LogOnBaltic

ICT SURVEY IN LATVIA

Riga City Council, Telematics and Logistics Institute Ltd. and Tomi Solakivi

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EXECUTIVE SUMMARY

This survey of ICT in companies was conducted within the framework of the LogOn Baltic Project financed by the EU INTERREG III B programme. Its aim is to present solutions for improving the interplay between Logistics & Information and Communication Technologies (ICT) competence and spatial planning and strengthening the competitiveness of small and medium enterprises in the Baltic Sea Region (BSR). There are 10 regions and more than 30 partners involved in the project. Latvia as a region is represented by Riga City Council, the Logistics and Customs Brokers Association, as well as by the Transport and Telecommunications Institute.

The purpose of the given survey was the improvement of regional development and spatial integration in various regions by means of receiving feedback in the field of ICT. The overall objective of the survey was to gather and submit information on the opportunities of supporting the enterprises to the Regional Development Agencies with the purpose of improving the competence level in the field of ICT.

The survey consisted of five modules and included general information on the company, use of ICT systems, the Internet and the electronic commerce/e-business, and general estimation of ICT use.

From the conducted research of the ICT situation with the Latvian enterprises, the following conclusions can be made:

1. Use of ICT systems, the Internet and the electronic commerce (e-commerce) give the following advantages:
   - high level of ICT systems available;
   - low costs: 2.5 % of the company turnover;
   - a great number of the enterprise-owned Internet-sites and their functional completeness;
   - high level of communication on all contacts levels;
   - simplicity of transactions and support in finding new clients and suppliers.

E-commerce has been actively developing for many years. With the increase in the number of Internet users, e-commerce has spread widely in Latvia. New Internet-business oriented enterprises are emerging. More and more presently operating enterprises start taking

advantages of e-commerce to improve their clients' service and to offer new services.

The means of paying with electronic money is gradually replacing the traditional way of settling accounts by small cash sums. Latvian companies give users wider ideas about electronic ways of settlements, positioning themselves as electronic banks, which enable customers to pay various small services through the Internet.

An on-line payment system, which combines the best qualities of electronic money and credit cards, has already been used in Latvia for quite a long time. The payment system with simple name e-Ls has appeared due to the company ELS International. The given organization is the first emitter of electronic money cash in Latvia, officially registered by the Central Bank of the country.

2. Wide use of the Internet, the e-commerce and ICT is slowed down by the following obstacles:
   - loss of working hours due to the non-related Internet browsing;
   - cost of developing and maintaining the e-commerce system;
   - uncertainty about contracts, terms of delivery, and guarantees;
   - unavailability of clients/suppliers to trade via the Internet;
   - difficulties in recruiting qualified ICT personnel;
   - unwillingness of the existing personnel to use ICT.
3. Introduction of ICT is slowed down because of the existing unresolved questions:
   - insufficient interaction with the governmental authorities by means of the Internet;
   - weak development of e-commerce and small amounts (less than 20 %) of trade or business realizations by the electronic means;
   - a prevailing negative opinion indicating that e-commerce does not give any competitive advantages, does not improve the quality of service, and does not influence the profitability.

Propositions and recommendations on the further use of the Internet, the e-commerce and ICT:

1) To expand fields of activity of the enterprises using ICT systems;
2) To increase interaction of the enterprises with the governmental authorities by means of the Internet;
3) To introduce the e-commerce and e-business practically as well as to increase amounts of trade and business realization by the electronic means;

4) To change the existing negative opinion on the opportunities of the e-commerce and e-business.

KOPSAVILKUMS

IKT aptauja uzņēmumiem tika veikta Eiropas Kopienas iniciatīvas INTERREG III B finansētā projekta „LogOn Baltic" ietvaros. Projekta mērķis ir piedāvāt risinājumus mijiedarbības starp loģistikas uz IKT uzlabošanai, kā arī telpiskā plānošana un mazo un vidējo uzņēmumu konkurētspējas stiprināšana Baltijas valstu reģionā. Projektā ir iesaistīti vairāk kā 30 partneri no 10 reģioniem.

IKT aptaujas mērķis bija iegūt informāciju IKT infrastruktūru, pakalpojumiem, publiskā un privātā sektora sadarbību, lai uzlabotu kompetences līmeni IKT jomā.

Aptauja sastāvēja no šādām 5 pamatsadaļām: vispārīgā informācija par kompāniju, IKT sistēmu, Interneta un e-biznesa elektroniskās komercija izmantošana, kā arī kopējais IKT izmantošanas novērtējums, kuru rezultāti atspoguļoti šajā dokumentā.

Pamatojoties uz veikto analīze, attiecībā uz Latvijas uzņēmumu attīstības līmeni IKT jomā var secināt, ka:

1. IKT sistēmu, Interneta un elektroniskās komercijas izmantošana dod šādas priekšrocības:
   - lielu nodrošinājuma blīvumu ar IKT sistēmām;
   - nelielas izmaksas 2,5 % apmērā no kompānijas apgrozījuma;
   - liels daudzums personīgo Internet-lapu un to funkcionālo pilnīgumu;
   - augstu komunikabilitātes līmeni visu līmeņu kontaktos;
   - darījumu vienkāršību un palīdzību jaunu klientu un piegādātāju iegūšanā.

Palielinoties interneta lietotāju skaitam elektroniskā komercija pēdējo gadu laikā ir strauji attīstījusies un paplašinājusies arī Latvijā. Tiek dibināti gan jauni uzņēmumi, kas orientēti uz biznesu Internetā, gan arī pieaug to uzņēmumu skaits, kas sāk izmantot elektroniskās komercijas priekšrocības, lai uzlabotu savu klientu apkalpošanu un piedāvātu jaunus pakalpojumus.

Elektroniskās naudas izmantošana pakāpeniski izspiež kā likās parastos un ērtos maksāšanas līdzekļus norēķinos ar skaidru naudu mazos apjomos. Latvijas kompānijas paplašina lietotāju priekšstatus par norēķinu elektroniskajiem paņēmieniem, pozicionējot sevi

elektronisko banku veidā nelieliem maksājumiem, kur ir iespējams apmaksāt dažādus pakalpojumus caur Internetu.

Latvijā jau ilgu laiku darbojas maksājumu on-line sistēma, kas apvieno labākās elektroniskās naudas un kredītkaršu īpašības. Norēķinu sistēma ar vienkāršu nosaukumu e-Ls radās pateicoties kompānijai ELS International. Šī kompānija ir pirmā elektroniskās naudas emitente Latvijā, kas ir oficiāli reģistrēta valsts Centrālajā bankā.

2. Plašu Interneta elektroniskās komercijas un IKT izmantošanu kavē šādi šķēršļi:
   - darba laika zaudējumi dēļ darbiniekiem, kas darba laikā internetu izmanto savām personiskajām vajadzībām;
   - elektroniskās komercijas sistēmas attīstības un uzturēšanas izmaksas;
   - pārliecības trūkums kontraktu, piegādes termiņu un garantiju jautājumos;
   - klientu, piegādātāju nespēja nodrošināt tirdzniecību Internetā;
   - grūtības kvalificēta IKT personāla piesaistē;
   - esošā personāla nevēlēšanās izmantot IKT.

3. IKT ieviešana tiek bremzēta šādu neatrisināto problēmu dēļ:
   - nepietiekama sadarbība ar valsts pārvaldes institūcijām izmantojot Internetu;
   - vāja elektroniskās komercijas attīstība un nelieli elektroniskās tirdzniecības vai biznesa realizācijas apjomi (mazāk par 20 %);
   - valdošais uzskats, ka elektroniskā komercija nedod priekšrocības attiecībā pret konkurentiem, neuzlabo apkalpošanas kvalitāti un neietekmē rentabilitāti.

Priekšlikumi un rekomendācijas Interneta, elektroniskās komercijas un IKT izmantošanā:

1) paplašināt to uzņēmumu darbības sfēru, kuri izmanto IKT sistēmas;
2) paplašināt uzņēmumu sadarbību ar valsts pārvaldes iestādēm Interneta izmantošanas jomā;
3) operatīvi ieviest elektronisko komerciju un e-biznesu, kā arī palielināt tirdzniecības un elektroniskā biznesa realizācijas apjomu;
4) mainīt esošo negatīvo uzskatu par elektroniskās komercijas un e-biznesa iespējam.

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1   INTRODUCTION

1.1   Project introduction – LogOn Baltic

The LogOn Baltic project was approved within the Baltic Sea Region (BSR) INTERREG III B Neighbourhood Programme, which is sponsored by the European Regional Development Fund (ERDF), as part of the Structural Funds, and co-financed by national project partners.

The purpose of LogOn Baltic is to present solutions to improve the interplay between logistics and Information and Communication Technologies (ICT) competence and spatial planning and strengthening Small and Medium-sized Enterprises (SMEs) competitiveness in the BSR. This is primarily done by the production and dissemination of information for regional development agencies on how to support enterprises in the participating regions in the field of ICT and logistics, thus improving regional development.

The following regions are participating in the project:

- South-West Finland
- Östergötland (Sweden)
- Denmark
- Southern Metropolitan Region of Hamburg (Germany)
- West-Mecklenburg (Germany)
- North-East Poland
- Lithuania
- Latvia
- Estonia
- St. Petersburg (Russia)

LogOn Baltic provides an overview of logistics efficiency and logistics information systems and their exploitation, in order to improve the interaction between SMEs and other public/private actors.

On the one hand, the empirical activities of LogOn Baltic compare the existing logistics services and infrastructure with the logistics needs in the participating regions, making it possible to develop perspectives and action plans for strengthening the logistics competence in the

regions. On the other hand it describes the existing ICT infrastructure and services, revealing up to what extent they meet with the companies' needs for further development. In this way, LogOn Baltic focuses on:

    a.   identifying development agencies and evaluating their performance in each region

    b.   evaluating the level of logistics and ICT efficiency

    c.   suggesting concrete actions for regional and local public sector bodies

Data are gathered in each participating region using four tools, Development Measure Impact Analysis (DEMIA), Logistics survey, ICT survey and Expert Interviews; each of these is presented in a separate report. These results together with secondary data is presented in a regional report, that will describe the state of affairs in the region, with recommendations on what and how the region needs to develop. The regional reports are used as a basis for making an interregional comparison which is reported in an inter-regional report. All reports are available on the project homepage, www.logonbaltic.info.

1.2   Regional partner introduction

In Latvia, the leading regional partner is the Riga City Council. The project is implemented also in cooperation with the Logistics and Customs Brokers Association and the Transport and Telecommunication Institute.

