Changing the IT sector in Estonia
Case A

The situation – Estonian ICT sector in 2007

It was a quiet afternoon in spring 2007. Jüri Jõema, manager of the Estonian Association of Information Technology and Telecommunications (ITL) was sitting in the ITL office in Tallinn, finishing the day´s work and thinking about the future of Estonian ICT. While Estonians liked to take pride in their innovative ICT solutions, "*the tiger was getting tired*" as the media kept announcing in a bittersweet tone more and more often. The domestic market was changing – government orders for e-services that had earned the Estonian ICT sector much of its fame, were drying up. As for the international market, ironically, many solutions declared highly innovative hadn´t really even been taken to foreign markets. Jüri believed that the future would lay in higher co-operation in the ICT community – in finding new opportunities by introducing ICT to the more "traditional" sectors and in joint efforts for export development.

There had not been much co-operation among the ICT companies so far. The first part of the 2000s had been a golden time for everyone as there was an economic boom in Estonia and orders were flowing in without substantial efforts. Everyone was trying to do everything and making relatively good money by doing so. ICT was the flagship industry in Estonia and the "information society" was developing rapidly. Estonians were proud of their good telecommunications infrastructure and Internet penetration was close to saturation. eBanking, eGovernment and eEducation were the main driving forces of the content and services development. However, most ICT solutions were targeting individual customers or the limited domestic market. Subcontracting work for other companies was very important in all ICT domains. In 2007, there were already marks of the good times coming to an end. Soon the ICT companies were, as everyone else, entering into the gloomy period of economic recession filled with many uncertainties.

Low level of cooperation between companies was not characteristic only to the ICT sector in Estonia. The general low intensity of clustering in the country had been hypothesized to derive partly from the privatisation process that took place in Estonia after regaining independence in 1991. The process was largely focused on foreign investments which was

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directly associated to the limited capabilities of Estonia's small economy. It had been pointed out that while such a focus on privatisation had provided inflows of new capital as well as know-how and linkages to global markets it had on the other hand not been conducive to the development of regional clusters or the spirit of co-operation. The foreign owners were not always prepared and willing to cooperate or network with local stakeholders. It had also been suggested that as in most CEE countries the Estonian business sector had operated in the conditions of a democratic market system for too short of a time to have developed a genuine understanding and broadly felt need for cooperation among companies and other stakeholders.

In 2007, 1969 ICT companies were registered in Estonia. 40% of these were micro-enterprises with up to 9 employees and one third had no employees enlisted. In reality, the sector was highly consolidated: the nine largest companies covered over 40% of sectorial employment and eight largest accounted for up to 80% share of the domestic ICT market. Foreign-owned companies formed 13% of the sector and among exporting companies this rate amounted to 35%.

Smaller firms were mainly acting as sub-contractors and/or offered 'tailor made' software development services to their clients. The ICT services market was dominated by the telecommunication service providers, that accounted for more than 50% of total sales of this sector in 2006. The computer services branch (including software developers) was strongly fragmented. This segment comprised of more than 1100 companies but less than 100 employed 10 or more persons. ICT manufacturing segment involved predominantly branches of larger foreign manufacturing services providers. The smallest segment of the Estonian ICT manufacturing industry, office machinery and computer manufacturing, mainly supplied the local market. In telecom equipment and electronics, subcontracting for client companies formed up to 60-100% share in turnover, in office machinery sales up to 15% (see Exhibit 1 for an overview of the composition of the ICT sector).

In the context of the whole business sector of Estonia, the ICT sector was relatively small, covering only 4,1% of employment (8600 people) and producing 4,4% of the turnover (see Exhibit 2 and 3 for key economic indicators of the Estonian ICT Sector and the whole economy, respectively). While considered to be among the world's leaders in implementing new ICT solutions, exports of Estonian ICT products and services clearly lagged behind. In 2001, Estonian exports of ICT goods (mainly telecommunications equipment) accounted to more than 25% of the total Estonian exports. Over the next few years, the total exports of Estonia doubled while ICT exports faced a twofold decline. Consequently, in 2007 the share of ICT goods and services only accounted for 5% of the total exports. However, it is important to note that "*the value added and employment share of the ICT sector in Estonian economy has been always much more modest than suggested by its export share*[1]". This can be foremost

