LAURA

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Adaptive Zones for Interregional Electronic Commerce based on the concepts of Request-Based Virtual Organizations and sector-specific Service Level Agreements

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1. Introduction

The purpose of Task 1.1 in the LAURA project is to define the internal "needs architecture" of the envisaged LAURA framework, in order to determine the interaction among the various functional parts of the LAURA system with its target audience (most importantly the SMEs). The interoperability of the framework depends on subtle issues such as the way business is carried out in each region, the technological capabilities of the companies, and the business processes necessary for the introduction of e-commerce. It also depends on the way the various sector-dependent e-commerce processes exploit the Request-Based Virtual Organization (RBVO) and Service Level Agreement (SLA) schemes, and the way the interregional zones are "routed" by the particular context of use.

For Task 1.1, in order to collect more varied and complete information two methodologies have been employed: *exploitation of existing knowledge* (surveys and reports of the Ministry for Regional Development and Public Works, Ministry of Economy, the Agency for SMEs, the Agency for Economic Analysis and Forecasting, the Centre for Economic Development, and other Bulgarian organizations), and *direct survey* of companies' needs through interviews with company managers and other related staff. A standard questionnaire has been elaborated for the purpose and has been used for all participating regions (with minor modifications for each region to suit the regional context). This has allowed the collection of initial, high-level information on actors' needs and requirements. The profile of the companies to be surveyed, as well as the sectors to which these companies belong have been clearly specified beforehand in order to have a wide representation of companies from each region, and also to allow for the possibility of interregional trading between companies.

The role of the user partners has been important for this task, as they have provided the region-specific data regarding the SMEs in general and have carried out the interviews to allow the collection of relevant data.

The work under Task 1.1 has ended up with identifying SME priorities for each region and elaboration for measures for regional actions. The project partners share the common view that the analysis of the needs of regional actors should not be a single exercise as their needs change with the changes in the business environment. For this reason, it is in their aim to establish the analysis of companies' needs as a regular practice in the future. For this purpose a set of indicators have been developed and will be presented later in this document. It is also of significant importance to decide how to collect information on these indicators on a regular basis, which will allow for measuring the innovative performance of the companies.

Company audits, which have been carried out with the questionnaire and face-to-face interviews, have also served as an assisted evaluation of each company to understand which e-commerce possibilities exist, and what the business rationale and benefits might be.

In the sections that follow, Section 2 presents the Methodology that was used to elucidate the actors' needs and requirements. This includes a description of the industrial sectors that were chosen to participate in the gathering of requirements, the exploitation of existing knowledge from previous projects, government and public organizations etc. It also

includes a description of the way the surveys were carried out, and the methodological constraints that arise from the chosen survey methods.

In Section 3, the actual surveys are described. This includes a definition of the indicators that were developed in order to assess the actors' needs and requirements, and a description of the survey's participants that were chosen to take part in the survey. Section 4 is the actual analysis of the responses to the questionnaire that was distributed to companies in each region of the LAURA project (Messinia and Epirus from Greece, South-Central Bulgaria and Saxony-Anhalt from Germany). The responses to the questionnaire were collected and statistically analysed, and the statistical results from this analysis are presented in this section.

In Section 5 the actors' needs and requirements are presented, as those were derived from the questionnaire and face-to-face interviews that were carried out with participant companies. These requirements include the functional requirements of the LAURA project, the operational requirements of the companies, the user profiles that companies in the LAURA project have, and the Information and Communication Technology (ICT) Specifications that companies must meet in order to be able to participate in B2B e-commerce. The requirements presented will be at a high level, because of the limitations that a questionnaire approach poses. Requirements will be further elaborated in Work Package 2 of the LAURA project (Engineering of adaptive e-commerce zones).

Section 6 presents some general issues associated with the LAURA project, including opportunities in the regions, necessary changes for the introduction of e-commerce, and recommendations for regional actions. Section 7 then follows with an evaluation of information collection methodologies In this section the methods used for information collection are described for each region, and then future information collection methodologies are deduced for SME needs. Also included in this section are future actions and follow-ups. Section 8 finally presents the conclusions of this deliverable.

In the APPENDIX a presentation of the exploitation of existing knowledge that was carried out in Bulgaria as stated in the Annex I - description of work is included

2. Information Collection Methodology

This chapter deals with the strategy that was adopted during the initial phase of the project for the systematic collection, the structuring, and the analysis of data and information that was required for the determination of regional actors' requirements and needs in the LAURA project. Initially, there is a short presentation of the project's overall strategy for information collection, while a detailed presentation of utilized methodologies follows. Furthermore, there is an analysis of the constraints set up by these specific methodologies.

2.1 *Strategy's Description*

The identification of a coherent strategy that could support the procedure of data collection was the initial objective of the LAURA consortium. The agreement of all participating partners on a common, in general terms, strategy was of prime interest, as this is a precondition for the collection of accurate and trustworthy data. The results should provide meaningful input for the actors' needs architecture creation. Furthermore, this strategy should be flexible enough to be adjusted to the regional special culture and characteristics.

So, a general framework of activities was introduced and discussed among the partners during the kick-off meeting in order to co-ordinate the information collection procedure in the four participating regions (Epirus, Messinia, Saxony-Anhalt, South Central Bulgaria). It has been decided that the strategy suggested in the project's proposal could be adapted as soon as it covers the actual needs in the area of data collection.

More specifically, the project's research strategy consisted of three different methodologies:

- **Exploitation of existing knowledge.** It concerns the collection of data available from existing sources of information such as:
    - surveys and reports by European, national, regional or local authorities (public or semi-public sectors),
    - available on-line databases,
    - published material (books, journals, newspapers, etc.)

  The whole process of existing knowledge exploitation aided to help LAURA's deployment partners to obtain an initial feeling of their regions regarding technology and Internet diffusion and identify information that is already available somewhere else.

  The LAURA consortium decided to run this task in parallel with the desk research activity of Task 1.2 - "Analysis of Technology and Market Related Trends" in order to save project's human effort and time.

- **SMEs Direct Surveys.** Data will also be gathered by means of a set of survey questions which will be addressed to regional actors as (i) questionnaires distributed by post or via e-mail, and (ii) face-to-face interviews. The questions have been shaped in order to respond to a set of predefined indicators.

  The questionnaires were forwarded to a broad base of SMEs in the participating regions, while the face-to-face interviews were conducted with a limited only number of SMEs that were interested in the LAURA concepts. A mailed questionnaire was chosen as the best vehicle for collecting, and this can provide a broad picture of companies' awareness and interest in e-commerce. On the other hand, the face-to-face interviews can provide the actual users needs and requirements for systems implementation.

- **Consideration of European Union policies.** Finally, the European, national and local policies and initiatives have been examined and the best practices have been identified in the European continent. This methodology includes the study of various reports for European policies.

Evaluating the three methodologies' outcomes, LAURA consortium could identify the actor's "needs architecture". A schematic representation of LAURA's overall strategy follows:

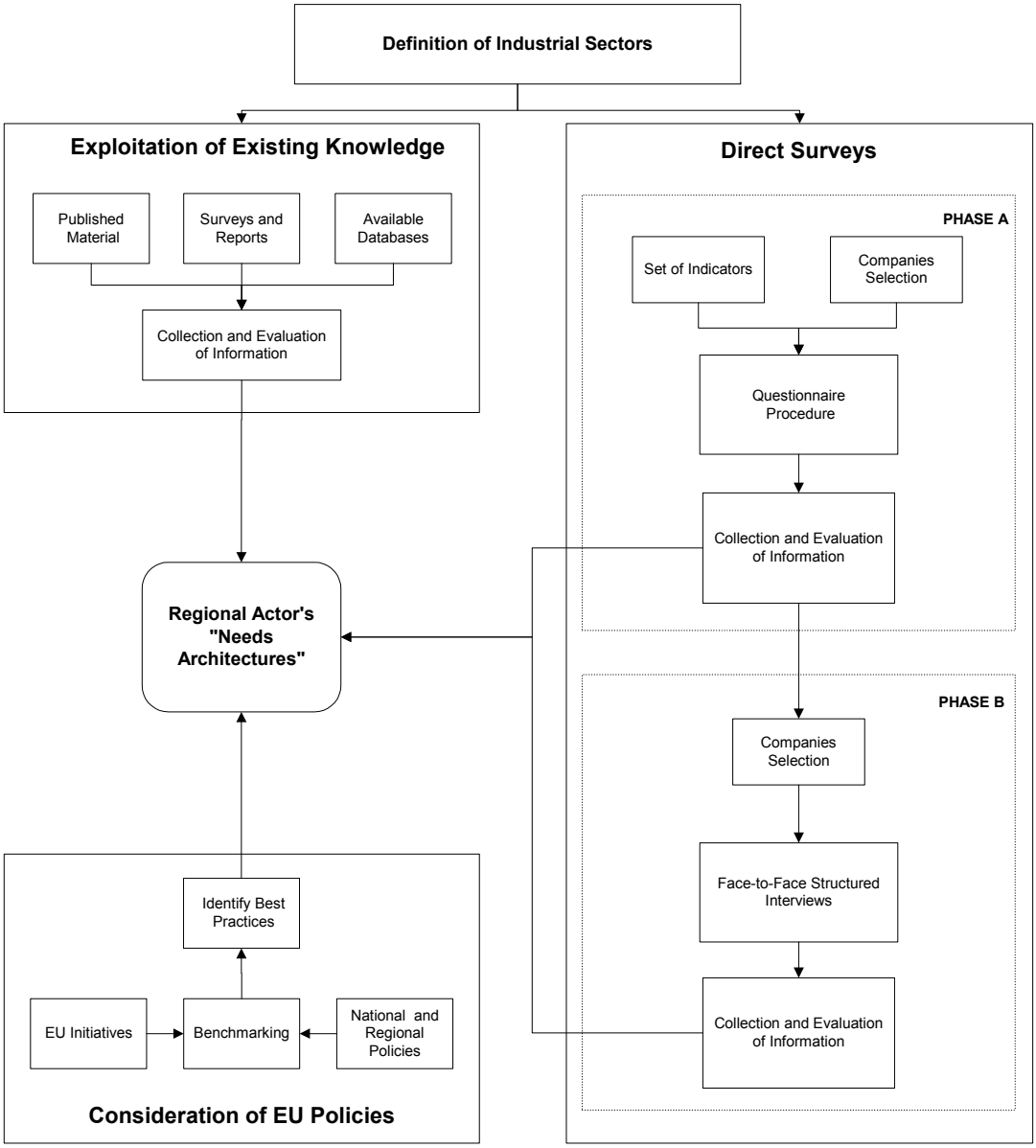


Figure 1: LAURA Strategy for Information Collection

Each of the above methodologies will be analysed in following paragraphs.

2.2 *Industrial Sectors Selection*

The first step was to identify the industrial sectors that have the potential to participate in the LAURA's project. For each of the regions, three to five specific industry sectors had been selected covering a wide range of business activities (manufacturing, retailing, services). Some additional selection's criteria have been identified by the consortium:

- regions' local or national priorities,

- size of the sectors concerning number of companies and especially small and medium enterprises (SMEs),
- financial prosperity of the sectors,
- potential for sectors' expansion into new markets,
- opportunities for innovation in the sectors.

Afterwards, there were discussions among the LAURA partners in order to identify common or related business sectors among the regions. The scope of these discussions was to choose the appropriate sectors that could establish inter-regional supply chains and therefore support the trading transactions among the different participating regions (inter-regional trading). The common business sectors that resulted by these discussions are:

- Agriculture and Food industry,
- Wood and Furniture industry,
- Construction industry, and
- Tourism

Besides the above common sectors, each region could still examine any sector that had identified and considered of major importance. The presentation of the sectors that have been identified for each region follows.

2.2.1. Greece - Messinia

In correspondence to generic selection criteria, the Messinian Chamber of Commerce and Industry and 01 KIS S.A. used the following criteria for the selection of the suitable industrial sectors in Messinia:

- The size of the sector within the regional boundaries
- The spread of the sector within the regional boundaries
- The level of usage of IT solutions and technologies within and across the sector
- The developmental tendencies, needs and history of the sectors
- The nature of the sector, as far as products are concerned
- Known responsiveness and self-realisation of the sector

The industrial sectors that have been selected in Messinia are:

- **Food Industry**
- **Wood Products Industry**
- **Tourism**
- **Agriculture**
- **Structural Materials – Construction Industry**

2.2.2. Greece - Epirus

The criteria used by the Hellenic Association of Young Entrepreneurs (HAYE) for the selection of the industrial sectors in local level were similar to the ones in the case of Messinia, as these have been described in the previous section.

The industrial sectors that have been selected to participate in the LAURA project in Epirus are:

- **Food Industry**
- **Wood Industry**
- **Tourism**
- **Agriculture**
- **Construction Industry**

2.2.3. Bulgaria - South Central Region

In the South Central Bulgaria, the sections that had been selected are:

- **Agriculture and Food industry**
    - *Agriculture*, for which there are excellent climatic conditions, has to develop by priority the *vine growing as a basis for wine production*, the growing of *ethereal and oil yielding crops*, and *hydro meliorative farming*. *Tobacco cultivation* is the traditional branch of agriculture for most of the areas in the South Central Region. A great R&D potential is available and the encouragement of R&D activities can serve as a basis for innovation in agriculture. ("Maritsa" Research Institute, University of Agriculture and others).
    - *Food industry* also has an excellent basis for innovative development provided by the Higher Institute of Food Industry.
    - *The agrochemical industry* has also its own R&D basis, which provides opportunities for innovations in this branch.
- **Wood and Furniture industry**
    - *Wood industry and woodworking, including furniture production* are among the exceptionally well developed branches in most of the areas in the region.

- **Tourism** in all of its aspects is a traditional priority for the region due to the availability of historical, natural and other resources forming a good basis for its development.

Additionally the "Construction materials and Construction" sector has been selected, even though it is not one of the priorities in south central Bulgaria. The purpose was the region to be coherent with the common LAURA project approach.

2.2.4. Germany – Saxony-Anhalt

In the context of the research project LAURA the selection of the industrial sectors occurred in close coordination with all national and international partners. The submission of the suggestions from the German consortium was oriented at the national-typical industrial branches of the federal states Saxonia-Anhalt and Mecklenburg-Western Pomerania. Selection mechanisms such as occupation, number of the enterprises as well as turnover strength served thereby as pre-selection criteria. The sectors:

- **food**
- **building material**
- **furniture industry**
- **tourism**

were selected from the pool of potential branches with the help of the size and length of the value chain. They form the backbone of the middle class in the designated federal states. These branches are characterised by a distinctive national and international network of suppliers and customers. Above all the international adjustment on the part of supply and demand was a decided criterion for the selection - this with the reference to the standardisation of the international transactions over the describing Service Level Agreements in the research project LAURA. The branch specific technical qualification of the German project partners served apart from the project-related criteria for the activity exchange as further selection mechanism.

2.3 *Exploitation of existing knowledge*

As it has been mentioned and above, the systematic collection and exploitation of existing knowledge was considered to be a major step for the comprehension of business reality in participating regions. For this reason a desk research had been conducted within task 1.1 in order to gather information for the assessment of regional business environment with regard to information technologies and Internet utilisation. This task was running in parallel with the activities for the analysis of technology and market related trends (Task 1.2).

The whole task was more intensive in South – Central Bulgarian region where there were more information or material available, compared to that of EU member states as Germany and Greece. For this reason, LAURA Bulgarian partners had to do an extensive desk

research in order to collect information from various sources of data and information such as annual reports, quantitative and qualitative surveys provided by:

- Government organisations and associations, such as Ministry of Transport and Communication, Ministry of Economy and Bulgarian Associations of Information Technologies (BAIT),
- Non-profit-making institutes, such as National Statistical Institute,
- Private sector companies and organisations, such as Bulgarian Telecommunications Company (BTC), Mobicom, Moobiltel.

Furthermore, there was an increased interest for Bulgaria as long as it is one of the five countries which are moving toward membership in the European Union and is about to intensify the pre-accession process.

More specific, in this deliverable a comprehensive analysis of the current state of affairs in e-business / e-commerce in South – Central Bulgaria has been included in Appendix. The needs and requirements of Bulgarian actors are analysed in broader terms to cover not only the technical issues of industrial innovation but also economic and organisational aspects like management, marketing, innovation financing, etc.

On the other hand, the desk research in the rest two participating countries was mainly based on reports or surveys conducted by major European Union's organization (e.g. Eurostat), other public or private organisations (e.g. Federal Statistical Offices) or Internet based data systems (like "Hoppenstendt" or "Wer liefert was?" for Saxonia-Anhalt region). These regional findings have been described in individual regional reports that are included in the Annex 1 of Deliverable 1.2 "Analysis of technology / market trends based on interaction and feedback with other frameworks".

2.4 *Direct Surveys*

It was decided by the LAURA partners to conduct the direct surveys in two sequential phases:

- Questionnaires
- Face-to-face interviews

2.4.1. Questionnaires

The first step was the creation of a specific questionnaire for eliciting a more generic but essential view for regional users' attitudes, behaviour, knowledge and needs. The structure of the LAURA questionnaire was based on a set of predefined indicators that should have been measured by the end of the survey. These indicators have been identified by the research and core industrial LAURA partners (more details in section 3.1 "Definition of Indicators").

All partners contributed to the formation of the questionnaires by specifying appropriate questions for the different indicators. Several versions of the questionnaire were produced, refined, as well as modified by the LAURA's research and industrial partners. It should be noted that the questionnaire was also disseminated to the deployment partners, whose valuable feedback was accommodated in the final version of the questionnaire (Annex 9.2).

Recognising that organisations receive many requests for information in the form of questionnaires, the questionnaire was designed to be completed by a knowledgeable person within 15 minutes. In order to achieve this:

a) Appropriate wording has been used, considering the particular people for whom the questionnaire was being designed,

b) Questions have been arranged in a way that they could flow naturally,

c) Close-ended questions have been preferred to the open-ended ones, as it is much less time consuming for the respondents to select one or multiple responses,

d) The length of the questionnaire was kept as short as possible (5 pages), without loosing crucial information. This meant the loss of some detail in the questionnaire, but a higher response rate was anticipated.

Furthermore, a cover letter (Annex 9.1) has been prepared to be distributed along with the questionnaire. The purpose of the cover letter was to provide an overview of the LAURA project, to identify questionnaires purpose and assure respondents of confidentiality.

Both the final questionnaire and the cover letter have been translated in the participating regions' mother tongue (Bulgarian, German and Greek). There were four possible ways of disseminating the questionnaires:

- Post mailing,
- Fax,
- E-mail,
- On-line on the Web.

It was decided that each deployment partner could choose the way of disseminating the questionnaire based on the regional culture and attitude.

The questionnaire has been distributed to all active enterprises in the selected industrial branches. The companies' names have been identified by searching in local companies' catalogues or Internet based data systems.

The data analysis and interpretation were conducted by each region individually, using standard tools for the evaluation of the answered questionnaires (e.g. "SPSS – Software" in Saxony Anhalt region). The outcome of this analysis was a regional report that is included in chapter 4 of this report.

In order to increase mail survey response rates and the respondents' interest in the topic, the questionnaire includes a question where the respondents could identify if they would like to receive the above analysis report.

2.4.2. Face-to-face interviews

During phase A of the direct surveys, regional SMEs that might be interested in participating in the LAURA project have been identified. These companies were considered as the potential LAURA's business actors that could provide the consortium with specific data regarding SMEs' needs and requirements.

Therefore, in Phase B we should have identified the most effective methodology for the collection of in-depth information from the above companies. The face-to-face interviewing was considered by the LAURA consortium as the most appropriate tool for this phase. This is the classic methodology, in which an interviewer gathers information from the respondent in person.

The major advantage of this method was that the interviewer had full control of the process, as he or she could see the respondent. The interviewer could encourage the respondent to participate and this led to high co-operation levels. They could also make sure that the respondent fully understood the interview task and so explain the process. Therefore, issues can be explored in-depth, and the interviewer is there to assist, prompt and probe where necessary.

In the context of Phase B, each deployment partner had to conduct three (3) to ten (10) face-to-face interviews in his region with the interested companies, covering all the selected sectors. The interviews' questions (Annex 9.3) have been prepared by the research and industrial partners collaboratively. Questions were designed to gather either qualitative or quantitative data, while this time there were much more open-ended questions. The questions were also based on the initial specified indicators, examining closely this time the following specific issues:

- *IT Infrastructure*
- *Cost Analysis*
- *Company Interest in e-commerce*
- *Services that support/enable e-commerce activities*
- *Technology and market related trend analysis*
- *Business and trading practices*
- *Preliminary Functional Requirements of LAURA*
- *LAURA project interest*

Additionally, guidelines have been provided to the deployment partners regarding the way that they should conduct the interviews in order to have the most remarkable results. The interviewer had discretion during the interview to select the questions that meet the discussion's logical flow.

The position of the people that had been interviewed was companies' general managers and for the technical part of the questionnaire employees responsible for the IT issues.

Their duration ranged from one to two hours depending on the interviewee correspondence. In most cases, some questions had been forwarded to the companies prior to the actual meeting, in order to speed up the whole process.

2.5 *European Policies*

Beyond the above-mentioned direct methodologies for collecting varied and complete information, the alternative methodology of considering and exploring European Union's and member states' policies and initiatives has been adopted during the project. It is an indirect approach of identifying users' needs and requirements; especially in organisational and operational issues of the proposed LAURA's support centres.

This approach comprises the following four steps:

- Identify and examine policies and initiatives that have been launched by EU to help SMEs play their full part in the digital economy,
- Identify and examine a wide range of policies and instruments that have been deployed by European Member States and considered as the basis for the launching of many different actions and initiatives,
- Benchmark European, national and regional policies and instruments for promotion of the e-commerce for SMEs,
- Identify best practice on the basis of national and regional experience.

In the process of the identification and exploration of EU policies, an indicative list of related documents that provided us with insight in general operational requirement included the following:

- eEurope 2002 Action Plan
- COM (2001) 136 final, Helping SMEs to go Digital
- Directive 2000/31/EC of the European Parliament and of the Council, on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce)
- Directive 1999/93/EC of The European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures
- Benchmarking National and Regional e-business policies for SMEs, Final report of the "E-business policy Group", June 2002
- E-Business and ICT Skills in Europe, Benchmarking Member State Policy Initiatives, December 2002
- SEC(2002) 1217, on B2B Internet Trading Platforms: Opportunities and barriers for SMEs – A first Assesment
- COM(2001) 60-005 final of 31.1.2001, The Regions in the New Economy: Guidelines for Innovative Actions under the ERDF in 2000-2006

The outcomes have been considered mainly in the record of LAURA's operational requirements (chapter 5.2) while a comprehensive presentation is given in Deliverable D1.2 "Analysis of Technology and Market Related Trends", Section 6.

2.6 *Methodologies' Constraints*

There are a number of limitations associated with the project's research strategy in general, and more specifically with the methodologies adopted. An appreciation of these limitations is important in evaluating the results. Specifically, the constraints and compromises involved in each methodology include:

2.6.1. Exploitation of existing knowledge

The major problem in this task was the lack of many reliable sources of information (reports, surveys, statistical data etc.) in the specific less favoured regions of Europe. The problem was keener in the regions of Bulgaria and Greece, where a number of surveys are currently being conducted under various European initiatives and these results will be published later this year. Therefore, the whole task concentrated in a limited number of, but detailed enough, sources that could provide an exact outline of the regional business environment.