Riga City Council (RCC) represents the local government of Riga, Latvia's capital and most significant economic centre. RCC has been the leading partner or a partner in a number of INTERREG and Phare CBC projects, as well as other European Commission (EC) initiatives. Riga City Council has accrued a grounded expertise in EU project management and coordination; it includes projects like Riga Northern Transport Corridor (Northern Corridor), which is the largest transportation infrastructure project in Riga over the last decades. The goal of the project is to create a new transit highway through the city in the west-east direction bypassing the historical centre of the city. It will include Riga Port into the Trans-European Transport Network and will improve the competitiveness of Latvian East-West transport corridor.

The **Logistics and Customs Brokers Association**[1] was established in 1997, with the initial aim of promoting the trade of customs brokers in Latvia through the development of the appropriate legislative base. When the new institution of "customs brokers" was established, the association refocused to develop other elements of business logistics besides customs issues. It acts as a cooperation platform for all interested parties regarding business logistics and customs clearance, as well as aims to promote the development of qualification and education standards in the field.

The work of the **Transport and Telecommunications Institute**[2] (TTI) is aimed at making productive contributions to the continuing progress of the transportation industry of Latvia, in particular through conducting applied research and development work in contemporary and future transportation issues. The Institute encourages collaborative work between practitioners from both private and public sectors and the academics in various facets of transportation research relevant to the needs of Latvia. TTI also has an extensive experience in transport and logistics teaching.

1.3   ICT survey introduction

This survey – part of the LogOn Baltic project - is one of the tools for primary data collection. It aims at reflecting the use of ICT as interface between the private and public sector. It is also intended to describe the existing ICT infrastructure and services in the participating regions, revealing up to what extent they meet with the companies' needs for further development.

The questionnaire consists of five modules. Each region has the opportunity to add one or two questions focusing on specific regional issues. These additional questions were added in an extra module (Module F). The same questionnaire has been used in all regions.

The survey is mainly conducted as a web-based survey, but mail surveys, phone surveys and interviews have also been used as a complement in some regions.

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[1] Description of the partner is based on the information from www.lmba.lv.
[2] Description of the partner is based on the information from www.tsi.lv and www.logonbaltic.info.

This is by far the largest survey conducted in the Baltic Sea Region in the field of ICT. In this report, data and analysis will be presented for one region only.

The data are also used to make a cross-regional analysis, focusing on differences and similarities between the regions. The cross-regional analysis is presented in a separate report available at the project homepage www.logonbaltic.info.

2   SURVEY DESIGN

2.1   Target group and sample

Figure 1 characterizes respondents by the size of the company. The company's turnover in the previous year has been taken as the main criteria for estimating the size of it. In total 108 respondents have taken part in the survey, of which 63 % represent micro-enterprises, 29 % - small enterprises, and about 4 % - average and greater enterprises. Such correlation of survey participants by sizes of the company is conditioned by the fact that small enterprises are more mobile, approachable, and are more open for cooperation, since their management is less busy.
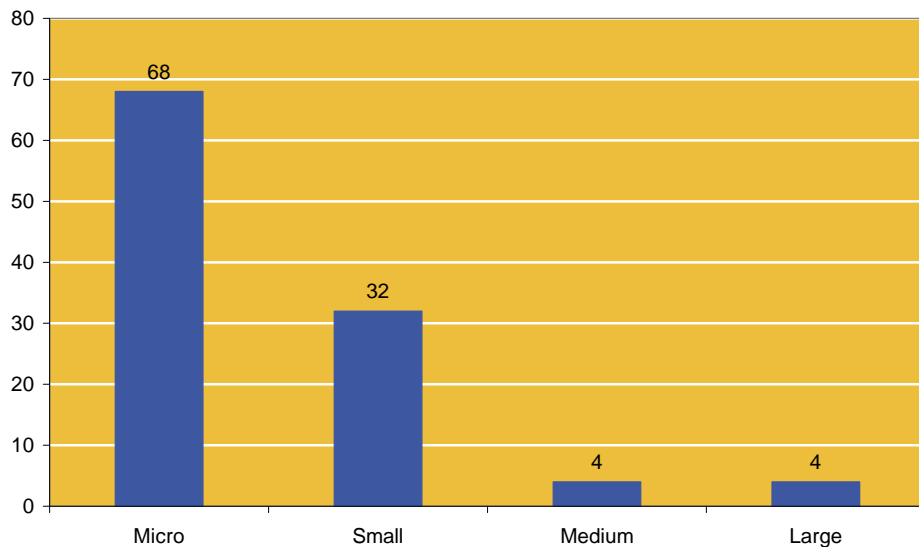
Figure 1   Number of respondents according to company size

In conformity with the data of the Enterprises Register, the majority of the Latvian business structure is represented by micro and small enterprises. This structure is actually conditioned by the enterprises'

desire to minimize their production costs. Micro and small enterprises are mobile; their operations are rather specific and they meet market needs better.
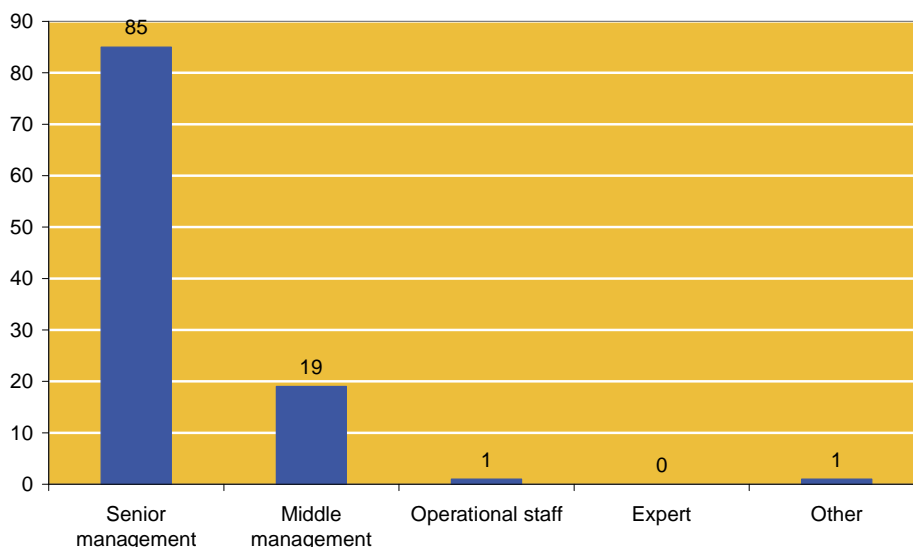

Figure 2   Number of respondents according to respondents' position in the company

Figure 2 characterizes the participants of this survey by their position in the company. Top Management makes an overwhelming 80% majority from 106 participants of the survey. 18% of the respondents belong to the Middle Management, and only 1% of each – the operational staff and other personnel. Such a great majority of the Top Management over others is caused by its high competence and responsibility for correctness of the given data about the company, and by a fear to delegate powers to the lower level that is typical for small enterprises. At such enterprises, the desire of the management "to hold all strings of management in the hands" is strongly developed. The fact that no experts have taken part in the survey, characterizes the respondents as not having permanent established positions of experts, but only involved of necessity, and in case of their presence – by a fear of management to delegate the corresponding powers to them.

The majority of the Latvian enterprises' managers agree with the opinion that mass media are the fourth power and, therefore, tend to control completely not only the financial flows, but the information traffic as well. For this reason, the overwhelming majority of positions of the respondents/participants of the survey belong to the Top Management.
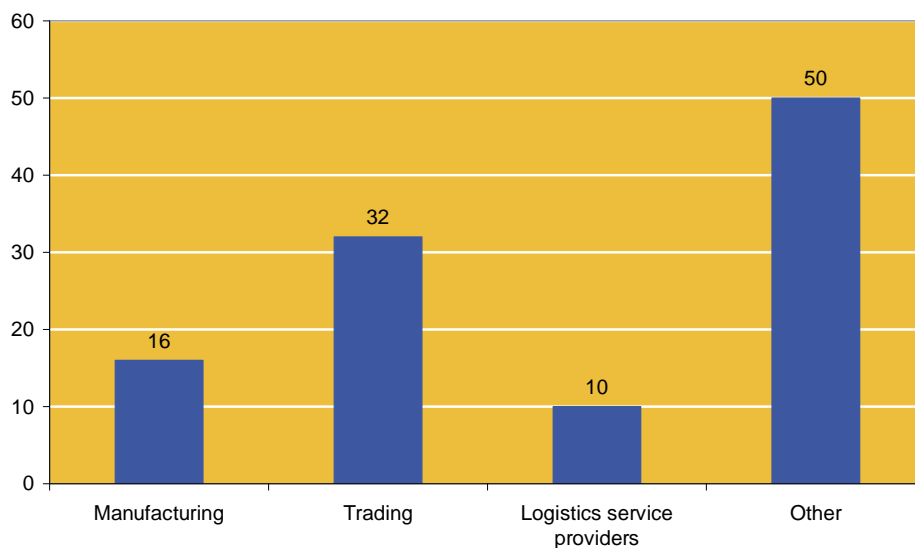
Figure 3   Number of respondents according to main industry

Figure 3 characterizes the participating companies by their basic activity. The majority of the 108 respondents - 46% - did not fall in the classification of types of activity determined for this survey, and therefore constitute the position "Others". Following were 30% of the companies representing the trading industry, 15%, the manufacturing industry, and the remaining 9% representing the transport, supply, and logistics industry. However, this fact demands explanations. Actually, in our opinion, Fig. 3 reflects the following.

Fields of business where ICT is used the most:
- Manufacturing
- Trading
- Other

The reason for the manufacturing industry to be in first place is that the question nr.3 of the questionnaire (see Appendix 1) is incomplete: not all popular kinds of manufacture are specified, and also the greater part of the manufacturing companies fell under the classification "Others".

The majority of the Latvian enterprises that have taken part in the survey work in manufacturing and trading, and only about 10% of them in the field of transport and logistics. This great number of industrial and trade enterprises is typical for Latvia on the whole, according to the data of the Register of Enterprises, which states that in reality the majority of small enterprises are operating in this field of activity. The low level for the area of transport and logistics cannot be considered

typical for Latvia because it is conditioned by the fact that for the enterprises of this branch one more independent survey has been conducted.

2.2   Main themes of the survey

The ICT Survey consists of five mandatory modules (A – E), and an optional module for region-specific questions. The main themes of the survey are:

- General contact- and background information of the companies
- Use of ICT in the companies within the regions
- Use of the Internet in the companies within the regions
- E-commerce / E-business
- General assessment of the use of ICT in the regions
- Region-specific issues [optional module]

The ICT Survey is intended for the whole population of regional companies.