[1] BEFORE: Benchmarking and foresight for regions of Europe project consortium (2008), "ICT Sector in Estonia, Foresight Study."

explained by the important role of the Estonian branches of a few multinational electronics companies of primarily Scandinavian origin that had located part of their production in Estonia (largely low end assembly parts of global electronics/ ICT manufacturing value chains). Most of Estonia's ICTs exports could actually be attributed to the Estonian branch of Elcoteq, an international electronics and communication technology company that employed about 2900 people in Estonia at the time.

A number of problems and challenges restraining the further development of Estonian ICT included an increasing lack of qualified employees due to a low number of science and technology graduates, low availability of seed and venture capital as well as weak cluster linkages. It had also been pointed out that during the 1990s the innovation policy in Estonia was relatively weak and did not provide enough support for the growth of science-based industries. Therefore, the exports were still dominated by traditional sectors, such as wood processing, metal processing and machinery. However, it had been clear to both the business sector and policy makers for some time that the earlier cost advantages provided by locating production in Estonia were disappearing and higher value added activities as well as increased export capability was needed for future economic growth. In terms of policy instruments, no attention had been paid to clustering until very recently. The Estonian Cluster Programme supporting the development of cluster initiatives was not opened until 2008. However, funding had been available for various R&D and innovation activities from Enterprise Estonia[2] and European Commission funds for longer.

Even in the context of the general low co-operation tradition, many business sectors had created industry unions to form a joint front in addressing broad issues related to the development of sectorial business environment. The Estonian Association of Information Technology and Telecommunications (officially abbreviated as ITL) had been founded in 2000. Its primary objective was to promote the co-operation of Estonian ICT companies in Estonia's development towards an information society, and "to represent and protect the interests of its member companies and to express their common positions." The main activities of the association included popularisation of ICT, promotion of vocational education and amendment of legislation, as well as organisation of events (including an annual forum "From Vision to Solutions"), awards such as the Person/Company of the Year, Act of the Year, Idea of the Year and Scholarship of Ustus Agur (one of the founding fathers of the Estonian information society). ITL was a successor of two organisations – the Estonian Computer Association (AFA, founded in 1992) and the Association of Telecommunications Companies (TEL, founded in 2000), which were merged into a single organisation with 40 members participating in this initiative (Exhibit 4 provides a list of the ITL´s members as of 2012). Today, ITL represents a major share of the Estonian ICT sector in terms of employment and turnover, except for the electronics industry that is dominated by foreign investments.

[2] Enterprise Estonia is one of the main institutions responsible for the implementation of the EU structural funds in Estonia and the primary provider of support and development funding for entrepreneurs.

Jüri Jõema had been the CEO of ITL for a long time, having moved to this position from the public sector, previously holding the office of the Director General of the Estonian National Communications Board. He had been seen as a good candidate to act as a facilitator and mediator of the ICT companies as he was a neutral person, not influenced by any narrow business interests. Jüri was responsible for operational management of the association, covering almost everything by himself, having only one assistant/office manager to help him with the considerable workload. He was making constant efforts to engage the members in various activities of the association and to create a good ground for co-operation but the progress was not too fast.

There were some members that were somewhat more active. One of them was Vaho Klaamann, an enthusiastic CEO of Santa Monica Networks, a company that had started in 1992 as a retailer of CISCO products in Estonia. Over the course of time the company had extended its activity to cover a range of fields, now dealing with IT networks, security solutions and unified communications. Vaho was in a fortunate situation in the sense that the company was doing well enough and didn´t need his constant attention, therefore he was able to be active in many fronts. The group of enterprises that at times had shown more initiative also included companies like MicroLink, Microsoft Estonia, Regio, Webmedia, etc. However, all members of the Board and the CEOs of the member companies were busy business people and the participation rate in the union´s meetings and events often remained lower than Jüri had hoped.