2.6.2. Direct Surveys

Both the approaches of the direct survey's research techniques presented several problems that need to be considered as part of the methodology. These are:

- Questionnaires

  - Inability to gather in-depth information as long as the questionnaire should be kept short and simple,

  - Prepare a generic questionnaire without anticipating each company's profile, culture and know-how individually,

  - Self-selecting sample,

  - No ability to identify with certainty the profile of the individual that had completed them,

  - No ability to assist, prompt or probe the survey.

- Face-to-face interviews

  - Interviewing skills of the people. In some regions, the interviewers lack the appropriate skills and technological knowledge for a more creative interview procedure,

  - Time constraints. In some cases, the respondents could devote limited time period for the interview, without having the opportunity to cover thoroughly all the subjects,

  - Absence of respondent's direct incentives,

  - Budget limitations as long as it is a very expensive approach.

These limitations and constraints notwithstanding, the methodologies chosen are simple to understand yet provide useful information; nevertheless they have the potential for improvement, as these will be described in chapter 7 of the current deliverable.

3. Surveys

3.1 *Definition of Indicators*

For the purpose of establishing the analysis of companies' needs and requirements a set of 5 indicators has been developed, which will be presented below. These indicators have served as a basis when designing the questionnaire that was distributed to companies in order to determine their needs and requirements. The indicators will also serve as a starting point when collecting information from companies in the future, and will allow for measuring the innovative performance of the companies.

3.1.1. Company Profile

The Company Profile indicator measures such things as company turnover, number of employees, industrial sector / core activities, languages spoken, company contact details, etc.

This indicator is needed for understanding the general business setting of the companies to be researched. From the responses one could analyze the type of companies that would be interested in, and expect a benefit from the LAURA project, as well as define possible measures that could be used for determining the success of the LAURA project, e.g. increased turnover.

3.1.2. E-Commerce Awareness

The e-commerce awareness indicator measures such things as familiarity with concept and terms of e-commerce, sources of awareness, other e-commerce initiatives, current use and concerns of e-commerce. This indicator is useful because it gives a general indication of the degree of awareness of companies concerning e-commerce issues, and their position in e-commerce with regards to their competitors.

3.1.3. Company Trading Practices

The Company Trading Practices indicator defines such measures as:

- The geographical spread of the company's trading
- Importance of collaboration
- Methods of Information exchange
- Main Business Objectives
- Threats in meeting business objectives
- Importance of trading functions

This is perhaps the most important indicator to be measured, because it gives an indication of the way business is currently carried out, ambitions for the future, and the fit of e-

commerce in meeting and enhancing the business objectives of the company. This is also very valuable for determining possible LAURA functionalities.

3.1.4. IT Infrastructure

The IT infrastructure indicator measures such things as number of IT equipment, software used, network infrastructure, Internet access, number of IT-literate people, etc.

In order to implement an e-business solution, it is necessary to ascertain that the appropriate IT infrastructure exists. From this indicator one can extract the technological readiness of companies for the introduction of e-commerce.

3.1.5. LAURA Project Interest

The Laura Project Interest indicator measures the general interest that respondents show in the LAURA project.

One needs to measure the initial reaction of the respondents to the LAURA project, based on the description of the project, and the perceived benefits that the project will introduce to the companies. This is useful for determining the appropriateness of the companies for participation in the LAURA pilot phase and the general interest of companies in the LAURA project.

3.2 *Survey's Participants*

3.2.1. Greece - Messinia

3.2.1.1. Wood Products Industry

The wood products industry in Messinia is rather curious. Although there are quite a few enterprises involved in all aspects of wood processing, sales and distribution, most of them are very small, single-person shops or workshops, trying to make a living. As Messinia, is not a wood-producing region, all wood is either directly imported from abroad or through very few wood wholesalers in metropolitan centres of Greece. The regional – or rather, local, in our case – wholesalers of Messinia are few and pronounced. And these are the ones that are of any real significance to LAURA, if any. And we say "if any" because even though these businesses are comparatively large in terms of turnover, they are nevertheless quite small on a respective international, or even national basis. However, *a minority of them might be interested in the aims of the project*, although they have shown no apparent interest in the first instance. As far as the rest of businesses are concerned, there are small wood-workshops and door and window frame makers and kitchen woodwork producers. *These need no electronic commerce solutions because they work on a personal and local basis with word of mouth as their major marketing strategy and paid in cash, in personal deals.*

3.2.1.2. Structural Materials – Construction Industry

This sector is more developed in the region but operates almost on the same basis as above. There is a large number of small enterprises comprising of brick makers and asbestos producers with 2-3 employees each, having as clientele the local builders of the surrounding area. There are a few bigger businesses that also do wholesale, and these are the ones that might be of some interest, although most of them are quite low on staff with state-of-the-art technology knowledge and are comfortable to remain as they are, as this industry does not fear of any immediate danger from international competition. They have most probably proceeded to the purchase of one or two personal computers for accounts. Then there is a very small number of large wholesalers and construction companies that have been developed the last decade, some most probably set up by civil engineers and some developed from ones of the previous profile due to realisation of the benefits of being a (local) market leader. These may show interest in the project and vice versa.

3.2.1.3. Agriculture

It is safe to say here that we are talking about either suppliers of fertiliser products and agricultural pharmaceuticals on the one hand, and agricultural products wholesalers on the other hand. Here the picture is quite different. Although there are many small firms, concentrating in localities, there are quite a few wholesalers of fertilisers and pharmaceutical products that supply the smaller businesses or the agro-industry itself. On the other hand, there is a huge number of small companies selling agricultural products, but few large wholesalers and exporters. This difference is due to the fact that Messinia is an agricultural region and its major products are ones of agriculture and foodstuffs production. In this sector we will find many companies that have stable export or import activity, as well as national distribution, and would be interested in anything that would help their businesses to become even more extrovert.

3.2.1.4. Food Industry

Here we will find the most diversity, but the best ground for application as well. This sector has countless small enterprises that satisfy the local demand and distribution and we need not focus on them really in the context of this project, but, on the other hand, has companies that are traditionally dealing with the import and the export of most consumable foodstuffs in Messinia. These are quite large companies compared with the national standards, that have felt quite early the urgency of keeping up with the times and with technological advances both for their internal production processes and their external dealings with suppliers and customers. These companies have realised the fact that development is of paramount importance, and have developed mostly empirical methods and ways of collecting information concerning their trade. But these are the usual suspects, as they say. Because of this eagerness to expand, these people have acquired knowledge and expertise that will enable them to make good use of any platform and method LAURA is to produce.

3.2.1.5. Tourism

Tourist and hospitality enterprises are ones that are the most extrovert of all. Here, too, we have a large diversity in business nature and clientele. However, if we bypass the small, family and personal businesses that are the receivers of the occasional tourist, we will arrive to the tour organisers and the hotels of the region. These businesses certainly have developed means and platforms for their business deals and transactions with their national and international clients and suppliers, but not on an integrated basis. There is a great diversity of media they use for the communication of purchases, sales, availabilities and potentials, and there is a clear need for the unification of their methods in order for the supply and demand to be able to access the information required through a uniform and trustworthy system of information exchange. These businesses are the ones that already have the technical knowledge to operate first the platform to be created by the LAURA project in Messinia, and the ones that will provide with usable and reliable feedback on the technicalities for tuning up of the system.

3.2.2. Greece - Epirus

Companies from the sectors

- **Food Industry**
- **Wood Industry**
- **Tourism**
- **Agriculture**
- **Construction Industry**

were chosen to participate in the LAURA project.

One of the most important sectors in the region of Epirus is that of the food industry. In this case, the rural economy of the region is specialized in the livestock farming, where the breeding of sheep and goats takes a distinguished place in the total of domestic production and constitutes the base for an important portion of the secondary sector (sector of foods). Also, other important activities are the citrus fruits and plants.

Important enterprises in this sector are:

- DODONI S.A. (dairy products)
- EPIRUS S.A. (dairy products)
- PINDOS S.A. (chickens)
- NITSIAKOS S.A. (chickens)
- POULTRY CO-OPERATION OF ARTA (chickens)
- VIKI S.A. (delicatessen)
- HELPA S.A. (Eels)
- HITOS S.A. (bottled water)
- EPIRUS INDUSTRY of BOTTLING S.A. (bottled water)
- EPIRUS OLIVE OIL COMPANY S.A. (olive oil)

- FLOROU SONS. (olive oil)
- DISTILLERY OF ZITSA S.A. (wine industry)
- DISTILLERY OF MONASTIRI ZITSAS S.A. (wine industry)
- SVEKI (treatment of meat)
- SDOYKOS ANTONIOS S.A. (treatment of nuts and coffee)
- KRINANTHOS S.A. (treatment of legumes etc)

In their majority, most of the companies of the secondary sector are small. More specifically, there exist only 40 industries having more than 20 individuals (as of 1991). The added value of the sector is lower (89%) than the national mean.

The sector of tourism is also another important one in the region of Epirus. This region has exceptional advantages (clean coasts, marvelous topography, archaeological monuments, national forests, local cultural tradition, traditional settlements, historical traditions etc.) with regards to the promotion of tourism (alternative forms) and culture as the main hearths of growth.

The region is addressed mainly to the internal tourism, does not dispose of lodgings of high quality in sufficient numbers, and the medium duration of stay is very low.

Big enterprises that are active in the sector of tourism in the region are mainly the few big and luxurious hotels that are established in the cities of Ioannina and Arta, for example the hotels:

- Hotel Du Lac
- Epirus Pallas
- Byzantine
- Hotel Palladion

With the congress tourism deals mainly the travel agency DIONI Travel, that has also developed a separate congress department.

In the region also exist tens of agro-tourist lodgings in the villages of mountainous volumes of Epirus, as well as coastal lodgings, that are mainly run by familial enterprises.

3.2.3. Bulgaria - South-Central Region

3.2.3.1. Agriculture and food processing companies

Agriculture

The agriculture companies from the region are mainly SMEs. 3 companies have employed more than 250 people. There are no companies certificated under ISO. The members of EAN[1] are 3.

[1] International association for numbering of the articles EAN International that unites the interests of 90 countries from the whole world

Food processing

These companies are mainly SMEs. There are some large companies as well. The export orientation of the branch in the region is also confirmed by the number of the companies certified under ISO. ISO 9001 certificated are 5 and ISO 9002 4 companies. Members of EAN are 64 companies.

The top two companies by sales in the region are breweries – Kamenitza JSC and Zagorka JSC. They are with foreign owners.

The companies with the biggest amount of net sales from the food-processing industry in the South-Central Region (SCR) are operating mainly for the domestic market. They are not large-scale exporters.

3.2.3.2. Timber, Wood-processing and Furniture production companies

Timber and wood-processing

According to recent studies, 87 per cent of the enterprises in the sector had a personnel within 10 employees. Only one company, Rodopi - Belovo, had more than 250 employees. 17 enterprises employed between 51 and 250 workers.

There are no ISO certified or members of EAN companies. All companies in the sector are private.

Furniture production

During 2001 268 companies from the region operated in the branch. The major part of them (225 companies) belong to the group of the small and medium-sized companies with personnel of less than 250 employees.

There are no ISO certified or members of EAN companies.

3.2.3.3. Construction materials and construction companies

Construction materials

The major part of the enterprises from the branch (78 per cent) consists of small companies with less than 10 employees. The most developed sector in the branch is production of ironware for construction, which provides work for 58 per cent of the employed in the branch in this region, and realizes 41 per cent of the total amount of sales. As of 2001, 896 companies from the branch are operating in SCR, mainly small with less than 10 employees. Only Elpo JSC – Nikolaevo, producing ceramic isolators has an ISO 9001 Certificate, and Vulcan JSC- Dimitrovgrad –ISO 9002 Certificate.

Construction

In this sector again most of the companies are SMEs.

The biggest net sales are realized by companies whose activity is not construction of residential buildings. 5 of the 10 companies with the highest turnover are road-construction companies that work mainly for the state or the municipalities. The company Minstroy-Rodopi has the highest number of employees which is connected with the restoration of the work of Gorubsso-Madan and with the construction projects of the major shareholder Minstroy holding JSC in Madan and all over the whole country.

Only one company from the region is certificated under ISO 9002 - Energomontage-VETs JSC and two companies - under ISO 9001 - Patishta-Plovdiv JSC and TVS-Inkom LTD.

3.2.3.4. Tourist companies

During 2001 in South central region there were 8 712 operating tourist companies, which executed services to the value of BGN 115 million. They represent about 12 per cent of the total amount of the incomes for Bulgaria.

The share of the companies from the sector of restaurant and hotel-keeping business was 13.7 per cent, and the share of the tour-operators was 5.3 per cent.
The top ten companies by net sales have private majority owners. There are no foreign shareholders in these companies. They are mainly hotels and restaurants. According to the type of tourism, the companies are distributed in almost all kinds of tourism. Historical and cultural – the old city of Plovdiv, Winter skiing tourism – Pamporovo and Victoria investment (owner of hotels in Pamporovo and Plovdiv). Balneology tourism – prophylactics and rehabilitation – Pavel Banya and "Mavro 1 – Mavri Yanchev" – activities related to services in tourism and restaurants.

All companies excluding Slunchev den JSC execute their activity on the territory of the region. Three companies from the region are among the top 20 companies by net sales and number of employees in the branch in the country as a whole.

3.2.4. Germany - Saxony-Anhalt

The sectors:

- food,
- building material
- furniture industry
- tourism

were selected from the pool of potential branches with the help of the size and length of the value chain. They form the backbone of the middle class in the designated federal states. These branches are characterised by a distinctive national and international network of suppliers and customers.

Most of the available small and medium-size enterprises within the branch focus were selected. Thereby the number of 900-contacted SMEs justifies also according to experience the number of possible returns. In order to receive a broad basis for the evaluation, further selection criteria were not specified. Thus enterprises were addressed, which came from the sectors of the project.

The selection for the structured interviews occurred after the individual interest of the asked enterprises. Their interest was asked directly after the participation of a one-hour interview in the LAURA context. Signalling the readiness for the interview was taken on the part of the consortium to the cause to make discussions with the enterprises.

A further connection to the direct information elicitation was opened with the help of the GTZH and their direct contact to members of their association. Here above all small firms are organized such as baker's shops and butchers. These could be contacted directly with recommendation of the federation without selection to further criteria. Thus a further information basis resulted to the situation analysis e-Commerce.

3.3 *Distribution and response*

3.3.1. Greece - Messinia

The selection of the companies to participate in the LAURA survey was done as follows:

The companies were short-listed, for each sector, to the ones that have a history of responsiveness to such surveying activities and by size. Then, an evaluation of the technological realisation and absorption levels history was carried out for each company selected, and representative companies for each classification were selected, with a cross-referencing to both size and technological level, in order to have a spread across the whole spectrum of existing companies, as far as technology and size are concerned, but nonetheless ones known to be responsive. It has to be noted here that, for certain sectors, such as food industry and the tourism sector, regardless their proven past responsiveness, the time of the year that this survey took place was least appropriate as the seasonal workload of these sectors prevented them of devoting time to filling in extensive questionnaires.

Also, as it has been noted and stressed before (and acknowledged by surveys carried out by national and international studies and projects), due to the fact that Messinia is a Least Favoured Region, as far as development is concerned, the found levels of technology absorption are far less than the national and European averages, which has both as a prerequisite and as an effect the low level of technological self-realisation of the enterprises within the region. This means that in many cases the entrepreneurs did not realise the importance of the effort of the project and hence did not respond either on time or indeed at all.

In the region of Messinia the number of identified companies, which could participate in the LAURA project, was 571. The questionnaire was distributed by fax to 410 companies

from the food industry, agriculture, wood products industry, tourism and construction industry sectors. The same questionnaire was also distributed by post to 135 companies.

The questionnaire was sent to 410 companies, 5 of them responded in the first place. After all it was decided to have a personal contact with all of them and perform face-to-face interviews in order to collect the required data. After a personal contact with the companies, 26 companies expressed their interest in the project and participated in the interviews.

The distribution of the questionnaire was as follows:

Ways of Distribution:	Number of Companies:	Replies:
Questionnaire forwarded by fax:	410	4
Questionnaire forwarded by post:	135	1
Face-to-face Interviews:	26	26
Total	**571**	**31**

Table 1: Distribution of Questionnaire in Messinia

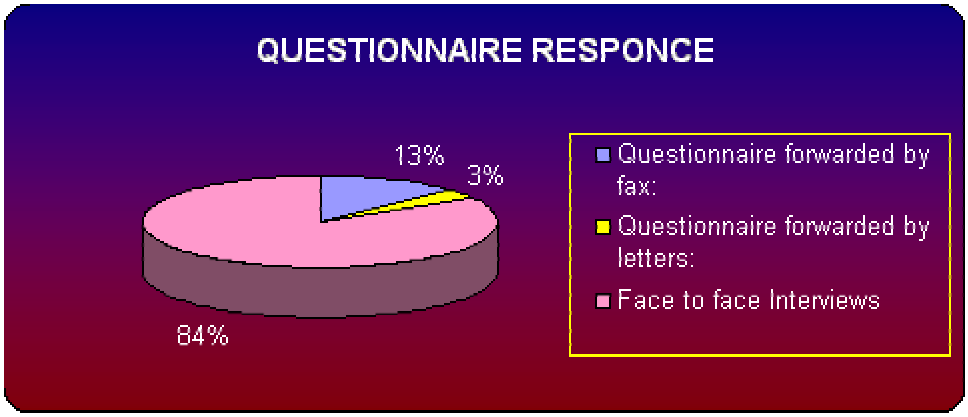


Figure 2: Methods of replying to questionnaire

More specifically, questionnaire response per section was as follows:

Food Industry	7
Wood Industry	7
Tourism	8
Agriculture	4
Construction Industry	5
Total	**31**

Table 2: Questionnaire response per region in Messinia

3.3.2. Greece - Epirus

A shortlist of the main companies from each sector was drawn up from the lists that the Business Information Centre (BIC) of Epirus provided. The questionnaire was then sent to these companies, mainly by surface mail.

It must be noticed that, due to the fact that Epirus is one of the poorest regions in the EU, the technological advancement of the companies is far less than the national and European averages. This means that enterprises are mostly doing business the traditional way, without taking advantage of the benefits that the use of Information and Communication Technologies (ICTs) has to offer. In relation to the LAURA project, this means that most companies had difficulties in understanding the questionnaire that was sent to them, as well as the overall scope of the LAURA project and the concepts of e-commerce generally. As a result, most of the companies did not respond either on time or indeed at all.

In order therefore to ensure a somewhat adequate number of responses to the questionnaire, companies from Epirus were visited on site, in order to assist in completing the questionnaire by face-to-face interviews with the relevant persons in the company.

The distribution and replies of the questionnaire in Epirus were as follows:

Ways of Distribution:	Number of Companies:	Replies:
Questionnaire forwarded by post:	161	4
Face-to-face Interviews:	10	10
Total	**171**	**14**

Table 3:Distribution of Questionnaire in Epirus

3.3.3. Bulgaria - South-Central Region

The criteria for company selection in Bulgaria were: the companies must be from South-Central Region, to work in the selected sectors and to be active. 444 companies from the region were identified from the 4 LAURA sectors. These 444 companies were selected from the IRC-Bulgaria database, the databases of the Bulgarian Industrial Association (BIA), the Bulgarian Tourist Chamber (BTC), the Bulgarian Association of Tourist Agencies (BATA), the Bulgarian Association of Food and Drink Industry (BAFDI), the Bulgarian Branch Chamber of Woodworking and Furniture Industries (BBCWFI), the Bulgarian Building and Construction Chamber (BBCC) and BIC Capital Market Ltd. This selection represents **all possible** active companies from the sectors in the region according to these databases.

The questionnaire was finally distributed by post to 344 companies from the agriculture, food-processing, timber, wood-processing, furniture and tourism sectors. All of these companies that have an e-mail received an electronic version of the questionnaire as well. The electronic version of the questionnaire was also uploaded on the ISPO website

(Information Society Promotion Office) – www.ispo.bg/laura-online.doc. The distribution of the questionnaire was as follows:

- 98 Agriculture companies (0 responded)
- 101 Food-processing companies (3 responded)
- 57 Timber and Wood-processing companies (3 responded)
- 41 Furniture companies (2 responded)
- 47 Tourist companies (1 responded)

Overall outcome from this mailing

The questionnaire was sent to 344 companies, 9 of them responded. After a personal contact with all of them, 3 companies confirmed their interest and filled in the extended questionnaire.

100 companies from the construction sector were surveyed by a research company (Vitosha Research). 24 of them were interested in other surveys and in the project as a whole, 35 answered "can't choose". All these 59 companies were contacted by phone. Finally 4 of them filled in the extended questionnaire.

The questionnaire was disseminated to all participants in the 4 sectorial group meetings. 12 from the companies in the field of tourism expressed their interest in the LAURA project. From the other 3 sectorial group meetings in the field of agriculture, food-processing and biotechnologies, 11 companies expressed interest in further interviews. Most of these companies were from the South-Central region of Bulgaria. After the sectorial meeting they were contacted and 3 of them proved their interest and filled in the extended questionnaire.

Regional Development Agency with Business Support Centre for SME – Plovdiv which will assist ARC Fund in its further LAURA activities in the South-Central Region, disseminated the questionnaire to more than 100 companies operating in the LAURA selected sectors. So far only 1 responded.

3.3.4. Germany - Saxony-Anhalt

In the context of the questioning to the situation analysis in the federal states Saxony-Anhalt and Mecklenburg-Western Pomerania, 912 SMEs from the food industry, building material industry, furniture and tourism were selected. Internet database systems like www.wlw.de were used, and the questionnaire accompanied a one-sided cover letter prepared by the Otto-von-Guericke University Magdeburg, describing the LAURA project.

The return of the questionnaires took place by fax and mail. Altogether 55 (6,03%) questionnaires were sent back to the university (Table 4). Two questionnaires were sent back unanswered with the reference "no answers can be given to many points". Five questionnaires did not reach the receiver because they were undelivered.

	Number of answered questionnaires	***Percent***	***Performed interviews***
1) Food industry	**26**	**48**	**25***
2) Building industry	**13**	**23**	**6**
3) Furniture	**4**	**8**	**3**
4) Tourism	**2**	**2**	**7**
Other (related 2 und 3 e.g. biotechnology)	**8**	**15**	**-**
No Comment	**2**	**4**	

Table 4: Enterprise branch

Base: N=55 (5 direct at a company, 11 at the fair "Grüne Woche" in Berlin; 9 at the "Süßwarenmesse" in Köln)*

The number of returned questionnaires corresponded to the expectations, as well as in the continuous answering of the questions. This corresponds with the experiences from other accomplished questionings and interviews. All 55 questionnaires could be included in the evaluation.

In order to increase the number of the available questionnaires for evaluation, 100 companies were randomly selected, and asked by telephone to transmit the filled out questionnaire. This action exerted no influence on the behaviour of the asked companies, and led to no further returns that could be included in the evaluation.