3   FINDINGS FROM THE SURVEYS

3.1   Use of ICT systems

Figure 4 evidently shows the percentage of workers of the responding companies having access to e-mail of the company and the Internet. Have access to e-mail:

- about 49% in amount over 75%;
- about 27% between 51% and 75%;
- about 23% between 25% and 50%;
- less than 1% with less than 25%.

Have access to the Internet:

- about 48% in amount over 75%;
- about 27% between 51% and 75%;
- about 24% between 25% and 50%;
- less than 1% with less than 25%.
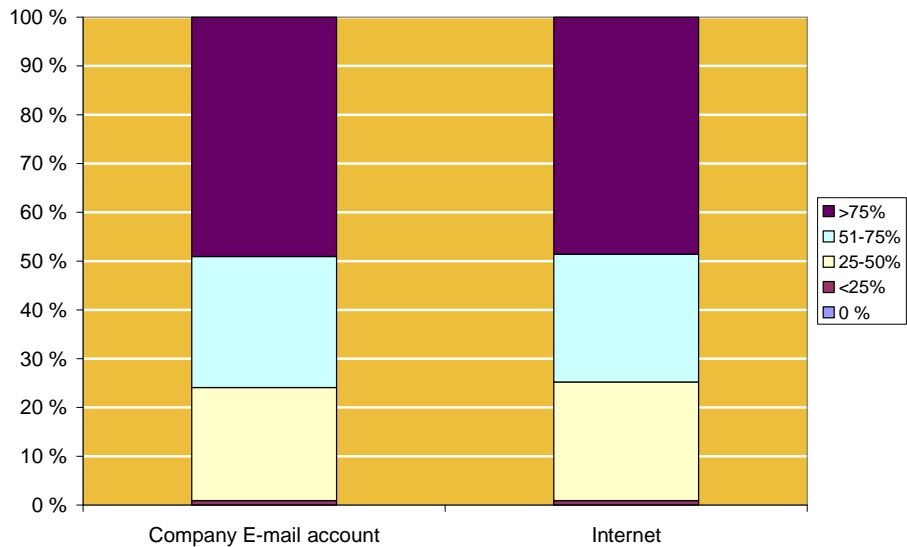
Figure 4   How many percent of employees have access to E-mail and Internet

A comparison of the two given figures shows that the number of workers of the companies having access to e-mail and the Internet by different gradation of use has a rather similar percentage. The only difference lays in the fact that just 1% more of the workers of the companies have access to e-mail in amount over 75%, and to the Internet for 1% more in amount 25% up to 50%.

The value is indicative of the fact that about half of all workers of the companies have access to e-mail and the Internet in amount over 75%. This parameter characterizes the surveyed companies as such companies, which in their activity widely use ICT systems, and the surveyed region (basically Riga) has high density of ICT systems equipment.

In Latvia, most of the companies use ICT systems, whereas the Riga region is being much more provided with ICT systems compared to other regions. It is conditioned by the fact that Riga is up to now the core business, financial, and shopping centre of the country, through which the majority of financial flows are passing and where a lot of monetary and manpower resources are concentrated.
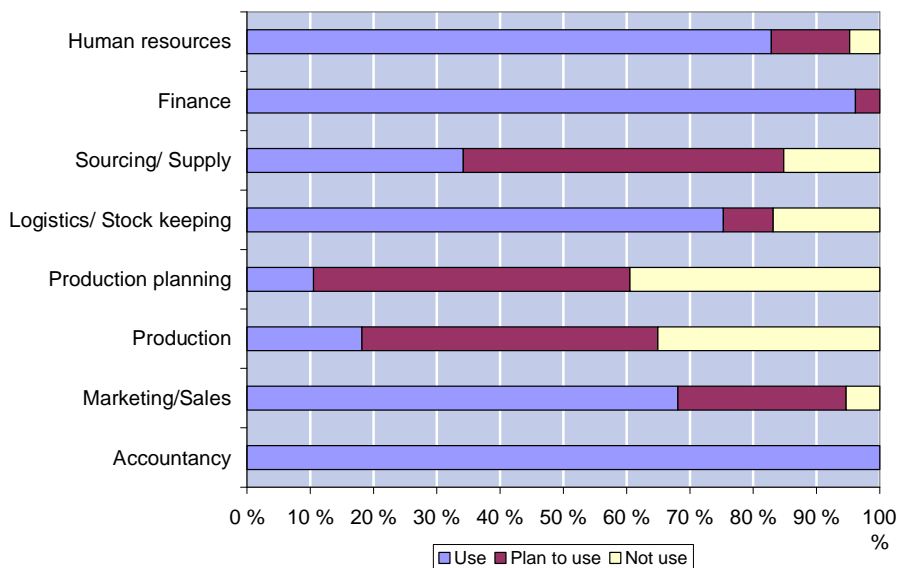

Figure 5   On which areas of business the companies are using ICT

Figure 5 characterizes the surveyed companies by a degree of ICT use in various areas of their activity. With 100%, Accountancy dominates the usage of ICT among the different business areas (Figure 5). In second place comes Finance with 96%, and the third –

Human Resources – 82%. The least of all, ICT are used by the companies in Industrial planning – only 11%.

Such distribution of ICT usage is conditioned by the fact that the sphere of Finance at the enterprises of the examined region are most fulfilled and occupied, taking the leading position among the other fields of activity. Moreover, the high usage of ICT in the area of Human Resources shows that this use considerably facilitates the accounting and all routine work of the Human Resources Department.

In the following business areas, almost 50% of the respondents plan to use ICT in the near future: Supply, Industrial Planning, and Manufacture. It means that in the examined region, manufacture is quickly developing, and that development of ICT is gradually beginning, following the development of the manufacture.

On the other hand, following business areas "Do not use" ICT for their activities: Industrial Planning (in 39% of the cases), and Manufacturing (35%). All this confirms the thesis that in the industrial sphere at the enterprises of the examined region, the use of ICT is still insufficient.

The dominance of the financial sphere in using ICT over other spheres of activity, shows the market dominance of financial, crediting, and trade enterprises, as well as of the enterprises providing various services. The specified tendencies confirm that Latvia is becoming the largest trading and financial market of the whole region.
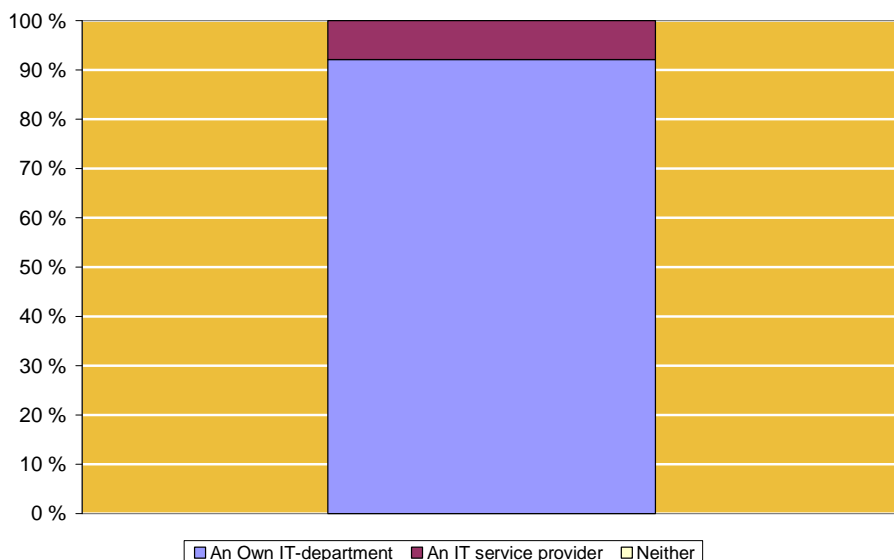

Figure 6   How the ICT administration is handled in the companies

Figure 6 shows a structure of the rendered services by use of ICT by the responding companies. In Figure 6, the predominant value corresponds to the "Own ICT Department" with 93%, and only 7% of the respondents use an outside contractor for ICT services. Such situation is caused by the fact that the approach of the companies in the examined region is serious enough about the use of ICT systems in their operations, including expenses on ICT for long-term periods.

Since the majority of the Latvian companies prefer to have their own ICT departments, the labour market for such experts is always in demand. For its replenishment, in Latvia there are many higher educational Institutions, which train highly skilled experts in the field of ICT.
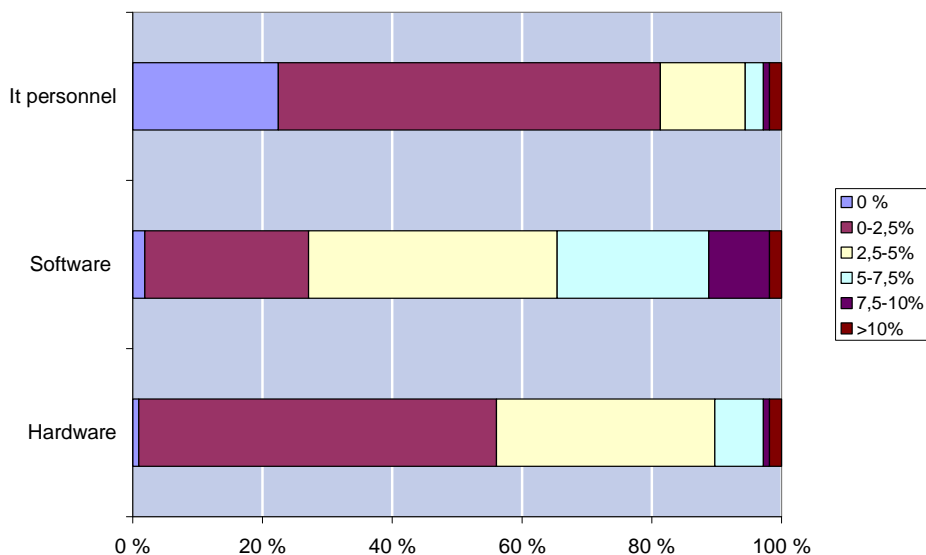
Figure 7   ICT expenses as a percentage of company turnover

Figure 7 distinguishes the different ICT expenses in the surveyed companies expressed as a percentage of the turnover of the company in the previous year.

Costs of hardware maintenance constitute:
- 0% - at 22% of respondents;
- 0% up to 2.5% - at 59% of respondents;
- 2.5% up to 5% - at 15% of respondents;
- 5% up to 7.5% - at 2% of respondents;
- 7.5% up to 10% - at 1% of respondents;
- over 10% - at 1% of respondents.

