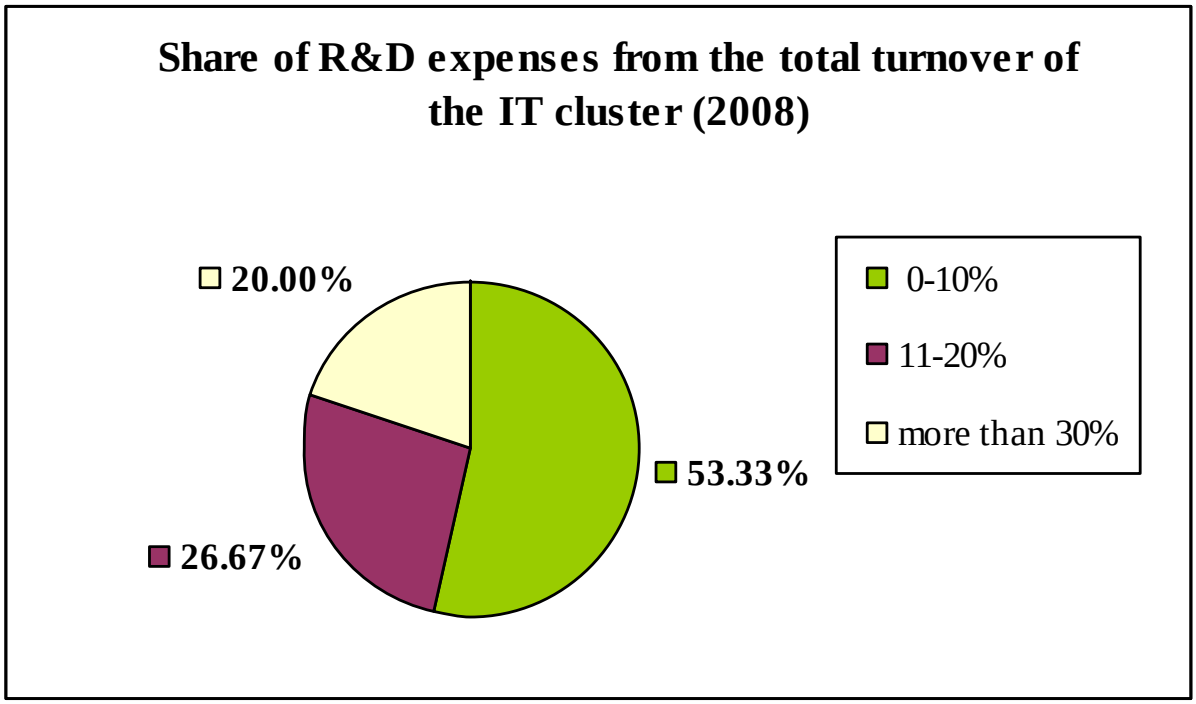

Figure 5: Share of R&D expenses from the total turnover of the IT cluster (2008) (%)
Source: IT Cluster expert survey data