4. Questionnaire Analysis

4.1 *Greece - Messinia*

Based on 31 Questionnaires

A. COMPANY PROFILE

As can be seen from Figure 3 below, the greatest number of respondents to the questionnaire was from the Tourism Industry (25,8%), with Food and Wood Industry following with 22,6% each. Also included in the survey for Messinia were the Agriculture (12,9%) and Construction (16,1%) industries.

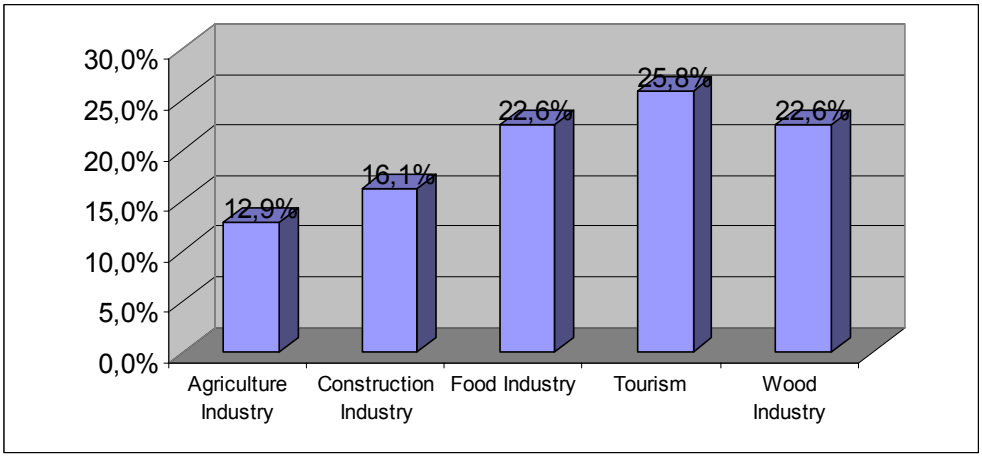


Figure 3: Sectors of companies

Most of the companies surveyed (24 out of 31) were of micro size (1-10 employees), with 5 companies employing between 11-50 employees, and only 2 employing between 51-250 employees.

Number of Employees	Number of companies with given Number of Employees
1-10	24
11-50	5
51-250	2
Total	**31**

Table 5: Number of Employees of Messinian companies

Regarding the turnover that the companies reported, most of the companies are in the €150,000-€500,000 range, as the table below shows. There was also a substantial number of companies (8 out of 31) that chose not to respond to this question.

Turnover	Number of Companies with given Turnover
Not specified	8
Less than €150,000	1
€150,000-€500,000	13
€500,000-€1,000,000	3
More than €1,000,000	6
Total	**31**

Table 6: Turnover of Messinian companies

If one looks at the number of years that the companies surveyed are in operation, one can see that most of the companies are quite "old", with a lot of companies (13 out of 31) being in business for more than 16 years. This means that companies are well established in their industry, possibly having extensive experience and business contacts.

Years in Business	Number of companies with given years in busines
1-5	5
6-10	7
11-15	6
16+	13
Total	**31**

Table 7: Years in Business of Messinian companies

Examining the foreign languages that Messinian companies can use for their trading activities, English is the predominant one, with 93,5% of the companies "speaking" English. 32,3% of the companies "speak" German, and only 1 out of the 31 companies surveyed (3,2%) knows Bulgarian. This prompts us to think that for interregional trading between Messinian companies and companies from other countries, English is going to be the predominant language of choice, with the possibility of using German for the interaction with German companies.

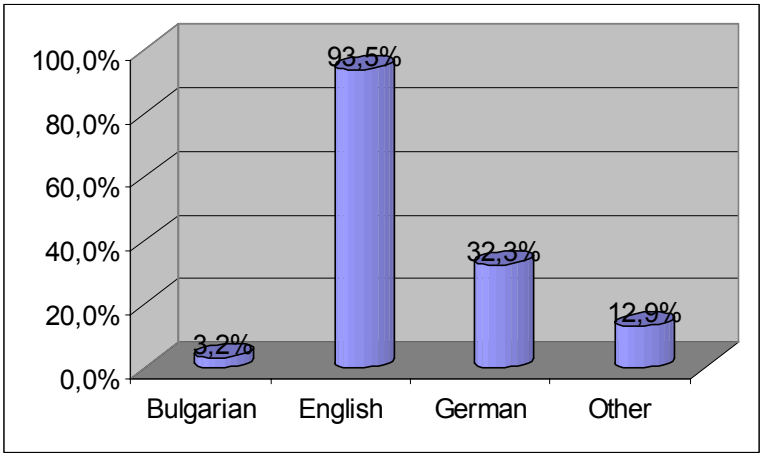


Figure 4: Foreign Languages

B. E-COMMERCE AWARENESS

Almost half (45,2%) of the Messinian companies surveyed reported that they are not at all familiar with the concepts of electronic trade. However, 19,4% of the companies reported that they are very familiar with those concepts. The low familiarity of Messinian companies with electronic trade is a prompt for educational and promotional activities of the LAURA project, and the concepts of electronic trade in general.

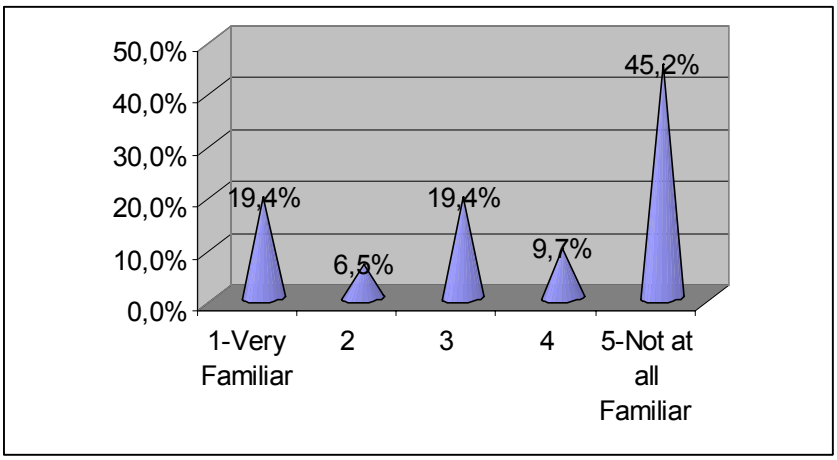


Figure 5: Familiarity with e-commerce

As the table below shows, Press/Media is of Medium Importance as a source of e-commerce awareness for the Messinian companies, and the same holds for Business Journals. Internet is perhaps the most important source of e-commerce awareness, with 38,7% of respondents indicating this area as very important. The least used source is local initiatives/trade associations, with 54,8% of respondents indicating that this source is not used. One respondent indicated an extra source of e-commerce awareness, that of Travel Agencies.

		Importance				
Source		1-Very Important	2-Medium Importance	3-Little Importance	4-Source not used	Not Specified
	Press / Media	29,0%	35,5%	19,4%	12,9%	3,2%
	Business Journals	25,8%	32,3%	19,4%	12,9%	9,7%
	Internet	38,7%	25,8%	9,7%	19,4%	6,5%
	Local Initiatives / trade associations	6,5%	22,6%	12,9%	54,8%	3,2%

Table 8: Sources of e-commerce awareness

Regarding participation in e-commerce projects, 19,3% of the companies already participated in an e-commerce project. For some of the rest of the companies (80,7%), LAURA could prove to be the ideal solution for exploiting the e-commerce capabilities it will offer.

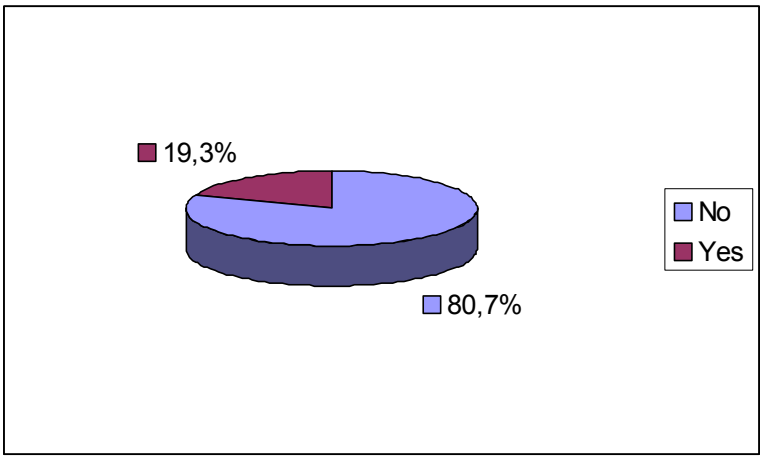


Figure 6: Participation in e-commerce projects

Looking at the current use of e-commerce compared to competitors, it is evident that most companies (58,1%) are much less advanced. This is an area where LAURA could introduce big improvements, by ameliorating the companies' e-commerce position relative to competitors.

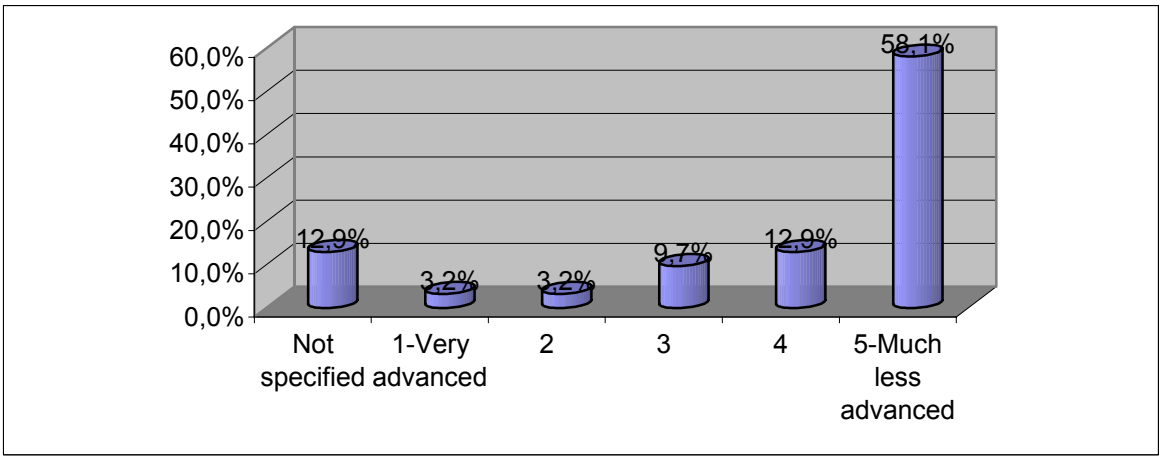


Figure 7: Current use of e-commerce compared to competitors

Examining the concerns that Messinian companies have regarding use of e-commerce, the main one seems to be Confidentiality/Security, as the table below indicates, where almost half (48,4%) of respondents said they are very concerned about this issue. Quite a big concern was also service reliability, with 32,3%, 22,6%, 22,6% of respondents rating this area as 1,2 and 3 respectively, on a scale from 1 (very concerned) to 5 (not at all concerned). Cost of implementation and on-going support seemed to be of average concern to respondents.

The concerns that respondents indicated prompts us to consider especially the issue of security in the LAURA project, and also the area of Service Reliability, which could be a responsibility of the Support Centers or of the associated LAURA IT Providers.

		Degree of concern					
		1-Very concerned	2	3	4	5-Not at all concerned	Not specified
Concerns	Cost of implementation	19,4%	29,0%	19,4%	9,7%	9,7%	12,9%
	Service reliability	32,3%	22,6%	22,6%	16,1%	3,2%	3,2%
	On going support	12,9%	22,6%	32,3%	6,5%	12,9%	12,9%
	Confidentiality / security	48,4%	25,8%	12,9%	3,2%	3,2%	6,5%

Table 9: Concerns about use of e-commerce

C. COMPANY TRADING PRACTICES

With regards to the geographical spread of company trading (Local, National and International), the figures below show the degree of trading for each category. It can be seen from the figures below, that companies are heavily involved in local trading, with three quarters (74,2%) of the surveyed companies indicating a 1, 2 or 3 level of involvement on a scale from 1 (Extensive) to 5 (Not at all). National Trading is even more important, with 80,7% of Messinian companies indicating a 1, 2 or 3 level of involvement. Although not as important as local or national trading, international trading comes third with 42% of companies indicating a 1, 2 or 3 level of involvement in international trading.

These results are very important for the LAURA project, as the fact that Messinian companies are not confined to their region, means that business contacts and trading experiences exist outside their regional boundaries. LAURA could play an important role for Messinian companies, by introducing new business relationships and automating the companies' business transactions, both inland and outland.

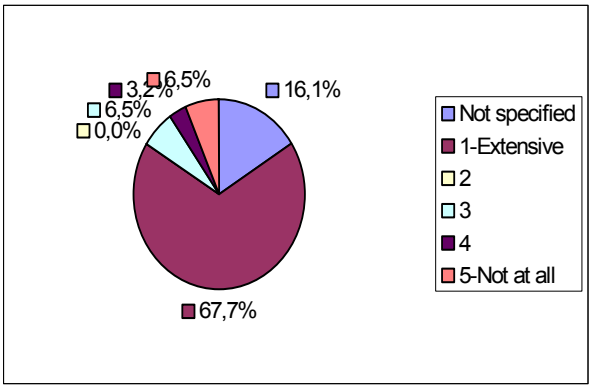


Figure 8: Degree of Local Trading

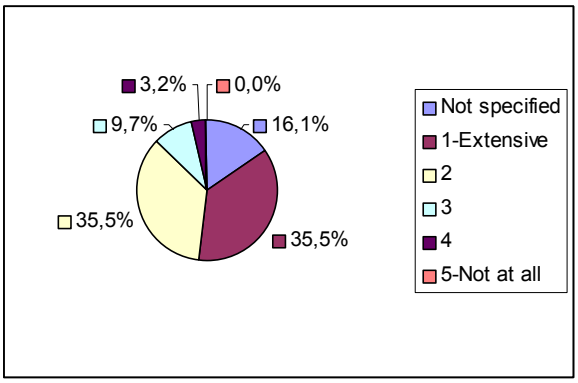


Figure 9: Degree of National Trading

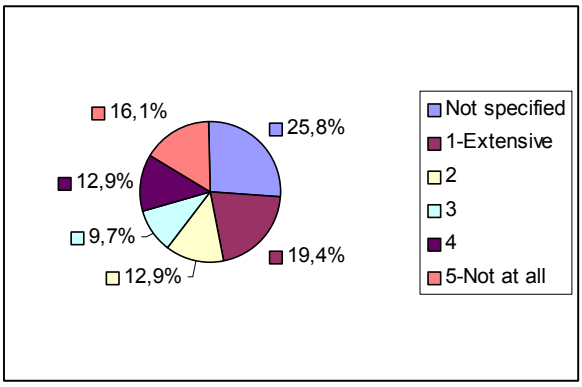


Figure 10: Degree of International Trading

The table below summarizes the importance of collaboration of Messinian companies with their trading partners for the issues shown. It can be seen that there was a relatively big number of no responses - from 16,1% for Procurement, up to 35,5% for Business Information Exchange. By far the most important collaboration issue was seen to be that of Procurement, with 41,9% of respondents rating it as very important, followed by Shared Sales Forecast with 35,5% of respondents rating it as very important. Marketing Agreements and Distribution Support were also relatively important, with 32,3% of respondents in each case rating them as very important. In the case of Research and Development there were 2 extremes, with 22,6% rating it as very important, and 25,8% rating it as not at all important. Business Information Exchange and Joint Product Development were mostly of medium to low importance. One surveyed company also mentioned brokerage as a very important collaboration issue.

From the above results, it can be seen that if LAURA can introduce electronic advantages in the procurement of goods and services, then this is going to impact a large number of companies, that rank the collaboration on the procurement issue as very important. The same holds for Marketing Agreements, Distribution Support, and Shared Sales Forecast, which are all good candidates for the functionality of the LAURA system.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Collaboration issue	Joint Product Development	9,7%	9,7%	25,8%	9,7%	19,4%	25,8%
	Procurement	41,9%	12,9%	19,4%	3.2%	6,5%	16,1%
	Shared Sales Forecast	35,5%	16,1%	12,9%	6,5%	9,7%	19,4%
	Business Information Exchange	16,1%	9,7%	12,9%	16,1%	9,7%	35,5%
	Research and Development	22,6%	6,5%	6,5%	9,7%	25,8%	29,0%
	Marketing Agreements	32,3%	25,8%	19,4%	0%	0%	22,6%
	Distribution Support	32,3%	19,4%	3,2%	3,2%	12,9%	25,8%

Table 10: Importance of collaboration

Looking at the methods Messinian companies use to exchange information with customers and suppliers, this is mostly done the traditional way, without electronic means, as the figures below show. 38% do not use e-mail at all (Figure 11), and 23% do not use electronic catalogues at all (Figure 12). On the other hand, 62% use extensively fax (

Figure 13), and 36% use extensively paper-based methods of communication (Figure 14). It is interesting to see that in the case of e-mail and e-catalogues, 23% of respondents in each case did not give an answer, possibly indicating that they were not very familiar with the relative concepts. In the case of fax and paper-based methods, only 3% and 6% did not give an answer. In addition, 5 out of 31 companies said they used extensively the phone, while 2 tourist companies mentioned online reservation systems and 1 company mentioned personal contacts.

The results suggest that Messinian companies are still mostly dependent on traditional communication methods (fax, telephone, paper-based, etc) to exchange information with their customers and suppliers. LAURA could revolutionize this perspective, by introducing the electronic means of exchanging information.

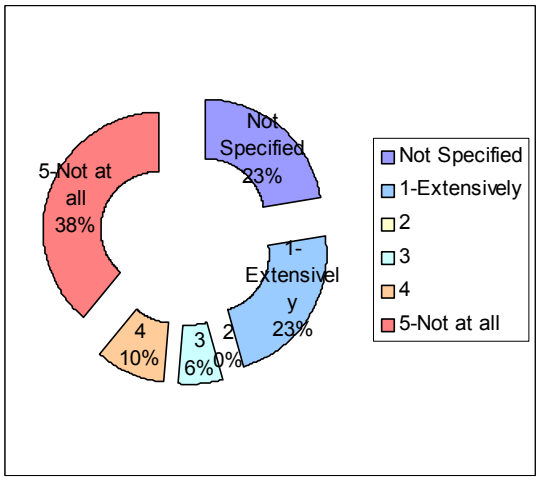


Figure 11: Use of e-mail

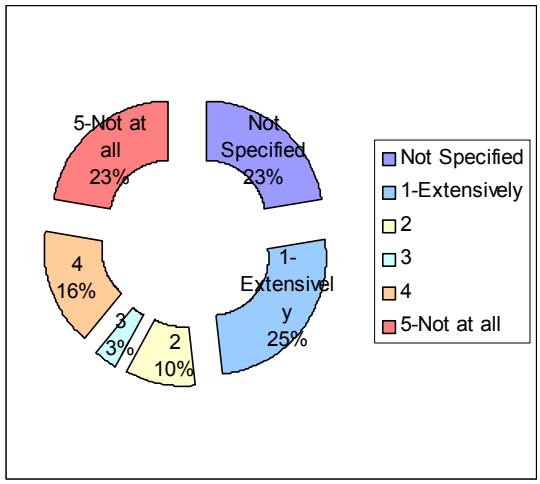


Figure 12: Use of e-catalogues

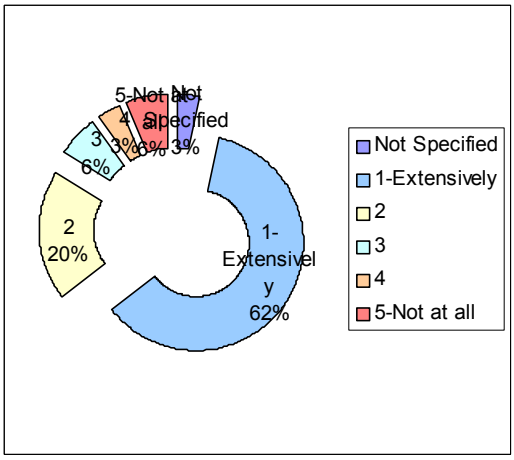


Figure 13: Use of fax

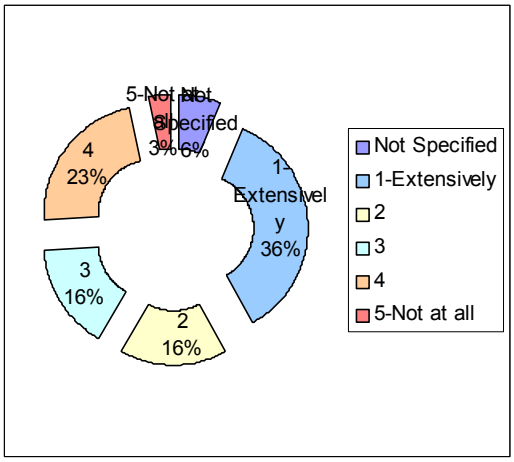


Figure 14: Use of Paper-Based Methods

Looking at the main objectives Messinian companies have (Table 11 below), the 2 main ones are to increase revenue (77,4% rating it very important) and to increase their customer base (74,2% rating it very important). Quite important were also expansion into new markets (58% rating it 1 or 2), improved use of information (51,7% rating it 1 or 2) and improved trading relationships (51,6% rating it 1 or 2). Increasing the supplier base was of rather medium importance with percentages in degree of importance evenly spread.

LAURA is expected to facilitate finding new customers, by exploiting the "network effect", therefore increase the companies' customer base. The transaction costs on the Internet are also expected to be lower, thus increasing the companies' revenue. With the use of interregional trading, companies will be able to expand into new markets. LAURA will also allow a better information use, by allowing a company to search through many possible trading partners' profiles.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Business Objectives	Increase revenue	77,4%	12,9%	0%	3,2%	0%	6,5%
	Increase customer base	74,2%	19,4%	0%	3,2%	0%	3,2%
	Increase Supply Base	19,4%	22,6%	16,1%	9,7%	12,9%	19,4%
	Expansion into new markets	29,0%	29,0%	12,9%	3,2%	6,5%	19,4%
	Improved use of information	32,3%	19,4%	16,1%	0%	3,2%	29,0%
	Improved trading relationships	29,0%	22,6%	6,5%	3,2%	3,2%	35,5%

Table 11: Main Business Objectives

Table 12 below shows the threats that companies encounter in meeting their business objectives. The main threat arising from this table is increased competition, with 87,1% rating it 1 or 2 on a scale from 1 (very important) to 5 (not at all important). Regulatory/legal aspect did not appear to be a big threat, with 61,3% rating it 3, 4 or 5 (not at all important), as well as trust/security issues and geographical constraints (corresponding percentages being 58% and 51,7% respectively). It is interesting to see that 54,8% of respondents said that lack of e-commerce capability had a 1, 2 or 3 degree of importance, with 35,5% indicating a 1st degree of importance (corresponding to very important).