Costs of hardware maintenance at a rate of 2.5% in percentage of a turnover of the company prevail over other values and are met at the greatest number of respondents – 59%.

Costs of the software constitute:

- 0% - at 1% of respondents;
- 0% up to 2.5% - at 26% of respondents;
- 2.5% up to 5% - at 38% of respondents;
- 5% up to 7.5% - at 25% of respondents;
- 7.5% up to 10% - at 9% of respondents;
- over 10% - at 1% of respondents.

Costs of the software at a rate of 2.5% up to 5% in percentage of a turnover of the company prevail over other values, and are met at the greatest number of respondents of 38%.

Costs of the IT-personnel constitute:

- 0% - at less than 1% of respondents;
- 0% up to 2.5% - at 55% of respondents;
- 2.5% up to 5% - at 34% of respondents;
- 5% up to 7.5% at 8% of respondents;
- 7.5% up to 10% - at 1% of respondents;
- over 10% - at 1% of respondents.

Costs of the IT-personnel at a rate of 2.5 % in percentage of a turnover of the company prevail over other values, and are met at the greatest number of respondents – 55%.

The most prevailing value of expenses in the surveyed companies for the examined kinds of ICT maintenance is the value of 2.5% in percentage of a turnover of the company.

Latvian business people perfectly understand that for staying in the market and keeping up with the competitors it is necessary not only to control the permanent improvement of the ICT, to select the appropriate IT-personnel, but also to upgrade the software duly. Therefore, all companies always allocate a certain amount of their turnover money resources for the specified purposes, as well as for advertising. In Latvia, costs of various kinds of ICT maintenance expressed in percentage of the turnover of a company for 2.5% prevail over other values because this value is most acceptable from the point of view of all costs.

Table 1   How the ICT-costs are expected to develop in the next 3 years

	Decrease	Remain constant	Increase
Hardware	1	49	58
Software	1	12	94
IT personnel	8	47	52

Table 1 shows the expected future development of ICT costs. Costs assumed to increase the most:
- Software (87%);
- Hardware, IT personnel (nearly half of the respondents).

That is because the software represents the intellectual property being the copyright object protected by the law, and it is expected to remain very costly.

Costs assumed to decrease the most:
- IT personnel (8%)

That is because qualified ICT personnel is very expensive and to get it in circumstances of "headhunting" is becoming more difficult with every year.

The analysis of costs of various kinds of ICT maintenance existing now in Latvia shows their growth in the software aspect that confirms global tendencies of rise in the intellectual property value. Reduction of expenditures for the IT-personnel expresses the companies' aspiration to save at least something, to avoid lagging behind competitors and loosing market share, and it is in no way possible to reduce hardware expenditures.

Table 2   The use of different data security measures

	Available	Regularly used/ updated
Password access control	99	100
Virus protection applications	96	105
Computer firewall applications	5	8
Employee education on data security	69	53
Own documented data security program	25	22

Table 2 shows how actively the respondents use various ways of data security in ICT systems. Almost all respondents participating in the survey regularly update (100) and have (99) password access

control and anti-virus applications. Such high parameters mean correct understanding of the security issue and high responsibility of the companies of the surveyed region for data security used in ICT systems.

More than half of the respondents carry out training of workers on data security issues (69 - training is being performed and 53 - qualification is being raised regularly). This confirms the thesis that only the well-trained and highly skilled personnel are capable of providing the required data security in ICT systems.

However, only about a quarter of the surveyed companies have own documented programme of data security (25 - is available and 22 - is used on a regular basis). This means that the majority of the companies which have taken part in the survey will save on security issues because the additional software costs considerable money.

Latvian ICT systems have rather good indicators of data security, which confirms the companies' care about preserving commercial confidentiality that allows avoiding drop-out of the market niche and lagging behind competitors.

Table 3   How the companies monitor and evaluate their ICT costs and performance

	Disagree	Neither disagree nor agree	Agree
We regularly monitor and evaluate our IT costs and performance internally	14	27	66
We regularly monitor and evaluate IT costs and performance with selected suppliers and/ or customers	48	23	30
We regularly benchmark IT performance metrics against our competitors	47	26	29

Table 3 shows the opinion (a degree of agreement or disagreement) of the companies participating in the survey on the used methods of an estimation of ICT efficiency. The greatest quantity of respondents (66) agrees with the following opinion:

- We regularly monitor and evaluate IT costs and their performance internally

It means that the majority of respondents considers themselves as sufficiently qualified experts in the field of IT efficiency estimation since they have own ICT departments.

The greatest quantity of respondents - about half (48 and 47) - does not agree with the following statements:

- We regularly monitor and evaluate IT costs and their performance together with the selected suppliers and/or customers;
- We regularly compare testing indices of IT performance with our competitors.

It also confirms that the majority of respondents relies on the qualification of the employees of the own ICT department.

The majority of the Internet sites of Latvian companies contain general information about the company, information about products/services, and forms for contacts/feedback. It completely reflects the position of companies in the market, the existing competition, care about the brand, and desire to get information about further clients and suppliers.

## 3.2   Conclusions about this module

The admission to e-mail and the Internet, on different gradation of use has about the same priority, thus about a half of all workers of the companies has access in amount over 75%. The surveyed region has a high density of equipment of ICT systems.

The area of Finance in the enterprises of the considered region is the most perfected, and takes the leading position among the other business areas regarding the use of ICT. In the industrial sphere, the technique of ICT use is still insufficiently polished in the enterprises. However, manufacturing is quickly developing, and the development of ICT systems gradually starts following the development of manufacturing.

In the structure of the rendered services for ICT use in the region, a predominating value is taken by Own ICT Department, since the companies minimize expenses for use of ICT systems for the long-term period.

The most prevailing value of costs in the surveyed companies for all kinds of ICT maintenance, amounts 2.5% in percentage of the turnover of the company.

The greatest increase in ICT costs within the next 3 years is expected for software because it represents the intellectual property, being an object of the copyright, which is protected by the law and is estimated to be very costly.

The greatest decrease in ICT costs within the next 3 years is expected for the IT-personnel because qualified IT-personnel are very

expensive and recruiting in conditions of "headhunting" is becoming more difficult every year.

In the surveyed region, the companies correctly understand and estimate issues of data security used in ICT systems. Password access and anti-virus applications are of regular use and are regularly updated by almost all surveyed companies. More than half of the respondents carry out training of workers concerning data security issues. About a quarter of the surveyed companies have their own documented programme of data security.

Most of the companies consider they have sufficiently qualified ICT experts since they have own ITC departments, therefore they independently supervise and estimate expenses for their use on a regular basis.

3.3   Use of Internet

The majority of respondents (92%) have a broadband Internet connection, only 3% have modem, and 5% have other type of connection. It means that they prefer fast and stable data transmission.
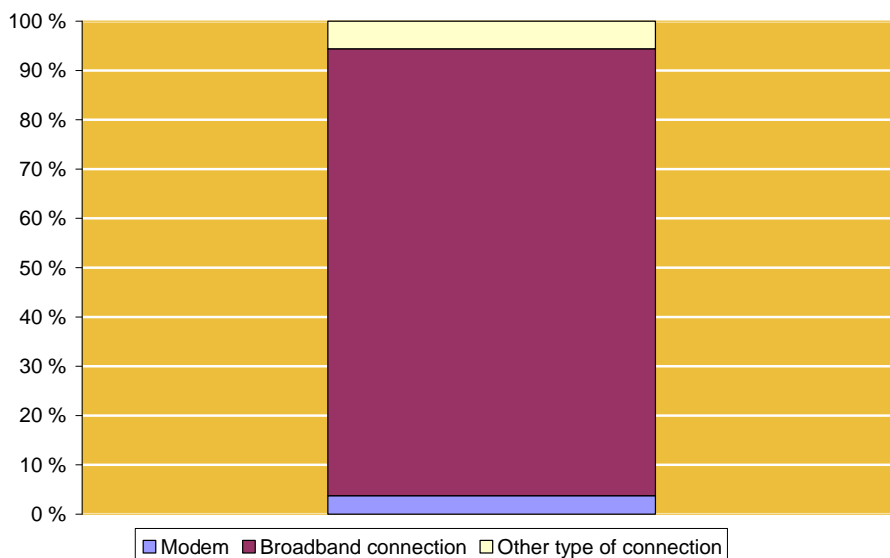
Figure 8   The type of connection companies have to the Internet

In reply to the question whether the company had a website, responses were divided almost equally: 84 companies responded 'yes' and 24 responded 'no'. That is, 78% of the surveyed companies have a

website and only 22% do not have one. This is in fact significantly more than the national average: according to the Latvian statistics, only 15.1% of all companies have a website.

Among 84 companies that have a website, the design and administration of the website in 47 cases was performed by an IT service provider, while in the remaining 37 cases it was done by the company's in-house IT department or designated employees. That is, 56% of the surveyed companies used an IT service provider for designing the website and 44% used their own IT department/special employees.
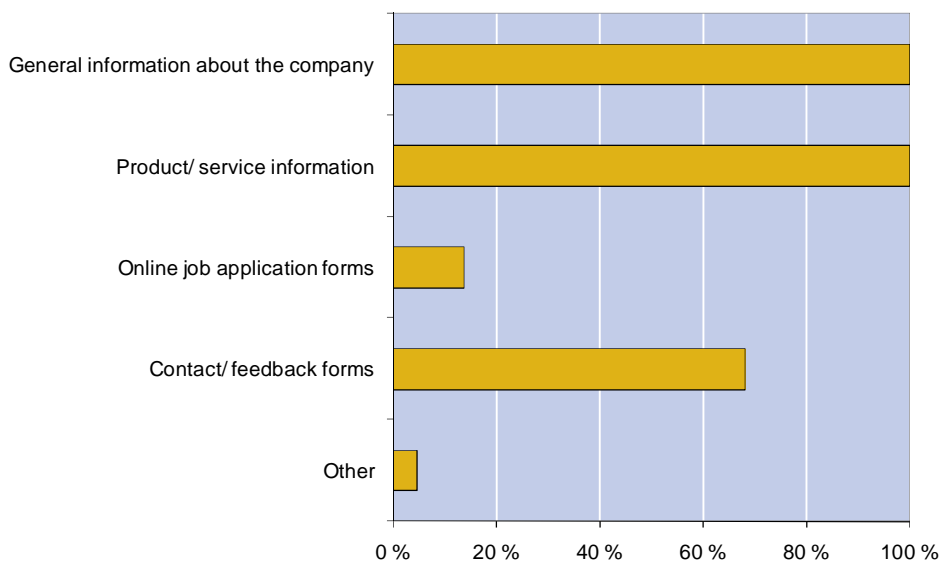
Figure 9   Different type of features that the company website includes

Figure 9 shows the functional features that are included in the Internet sites of the surveyed companies. The general information about the company and the Information about products/services dominate over other functional features and are reflected in the Internet sites of 100% of the surveyed companies. Such correlation reflects a competitive struggle in the market of a region and care of the companies about their own brand.