It was easier to engage members in activities in cases where they could “see the money” very clearly and yield immediate benefits. There was not much enthusiasm, however, for undertakings that could yield only “vague” long-term benefits. Even if there was a good idea proposed by someone and followed by sincere expressions of support by others, the enthusiasm often tended to decrease if more time and effort was needed than initially expected. Faced by demands from everyday work, the involved parties, including the author of the idea, grew tired and returned to tasks that were considered more urgent. In short, while there was some good will, the everyday life and management of the industry union had somewhat turned into a vicious circle and there was little real progress.

At the same time there were some interesting movements elsewhere. Vaho had followed the developments in the machinery sector in which the companies had started to go beyond broad discussions of sectorial development and were pursuing more extensive co-operation by forming concrete business-oriented linkages. For example, recently a large contract with a big German client was signed which could not have been covered separately by a single firm but could only be managed jointly with a group of companies.

While Jüri thought that this was also something that was needed in the ICT sector, he had a complicated task to solve – how to communicate this message to the companies? Even more importantly, how could he make sure that these ideas were transformed into reality? In

the near future, a study visit was going to take place that was supposed to take representatives of 17 Estonian ICT companies to Singapore. The visit was financed by the Enterprise Estonia, which by now had strongly internalized issues like sectorial co-operation and export support into its agenda. The delegation was supposed to spend 10 days together and Jüri hoped to use this time to engage in discussion about the need for substantial co-operation.

Exhibits

Exhibit 1. Composition of the ICT sector

- Telecom equipment–Elcoteq (a large electronics and communication technology multinational) large share of the production goes to domestic market
- Consumer electronics and industrial automation–large part of the turnover is generated by (sub)contract work to neighbouring countries
- Computers and office machinery – main challenge is international competition at the domestic market
- Software production – quite knowledge intensive, average exports are near 25% from turnover
- Telecom services – active in subcontracting for other companies
- Multimedia content –subcontracting significant, enterprises primarily owned by local capital

Source: Kalvet et al. (2002). "Analysis of the Estonian ICT sector innovation system"

Exhibit 2. Key economic indicators of the Estonian ICT Sector (as of November 2008)

	Manufacture of office machinery and computers	Manufacture of radio, TV and communications equipment	Manufacture of medical and optical instruments, etc.	Post and telecommunications	Computer and related services
Number of enterprises	16	86	135	134	1151
Average number of employees	273	6083	1923	7902	5137
Net sales, in million €	58.7	245.1	106.8	713.3	213.1
Sales to non-residents, in million €	5.0	225.4	78.8	57.1	66.4
Research and development expenses, in million €	0.1	4.6	1.1	0.1	16.2
Personnel expenses, in million €	3.3	50.8	20.8	88.2	81.6
Depreciation, in million €	0.3	17.4	2.2	59.4	6.3
Operating profit (loss) , in million €	2.1	10.7	20.0	163.6	12.8
Net profit (loss) , in million €	2.0	8.3	18.8	148.5	-5.1

Source: BEFORE report, 2008; Statistics Estonia. www.stat.ee.

Exhibit 3. Main economic indicators in Estonia 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Mean annual population (thousands)	1359	1354	1349	1346,1	1344	1341,7	1341	1340	1340	
GDP, current prices (EUR m)	7776	8719	9685	11182	13391	16069	16304	13839	14305	15973
GDP chain-linked volume growth (%)	6,6	7,8	6,3	8,9	10,1	7,5	-3,7	-14,3	2,3	7,6
Consumer price index (%)	3,6	1,3	3	4,1	4,4	6,6	10,4	-0,1	3	5
Employment rate (employed persons/ working-age population, %)	55,9	56,7	56,8	57,9	61,6	62,6	63	57,4	55,2	
Unemployment rate (unemployed/labour force %)	10,3	10	9,7	7,9	5,9	4,7	5,5	13,8	16,9	
Average monthly gross wages and salaries (EUR)	392,7	430	465,7	516	601,2	724,5	825,2	783,8	792,3	
Exports (EUR m)	3642	4003	4769	6201,9	7719	8033,5	8470	6487	8745	12022
Imports (EUR m)	5079	5715	6703	8229,5	10711	11439	10896	7270	9252	12631
Foreign trade balance/exports (%)	-39,4	-42,8	-40,6	-32,7	-38,8	-42,4	-28,6	-12,1	-5,8	-5,1
Foreign direct investment inflow (EUR m)	306,8	822	770,8	2307,3	1432	2546,9	1182	1323	1162	129,5
Foreign direct investment outflow (EUR m)	-140	-137	-217	-556	-882	-1528	-760,2	-1115	-100	1046,4
Gross external debt (EUR m)	4490	5603	7459	9671,9	12944	17406	19039	17256	16481	15660
o/w government (EUR m)	216,2	248	376,6	412,6	478,5	439,4	527,3	746,6	754,1	527,6