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Bu	Increased competition	58,1%	29,0%	9,7%	0%	0%	3,2%

	Geographical constrains	22,6%	9,7%	12,9%	19,4%	19,4%	16,1%
	Regulatory / legal aspects	3,2%	12,9%	12,9%	19,4%	29,0%	22,6%
	Trust / security issues	6,5%	16,1%	16,1%	16,1%	25,8%	19,4%
	Lack of e-commerce capability	35,5%	3,2%	16,1%	9,7%	25,8%	9,7%

Table 12: Threats in meeting business objectives

The figures below show the importance of trading functions that companies indicated would benefit from automation through e-commerce implementation such as the LAURA project. For the areas identified, it can be seen that most of them would benefit quite substantially from the introduction of e-commerce.

For the finding of trading partners through online search of company profiles (Figure 15), 71% ranked its importance as 1, 2 or 3 on a 1 (very important) to 5 (not at all important) scale. For negotiating agreements that could serve as the terms and conditions for trading with particular partners (Figure 16) the corresponding percentage was 74,2%. For joint product/service development (Figure 17) the percentage of importance of 1, 2 or 3 was 71%. For marketing campaign management (Figure 18), the percentage was 87,1%. Finally, for document and information exchange (Figure 19) the percentage of companies that indicated a 1, 2 or 3 level of importance was also 87,1%.

It can be seen from the above results that what companies think would benefit most from introduction of e-commerce is the marketing campaign management and document and information exchange. Not of significantly lesser importance are the areas of finding trading partners, negotiating agreements and joint product/service development. All of the above areas could be offered by the functionality of the LAURA system.

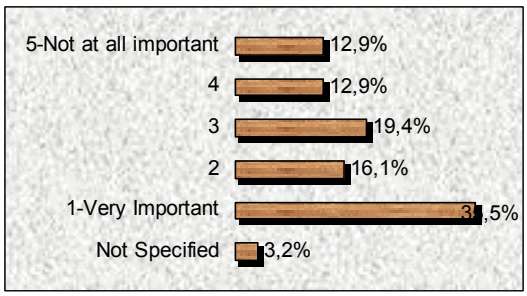


Figure 15: Find Trading Partners

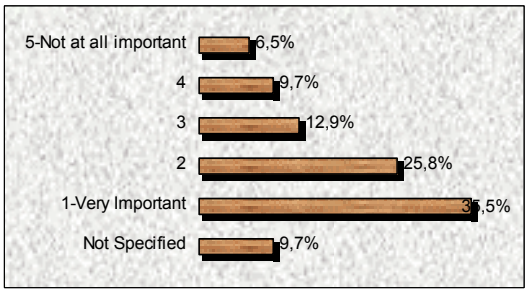
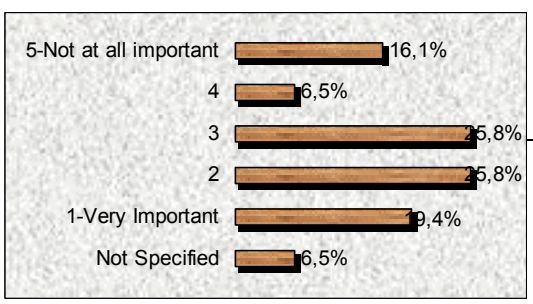


Figure 16: Negotiating Agreements



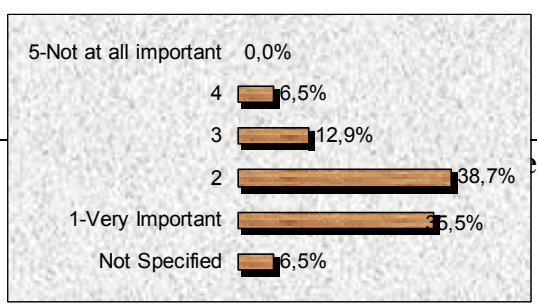


Figure 17: Joint Product/Service Development

Figure 18: Marketing Campaign Management

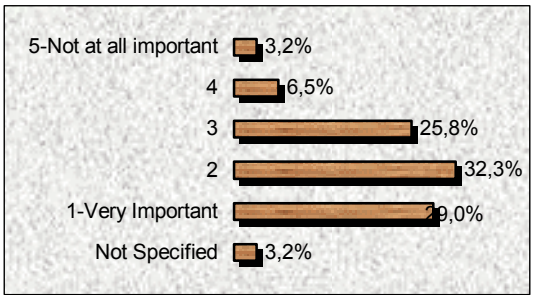


Figure 19: Document and Information Exchange

Table 13 below shows the importance of business information exchange transactions that could benefit from the introduction of e-commerce. It can be seen that all of the identified transaction were deemed by Messinian companies to be of high importance in an e-commerce implementation. Most important was that of product searching and info, with 93,5% indicating an importance of 1, 2 or 3 on a 1-5 scale.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Business Transactions	Product searching&info	41,9%	38,7%	12,9%	0%	3,2%	3,2%
	Purchase order (Create,change,request etc)	12,9%	38,7%	22,6%	6,5%	3,2%	16,1%
	Shipment,logistics,customs procedures	29,0%	32,3%	12,9%	9,7%	3,2%	12,9%
	Invoice (Create, match,payment status,etc)	32,3%	25,8%	22,6%	0%	6,5%	9,7%
	Post Sales (warranties,service packages,etc)	29,0%	22,6%	16,1%	6,5%	9,7%	16,1%

Table 13: Importance of Business Information Exchange transactions in e-commerce

D. IT INFRASTRUCTURE

Regarding the percentages of companies that use computer applications, those are show in Figure 20 below. It can be seen that the majority (87,1%) of Messinian companies uses office software, and a lot of them (67,7%) use accounting applications. About a third (32,3%) use databases, and a negligible number of them (3,2% in 31 companies) use one or more of ERP systems, groupware applications or other computer applications.

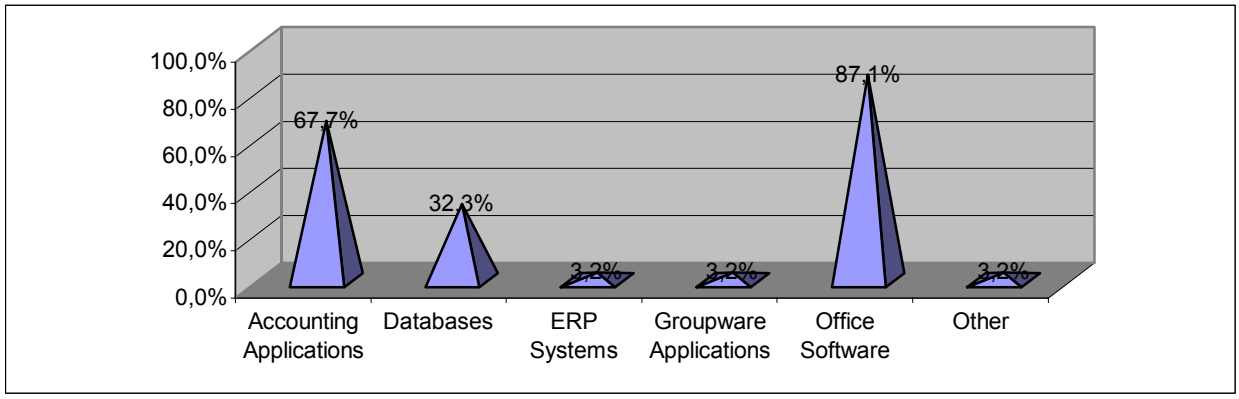


Figure 20: % of surveyed companies using specified computer applications

When one looks at the network infrastructure of Messinian companies (Figure 21), it can be seen that most of them (61,3%) do not have a network infrastructure in place. Only about a third (32,3%) use Local Area Network (LAN).

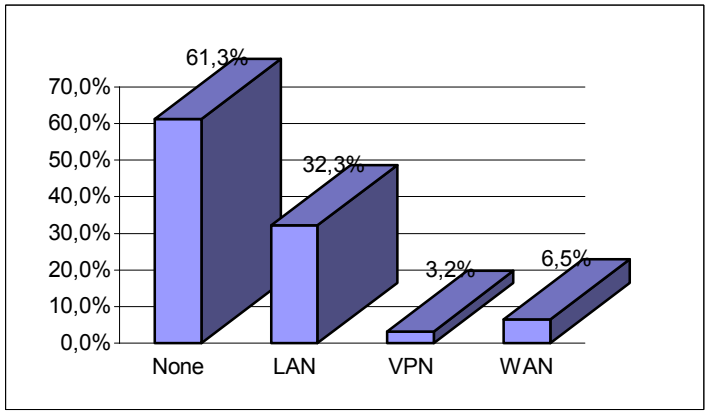


Figure 21: Network Infrastructure

As can be seen from Figure 22 below, most of Messinian companies (41,9%) do not have any Internet access. 38,7% have ISDN, and about a third (32,3%) have PSTN. No company

has leased lines installed. Internet access is an important issue to consider in the LAURA project, as trading will most probably be done via the Internet.

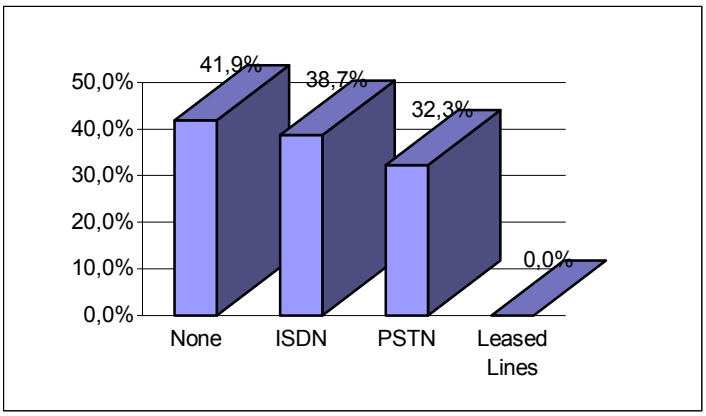


Figure 22: Type of Internet access

Most of Messinian companies (14 out of 31, or 45%) do not employ an IT-literate person, as Figure 23 below shows. 8 out of 31 (or 26%) employ just one such person, and a small fraction of companies employ 2 or more such persons.

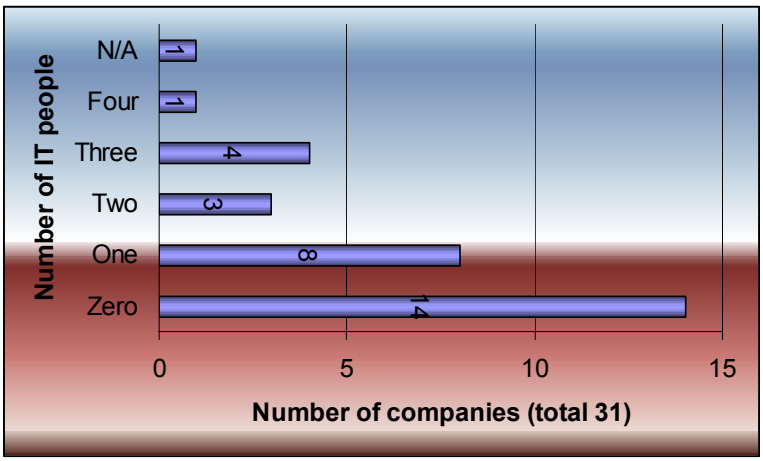


Figure 23: Number of IT-literate people in a company

Only 1 in 10 Messinian companies has a formal education scheme for IT staff, as Figure 24 below shows.

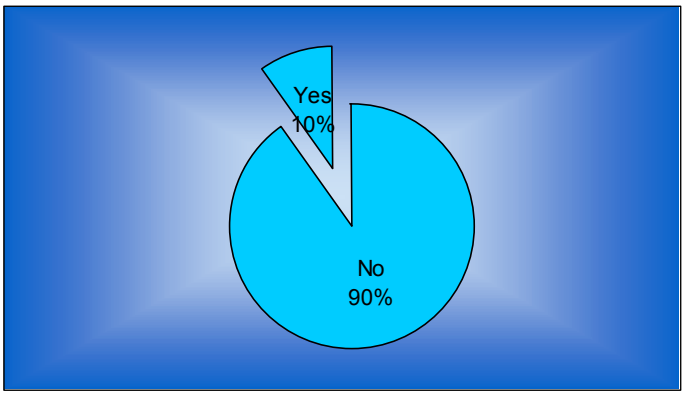


Figure 24: Formal Education Scheme for IT Staff

E. LAURA PROJECT INTEREST

Most of the surveyed companies (59%) indicated that they were not sure about their participation in face-to-face interviews or other means for follow-up information (Figure 25). About one third (35%) were willing to participate in face-to-face interviews, and only about 6% were certain they were not willing to take further participation in the LAURA project.

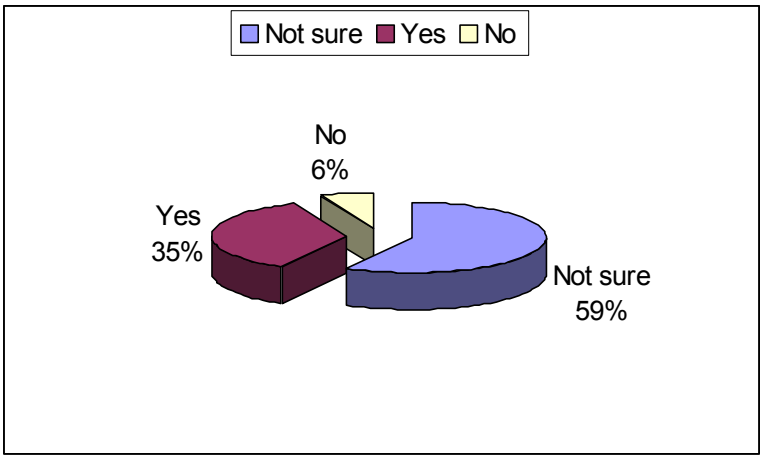


Figure 25: Participation in face-to-face interviews

About two thirds of the companies surveyed, indicated that they would like to receive the summary of the findings of the questionnaire that was distributed to them (Figure 26).

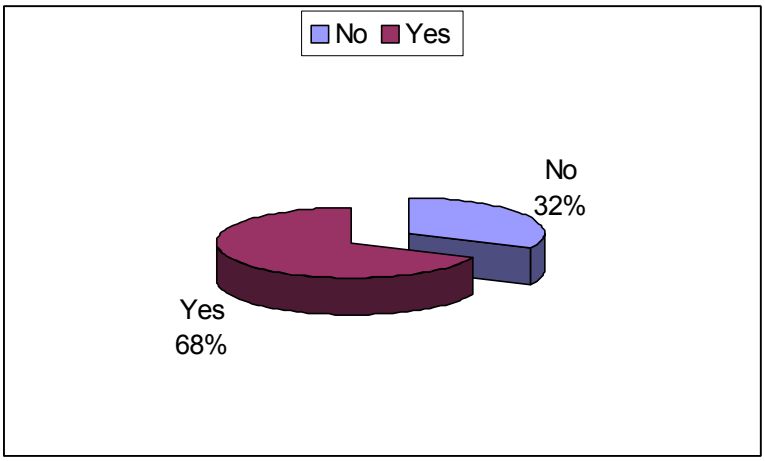


Figure 26: Receipt of summary findings from questionnaire

When asked how useful in their opinion would be to have the LAURA prototype installed in their premises, about one third (35,5%) of Messinian companies said that it would be very useful (Figure 27). However, about another third (29,3%) indicated a usefulness of 4 or 5 on a scale from 1 (very useful) to 5 (not at all useful).

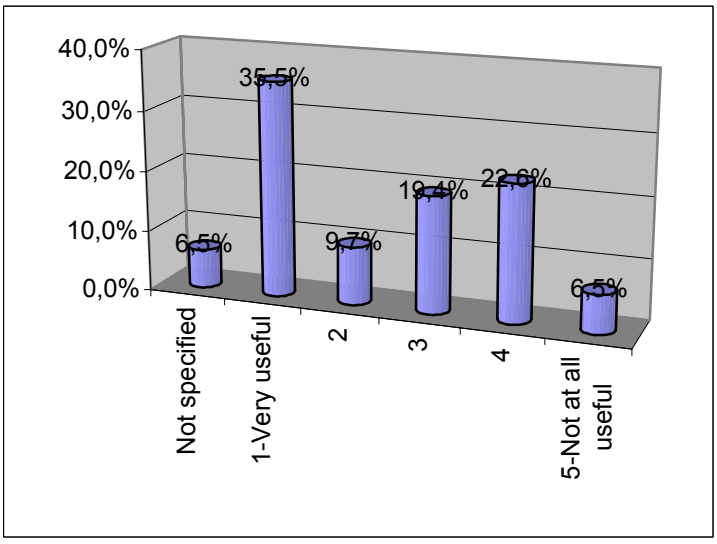


Figure 27: Usefulness of LAURA prototype installation

4.2 *Greece - Epirus*

Based on 14 Questionnaires

A. COMPANY PROFILE

As can be seen from Figure 28 below, the greatest number of respondents to the questionnaire was from the Food Industry (35,7%), with Tourism and Construction Industries following with 28,6% and 21,4% respectively. Also included in the survey for Epirus were the Agriculture and Wood Industries, with 7,1% each.

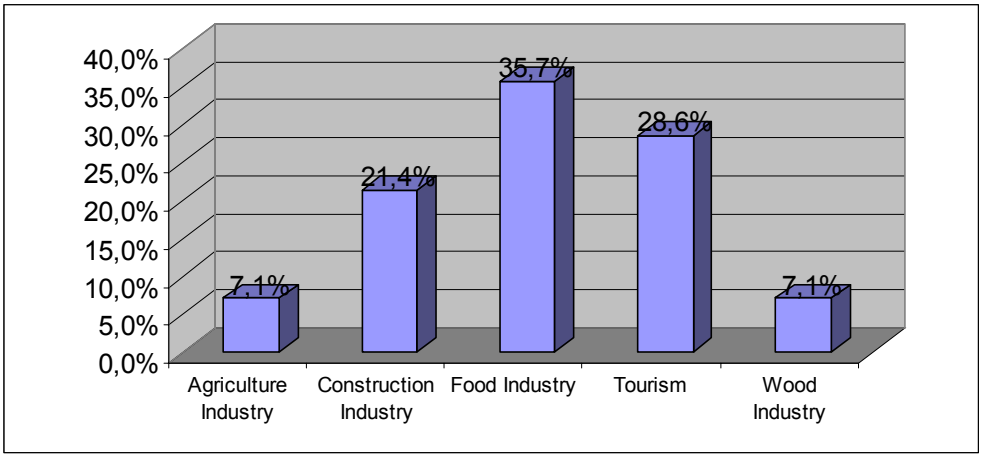


Figure 28: Sectors of Epirus companies

Half of the companies surveyed (7 out of 14) were of micro size (1-10 employees), with 6 companies employing between 11-50 employees, and only 1 employing between 51-250 employees.

Number of Employees	Number of companies with given Number of Employees
1-10	7
11-50	6
51-250	1
Total	**14**

Table 14: Number of Employees of Epirus companies

Regarding the turnover that companies from Epirus reported, this is mostly evenly distributed, as Table 15 below shows.

Turnover	Number of Companies with given Turnover
Not specified	2
Less than €150,000	2
€150,000-€500,000	4
€500,000-€1,000,000	3
More than €1,000,000	3
Total	**14**

Table 15: Turnover of Epirus companies

If one looks at the number of years that the companies surveyed are in operation, one can see that most of the companies are quite "old", with a lot of companies (8 out of 14, or 57%) being in business for more than 16 years. This means that companies are well established in their industry, possibly having extensive experience and business contacts.

Years in Business	Number of companies with given years in busines
1-5	2
6-10	3
11-15	1
16+	8
Total	**14**

Table 16: Years in Business of Epirus companies

Examining the foreign languages that companies from Epirus can use for their trading activities, English is the predominant one, with 85,7% of the companies "speaking" English. Only 21,4% of the companies "speak" German, and none of the 14 companies surveyed knows Bulgarian or another foreign language. This prompts us to think that for interregional trading between Epirus companies and companies from other countries, English is going to be the predominant language of choice, with a small possibility of using German for the interaction with German companies.

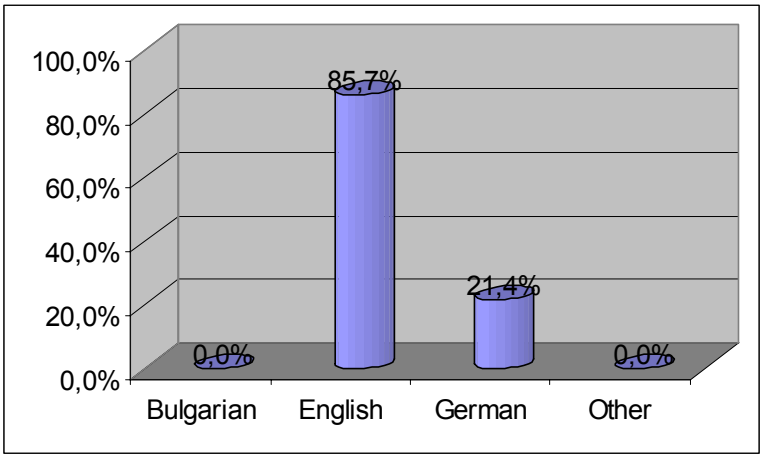


Figure 29: Foreign Languages of Epirus companies

B. E-COMMERCE AWARENESS

Half (50%) of the Epirus companies reported a degree of familiarity with the concepts of electronic trade of 4 or 5, on a scale from 1 (very familiar) to 5 (not at all familiar). 35,7% indicated medium (degree 3 on a scale from 1 to 5) familiarity. Only 14,3% indicated a degree 2 of familiarity, on none said that they were very familiar with the concepts of electronic trade (degree 1). The low familiarity of Epirus companies with electronic trade is a prompt for educational and promotional activities of the LAURA project, and the concepts of electronic trade in general.

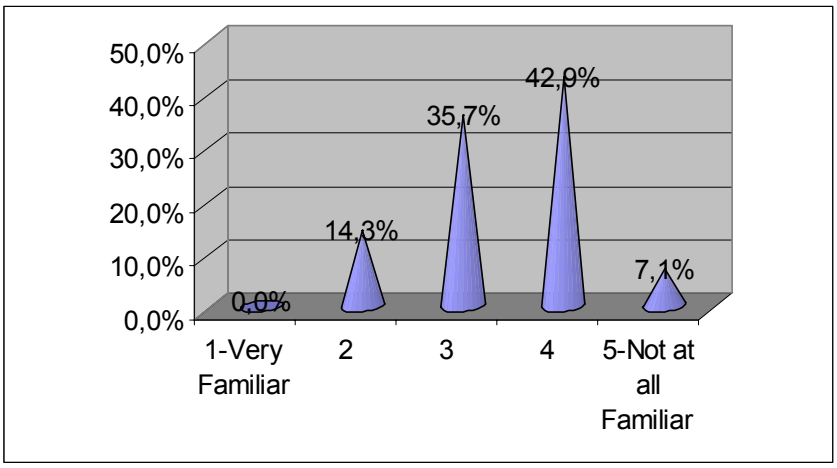


Figure 30: Familiarity with e-commerce

As Table 17 below shows, Press/Media is of rather little importance as a source of e-commerce awareness for the Epirus companies, with 42,9% indicating little and 28,6% indicating medium importance. Business Journals is of rather medium importance, 50% of companies indicating medium and 35,7% indicating little importance for this source of information. Internet is perhaps the most important source of e-commerce awareness, with 57,1% of respondents indicating this area as very important. The least used source is local initiatives/trade associations, with 57,1% of respondents indicating that this source is not used.