Next in importance are the Forms for contact/feedback, which is reflected in the Internet sites of 68% of the responding companies. Such great percentage speaks about the desire of the companies to receive full information about possibly greater number of clients and suppliers.

A smaller percentage of the companies (15%) have on-line questionnaires for job applicants on the Internet sites. It is indicative of the fact that the majority of the companies of the examined region do not have problems with recruitment. As a rule, only large companies by a number of workers, when experiencing labour force deficit, place on-line questionnaires for job applicants on the Internet-sites.

Most of the Internet sites of Latvian companies contain general information about the company, information about products/services, and forms for contact/feedback. It completely reflects the position of companies in the market, the existing competition, care about the brand, and the desire to get information about further clients and suppliers.
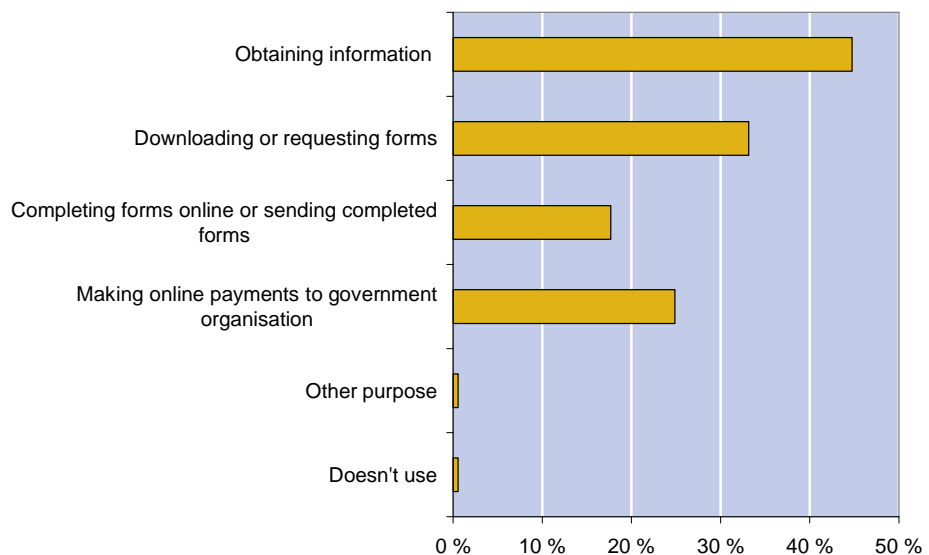
Figure 10   The different purposes companies use the Internet to interact with public authorities and government organisations

Figure 10 evidently shows various levels of Internet use by respondents on a regular basis for interaction with the government authorities.

The greatest level of the Internet use by the responding companies (45%) corresponds to reception of the information from the governmental organisations. For the companies it means that Internet has an informative value and on the same level competes with other mass media.

The second level of use of Internet (33%) concerns also to loading and query of forms. Such approach saves time considerably as it does

not demand direct visiting of the governmental organisations for the specified purposes.

The third level of the Internet use (25%) belongs to the performance of on-line payments to the governmental organisations. Such level characterizes that already one quarter of all respondents has begun saving money and time and prefers to make direct payments.

The fourth level of the Internet use (18%) refers to the infill of forms in an on-line mode and sending the filled forms to government agencies. It means that Internet for respondents has not yet become a convenient and fast facility for interaction with the government authorities due to the possibility of making a mistake and the impossibility of checking the correctness of an infill in a real time mode.

Internet has informative value for Latvian companies, it saves time and means, and is gradually winning the competitive struggle against other mass media. Latvian companies together with the government authorities use the Internet for getting information about the governmental organisations, loading and querying for forms, and performing on-line payments.

In reply to the question whether the company uses Internet for clearing goods through Customs, only 3 (3%) responded 'yes' while 103 (97%) responded 'no'. Such ratio indicates that most of the companies prefer the documentary support of customs operations and personal presence at goods acceptance and consignment. Documents are required in various cases, for example, at exemption from the export added value tax when it is necessary to submit the confirming information in the documented form.

The majority of Latvian companies prefer documentary conducting of customs operations and personal presence at acceptance - consignment of goods because they tend to trust papers, signatures, seals and stamps.

3.4   E-commerce / E-business

Figure 11 evidently shows the methods of communication that companies prefer to use on a regular basis for contacting clients/suppliers effectively. When communicating with their business partners, most companies rely on personal visits (30%), telephone/fax (58%), or email (58%) or regular mail (39%). More advanced electronic data exchange such as EDI or ERP is used in less than 2% of cases.

In methods of communication, the dominating position over others is occupied by phone/fax and e-mail, which shows a high level of respondents' communication.
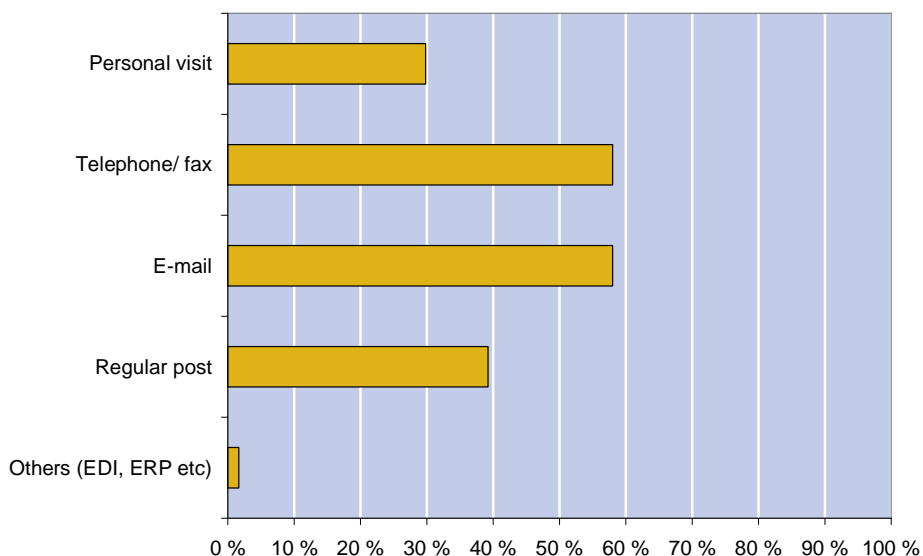
Figure 11   The type of communication methods the organisations use when communicating with customers and suppliers

Dialogue by means of e-mail considerably accelerates the processes of exchanging business information between enterprises, such as preparation and signing of various contracts, invoicing and paying invoices, exchanging other financial information, etc. Care about information confidentiality and data transmission security shall go first. Despite growing costs of data transmission security, e-mail - alongside with phone and fax - are gradually replacing traditional mail in Latvian companies. In the future, e-mail communication between enterprises is bound to prevail.

Table 4 shows presently existing business-processes that are carried out by electronic means between respondents and clients/suppliers, and the estimated development thereof in the next 3 years.

Table 4   The type of business processes between the companies and their customers/ suppliers are handled electronically

	Customers		Suppliers	
	Now	In 3 Years	Now	In 3 Years
Order placement for products/ services	97	96	95	96
Order tracking/ service status available online	10	37	10	36
Payment possibilities	56	100	57	100
After sales support	13	45	10	43

At present, the first place among the business-processes carried out by electronic means between respondents and clients and between respondents and suppliers is taken by a process of order placement for production/service. It is expected that in the next 3 years the quantity indicators of this process will not change, however, it will give up the first place to the process of payment opportunity, but the process itself will go down to the second place. It means that the dynamics of the development of electronic payments will aspire to correspond to a constant perfection of the Internet and e-commerce, advancing other processes.

The second place among the business-processes carried out in the electronic way between respondents and clients, and also between respondents and suppliers now belongs to a process of an opportunity of payments. The respondents estimated that in the next 3 years, the quantity indicators of this process will increase almost twice, and it will come out on top. This confirms the constantly increasing role of electronic payments in the e-commerce, typical for fast developing countries.

The third place among the business-processes carried out in the electronic way between respondents and clients, and, also between respondents and suppliers now is divided between the processes of on-line tracking of orders/conditions of service and after-sale support. It is expected that in the next 3 years the quantity indicators of after-sale support process will increase four times, but it will remain in third place. Provided the before-mentioned, the quantity indicators of the on-line tracking of orders/conditions of service process will still go down to the fourth place although they will increase three times. It means that a process of after-sale supports, as the service improving support, meets the requirements of both clients and suppliers the most.

The considered business-processes carried out by electronic means between the companies and their clients/suppliers, and their assumed state in the next 3 years is approximately identical. Such situation speaks about the identical approach to use of the opportunities given by the e-commerce and electronic business, both to clients and suppliers.

Table 5 reflects an approximate percentage of trade/business of respondents with clients and suppliers that have been implemented by electronic means within the last year.

Table 5   The share of companies business that is handled electronically

	0 %	1-19%	20-39%	40-59%	60-79%	80-100%	Total
Customers	7	75	14	6	0	0	102
Suppliers	10	67	15	6	1	5	104

The greatest quantity of respondents (over 70%) has carried out the trade or business by electronic means with clients and suppliers in amount over 20%. The least quantity of respondents (less than 1%) has realized the trade or business by the electronic way and only with suppliers in amounts - 60% - 79%.

A certain quantity of respondents has not realized the trade or business by electronic means (volume of 0%) at all. With clients, their quantity has made 7%, and with suppliers - 10%.

A small number of respondents (about 14%) have implemented the trade or business by electronic means with clients and suppliers in amounts below average - 20% and up to 40%. A small percentage of respondents (only 6 %) have realized the trade or business by electronic means with clients and suppliers in amounts above average (40% - 59%).

Furthermore, an insignificant part of respondents (5%) has realized the trade or business by electronic means only with some suppliers in great volumes - 80% up to 100%.

Data of processes of trade/business obtained during the survey by electronic means testifies that in the investigated region, the introduction of the e-commerce still is insufficiently developed and the majority of the companies (basically, micro and small) prefer the implementation of commercial transactions in the traditional way.