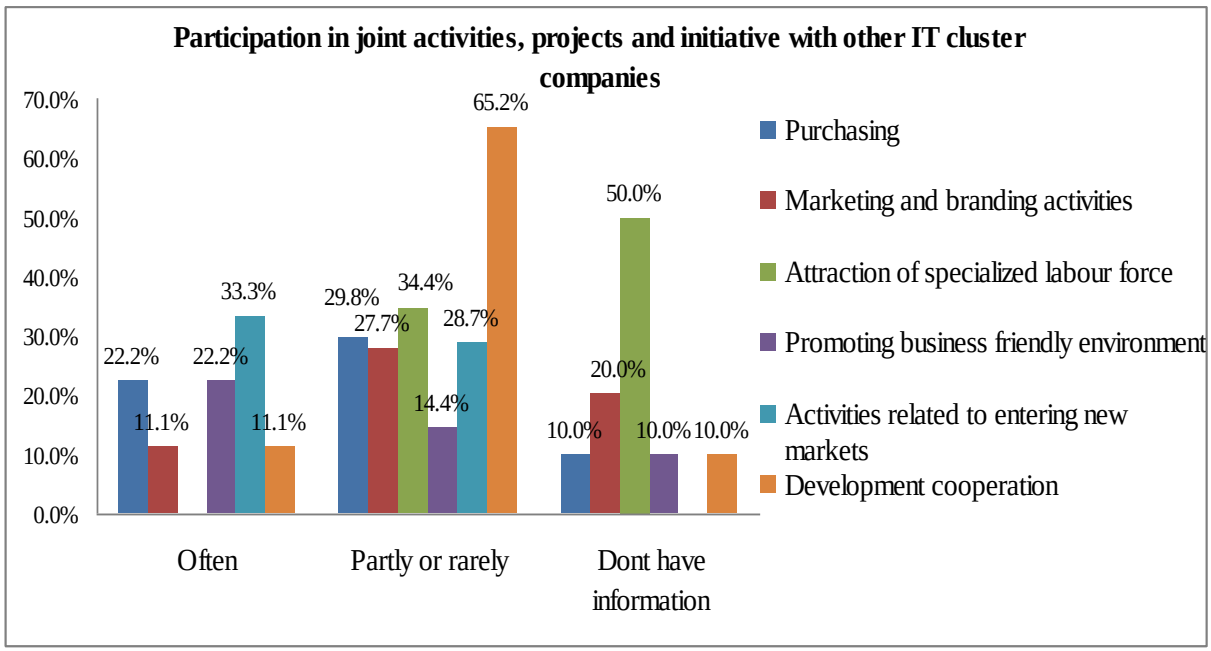

Figure 6: Participation in joint activities, projects and initiative with other IT cluster companies (%)
Source: IT Cluster expert survey data

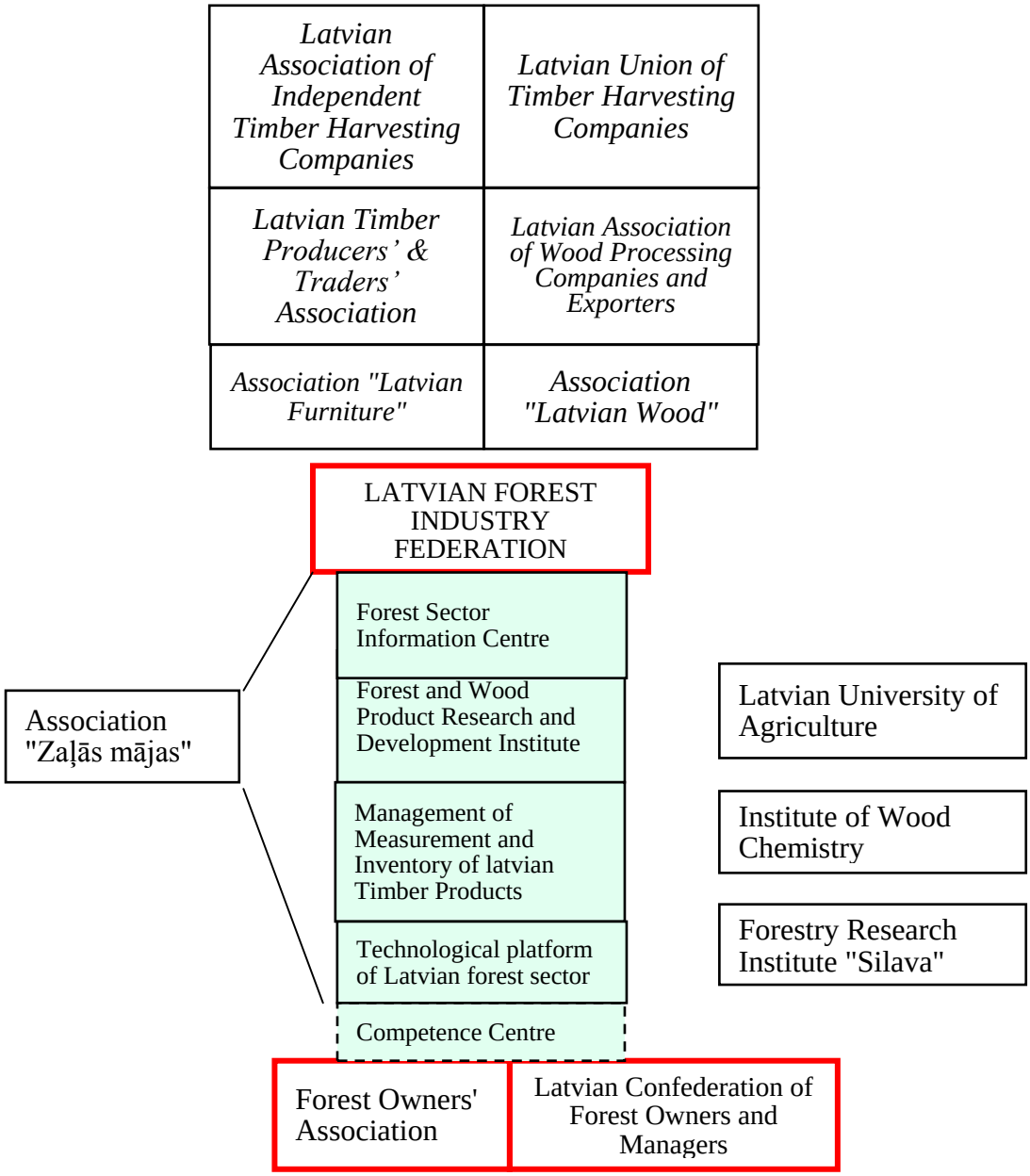

Figure 7: Structure of the Forest industry cluster.
Source: Latvian Forest industry federation, http://www.latvianwood.lv

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