		Importance				
Source		1-Very Important	2-Medium Importance	3-Little Importance	4-Source not used	Not Specified
	Press / Media	14,3%	28,6%	42,9%	7,1%	7,1%
	Business Journals	0%	50%	35,7%	0%	14,2%
	Internet	57,1%	7,1%	28,6%	0%	7,1%
	Local Initiatives / trade associations	7,1%	0%	14,3%	57,1%	21,4%

Table 17: Sources of e-commerce awareness

Regarding participation in e-commerce projects, 14,3% of the companies already participated in an e-commerce project. For some of the rest of the companies (85,7%),

LAURA could prove to be the ideal solution for exploiting the e-commerce capabilities it will offer.

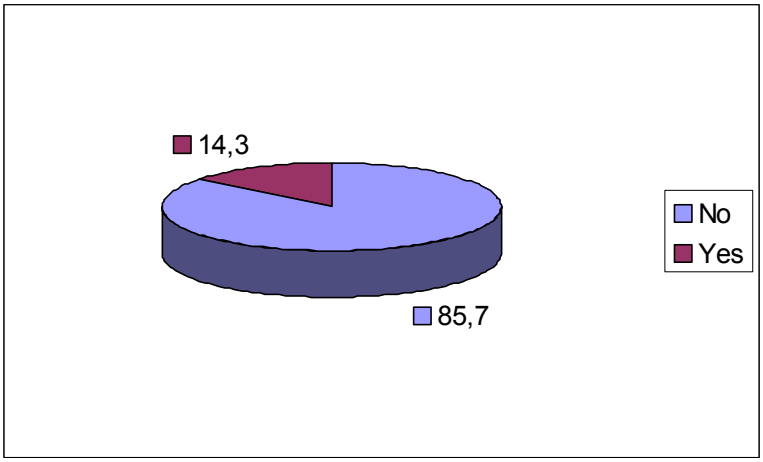


Figure 31: Participation in e-commerce projects

Looking at the current use of e-commerce compared to competitors (Figure 32), half of the companies (50%) are in the middle line compared to competitors. 28,6% indicated 4 or 5 on a scale from 1 (very advanced) to 5 (much less advanced). Only 21,4% indicated a level 2 of advancement, and none indicated that they are very advanced compared to competitors.

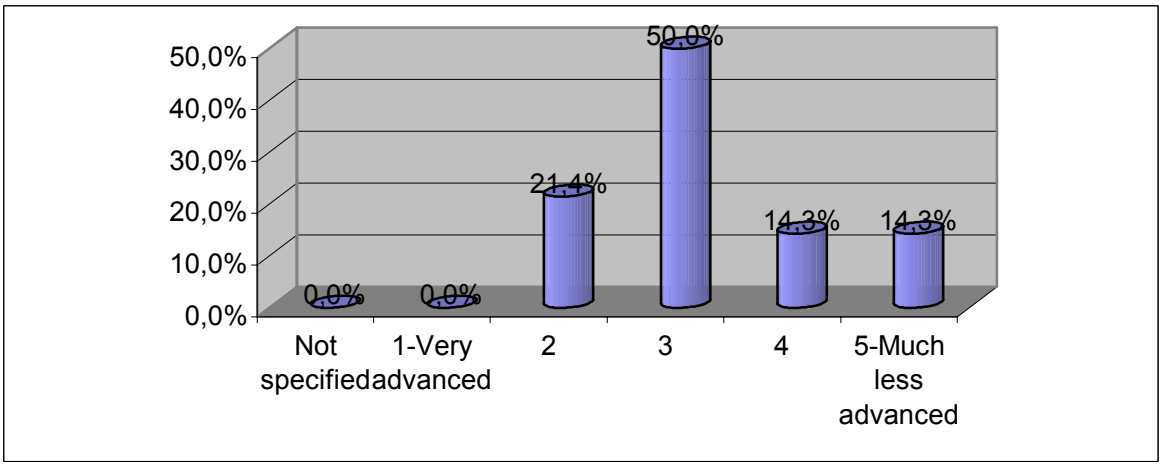


Figure 32: Current use of e-commerce compared to competitors

Examining the concerns that companies from Epirus have regarding use of e-commerce, the main one seems to be Confidentiality/Security, as Table 18 below indicates. In this case, more than half (57,2%) of respondents indicated a level 1 or 2 degree of concern on a scale from 1 (very concerned) to 5 (not at all concerned). Service reliability and an-going support were of rather medium concern, with 42,9% and 57,1% of respondents respectively rating it a 3 (medium concern). The same holds for cost of implementation, where 35,7% of respondents indicated medium concern (degree 3). It is interesting to see, that only in one case, in the cost of implementation concern, 1 out of 14 companies (7,1%) indicated that it

is not at all concerned. There were no other cases where companies indicated that they are not at all concerned about the issues posed to them.

		Degree of concern					
		1-Very concerned	2	3	4	5-Not at all concerned	Not specified
Concerns	Cost of implementation	28,6%	21,4%	35,7%	0%	7,1%	7,1%
	Service reliability	7,1%	28,6%	42,9%	7,1%	0%	14,3%
	On going support	14,3%	28,6%	57,1%	0%	0%	0%
	Confidentiality / security	14,3%	42,9%	21,4%	21,4%	0%	0%

Table 18: Concerns about use of e-commerce

C. COMPANY TRADING PRACTICES

With regards to the geographical spread of company trading (Local, National and International), the figures below show the degree of trading for each category. It can be seen that companies are heavily involved in local trading (Figure 33), with 85,7% of the surveyed companies indicating extensive level of involvement. National Trading (Figure 34) is also quite important, with 71,4% of Epirus companies indicating a 1 or 2 level of involvement. Although not as important as local or national trading, international trading (Figure 35) comes third and of rather medium importance, with percentages in each category from 1 to 5 approximately evenly spread.

Since companies from Epirus are heavily involved in local trading, and less in international trading, LAURA could introduce new opportunities for these companies by enabling them to contact customers and suppliers from outside their regional boundaries.

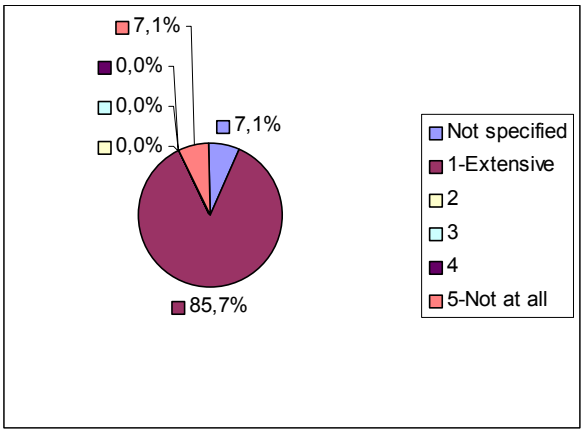


Figure 33: Degree of Local Trading

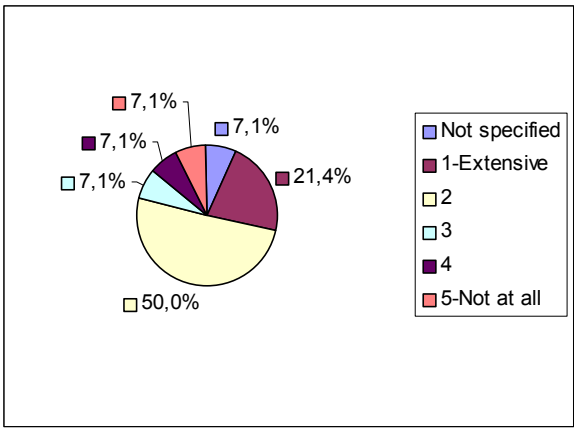


Figure 34: Degree of National Trading

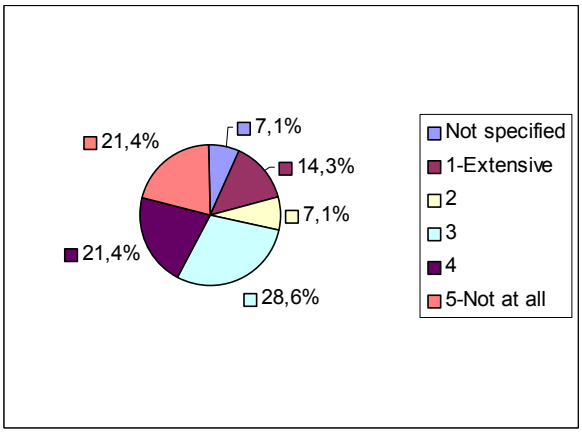


Figure 35: Degree of International Trading

Table 19 below summarizes the importance of collaboration of Epirus companies with their trading partners for the issues shown. The most important collaboration issue was seen to be that of Marketing Agreements, with 42,9% of respondents rating it as very important, followed by Procurement with 28,6% of respondents rating it as very important. Quite important was also Shared Sales Forecast, with one third (35,7%) of respondents rating it 2 on a scale from 1 (very important) to 5 (not at all important). Joint Product Development was of medium importance, with half (50%) of the companies rating it as 3. More or less of medium to high importance were also Business Information Exchange, Research and Development and Distribution Support, with percentages in each degree of importance approximately evenly distributed, and in the latter 2 cases having a tendency towards a higher degree of importance.

From the above results, it can be seen that what matters most to Epirus companies is Marketing Agreements, Procurement and Shared Sales Forecast. LAURA is certainly going to add great value to the first two, while it could also incorporate in its functionality the principles of Shared Sales Forecast.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Collaboration issue	Joint Product Development	7,1%	7,1%	50,0%	0%	14,3%	21,4%
	Procurement	28,6%	21,4%	14,3%	0%	7,1%	28,6%
	Shared Sales Forecast	21,4%	35,7%	14,3%	7,1%	0%	21,4%
	Business Information Exchange	14,3%	14,3%	28,6%	14,3%	14,3%	14,3%
	Research and Development	21,4%	28,6%	14,3%	7,1%	7,1%	21,4%
	Marketing Agreements	42,9%	28,6%	14,3%	0%	0%	14,3%
	Distribution Support	21,4%	28,6%	14,3%	7,1%	14,3%	14,3%

Table 19: Importance of collaboration

Looking at the methods Epirus companies use to exchange information with customers and suppliers, this is mostly done the traditional way, without electronic means. About a third (30%) do not use e-mail at all (Figure 36), and 43% do not use electronic catalogues at all (Figure 37). On the other hand, two thirds (65%) use extensively fax (Figure 38), and one third (36%) uses extensively paper-based methods of communication (Figure 39). In addition, 1 out of 14 companies surveyed mentioned use of the phone.

The results suggest that Epirus companies are still mostly dependent on traditional communication methods (fax, telephone, paper-based, etc) to exchange information with their customers and suppliers. LAURA could revolutionize this perspective, by introducing the electronic means of exchanging information.

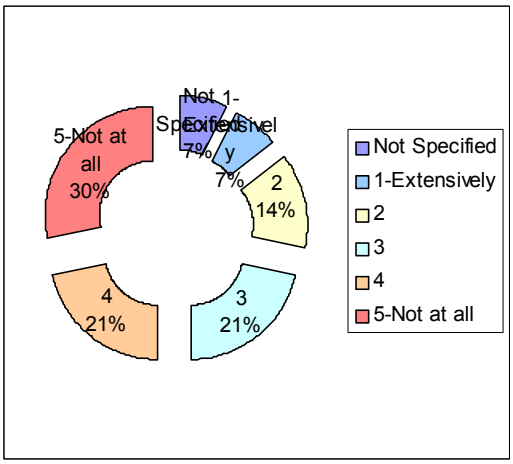


Figure 36: Use of e-mail

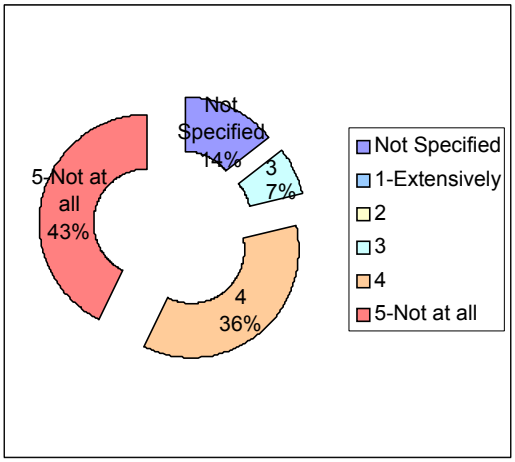


Figure 37: Use of e-catalogues

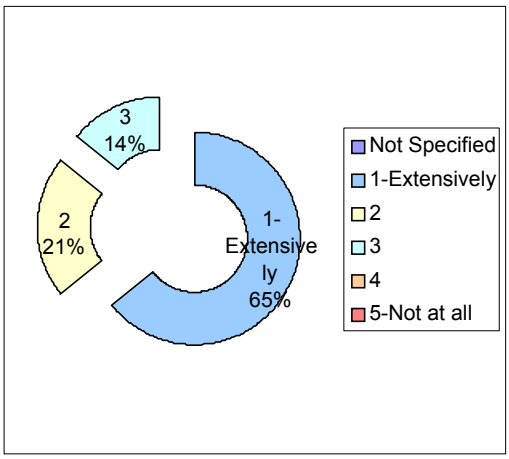


Figure 38: Use of Fax

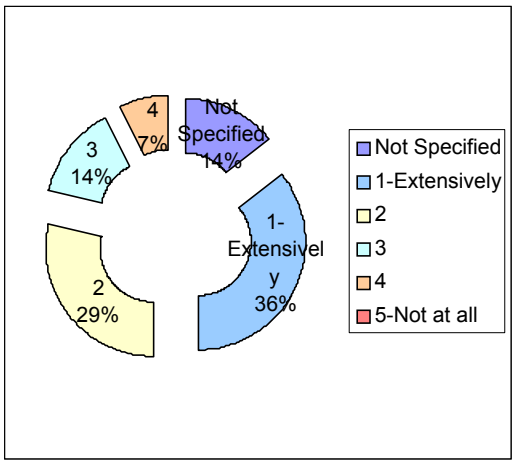


Figure 39: Use of Paper-Based Methods

Looking at the main objectives Epirus companies have (Table 20 below), the most important is to increase revenue, with the totality (100%) of respondents rating it 1 or 2 on a scale from 1 (very important) to 5 (not at all important). Not of lesser important are to increase the customer base, the expansion into new markets, the improved use of information and the improved trading relationships. Only the increase of the supply base seemed to be of medium importance, with more than half (57,1%) of companies rating this area as 3 on a scale from 1 to 5.

LAURA is expected to meet and enhance the business objectives that Epirus companies mentioned as important, by using the Internet network effects, and the economies of scale that arise from an expanded customer base, as well as the lower transaction costs on the Internet.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Business Objectives	Increase revenue	78,6%	21,4%	0%	0%	0%	0%
	Increase customer base	50,0%	42,9%	0%	0%	7,1%	0%
	Increase Supply Base	7,1%	0%	57,1%	14,3%	14,3%	7,1%
	Expansion into new markets	57,1%	21,4%	14,3%	7,1%	0%	0%
	Improved use of information	50,0%	35,7%	0%	0%	0%	14,3%
	Improved trading relationships	42,9%	35,7%	14,3%	0%	7,1%	0%

Table 20: Main Business Objectives

Table 21 below shows the threats that companies encounter in meeting their business objectives. The main threat arising from this table is increased competition, with two thirds (64,3%) rating it as very important. Geographical constraints were also very important, with approximately two thirds (64,3%) rating it 1 or 2 on a scale from 1 (very important) to 5 (not at all important). Regulatory/legal aspects were of rather medium importance, with half of the respondents (50%) rating this threat as 3. Trust/security issues were also of medium to high importance, with 42,9% of respondents rating this threat as 3. The same holds for lack of e-commerce capability, with the vast majority (85,7%) of respondents rating this area as 1, 2 or 3 on a scale from 1 (very important) to 5 (not at all important).

LAURA could be play here a decisive role for companies fearing increased competition, by allowing to more effectively compete in the global market. Geographical constraints can also be eliminated by the use of interregional electronic trading.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Business Threats	Increased competition	64,3%	14,3%	14,3%	0%	7,1%	0%
	Geographical constrains	42,9%	21,4%	21,4%	14,3%	0%	0%
	Regulatory / legal aspects	7,1%	7,1%	50%	21,4%	7,1%	7,1%
	Trust / security issues	21,4%	21,4%	42,9%	7,1%	0%	7,1%
	Lack of e-commerce capability	28,6%	35,7%	21,4%	0%	7,1%	7,1%

Table 21: Threats in meeting business objectives

The figures below show the importance of trading functions that companies indicated would benefit from automation through e-commerce implementation such as the LAURA project.

For the finding of trading partners through online search of company profiles (Figure 40), half (50%) of the respondents ranked its importance as 1 or 2 on a 1 (very important) to 5 (not at all important) scale. For negotiating agreements that could serve as the terms and conditions for trading with particular partners (Figure 41) the corresponding percentage was 57,2%, with the rest 42,9% indicating a medium importance (3). For joint product/service development (Figure 42) the percentage of importance of 1 or 2 was 57,2%, with the rest 42,9% indicating an importance of 3 or 4. For marketing campaign management (Figure 43), the percentage of 1 or 2 responses was the highest with more than two thirds (71,4%) of the respondents, and the rest (28,6%) indicating an importance of 3 (Medium). Finally, for document and information exchange (Figure 44) the percentage of companies that indicated a 1 or 2 level of importance was 42,9%, with the rest (57,1%) indicating an importance of 3 (Medium).

It can be seen from the above results that what companies think would benefit most from introduction of e-commerce is the marketing campaign management. Not of significantly lesser importance are the rest of the areas identified. Although the population of the companies that returned questionnaires was quite small (14 companies), those results can serve as a first indication of the LAURA functionality.

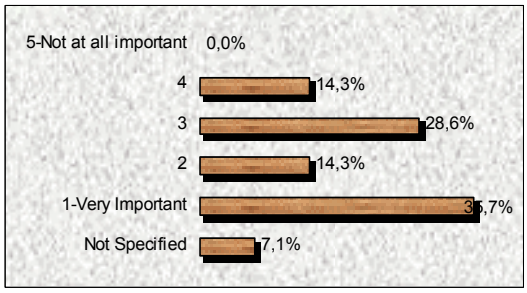


Figure 40: Find Trading Partners

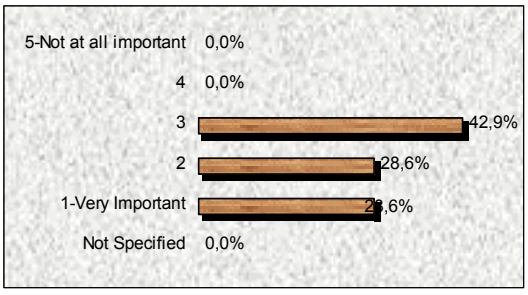


Figure 41: Negotiating Agreements

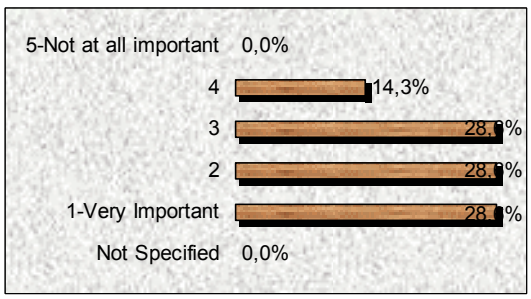


Figure 42: Joint Product/Service Development

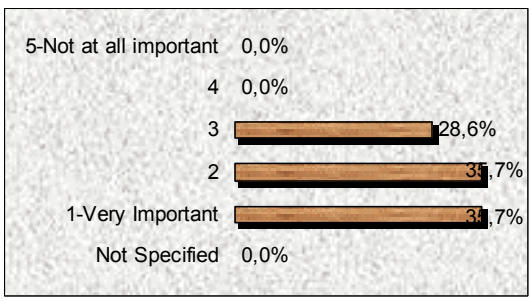


Figure 43: Marketing Campaign Management

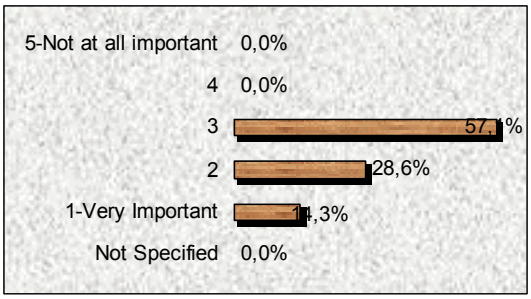


Figure 44: Document and Information Exchange

Table 22 below shows the importance of business information exchange transactions that could benefit from the introduction of e-commerce. It can be seen that all of the identified transactions were deemed by Epirus companies to be of high importance in an e-commerce implementation, with a very low or zero percentage indicating an importance of 4 or 5. Most important was that of product searching and info, with the whole number of respondents indicating an importance of 1 or 2 on a 1-5 scale.

		Degree of importance					
		1-Very important	2	3	4	5-Not at all important	Not specified
Business Transactions	Product searching&info	57,1%	42,9%	0%	0%	0%	0%
	Purchase order (Create,change,request etc)	28,6%	50,0%	14,3%	0%	0%	7,1%
	Shipment,logistics,customs procedures	35,7%	35,7%	7,1%	7,1%	7,1%	7,1%
	Invoice (Create, match,payment status,etc)	35,7%	21,4%	28,6%	0%	7,1%	7,1%
	Post Sales (warranties,service packages,etc)	50,0%	28,6%	7,1%	14,3%	0%	0%

Table 22: Importance of Business Information Exchange transactions in e-commerce

D. IT INFRASTRUCTURE

Regarding the percentages of companies that use computer applications, those are show in Figure 45 below. It can be seen that the majority (78,6%) of Epirus companies uses

accounting applications, and more than two thirds (71,4%) use office software. Half (50%) use databases, and just one out of the 14 companies surveyed (7,1%) uses ERP systems or groupware applications.

