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# INNOVATIONS, GROWTH AND DEVELOPMENT

## STIMULATION OF INNOVATIONS: CASE OF THE LATVIAN IT CLUSTER

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**Key words:** Innovation, competitiveness, clusters, cluster initiative, information technology

**Annotation:** This paper is based on assumption that innovation and competitiveness can be facilitated by clusters. The cluster approach has certain advantages which could be explored by firms looking for increased growth, competitiveness and innovation. The analysis of the Latvian Information Technology cluster shows that it has developed a platform for increasing competitiveness and innovation capacity for IT firms, and it helps to draw conclusions for further improvement of cluster and individual company performance.

### Introduction

Innovation appears when people, firms or organizations introduce new approaches, methodologies, standards and even behaviours to change business processes and environment. Understanding innovation is important for both, firms and governments in order to stimulate it for achieving greater economic and social progress.

Examples of knowledge based economies show that innovation is boosted by cooperation in clusters<sup>1</sup> of innovative firms which increases their competitiveness locally and internationally. These firms are based on a sophisticated infrastructure facilitating linkages between entrepreneurs, researchers and investors which helps to share and exchange information more effectively and promotes creation of new technological expertise, as well as innovation.

This paper is based on an extensive literature review on clusters and innovation, as well as on the case of the Latvian Information Technology cluster. The experience of the Latvian Information Technology cluster suggests that firms can make practical use of the concept of clusters and that government policies can foster innovation by supporting clusters. The data analysis in this paper is based on the data of Central Statistical Bureau of Latvia and information provided by Latvian IT companies.<sup>2</sup>

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<sup>1</sup> A cluster is a geographical concentration of interconnected enterprises and associated institutions that produce and sell a range of related or complementary products and thus face common challenges and opportunities. (Rocha 2004; Solvell et al., 2003).

<sup>2</sup> The economic analysis of the sector is based on

### The role of cluster in boosting innovation

The cluster is one of the most promising perspectives for assessing its impact on innovation, competitiveness, and regional welfare (Porter, 1998a, 1998b). Indeed, competitiveness can no longer be seen as matters that are addressed by singular enterprises. Necessity to apply new approaches to help economies reap the full potential of an improved economic conditions, as well as to overcome financial crises like the current one, has become especially crucial.

The cluster approach has the advantage of incorporating SMEs and large firms along with, trade associations, business intermediaries, and regional political actors. Clusters can potentially impact the innovation, growth and competitiveness of the individual firm (firm performance), reduce costs through cooperation (collective efficiency), create new jobs and contribute to sustainable development (economic, environmental and social results), as well as to build trust within the cluster and in the wider environment (social

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NACE (2.0) 62 - the production of computer and office techniques and NACE (2.0) 63 - activities related to computers and computer services, which constitutes only a part of the total IT market. Before 2008 NACE (1.0) 30 - the production of computer and office techniques and NACE (1.0) 32 - activities related to computers and computer services. The data of the Central Statistical Bureau (CSB) of Latvia reflect only numbers of IT products exports, but not services exports, which make around 70% of total IT exports. In this respect, the official CSB data does not provide objective information on the IT sector.

capital)<sup>1</sup>.

According to the cluster policy report by Innova in 2008 (pg. 11), clusters are important for at least three reasons:

- Firstly, companies can operate with a higher level of efficiency, drawing on more specialised assets and suppliers with shorter reaction times than they would be able to - in isolation.

- Secondly, companies and research institutions can achieve higher levels of innovation. Knowledge spillovers and the close interaction with customers and other companies create more new ideas and provide intense pressure to innovate while the cluster environment lowers the cost of experimenting.

- Thirdly, the level of business formation tends to be high in clusters. Start-ups are more reliant on external suppliers and partners, all of which they find in a cluster. Clusters also reduce the cost of failure, as entrepreneurs can fall back on local employment opportunities in the many other companies in the same field.