Table 6 shows prospective changes of percentage of trade/business of respondents with clients and suppliers that is planned to be implemented by electronic means within the next 3 years.

Table 6   The companies' opinion on what the development of the share e-commerce will be in their business operations

	Decrease	Remain the same	Increase
Customers	0	8	99
Suppliers	0	9	96

Over 90% of the respondents consider that in the next 3 years the percentage of their trade/business with clients and suppliers that are supposed to be carried out by electronic means will increase. Less than 10% of respondents consider that in the next 3 years the percentage of trade/business with their clients and suppliers that are supposed to be realized in the electronic means shall remain constant.

The parameters of trade/business in the electronic way received at the survey testify that in the surveyed region, within the next 3 years, a process of introduction of the e-commerce will quickly develop. Therefore, the majority of the companies, understanding it, in the future will prefer to realize commercial transactions, all the same, by electronic means.

Figure 12 very evidently shows the opinion (a degree of agreement or disagreement) of the respondents of the surveyed region concerning the importance of processes of the e-commerce for the activity of the company.
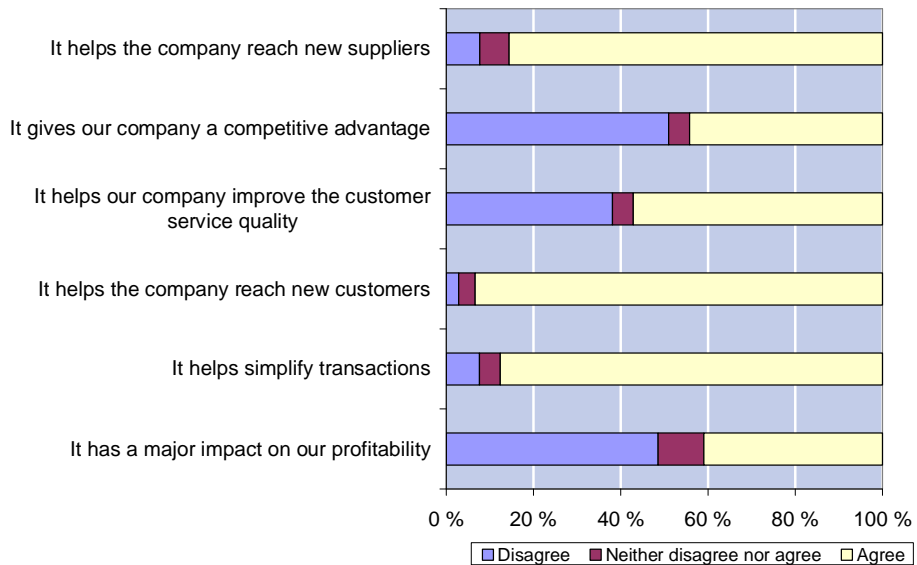
Figure 12   Companies views on the importance of E-commerce

The statement the companies most agree with:
- It helps a company to reach new customer;
- It helps to simplify transactions;
- It helps a company to reach new suppliers.

The dominating conciliatory opinions of the companies completely coincide with the real practical opportunities given by the e-commerce, really helping to simplify transactions and to find new clients and suppliers.

The statement the companies most disagree with:
- It gives our company a competitive advantage;
- It has a major impact on our profitability;
- It helps our company improve the customer service quality.

The prevailing disagreement of the companies testifies that the existing opportunities given by the e-commerce really do not provide the described advantages since they do not give the competitive advantages in practice, as well as do not improve a quality of service, and do not influence profitability.

The general results of all opinions concerning an importance of the e-commerce/e-business are presented in Table 7.

Table 7   Importance of e-Business

Degree of agreement / Opinions	Disagree	Do not know	Agree
It helps our company reach new suppliers	8%	7%	85%
It gives our company a competitive advantage	51%	5%	44%
It helps our company improve the customer service quality	38%	5%	57%
It helps our company reach new customers	3%	4%	93%
It helps to simplify transactions	8%	4%	88%
It has a major impact on our profitability	48%	11%	41%

Use of the Internet characterizes:
- high percentage of broadband connections among the existing kinds of connections;
- great number of own web-sites;
- almost identical ratio of providers and own ICT departments at designing and administration;
- functional completeness of the presented web-sites;
- informative interaction with the governmental authorities by means of Internet.

Use of the e-commerce/e-business provides:
- a high level of communication skills in contacts with clients/suppliers;
- domination of order placement for production/service process among e-business now, and prevalence of process of payment opportunity within the next 3 years;
- fast development of e-commerce introduction process within the next 3 years;
- simplification of transactions and the help in finding new clients and suppliers.

The introduction of e-commerce is underdeveloped in Latvia today, and most companies prefer to carry out commercial transactions in the traditional way. This is, because they are not sure of the payment security and reckon that e-commerce does not give competitive advantages, does not improve the service quality, and does not influence profitability. But in the future the process of introducing e-commerce seems to be gaining pace.

3.5   General assessment of ICT usage

Figure 13 shows an estimation of the importance of different obstacles for the current or future use of the Internet, e-commerce, and ICT in general, and an opinion on the effects of each problem influencing the activity of the companies of the surveyed region.
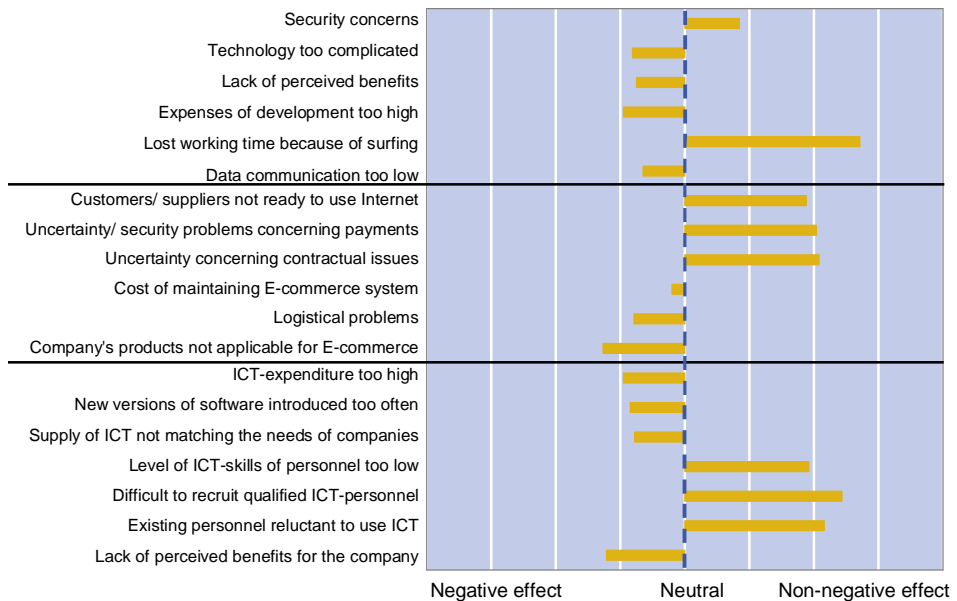
Figure 13   The effect of different barriers on the use of Internet, e-commerce and ICT in general

When estimating obstacles in Internet use, the most prevailing opinion is a very positive consent with such effects as Loss of working hours due to non-business-related Internet browsing. Another effect creating an obstacle to Internet use and to which the majority of respondents refer positively or neutrally is the concern for safety (viruses, hacking).

The existing positive attitude confirms that the surveyed companies consider these statements essential, and that the above-mentioned effects really create obstacles to Internet use. The indefinitely negative position of respondents in relation to opinions in estimating obstacles to Internet use consists of neutrally negative attitude to the below stated effects, listed according to their importance:

- Expenditures for development and services are too high;
- Technology is too complex;

- Absence of evident benefits for the company;
- Too slow and unstable data transmission.

The surveyed companies cannot correctly estimate the importance of these statements, as, in their opinion, they are not sure whether the above-mentioned effects really create obstacles to the use of Internet. An estimation of obstacles for the use of e-commerce, the prevailing opinion is in consent with the following effects listed according to their importance:

- Costs of development and maintenance of electronic commerce system;
- Uncertainty concerning contracts, terms of delivery and guarantees;
- Unavailability of clients/suppliers to use trade via Internet.

The majority of the interrogated companies consider these statements correct, as, in their opinion, the above-listed effects really create essential obstacles to use of electronic commerce.

An uncertain opinion of the companies in respect to obstacles in use of e-commerce consists of neutrally negative attitude to such effects, as: Inapplicability of the Internet-sales related to activity of the company and Logistic problems. The companies could not correctly estimate their influence, as, in their opinion, they are not sure, whether the above-listed effects create or not, essential obstacles for the use of e-commerce. Regarding the obstacles for the use of ICT in general, the prevailing opinion is a very positive consent with the following effects:

- Difficulties in recruitment of qualified ICT personnel;
- The existing personnel use ICT unwillingly.

Another effect creating obstacle for the use of ICT in general and to which respondents refer positively, is the rather low level of the workers' ICT skills. The listed positive opinions confirm that the surveyed companies consider these statements correct and that the specified effects really create essential obstacles for the use of ICT in general. The uncertain opinion of the companies regarding obstacles for ICT use in general consists of their neutral attitude towards the following effects:

- Frequent updating of versions of the existing software;
- Delivery of ICT technology mismatching ICT needs of the companies.

The surveyed companies are not sure whether these statements are essential, as they cannot correctly estimate whether they really create these effects as an obstacle to use ICT in general.

Negative reaction of the companies in an estimation of obstacles to ICT use in general consists of their negative attitude to the following effects:

- ICT expenditures are too high;
- Absence of evident benefits for the company.

The mentioned negative opinions confirm that the surveyed companies consider these statements to be non-essential, as the above-listed effects really do not create any obstacles for the use of ICT in general.

3.6   Basic obstacles for using ICT in Latvia

3.6.1   Internet

Loss of working hours due to the non-related Internet browsing. Loss of working hours is a real problem for all enterprises. To prevent this, the management is forced to introduce punitive measures, i.e. the dismissal of the workers who do not fulfil the specified requirements.

3.6.2   Electronic commerce

Cost of e-commerce, uncertainty about the execution of contracts, terms of delivery and guarantees, and the unavailability to trade through the Internet. All this occurs because the cost of e-commerce, despite rapid development of ICT support, remains rather high. Executing contracts, meeting terms of delivery and guarantees in the electronic way, is still not reliable enough. Many Latvian companies experience uncertainty about conducting trade through the Internet because there are no strict payment securities and guaranteed protection of transactions against hacking.