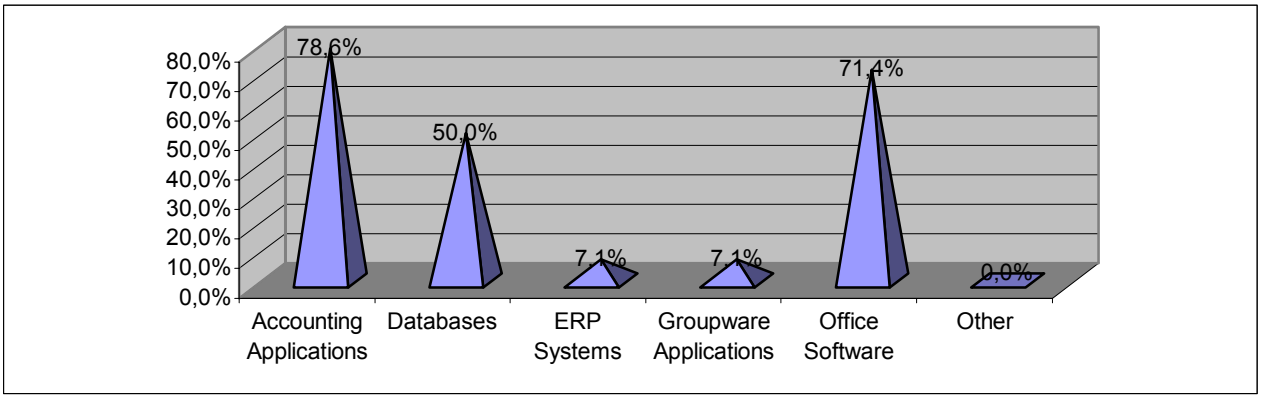


Figure 45: % of surveyed companies using specified computer applications

When one looks at the network infrastructure of Epirus companies (Figure 46), it can be seen that half of them (50%) use LAN, and 42,9% do not have any network infrastructure at all. Only 1 out of the 14 companies surveyed (7,1%) has a Wide Area Network (WAN) installation.

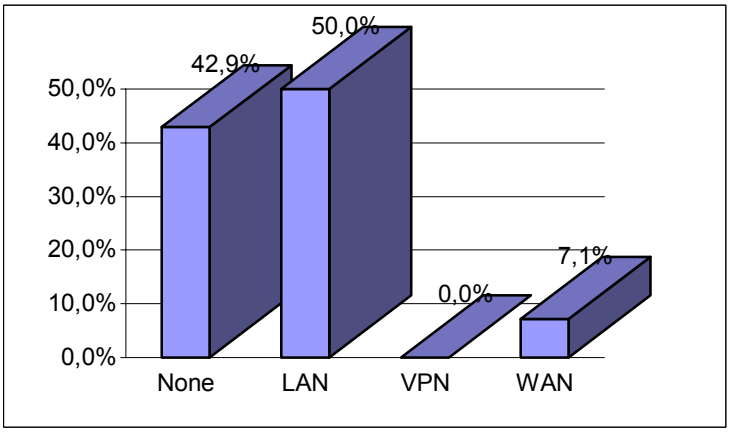


Figure 46: Network Infrastructure

As can be seen from Figure 47 below, almost two thirds of Epirus companies (64,3%) have an ISDN connection to the Internet. 21,4% do not have any Internet access at all, and 21,4% have a PSTN connection. One company (7,1%) has leased lines installed. Some companies reported more than one type of Internet connection (e.g. leased lines and ISDN).

The fact that the majority of Epirus companies has an ISDN connection to the Internet is very important to the LAURA project, as it will allow easy deployment of the LAURA platform to those companies.

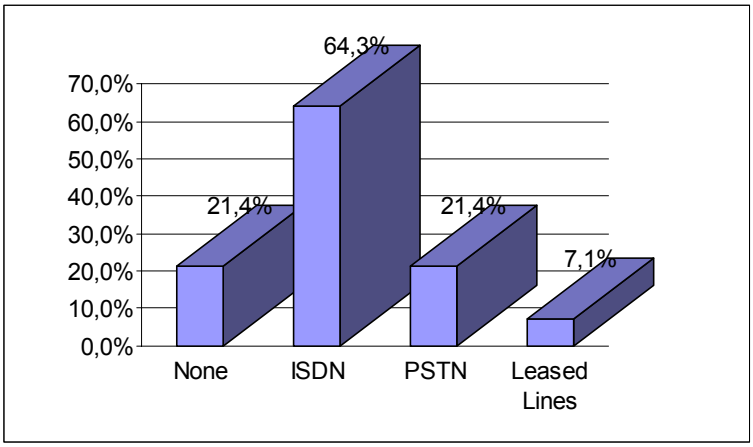


Figure 47: Type of Internet access

Most of Epirus companies (8 out of 14) employ 1 or 2 IT-literate people, as Figure 48 below shows. 2 companies employ 3 such people, one company employs 6 IT-literate people, and one 7. The latter ones have declared to employ between 15 and 50 people altogether, therefore the proportion of IT staff in their company is quite high.

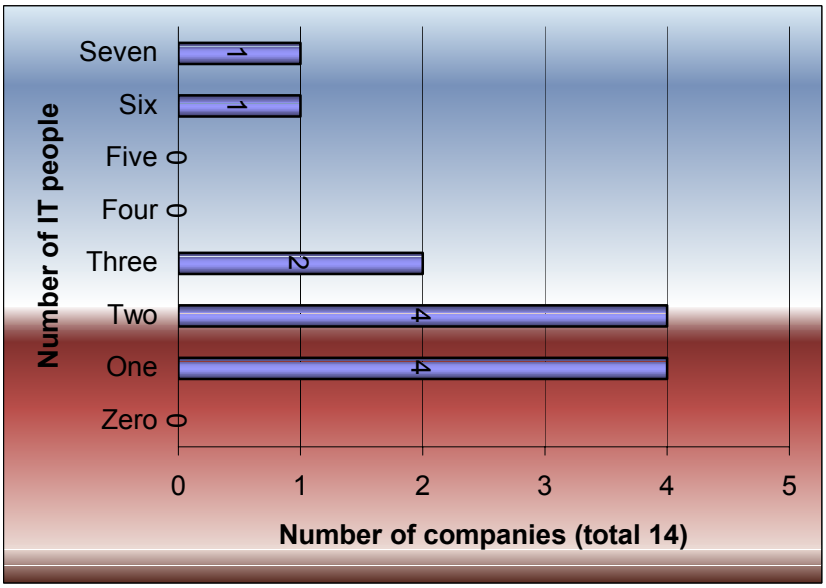


Figure 48: Number of IT-literate people in a company

Only 2 out of the 14 (14%) Epirus companies that replied to the questionnaire have a formal education scheme for IT staff, as Figure 49 below shows.

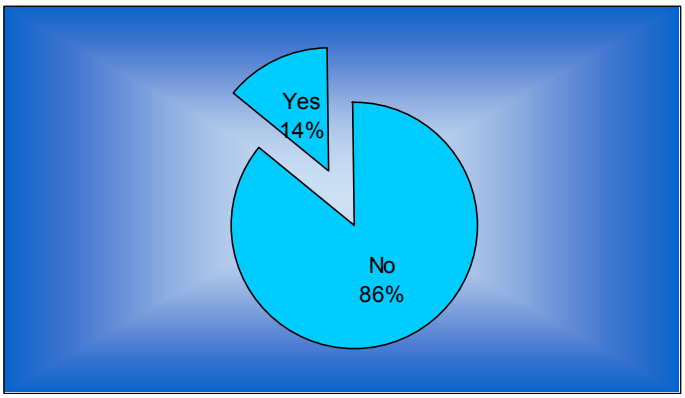


Figure 49: Formal Education Scheme for IT Staff

E. LAURA PROJECT INTEREST

Most of the surveyed companies (57%) indicated that they were willing to participate in face-to-face interviews or other means for follow-up information (Figure 50). The rest (43%) replied that they were not quite sure about this issue. However, it is very encouraging that none of the surveyed companies replied that they were not willing to take any further part in the LAURA project.

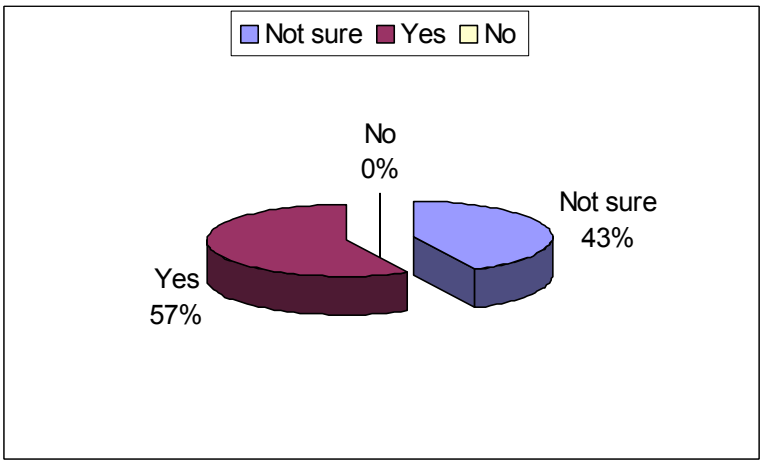


Figure 50: Participation in face-to-face interviews

All of the companies surveyed (100%), indicated that they would like to receive the summary of the findings of the questionnaire that was distributed to them (Figure 51). This is also very encouraging as it shows a big interest in the LAURA project from the part of Epirus companies.

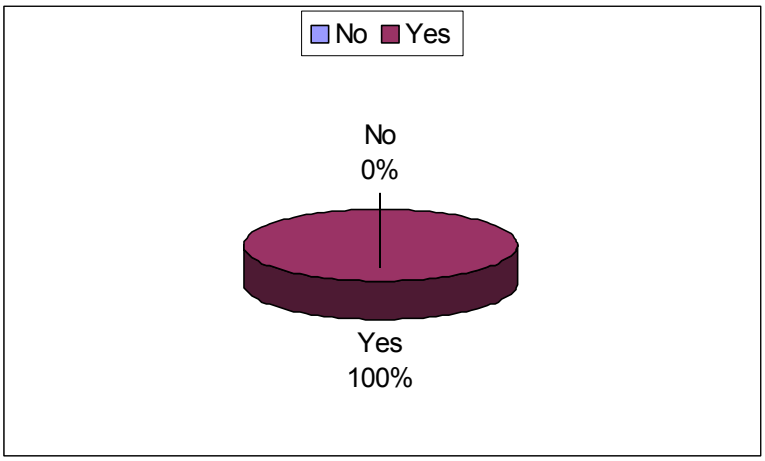


Figure 51: Receipt of summary findings from questionnaire

When asked how useful in their opinion would be to have the LAURA prototype installed in their premises, about two thirds (64,3%) of Epirus companies ranked this as 1 or 2 on a scale from 1 (very useful) to 5 (not at all useful). The rest one third (35,7%) indicated a usefulness of 3 or 4. No company indicated that it would not be at all useful to have the LAURA prototype installed. The above confirm the overall interest of Epirus companies on the LAURA project.

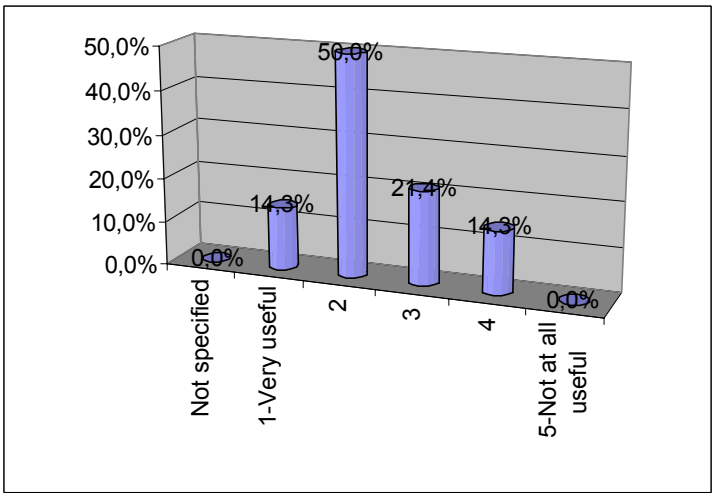


Figure 52: Usefulness of LAURA prototype installation

4.3 *Bulgaria - South-Central Region*

Because of a relatively higher number of returned questionnaires in comparison to the other regions of the project, the questionnaire analysis for Bulgaria has been carried out on a sector-by-sector basis.

4.3.1. Sector Tourism

Based on 23 Questionnaires

A. COMPANY PROFILE

The typical profile of the tourist companies surveyed features the following characteristics:

- In excess of three fourths of the companies are of small size – with up to 10 employees and annual turnover not exceeding € 150,000. The remaining ones can generally be classified as being of average size – 17.4% have 11 to 49 employees, and one fifth have an annual turnover between € 150,000 and € 500,000. None of the tourist companies surveyed reported a turnover exceeding € 500,000 and merely 4.3% indicated they had more than 50 employees;
- A considerable number of the companies – 66.7% - have been active in the market for more than 6 years, which is a precondition for extensive experience and business contacts;
- The most commonly used foreign languages in day-to-day business operation were English and German. Quite a few of the companies surveyed also reported using Greek language in their business contacts. *(*Figure 53 below*)*

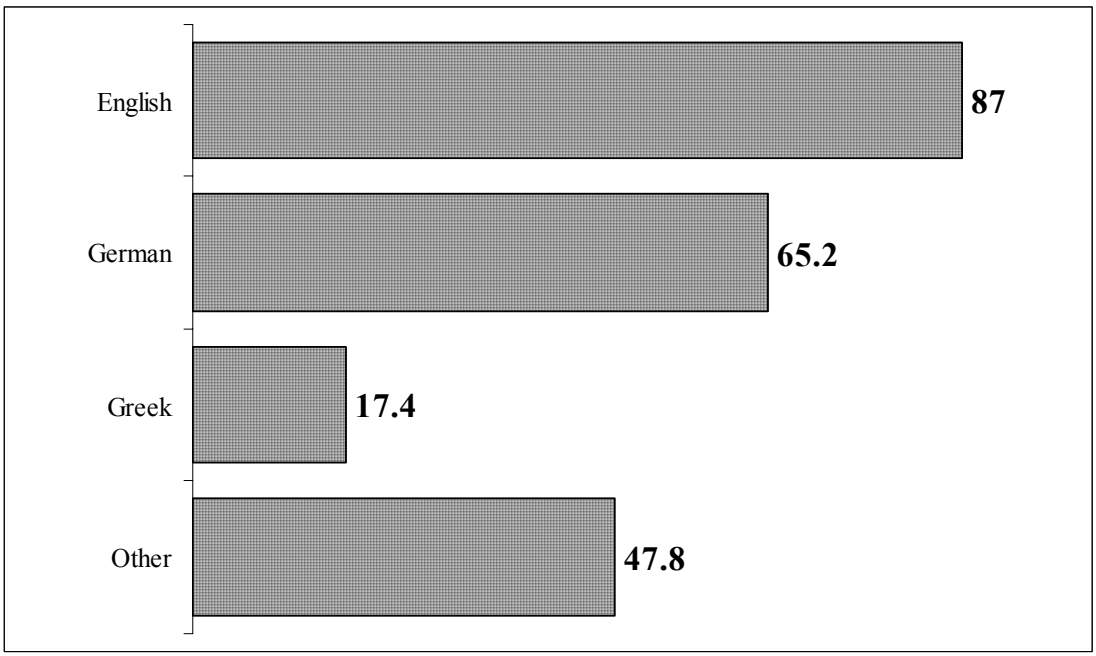


Figure 53: Foreign languages used in the company's business operation

B. E-COMMERCE AWARENESS

- A considerable number - 43.4% - of those interviewed deemed themselves somewhat aware of the nature and conditions for e-trade (electronic markets, online catalogues, electronic delivery), but generally not familiar enough with the possibilities for doing business this way.
- The most commonly used source of information about e-trade is the *Internet*. This was how three fourths of the respondents got informed. *The media and the local initiatives/ business organizations* were another common source of information – to more than half of those interviewed, and one in two also relied on the *specialized trade publications* (Figure 54 below).

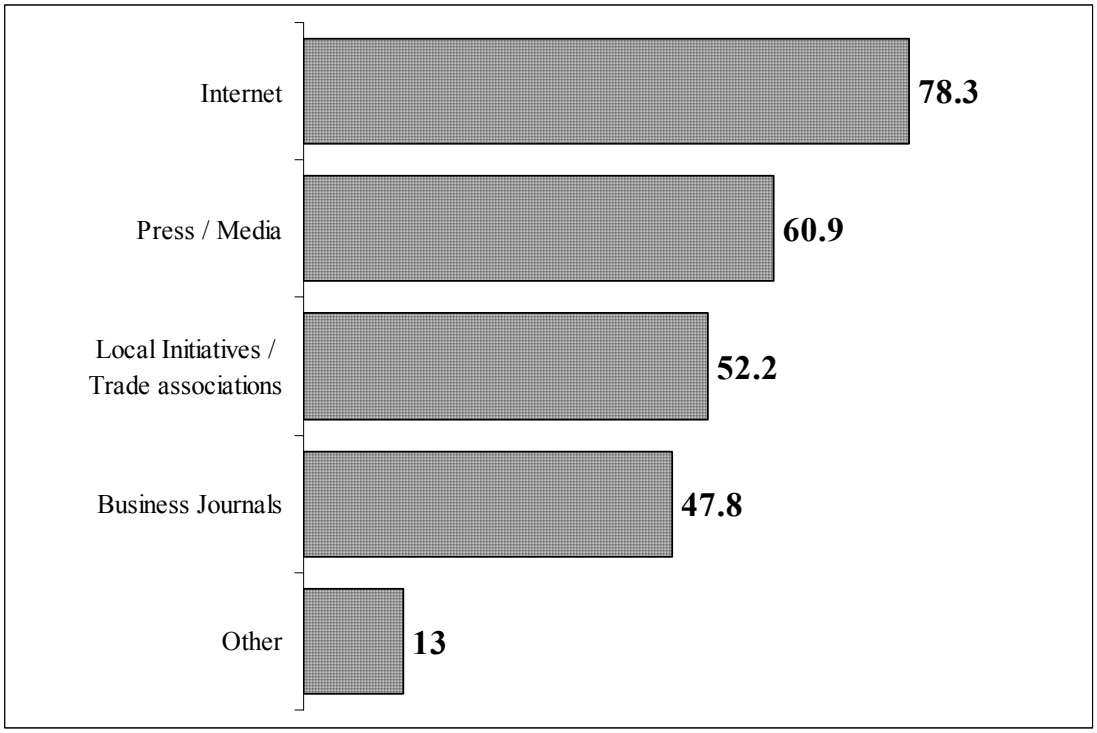


Figure 54: Sources of information about e-trade

- As for the relative importance of the different sources, the respondents tended to favour specialized trade publications and local initiatives over the media. This is an indicator that business persons look for concrete information relating specifically to the respective industry.
- As regards both general and more specific information, the possibilities offered by the Internet were duly appreciated by the respondents – 72.2% noted that this source of information was very important to them. The wide-ranging, fast, and accurate information, as well as the implementation of joint business projects online also accounted for the popularity of the World Wide Web. (Table 23 below)

	Very important	*Medium Importance*	*Little Importance*	*DN/NA*	*Base*
Internet	**72,2**	27,8	-	-	*18*
Local Initiatives/ Trade associations	**58,3**	25,0	16,7	-	*12*
Business Journals	**54,5**	36,4	9,1	-	*11*
Press / Media	**35,7**	57,1	7,1	-	*14*
Other	**66,7**	-	-	33,3	*3*

Table 23: Ranking of the sources of information used

- Participation in e-trade platforms generally proved an uncommon practice for the companies surveyed. Nevertheless, 17.4% of those interviewed did say they participated in an e-trade platform. It is worth noting the considerable share of those who gave no answer, which in itself suggests that some of the respondents probably did not know what the question was referring to.
- Even among the respondents who used an e-trade platform, the share of those who said they did so more often than their competitors in the respective sector was quite small – 13%. (Table 24 below)

	%
1 We are very advanced	4,3
2	8,7
3	21,7
4	21,7
5 We are much less advanced	26,1
8 Do not use	17,4

Table 24: Rate of e-trade use compared to other companies in the same sector

- In addition to specific and accurate information about the nature and possibilities offered by e-trade, the respondents were also concerned with the reliability of the various aspects of this way of doing business. They were most apprehensive about *service maintenance* and the *confidentiality and security* of the transactions – three in ten respondents had doubts in these respects. Other, equally important concerns were the *reliability of the services* and the *cost of such transactions*. *(*Table 25*)*

	Very Concerned	*Neither concerned, nor unconcerned*	*Not at all concerned*	*DN/ NA*
On going support	34.7	21.7	26.1	17,4
Confidentiality / security	30.4	13	26.1	30,4
Service reliability	26.0	21.7	30.4	21,7
Cost of implementation	21.7	26.1	34.7	17,4
Other	4.3	-	-	95,7

Table 25: Assessment of certain aspects of e-trade

C. COMPANY TRADING PRACTICES

- Although the majority of the companies were small in terms of staff and turnover, a considerable number – more than one third – had *active business contacts at an international level*. Three out of ten companies also had well-developed networks of clients and suppliers at a regional level. The establishment of regional e-trade zones would significantly facilitate further business contacts and transactions. (Table 26)

	Extensive	***2***	***3***	***4***	***Not at all***	***DN/ NA***
Local	17,4	13,0	26,1	8,7	8,7	26,1
National	13,0	8,7	30,4	8,7	4,3	34,8
International	34,8	8,7	8,7	13,0	8,7	26,1

Table 26: Geographic scope of the company in terms of clients and suppliers

- The joint activities with business partners deemed important by the respondents came to confirm the potential of the LAURA Project. In excess of three fourths of those interviewed ranked first *joint product development* and *exchange of business information*. These were followed by *forecasting joint sales* and *marketing agreements*. These activities could be greatly facilitated in the presence of effectively operating regional e-trade zones. (Table 27)

	Very important	***Neither important, nor unimportant***	***Not at all important***	***DN/ NA***
Joint Product Development	**78.3**	4,3	4,3	13,0
Business Information Exchange	**73.9**	4,3	-	21,7
Shared Sales Forecast	**56.5**	13,0	8,6	21,7
Marketing Agreements	**52.2**	17,4	13	17,4
Distribution Support	**34.8**	13,0	17.4	34,8
Procurement	**30.4**	17,4	8,6	43,5
Research and Development	**30.4**	13,0	8,7	47,8
Other	**4.3**	-	-	95,7

Table 27: Joint activities with business partners

- The most commonly used means of exchanging business information with suppliers and clients were *e-mail* and *fax*. Print materials serve the same purposes but were used far less frequently *(*Table 28*).*

	Extensively	*2*	*3*	*4*	*Not at all*	*DN/ NA*
Email	**52,2**	8,7	13,0	13,0	4,3	8,7
Fax	**43,5**	21,7	17,4	4,3	-	13,0
Paper based	**26,1**	17,4	21,7	4,3	8,7	21,7
E-catalogues	**8,7**	13,0	8,7	4,3	17,4	47,8
Other	**13,6**	4,5	-	-	-	81,8
Base						*23*

Table 28: Means of exchanging information with suppliers and clients

- *Making better use of the information* was considered one of the major business goals facing the companies surveyed. Together with *reaching new markets* and *increasing the number of customers,* those emerged as the priority areas in which the LAURA Project could be instrumental. (Figure 55)
- Ranked by importance, the priorities remained the same, with the addition of *improved business relations* and *increasing the number of suppliers*. *Increasing profits* was only noted as an important business goal by one third of the respondents, which indicates the awareness of businesspersons that this is rather a consequence from the implementation of the above-mentioned goals than a condition for the company's development. (Table 29)