Source: Estonian Bank, www.eestipank.info.

Exhibit 4. Members of the Estonian Association of Information Technology and Telecommunications

BRANCH OF INTERNATIONAL COMPANY

Alcatel-Lucent Baltics Estonian Branch, Ericsson Eesti AS, Hewlett-Packard OY Estonian Branch, IBM Eesti OÜ, Microsoft Estonia OÜ, Nokia Eesti OÜ, Oracle East Central Europe Limited Estonian branch

EDUCATION AND TRAINING

Baltic Computer Systems AS, Devtraining OÜ, Eerahariduskeskus AS / Mainor Business School, Estonian Information Technology Foundation, Know IT Estonia Consulting OÜ, Tallinn Polytechnic School, Tallinn University, Tallinn University of Technology, University of Tartu

EQUIPMENT WHOLESALE

ALSO Eesti AS, Baltronic OÜ, Infotark AS

PRODUCTION OF COMPUTER EQUIPMENT

Baltronic OÜ

SOFTWARE DEVELOPMENT

Abobase Systems AS, Aktors OÜ, BCS Itera AS, Fujitsu Services AS, Helmes AS, Know IT Estonia Consulting OÜ, Net Group OÜ, Playtech Estonia OÜ, Proekspert AS, Quretec OÜ, Regio AS, Santa Monica Networks AS, Skype Technologies OÜ, Tieto Estonia AS, Uptime OÜ, Velvet DP OÜ, Voicecom OÜ, Webmedia AS

SYSTEMS DEVELOPMENT

Aktors OÜ, Andmevara AS, Baltic Computer Systems AS, BCS Itera AS, Columbus IT Partner Eesti AS, Cybernetica AS, Datel AS, Helmes AS, Net Group OÜ, New Vision AS, Overall Eesti AS, Proekspert AS, Quretec OÜ, Regio AS, Santa Monica Networks AS, Smartlink OÜ, Tieto Estonia AS, Uptime OÜ, Voicecom OÜ, Võrguvara AS.

SYSTEMS INTEGRATION

Aktors OÜ, Andmevara AS, BCS Itera AS, Cybernetica AS ,Helmes AS, IBM Eesti OÜ, Net Group OÜ, Playtech Estonia OÜ, Proekspert AS, Regio AS, Santa Monica Networks AS, Smartlink OÜ, Tieto Estonia AS, Uptime OÜ, Vendomar AS, Voicecom OÜ, Võrguvara AS, Webmedia Group AS

TELECOM SERVICES

Andmevara AS, Eesti Telekom AS, Elion Ettevõtted AS, Elisa Eesti AS, Eltel Networks AS, EMT AS, Levira AS, Linxtelecom Estonia OÜ, Nokia Siemens Networks OÜ, Starman AS, Zone Media OÜ, Tele2 Eesti AS, Televõrgu AS, Top Connect OÜ / CSC Telecom, Võrguvara AS

OTHER

Borenius Law Office, Complus Consulting OÜ (IT consultancy), Eesti Energia AS (energy), Eesti Post AS (postal services), Eltel Networks AS (infranet solutions), Glimstedt Law Ofice, Itella Information AS (e-invoice services), LHV Pank AS (banking), Quretec OÜ (bioinformatics), Raidla Lejins & Norcous Law Office, Tallinn Technology Park Tehnopol, Velvet DP OÜ (advertising), Ülemiste City AS (real-estate, host of the Tallinn ICT cluster companies).

Source: Estonian Association of Information Technology and Telecommunications, www.itl.ee (as of 12.03.2012).

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