3.6.3   ICT in general

Difficulties in selecting qualified ICT staff. Such situation is explained by the fact that skilled specialists have gone abroad due to low salaries in Latvia, and those who have stayed are reluctant to use ICT. Young

specialists, graduates of higher educational establishments are also forced to leave the country in search of higher payment of their labour. Employers should pay adequate remuneration to overcome the difficulties and to get specialists back.

4 SUMMARY AND CONCLUSIONS

In conformity with the data of the Register of Enterprises, the majority of the Latvian business structure consists of micro and small enterprises. This structure is actually conditioned by the enterprises' desire to minimize their production costs. Micro and small enterprises are mobile; their operations are rather specific and meet market needs better.

Most of the Latvian enterprises' managers agree with the opinion that mass media is the fourth power and, therefore, they tend to control completely not only the financial flows, but the information traffic as well. For this reason, the overwhelming majority of the respondents of this survey belong to the Top Management.

A big number of the Latvian enterprises who took part in the survey work in the manufacturing and trade industry, and only about 10% of them, in the field of transport and logistics. This great number of industrial and trade enterprises is typical for Latvia on the whole, according to the data of the Register of Enterprises, which states that in reality, the majority of small enterprises is occupied in this field of activity. The low level for the area of transport and logistics cannot be considered typical for Latvia because it is conditioned by the fact that for the enterprises of this branch another independent survey has been conducted.

In Latvia, most of the companies use a wide range of ICT systems, whereas Riga Region is being supplied with more ICT systems compared to other regions. It is conditioned by the fact that Riga is up to now the core business, financial, and shopping centre of the country, through which the majority of financial flows are passing and where a lot of monetary and manpower resources is concentrated.

The dominance of the financial business area using ICT over other business areas shows a market dominance of financial, crediting, and trade enterprises, as well as of the enterprises giving various services. The specified tendencies confirm that Latvia is becoming the largest trading and financial market of the whole region.

Since most of the Latvian companies prefer to have their own ICT departments, the labour market for such experts is always in demand.

For its replenishment, in Latvia there are many higher educational institutions, which train highly skilled experts in the field of ICT.

Latvian business people perfectly understand that in order to maintain the market share and keep up with the competitors it is necessary not only to control the permanent improvement of the ICT and to select the appropriate IT-personnel, but also to upgrade the software duly. Therefore, all companies always allocate a certain amount of their turnover money resources for the specified purposes, as well as for advertising. In Latvia, various kinds of ICT costs - expressed as a percentage of the turnover – amount around 2.5%. This value prevails over others because this value is the most acceptable from the point of view of total costs. The analysis of the actual ICT expenditures in Latvia shows the growth in the Software area, confirming global tendencies of the rise of the intellectual property value. A reduction of expenditures for the IT-personnel expresses the companies' aspiration to save at least something, to avoid lagging behind competitors and loosing the market, and it is impossible to reduce Hardware expenditures.

Latvian ICT systems have rather good indicators of data security, which confirms the companies' care about preserving commercial confidentiality, avoiding a dropout from the market niche and to lag behind competitors.

Many Latvian companies have their own ICT departments; therefore, they consider themselves as qualified experts in the field of estimating IT efficiency. In order to work successfully in the market and not to lag behind the competitors, the Latvian companies regularly check and evaluate expenses on ICT use.

Most of the Internet sites of Latvian companies contain general information about the company, information about products/services, and forms for contact/feedback. This reflects the position of the companies in the market, the existing competition, care about the brand, and desire to get information about future clients and suppliers.

Internet has an informative value for Latvian companies: it saves time and means, and is gradually winning the competitive struggle against other mass media. Latvian companies, together with the government authorities, use the Internet for getting information about the governmental organisations, loading and querying forms, and performing on-line payments.

A big majority of Latvian companies prefer documentary conducting of customs operations and personal presence at acceptance-delivery

of goods because they tend to trust papers, signatures, seals, and stamps.

A communication by means of e-mail considerably accelerates the processes of exchanging business information between enterprises, such as preparation and signing various contracts, invoicing and paying invoices, exchanging other financial information, etc. Care about information confidentiality and data transmission security shall go first. Despite growing costs of data transmission security, e-mail - alongside with phone and fax - are gradually replacing traditional mail in Latvian companies. In the future, e-mail communication between enterprises is bound to prevail.

The introduction of e-commerce is underdeveloped in Latvia today, and most companies prefer to carry out commercial transactions in the traditional way. This occurs because they are not sure of the payment security, and reckon that e-commerce does not provide competitive advantages, does not improve the service quality, and does not influence profitability. However, in the future, the process of introducing e-commerce seems to be gaining pace.

Basic obstacles for using ICT in Latvia:

1. The Internet. Loss of working hours due to the non-related Internet browsing. Loss of working hours is a real problem of all enterprises. To prevent it, the management is forced to introduce punitive measures up to dismissal of the workers who do not fulfil the specified requirements.

2. Electronic commerce. Cost of e-commerce, uncertainty about the execution of contracts, terms of delivery and guarantees, and unavailability to trade through the Internet. All this occurs because the cost of e-commerce, despite the rapid development of ICT support, remains rather high. Executing contracts, meeting terms of delivery and guarantees by electronic means, is still not reliable enough. Many Latvian companies experience uncertainty about conducting trade through the Internet because there are no strict payment securities and guaranteed protection of transactions against hacking.

3. ICT in general. Difficulties in selecting qualified ICT staff. Such situation is explained by the fact that skilled specialists have gone abroad due to low salaries in Latvia, and those who have stayed are reluctant to use ICT. Young specialists, graduates of higher educational establishments are also forced to leave the country in search of higher payment of

their labour. Employers should pay adequate remuneration to overcome the difficulties and to get the specialists back.

Unresolved questions of ICT introduction:

- insufficient interaction with the governmental authorities by means of the Internet.
- weak development of e-commerce and small volumes (less than 20%) of realizations of trade or business by electronic means with clients and suppliers;
- existence of a negative opinion that e-commerce does not give any competitive advantages, does not improve the service quality, and does not influence profitability.

Recommendations for further use of the Internet, e-commerce, and ICT:

- extending the fields of activity of the enterprises using ICT systems;
- increasing interaction of the enterprises with the governmental authorities by means of the Internet;
- prompt introduction of e-commerce and e-business, and increase of the amount of trade or business implementation by electronic means with clients and suppliers;
- changing the prevailing negative opinion about the opportunities of e-commerce and e-business.

With the wide application of ICT, the living standards could be considerably raised. In the 21st century, the development of ICT skills is bound to raise competitiveness of the labour force in the labour market; application of ICT will give individuals brand new opportunities for creative work, reducing the distinctions, which have resulted from the society fragmentation as well as the distinctions in opportunities between the cities and the countryside, the rich and the poor.

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APPENDIX

Appendix 1 Interview guideline

Module A   Contact- and background information

1. Contact information

a) Company Name/Business Unit: [Open field]

b) Postal Code: [Open field]

c) Contact e-mail: [Open field]

(Provide this information if you wish to receive the customised survey report)

d) Respondent's position in the company [Drop-down menu]

[ ]   Senior management   [ ]   Expert

[ ]   Middle management   [ ]   Other

[ ]   Operational staff

e) Please choose whether you wish to respond on behalf of the whole firm or a group of companies OR an individual business unit [Drop-down menu]

[ ]   I wish to respond on behalf of the whole firm or a group of companies

[ ]   I wish to respond on behalf of an individual business unit.

2. Please indicate the current number of employed people: [Drop-down menu]

[ ]   1 -9   [ ]   1000 – 1999

[ ]   10 – 49   [ ]   2000 – 4999

[ ]   50 – 249   [ ]   5000 – 10000

[ ]   250 – 499   [ ]   Over 10000

[ ]   500 – 999

In the next 3 years, do you expect the number of employees to … [Drop-down menu]

[ ]   decrease   [ ]   increase

[ ]   remain constant

3. What activity best classifies your company? [Drop-down menu]

[ ]   Automotive industry

[ ]   Manufacturing of textiles and textile products

[ ]   Financing / Banking / Insurance

[ ]   Publishing and printing

[ ]   Manufacturing of electrical and optical equipment
[ ]   Manufacturing of basic metals and fabricated metal products
[ ]   Manufacturing of pulp, paper and paper products
[ ]   Manufacturing of wood and wood products
[ ]   Manufacturing of chemicals, chemical products, and man-made fibres
[ ]   Manufacturing of food products and tobacco
[ ]   Wholesale Trade
[ ]   Retail Trade
[ ]   Government, Public Administration
[ ]   Energy Supply
[ ]   Construction
[ ]   Transport, Distribution and Logistics
[ ]   Health and Human Services
[ ]   Tourism and Leisure Industry
[ ]   ICT / Telecommunication
[ ]   Maritime Industry
[ ]   Other

4. Please indicate the total turnover of your company in the past year

[Drop-down menu]

[ ]	0 – 2 M EUR	[ ]	50.1 – 100 M EUR
[ ]	2.1 – 5 M EUR	[ ]	100.1 – 500 M EUR
[ ]	5.1 – 10 M EUR	[ ]	500.1 – 1000 M EUR
[ ]	10.1 – 25 M EUR	[ ]	1.1 – 5 billion EUR
[ ]	25.1 – 50 M EUR	[ ]	over 5 billion EUR

How do you expect the company's turnover to develop in the next 3 years?

[Drop-down menu]

[ ]   decrease   [ ]   increase
[ ]   remain constant

5. Does the company have other subsidiaries? [Separate tick box for each]

[ ]   Yes, but only in (the home country)
[ ]   Yes, also abroad: In the Baltic Sea Region[1]   [ ]
                                Rest of Europe   [ ]
                                Other   [ ]
[ ]   No

---

[1] South-West Finland, Östergötland, Denmark, Hamburg, West-Mecklenburg, North-East Poland, Lithuania, Latvia, Estonia, St. Petersburg

Module B   Use of ICT systems

6. What percentage of your employees has access to...? [Separate tick box for each]

	0%	< 25%	25-50%	51-75%	> 75%
Company E-mail account	[ ]	[ ]	[ ]	[ ]	[ ]
Internet	[ ]	[ ]	[ ]	[ ]	[ ]

a. If any option was answered with '0%':

Does the company plan to give access to company E-mail account/Internet to the employees in the future? [Drop-down menu]

[ ]   Yes

[ ]   No

7. Does the company use (or plan to use) ICT technology in following areas?

[Separate tick box for each]

	Use	Plan to use	Not use
Accountancy	[ ]	[ ]	[ ]
Marketing/Sales	[ ]	[ ]	[ ]
Production	[ ]	[ ]	[ ]
Production Planning	[ ]	[ ]	[ ]
Logistics/Stock keeping	[ ]	[ ]	[ ]
Sourcing/Supply	[ ]	[ ]	[ ]
Finance	[ ]	[ ]	[ ]
Human Resources	[ ]	[ ]	[ ]
Other: _____	[ ]	[ ]	[ ]

8. The company has ... (check both options if they apply to your company)

[Separate tick box for each]

[ ]   an own IT department. With approximately _____ employees.