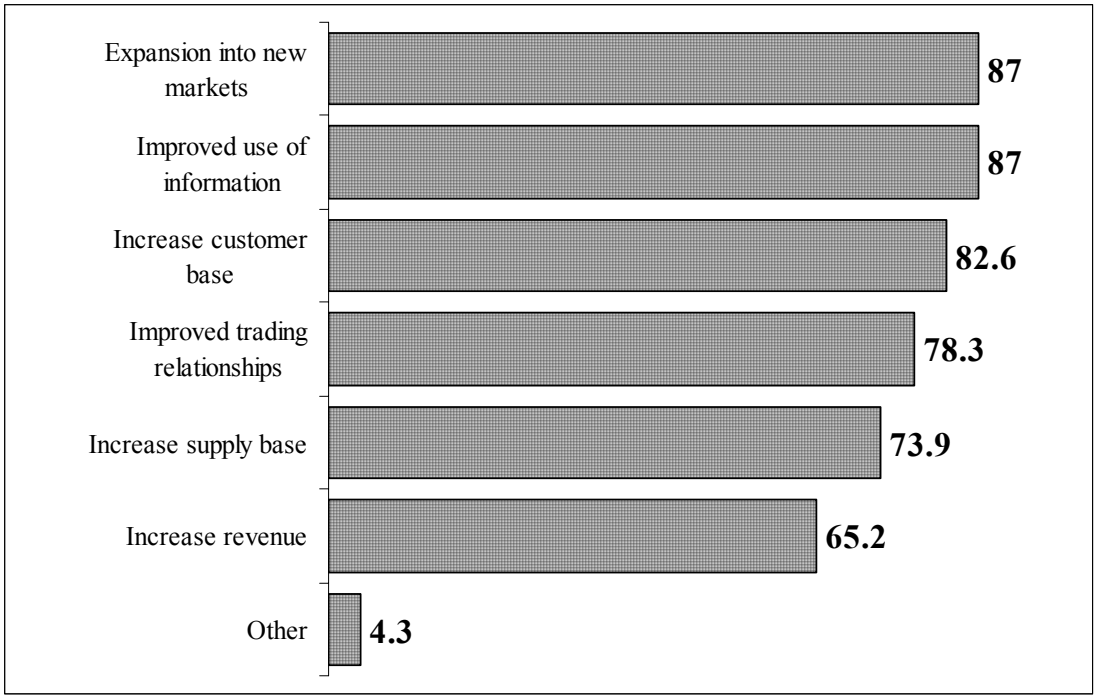


Figure 55: Main business goals

	Very Important	*Neither important, nor unimportant*	*Not at all important*	*Base*
Expansion into new markets	**90,0**	10,0	-	*20*
Improved trading relationships	**89,9**	11,1	-	*18*
Increase customer base	**79,0**	10,5	10,5	*19*
Increase supply base	**76,5**	17,6	5,9	*17*
Improved use of information	**73,7**	26,3	-	*19*
Increase revenue	**33,3**	53,3	13,4	*15*
Other	**100,0**	-	-	*1*

Table 29: Ranking of the company's business goals

- The chief obstacles to company development and to the implementation of the business goals important to them are the *legal constraints* and the *trust and confidence among business partners*. Respondents were far less concerned about *increased competition, geographic constraints,* or *the lack of possibilities for e-trade. (*Table 30)

	Big threat	*2*	*3*	*4*	*No threat*	*DN/ NA*
Regulatory / legal aspects	**30,4**	34,8	17,4	8,7	-	8,7
Trust / security issues	**21,7**	13,0	17,4	8,7	17,4	21,7
Increased competition	**17,4**	34,8	8,7	8,7	8,7	21,7
Geographical constrains	**17,4**	-	17,4	17,4	30,4	17,4
Lack of e-commerce capability	**8,7**	17,4	26,1	8,7	13,0	26,1
Other	**-**	4,3	-	-	-	95,7

Table 30: Obstacles/ threats to the implementation of the company business goals

- The advantages offered by the establishment of e-trade platforms were highly appreciated by the respondents. The automation of business functions such as *seeking business partners online by company profile* or *negotiating the conditions for trading with a specific business partner* were deemed extremely important and useful. More than two thirds also deemed important the possibilities to *exchange documents and information about business transactions*, *joint product/service development*, and *management of marketing campaigns*. *(*Table 31*)*

	Very important	*Neither important, nor unimportant*	*Not at all important*	*DN/ NA*
Finding trading partners through on line search of company profiles	**82,6**	4,3	4,3	8,7
Negotiating agreements that would serve as the terms and conditions of trading with particular trading partners (For example payment terms, service levels, quality assurance, penalties)	**82,6**	8,7	-	8,7
Exchanging documents and information for business transactions	**73,9**	13,0	-	13,0
Joint product / service development with partners (for e.g. needs determination, design, configuration and subsequent changes)	**73,9**	17,4	4,3	4,3
Marketing Campaign Management	**69,6**	13,0	4,3	13,0

Table 31: Automation of definite business functions through an e-trade platform

- The use of the technologies for exchanging information was deemed a great advantage when *seeking products and information about prices, stock, etc*., as well as *placing and changing orders*. To a lesser extent it facilitates certain *post-transaction activities (guarantees, maintenance)* and *invoicing and checking of payment status*. (Table 32)

	Very important	*Neither important, nor unimportant*	*Not at all important*	*DN/ NA*
Product searching and info (price, availability)	**87,0**	4,3		8,7
Purchase order (create, change, request etc)	**78,3**	13,0		8,7
Post Sales (warranties, service packages, etc)	**60,8**	21,7	4,3	13,0
Invoice (Create, match, payment status, etc)	**56,5**	26,1		17,4
Shipment, logistics, customs procedures / status	**47,8**	26,1	8,6	17,4
Other	**4,3**	-	-	95,7

Table 32: Ranking of various types of exchange of information in business transactions

D. IT INFRASTRUCTURE

Despite the declared readiness of two thirds of the respondents to participate in further initiatives related to the LAURA Project, it is important to note the still limited technical capacity of the companies surveyed:

- One third of them have only one computer at the company office and in more than three fourths of the cases fewer than two employees actually work on a computer at all; (Figure 56)
- A considerable number – 73.9% - are equipped with a printer, one third also have a server, but barely 8.7% have a scanner; *(*Figure 57*)*
- Of the software applications, the most popular were the standard office packets, data bases, and accounting software; *(*Figure 58*)*
- One in two companies – 47.8% - did not have any network devices, and 60.9% used a dial-up connection to the Internet; *(*Table 33 and Figure 59*)*
- In 8 out of 10 cases there lacked any training schemes for the computer specialists working for the company.

All of these characteristics of the IT infrastructure of the companies surveyed point to the need for considerable improvement of the available equipment to allow full-fledged participation of these companies in e-trade platforms.

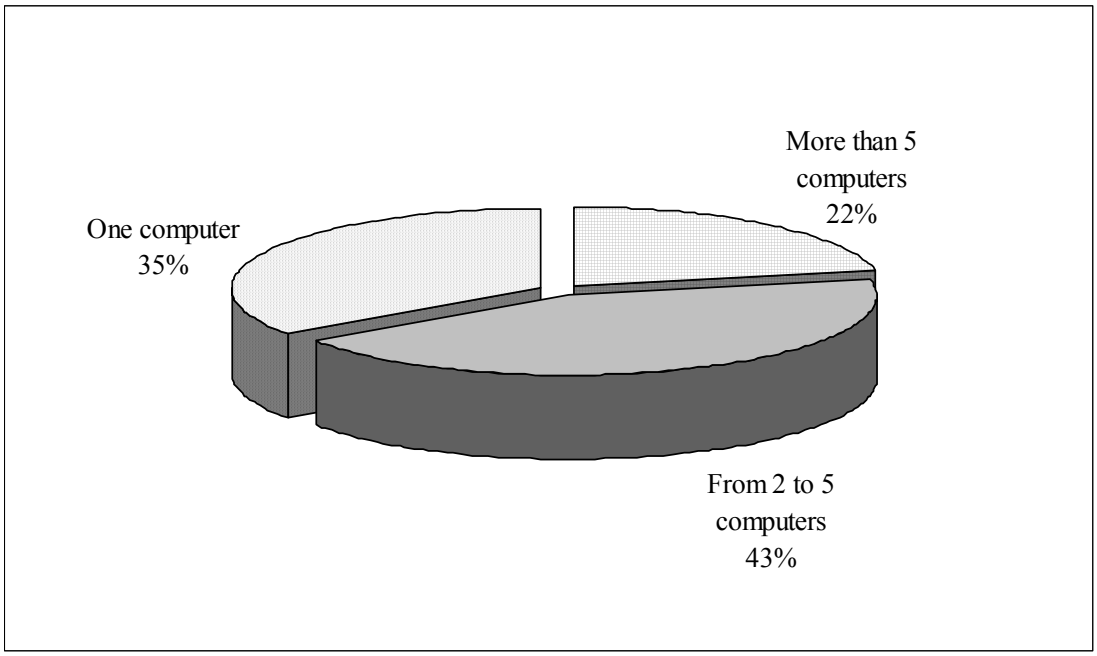


Figure 56: Number of PCs in the company

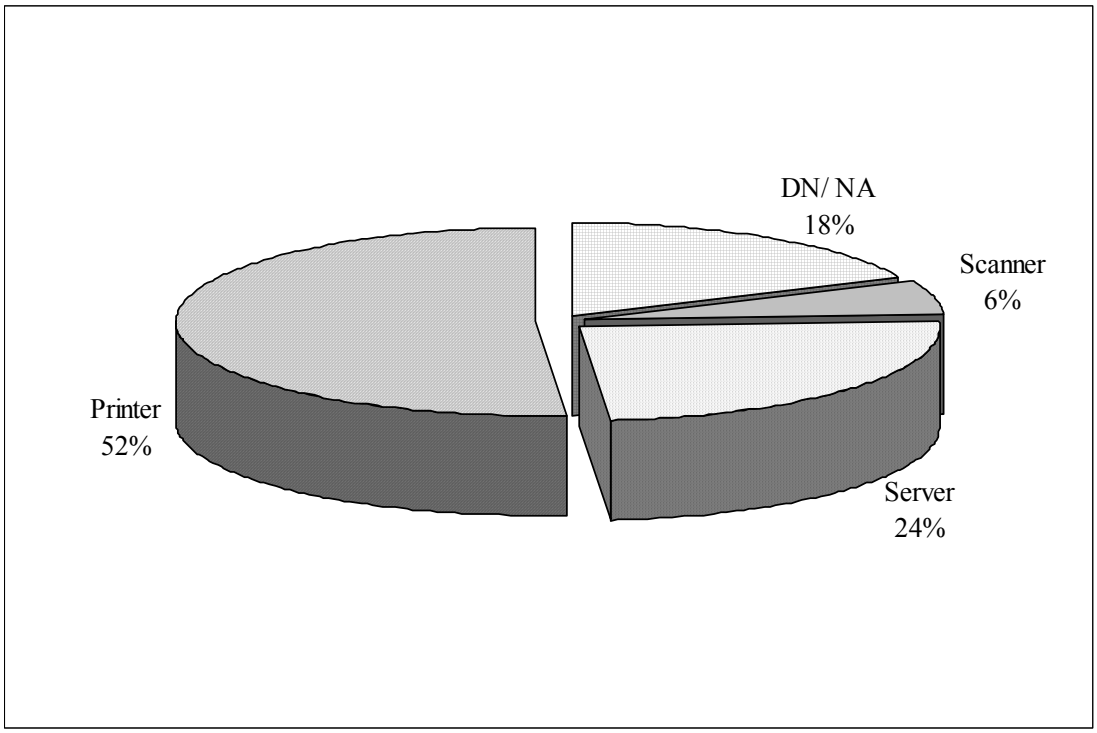


Figure 57: Availability of certain types of equipment in the company

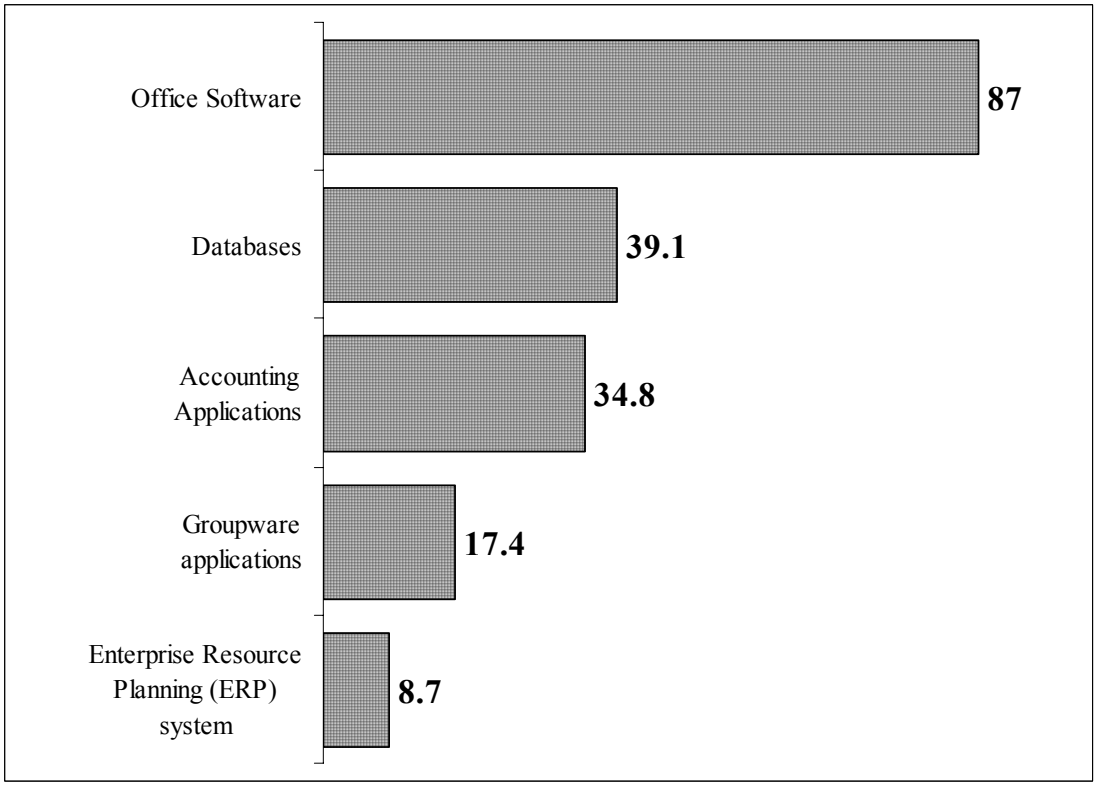


Figure 58: Availability of software applications in the company

LAN (Local Area Network)	34,8
VPN (Virtual Private Network)	-
Other	-
We do not have network infrastructure	**47,8**
DN/ NA	17,4

Table 33: Availability of network devices

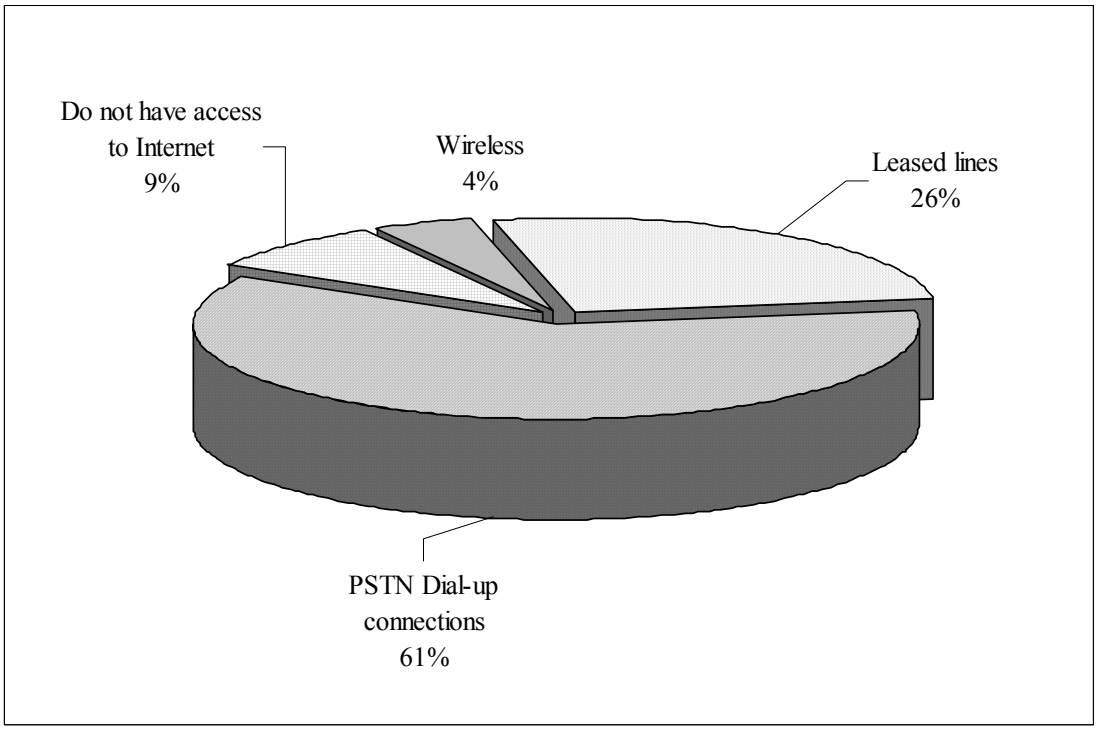


Figure 59: Type of Internet connection

E. LAURA PROJECT INTEREST

- A considerable number of the respondents – 65.2% - expressed readiness to participate in further studies related to the LAURA Project, and nearly all - 91.3% - would like to receive the summarized findings of the survey;
- One in two thought his/ her company would benefit from participation in the pilot stage of the project, and about one third could not form a clear-cut opinion as to whether they would be willing to participate in further studies and whether this would be of benefit to their company. *(*Figure 60*)*

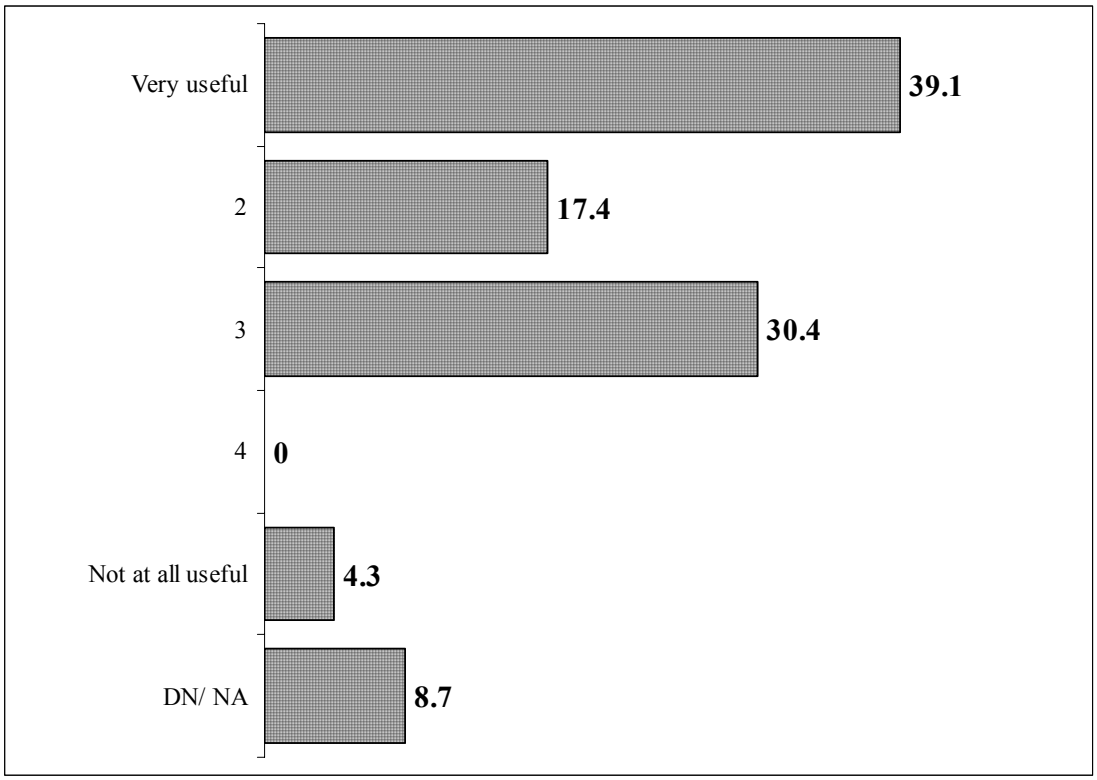


Figure 60: Level of usefulness of company involvement in the pilot phase of the LAURA Project

4.3.2. Sector Construction and Construction Materials

Based on 100 Questionnaires

A. COMPANY PROFILE

The economic profile of the companies that operate in the field of construction can be summarized in the following way:

- About half of the companies (49%) dispose of no more than a 10 people personnel, and for 46% the annual turnover does not exceed 150,000 Euro; every forth company (25%) has a personnel of no more than 50 people. The same share of the companies employs 250 persons.

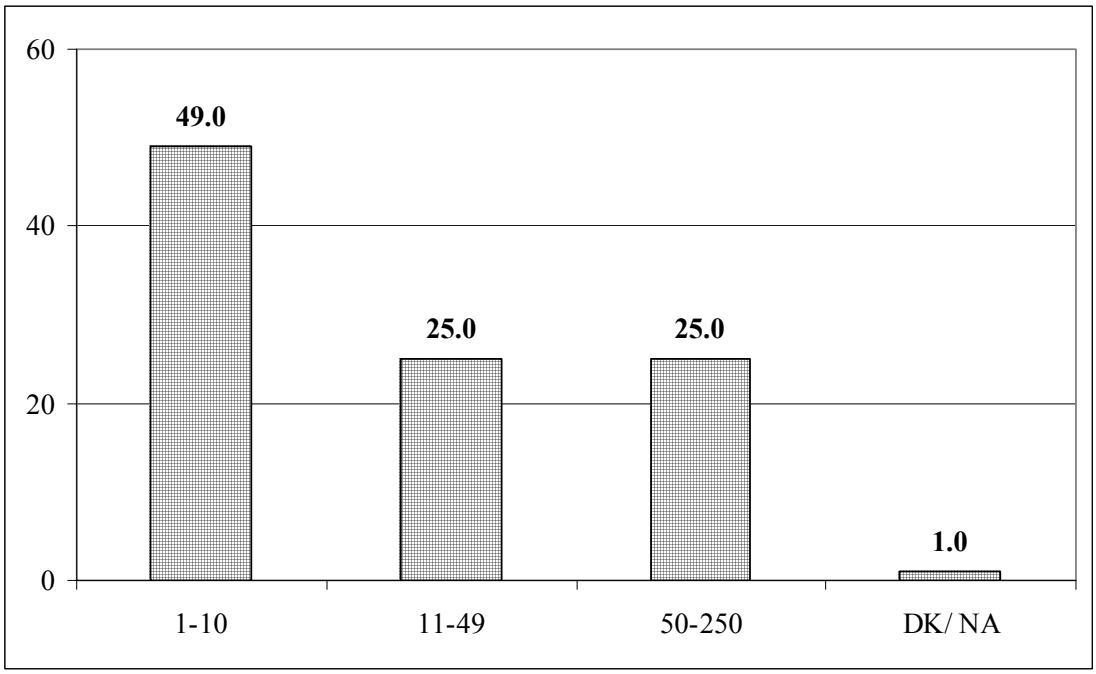


Figure 61: Number of personnel

- About 30% of the surveyed companies have an annual turnover between 500,000 and 1,500,000 Euro, while those exceeding the above amounts constitute only 5%.