#### **Development of clusters and IT cluster initiative in Latvia**

October 2000, in the framework of the EU PHARE program, the four potential Latvian enterprise clusters were identified - information technology cluster, forest cluster, composite materials cluster and engineering cluster. Two of the four mentioned clusters – forestry cluster and information technology cluster (ITC) are operating as a real network and organization still today.

The Latvian ITC initiative is a long term collaboration project between geographically united ICT sector firms of Latvia to fulfill vision, mission and targets defined by the IT cluster strategy. The major priority of the IT cluster is to promote competitiveness, innovation and export capacity of cluster members.<sup>2</sup>

The Latvian Information Technology cluster was set up by 18 companies, which signed a cooperation agreement in March 2001. Initially the defined aim of the ITC was to ensure that by 2010, Latvia would become the leading exporter of software, integration services and outsourced services in Eastern Europe with IT exports worth between USD 0.5 and 1 billion per year.<sup>3</sup> The IT

cluster operates separately but in close cooperation with the Latvian Information Technology and Telecommunications Association (LIKTA). Today it includes 18 leading Latvia's IT and electronic equipment companies employing around 1,850 people<sup>4</sup>. The ITC has well developed dialogue with government, effective cluster management and established linkages with educational institutions. Latvian ITC main competencies are in software development, IT consultations, hardware architecture, networking & data transmission solutions, financial and business management solutions for enterprises and organizations, business analysis solutions, Enterprise Resource Planning solutions, finance management and accountancy solutions.<sup>5</sup>

The objectives of ITC are: 1) to increase the export capacity by defining priority export markets, developing export products and IT export brands; 2) to create innovative products; 3) to improve capacity of new SMEs; 4) to consolidate the sector to apply for large international projects; 5) to promote the reform of education system to prepare knowledgeable IT specialists.

ITC targets (2008-2010): 1) to increase exports by at least 15% annually; 2) to increase turnover by 20-25% annually and to rise revenues by 20% annually; 3) to improve productivity of employees by at least 20-30% annually; 4) to reach average R&D expenditures of around 10% of total turnover for each company; 5) the united IT research institute in Latvia; 6) to increase the number of students in IT programs by 30-40%; 7) to increase the internal demand for ICT services by 30% per annum; 8) to ensure usage of e-services in Latvia on at least the EU-27 level.<sup>6</sup>

Since 2001-2002 growth in turnover and profits among leading IT cluster companies has been proportionally much higher than overall economic growth in Latvia. The growth of the ITC reflects the growth of the whole IT sector, which has increased almost four and half times in the period of time from 2000 until 2007, correspondingly from LVL 60 million until LVL 264,1 million. At the same time the profits of the IT sector enterprises increased from LVL (-2,8) million in 2000 until LVL 24 million in 2007.<sup>7</sup>

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Manager

<sup>4</sup> The ITC members are Baltic Computer Academy, City Credit, Clusterpoint, Data Pro, Data Pro Group, Datorzinibu Centrs (DZC), DEAC Ltd., DPA, Exigen Services, FMS Group, iSoft Solutions, Lattelecom Technology, Oracle Latvia, Rix Technologies, SAF Tehnika, AS, Tieto Enator, Tieto Enator (IT Alise).

<sup>5</sup> <http://www.is.lv>

<sup>6</sup> Source: Lilita Sparane, Latvian IT Cluster Manager

<sup>7</sup> Central Statistical Bureau of Latvia;

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<sup>1</sup> Carpinetti, L.C.R., Gerolamo, M., and Galdámez, C., 2007. "Continuous Innovation and Performance Management of SME Clusters", *Creativity and Innovation Management*, 16 (4): 376-385.

<sup>2</sup> Accordingly to the definition created by the IT cluster.