[ ]   an IT service provider (IT outsourcing)

[ ]   none of the above mentioned

How do you expect the outsourcing of IT services in your company to develop in the next three years? [Drop-down menu]

[ ]   decrease

[ ]   remain constant

[ ]   increase

9. Please estimate the following ICT expenses expressed as % of company turnover in the past year. [Drop-down menu]

	0%	02-5%	2,5-5%	5-7,5%	7,5-10%	> 10%
Hardware	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Software	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
IT Personnel	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

b. How do you expect these expenses to develop in the next 3 years?

[Separate tick box for each]

	decrease	remain constant	increase
Hardware	[ ]	[ ]	[ ]
Software	[ ]	[ ]	[ ]
IT Personnel	[ ]	[ ]	[ ]

10. Does your company have – and actively use/update – the following data security measures? [Drop-down menu]

	available	regularly used/updated
Password access control	[ ]	[ ]
Virus protection applications	[ ]	[ ]
Computer firewall applications	[ ]	[ ]
Employee education on data security	[ ]	[ ]
Own documented data security program	[ ]	[ ]

11. Please indicate the extent to which you agree or disagree with the following statements regarding "IT performance evaluation" from the perspective of your company (where: -2 = strongly disagree, -1 = disagree, 0 = neither disagree nor agree, +1 = agree, +2 = strongly agree, NR = no response)

	- 2	- 1	0	+ 1	+ 2
We regularly monitor and evaluate our IT costs and performance internally	[ ]	[ ]	[ ]	[ ]	[ ]
We regularly monitor and evaluate IT costs and performance with selected suppliers and/or customers	[ ]	[ ]	[ ]	[ ]	[ ]
We regularly benchmark IT performance metrics against our competitors	[ ]	[ ]	[ ]	[ ]	[ ]

Module C   Use of Internet

12. What type of connection to the Internet does your company use? [Drop-down menu]

[ ]   Modem (via standard phone line)

[ ]   Broadband connection

[ ]   Other type of connection: _____

13. Does your company have a website. [Drop-down menu]

[ ]   Yes

[ ]   No *(Go to question 16)*

14. About the company's website…

a) Who designed and administers the website? [Separate tick box for each]

      [ ]   an IT service provider

      [ ]   the company's own IT department/special employees

b) Which of the following features does the website include? (Please check all that apply) [Separate tick box for each]

      [ ]   general information about the company

      [ ]   product/service information

      [ ]   online job application forms

      [ ]   contact/feedback forms

      [ ]   others: _____

15. Does your company use the Internet for interacting on a regular basis with public authorities/government organisations (Ministries, local governmental departments, Customs, etc)? [Separate tick box for each]

[ ]   Yes, the company interacts with public authorities/government organisations for…

      [ ]   obtaining information (i.e. from websites or via e-mail)

      [ ]   downloading or requesting forms

      [ ]   completing forms online or sending completed forms

      [ ]   making online payments to government organisations

      [ ]   other (please specify) _____

[ ]   No

16. Does your company use the Internet for clearing goods through Customs?

[ ]   Yes

[ ]   No

Module D   E-commerce/E-business

17. Which of the following methods does your company use on a regular basis to contact customers/suppliers? [Separate tick box for each]

[ ]   personal visit

[ ]   telephone/fax

[ ]   e-mail

[ ]   regular post

[ ]   Others (EDI, ERP, etc):_____

18. Which of the following business processes between your company and your customer/supplier are handled electronically (i.e. Internet, EDI, ERP)? [Separate tick box for each]

	Customers	Suppliers
- order placement for products/services	[ ]	[ ]

	Customers	Suppliers
- order tracking / service status available online	[ ]	[ ]
- payment possibilities	[ ]	[ ]
- after-sales support	[ ]	[ ]

How do you think the situation would look like in 3 years?

	Customers	Suppliers
- order placement for products/services	[ ]	[ ]
- order tracking / service status available online	[ ]	[ ]
- payment possibilities	[ ]	[ ]
- after sales support	[ ]	[ ]

19. Please indicate the approximate percentage of the company's commerce/business handled electronically (i.e. Internet, EDI, ERP) during the past year:

[Separate tick box for each]

	Customers	Suppliers
0%	[ ]	[ ]
1 – 9%	[ ]	[ ]
10 – 19%	[ ]	[ ]
20 – 29%	[ ]	[ ]
30 – 39%	[ ]	[ ]
40 – 49%	[ ]	[ ]
50 – 59%	[ ]	[ ]
60 - 69%	[ ]	[ ]
70 - 79%	[ ]	[ ]
80 - 89%	[ ]	[ ]
90 - 100%	[ ]	[ ]
doesn't know	[ ]	[ ]

In the next 3 years, do you expect this percentage to ...

decrease	[ ]	[ ]
remain constant	[ ]	[ ]
increase	[ ]	[ ]

20. Please indicate the extent to which you agree or disagree with the following statements regarding the "importance of E-commerce/E-business" from the perspective of your company (5-point scale, where -2 = strongly disagree, -1 = disagree, 0 = neither disagree nor agree, +1 = agree, + 2 = strongly agree, NR = no response) [Separate tick box for each]

	- 2	- 1	0	+ 1	+ 2	NR
It has a major impact on our profitability	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
It helps simplify transactions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

It helps the company reach new customers	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
It helps our company improve the customer service quality	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
It gives our company a competitive advantage	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
It helps the company reach new suppliers	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Module E   General assessment of ICT usage

21. Please assess the significance of following barriers for the present or future use of Internet, E-commerce and ICT in general in your company. Indicate your opinion on the effect of each issue in your company by selecting between – 2 – + 2 (where: -2 = very negative, -1 = negative, 0 = doesn't know, +1 = positive, +2 = very positive, NR = no response). [Separate tick box for each]

	- 2	- 1	0	+ 1	+ 2	NR
Barriers on use of Internet						
Security concerns (i.e. hacking, viruses)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Technology is too complicated	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Lack of perceived benefits for the company	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Expenses of development and maintenance of website are too high	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Lost working time because of irrelevant surfing	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Data communication is too low or unstable	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Barriers on use of E-commerce						
Customers/suppliers not ready to use Internet Commerce	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Uncertainty/security problems concerning payments	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Uncertainty concerning contracts, terms of delivery and guarantees	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Cost of developing and maintaining an E-commerce system	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Logistical problems	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Company's products/services not applicable for Internet sales	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Barriers on use of ICT in general						
ICT expenditure too high	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
New versions of existing software are introduced too often	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

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	-2	-1	0	+1	+2	NR
Supply of ICT technology not matching the ICT needs of the companies	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
The level of ICT skills is too low among the employed personnel	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Difficult to recruit qualified ICT personnel	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Existing personnel reluctant to use ICT	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Lack of perceived benefits for the company	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

(where: -2 = strongly disagree, -1 = disagree, 0 = neither disagree nor agree, +1 = agree, +2 = strongly agree, NR = no response)

	-2	-1	0	+1	+2	NR

Regional e-Government activities

	-2	-1	0	+1	+2	NR
I'm satisfied with the existing e-Government offers	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I'd appreciate more and better e-Government offers	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Modulis F   Izglītība IKT nozarē

22. Vai Jūsu uzņēmumam ir nepieciešama IKT speciālistu kvalifikācijas paaugstināšana ?

[ ]   Jā
[ ]   Nē

23. Kādi jaunie speciālisti IKT nozarē būtu nepieciešami Jūsu uzņēmumā?

[ ]   telekomunikāciju speciālists
[ ]   programmētājs
[ ]   mājas lapu dizainers
[ ]   IT projektu pārvaldes speciālists
[ ]   tīklu administrators
[ ]   sistēmas analītiķis
[ ]   citi: _____

LogOn Baltic Publications (as of 21.9.2007)

LogOn Baltic Master reports

1:2007 Developing Regions through Spatial Planning and Logistics & ICT competence - Final report
Wolfgang Kersten, Mareike Böger, Meike Schröder and Carolin Singer

2:2007 Analytical Framework for the LogOn Baltic Project
Eric Kron, Gunnar Prause and Anatoli Beifert

3:2007 Aggregated logistics survey report *(working title)*
Håkan Aronsson and Naveen Kumar

4:2007 Aggregated ICT survey report *(working title)*
Eric Kron and Gunnar Prause

5:2007 Aggregated Expert interview report *(working title)*
Matti Takalokastari

LogOn Baltic Regional reports

Development Measure Impact Analysis (DEMIA)

10:2007 REGIONAL DEVELOPMENT IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Janina Benecke, Jürgen Glaser and Rupert Seuthe

11:2007 REGIONAL DEVELOPMENT IN MECKLENBURG-VORPOMMERN, GERMANY - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Gertraud Klinkenberg

12:2007 REGIONAL DEVELOPMENT IN ESTONIA - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
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13:2007 REGIONAL DEVELOPMENT IN SOUTHWEST FINLAND - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Kaisa Alapartanen

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Riga City Council - Rode & Weiland Ltd.

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18:2007 REGIONAL DEVELOPMENT IN ÖSTERGÖTLAND, SWEDEN - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
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Seren Eilmann and Tomi Solakivi

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Juha Läikkö and Tomi Solakivi

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Yuri Ardatov and Tomi Solakivi

28:2007 ICT SURVEY IN ÖSTERGOTLAND, SWEDEN
Naveen Kumar, Håkan Aronsson and Tomi Solakivi

Logistics surveys

30:2007 LOGISTICS SURVEY IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY
Wolfgang Kersten, Mareike Böger, Meike Schröder, Carolin Singer and Tomi Solakivi

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Regional Profiles

50:2007   REGIONAL LOGISTICS & ICT PROFILE: THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY
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70(FI):2007 VARSINAIS-SUOMEN LOGISTINEN KILPAILUKYKY
Matti Takalokastari (toim.)

71:2007   AIR TRAFFIC SERVICE DEVELOPMENT IN TURKU REGION _(working title)_
Pekka Jaakkola

72:2007   ENTERPRISE ICT _(working title)_
Kalle Luhtinen

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