<sup>3</sup> Source: Lilita Sparane, Latvian IT Cluster

The importance of the IT cluster relative to the whole IT sector is shown by its turnover. In 2007 the turnover of the IT cluster was LVL 94,5 million.<sup>1</sup>, which is about one third or even more of the turnover of the IT sector. The average weighted growth of the IT cluster company in 2007 comparative to 2006 was approximately 12,5%. More than half (52%) of revenues were from sales of IT services, but 12% from hardware sales. The export of IT cluster companies in 2007 was 32,4% of their total turnover, but the average weighted export growth in 2007 comparative to 2006 was 7,15%.<sup>2</sup>

A very positive fact is that annual expenses on research and development constituted on average 10.5% from total revenue of the IT cluster companies (2007), which is higher than average R&D expenses from total turnover in whole IT sector (7%-9%)<sup>3</sup>.

The Government of Latvia has targeted the IT sector as a priority in terms of strategic development planning. An increased budget commitment to IT education has boosted the number of students in IT-related disciplines by over 30% in the last three years to reach 10 000 active students by 2010. Several IT specialised Colleges and training centres with EU compatible study programs have been started. A national program has been introduced to develop Latvia as an information society implementing internet links to all general and professional educational institutions<sup>4</sup>.

The Latvian IT cluster has reached an objective to form a collaborative network of an export oriented IT companies and education institutions, it provides reliable application services, and testing and quality assurance services. In IT services, local cluster companies are not enough to dominate the local market because of presence of large foreign IT firms and other local companies deciding not to join the cluster.

### **Conclusions and lessons from the experience of the IT cluster initiative**

The experience and performance of the ITC cluster shows that it has developed a platform for increasing competitiveness and innovation capacity of IT firms. The Latvian IT cluster has established a network of companies, educational institutions, research and technology centers. Even if the education and research

institutions are not members of the ITC, there are strong links and collaboration initiatives established.

Cluster initiatives<sup>5</sup> should be set up by companies not governments to support business interests and they should not be dependant on government financing. The environment of cluster helps companies, which are natural competitors, to learn how to co-operate with each other to achieve common benefits. An evidence shows that the economic performance of the ITC companies is better than for the whole IT sector indicating that their business environment is more stable and stimulating for improving competitiveness and innovation.

ITC companies invest more in R&D on average than other IT companies meaning that they have more capacity for innovation. Cluster co-operation is helping to improve networking and information exchange, implement common marketing activities and branding, lobbying, define strategies and measurable objective to be followed. Cluster management is helping to improve competitiveness of its members through joint training, information exchange, marketing, etc.

Possibilities to improve the further performance of clusters:

a. Regional, inter-regional and international cooperation should be promoted and strengthened to create strong regional networks. For instance, the Baltic Sea Region Innovation Network, BSR InnoNet can help Latvian IT firms in this process. For improving cooperation between clusters the internet-based Cluster Portal and supportive communication activities are essential;

b. The full range of possible cluster services have to be explored, e.g. through an evaluation of established cluster management organisations (initiatives), existing supply networks and their IT-based business services or other SME-oriented service networks;

c. Innovation transfer between academic R&D and business application should be a major activity of all cluster management organisations as well as support for market-oriented R&D within the business community itself. Innovation and building of competencies is the key to SME competitiveness. Therefore the training and innovation should be put into the centre of the cluster management concept.

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<http://www.is.lv>

<sup>1</sup> In calculations the IT cluster data includes only 13 companies

<sup>2</sup> Central Statistical Bureau of Latvia;  
<http://www.is.lv>

<sup>3</sup> Central Statistical Bureau of Latvia;  
<http://www.is.lv>

<sup>4</sup> <http://www.likta.lv>

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<sup>5</sup> Cluster initiatives are organized efforts to increase the growth and competitiveness of clusters within a region, involving cluster firms, government and/or the research community. The six main objectives carried out by Cluster Initiatives include: HR upgrading, cluster expansion, business development, commercial collaboration, innovation and technology, business environment upgrading. (Ketels et al., 2008)

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