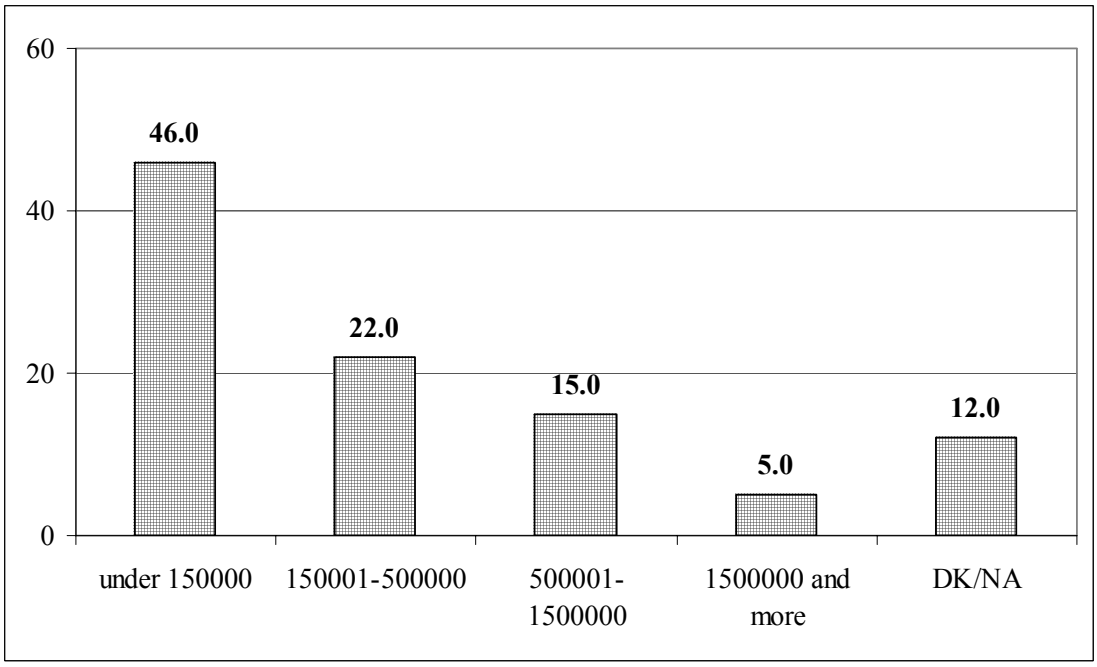


Figure 62: Annual turnover in BGN (%)

- A great deal of the surveyed companies (41%) has been operating in the field for a relatively long period - 6-10 years. Some 12% of the interviewed companies have the longest performance in the field - over 16 years.

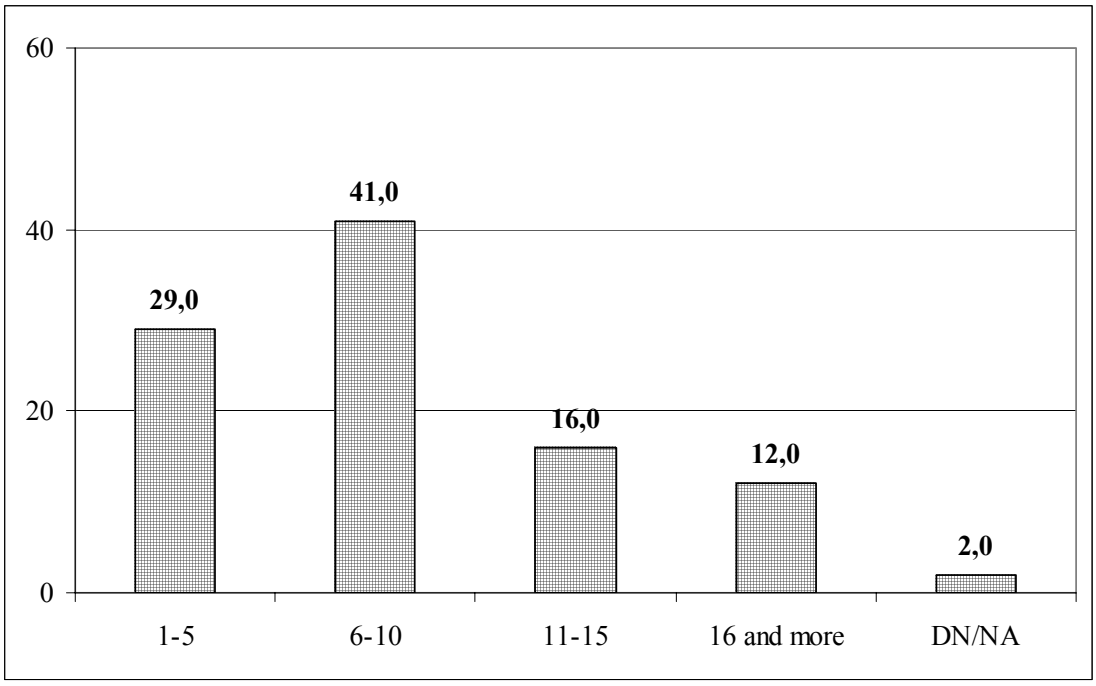


Figure 63: Years in business

- In practice English is the most commonly used working language. *(*Figure 64*)*

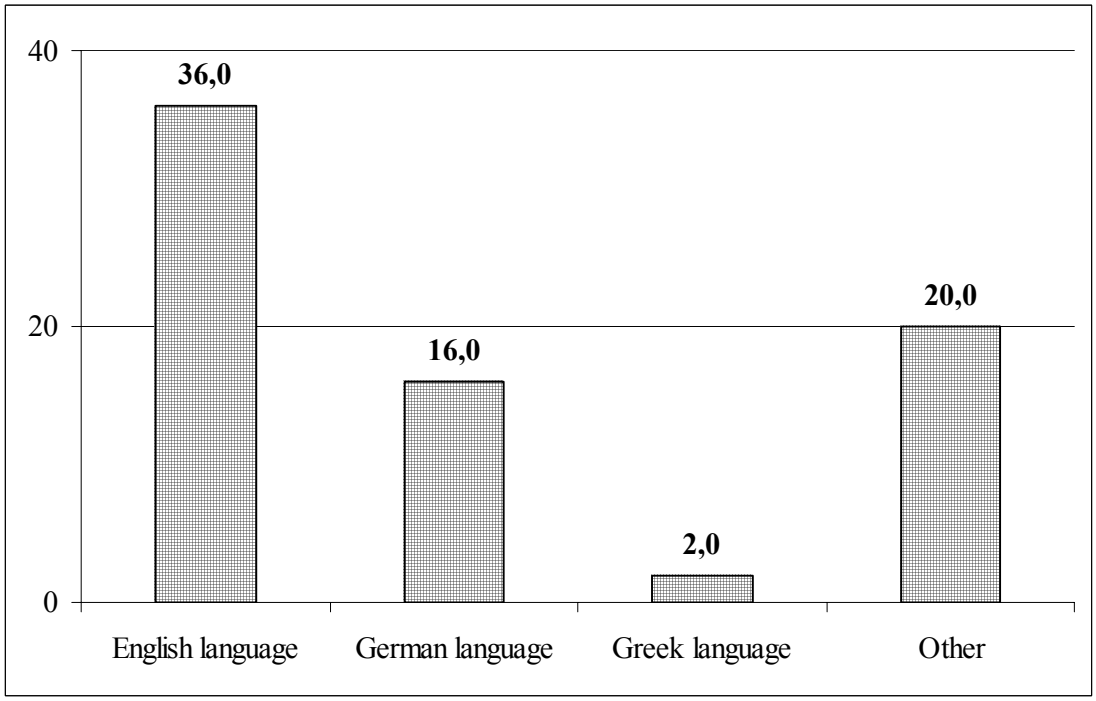


Figure 64: Company's ability to trade with foreign companies using the following languages

B. E-COMMERCE AWARENESS

The nature and platforms of e-commerce are unknown and inefficiently used by a considerable part of the interviewed representatives of the small and medium business in the field of construction and trade with construction materials. Despite the fact that the share of those who declared being aware to some extend about this contemporary form of business communication is over 50%, the share of those who are unfamiliar with it is still too large (Table 34).

	%
1 Very Familiar	5,0
2	13,0
3	18,0
4	16,0
5 Not at all familiar	46,0

Table 34: Awareness about concept and terms of e-commerce

In practice, various types of local initiatives constitute the main source of information about e-commerce. Concurrently, many of the companies use also Internet and specialized publications. (Figure 65).

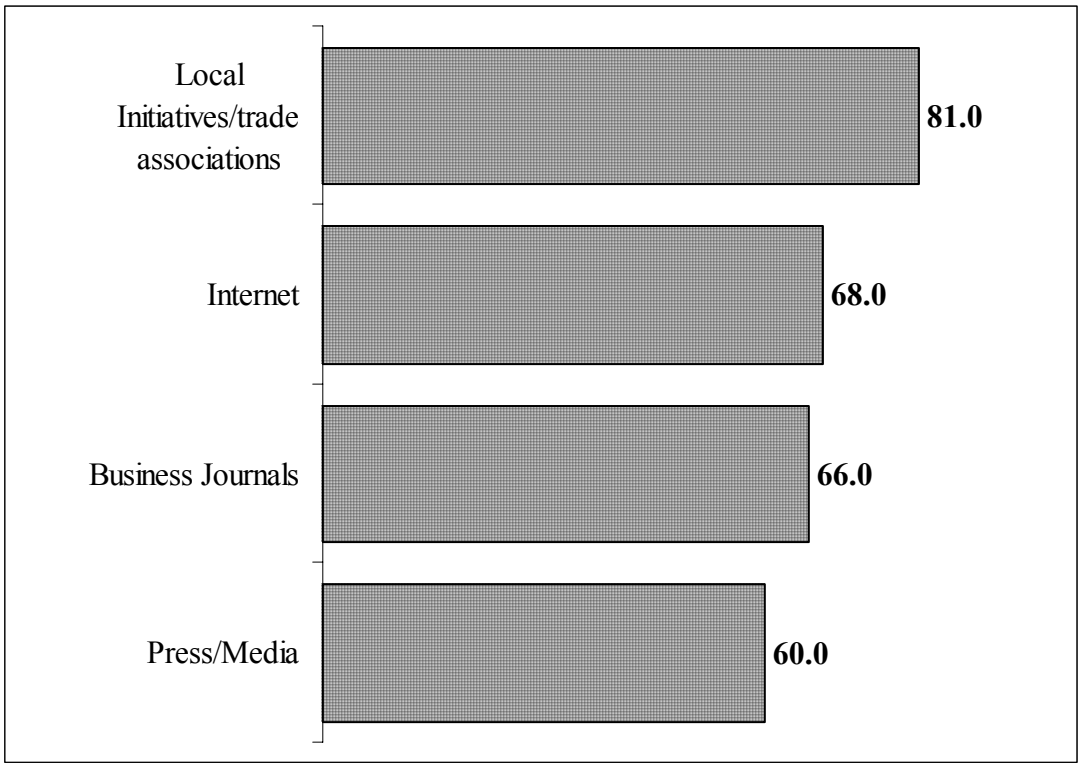


Figure 65: Information sources about e-commerce (%)

	Very Important	*Medium Importance*	*Little Importance*
Press / Media	40,0	52,5	7,5
Business Journals	64,7	32,4	2,9
Internet	53,1	34,4	12,5
Local Initiatives/trade associations	52,6	47,4	0,0

Table 35: Significance of the employed information sources on e-commerce

The evaluations of the significance of these sources are similar. Consulting various specialized publications in the sphere of e-commerce is mentioned as the most important source of information. Although mass media are not mentioned as the most important source of information for the individual companies, their respective role is still considered significant. In this particular case, the development of this source is contingent upon future elaboration and establishment *(*Table 35*)*.

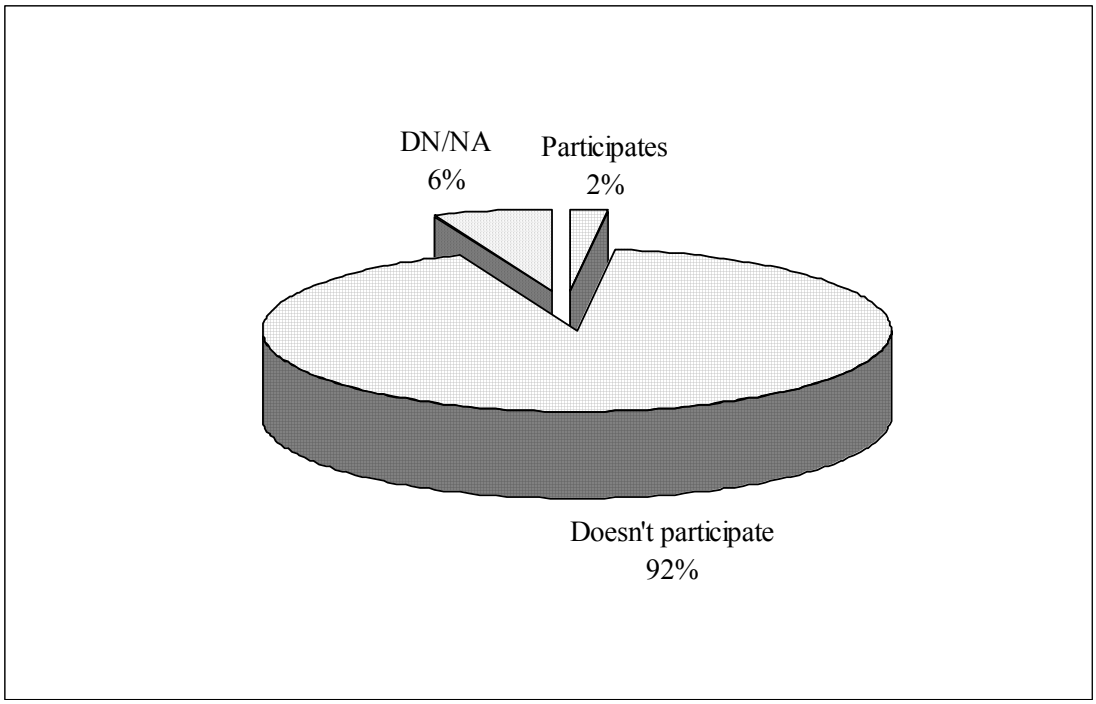


Figure 66: Participation in platforms for e-commerce

	%
1 We are very advanced	0
2	1,0
3	4,0
4	2,0
5 We are much less advanced	6,0
Don't use at all	83,0
DK/NA	4,0

Table 36: Degrees of employment of e-commerce in comparison to other companies in the same field

In practice, the application of various aspects of electronic trade is weakly developed and is not used by the companies in this economic sector *(*Figure 66*)*. The reasons are hard to be sought in the insufficient information, but rather in the fact that this form of trade is less widespread, as well as in the low technical level of the companies.

	1 Very Concerned	***2***	***3***	***4***	***5 Not at all concerned***	***DK/NA***
Cost of implementation	14,0	9,0	9,0	10,0	26,0	32,0
Service reliability	11,0	15,0	14,0	8,0	23,0	29,0
On going support	12,0	8,0	17,0	10,0	25,0	28,0
Confidentiality / security	19,0	14,0	15,0	2,0	21,0	29,0
Other	1,0	0,0	0,0	0,0	2,0	97,0

Table 37: Negative consequences from the employment of various aspects of e-commerce

- Together with the lowered technical abilities regarding alternative means of trade, the small and medium entrepreneur is faced also by other problems, which would significantly impede the businessperson to start using electronic means of trade. For nearly every fifth respondent, the transactions effected in electronic way harbour immense perils related to preservation of confidentiality and security of information, bargain procedures and other aspects of successful commercial activity *(*Table 37*)*.
- In this respect, reliability is another significant problem. Apprehensions regarding irregular support of electronically provided services also pertain to this group of problems.
- The financial side of the issue is said to be the least problematic. In this sense, the successful introduction, realization, and further development of e-commerce should begin with the solution of problems of functioning and service support.

C. COMPANY TRADING PRACTICES

Most of the trading with suppliers and customers is done locally, as can be seen from Table 38 below, with a small percentage nationally, and an insignificant percentage internationally.

	1 Extensive	***2***	***3***	***4***	***5 Not at all***	***DK/NA***
Local	72,0	15,0	9,0	2,0	1,0	1,0
National	12,0	19,0	21,0	20,0	25,0	3,0
International	2,0	0,0	11,0	6,0	71,0	10,0

Table 38: Geographical spread of trading with suppliers and customers

Regular exchange of information about practical aspects of the business, as well as various aspects of joint commercial activities, their prognosis, delivery of materials and raw materials to the stage of actual distribution, are among the major emphases of the interactions among companies (Table 39).

Joint activities, directed at the elaboration of new products or improvement of the existing ones, also fall in the same group.

	1 **Very Important**	***2***	***3***	***4***	***5*** **Not at all important**	***DK/NA***
Joint Product Development	13,0	17,0	16,0	10,0	12,0	28,0
Procurement	58,0	22,0	8,0	1,0	3,0	8,0
Shared Sales Forecast	19,0	32,0	16,0	2,0	8,0	19,0
Business Information Exchange	35,0	21,0	21,0	11,0	2,0	6,0
Research and Development	21,0	27,0	16,0	11,0	3,0	15,0
Marketing Agreements	14,0	12,0	16,0	9,0	10,0	23,0
Distribution Support	12,0	9,0	12,0	13,0	6,0	33,0
Other	0,0	0,0	2,0	0,0	0,0	11,0

Table 39: Significance of joint activities with trade partners (%)

The introduction and automation of these activities by means of working regional zones for e-commerce would considerably improve their functioning and would greatly facilitate the entrepreneurs in their cooperative commercial activities.

	1 ***Use extensively***	***2***	***3***	***4***	***5*** ***Not at all***	***DK/NA***
Email	15,0	6,0	10,0	9,0	57,0	3,0
E-catalogues	4,0	6,0	6,0	10,0	68,0	6,0
Fax	49,0	8,0	6,0	1,0	34,0	2,0
Paper based materials	49,0	14,0	3,0	10,0	23,0	1,0
Other:	2,0	0,0	1,0	0,0	15,0	82,0

Table 40: Employment of some basic means of exchange of information with deliverers and clients (%)

- The representatives of the small and medium construction businesses rarely use the contemporary means of electronic exchange of information. Faxing and printed materials are still the main means of information exchange *(*Table 40*)*. Specific activities of organizations of this type can be an additional factor of influence.
- A considerable part of the respondents (over half of them) do not use electronic catalogues in their practice and the catalogues themselves are not very popular in fact. This source of information would be extremely useful mostly to companies

occupied with trade with construction materials. A wider advertising campaign of its advantages could significantly contribute to improved business relations in this sphere.

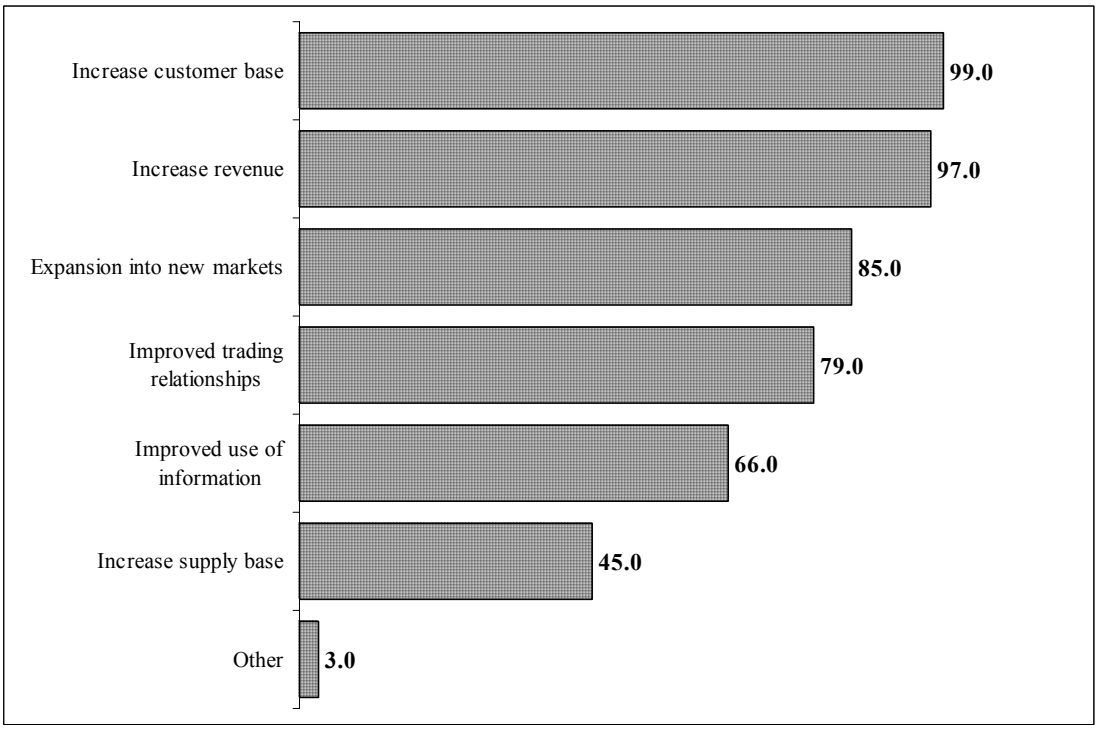


Figure 67: Major business goals

	1 Very important	*2*	*3*	*4*	*5 Not at all important*	*DK/NA*
Increase revenue	90,7	6,2	2,1	0,0	0,0	1,0
Increase customer base	93,9	2,0	2,0	0,0	0,0	2,0
Increase supply base	60,0	20,0	8,9	4,4	2,2	4,4
Expansion into new markets	75,3	21,2	2,4	0,0	0,0	1,2
Improved use of information	50,0	33,3	7,6	7,6	0,0	1,5
Improved trading relationships	58,2	32,9	6,3	1,3	0,0	1,3

Table 41: Significance of the major business goals for the respective organization (%)

- Generally, the goals of business managers working in the field of construction are related to immediate and daily tasks and are less directed in long-term perspective.
- For the majority of the respondents, the leading goals of a successful business are purely economic - raise of profits and increase of clients *(*Figure 67*)*.
- Widening the scope of activity of companies and improvement of business interactions constitute the second most important group of goals.

Threats	*1 Very important threat*	*2*	*3*	*4*	*5 No threat at all*	*DK/NA*
Increased competition	46,0	13,0	22,0	11,0	8,0	0,0
Geographical constrains	5,0	28,0	22,0	16,0	22,0	7,0
Regulatory / legal aspects	17,0	39,0	17,0	11,0	12,0	4,0
Trust / security issues	15,0	23,0	34,0	15,0	12,0	1,0
Lack of e-commerce capability	1,0	4,0	8,0	21,0	34,0	32,0

Table 42: Main threats endangering the business goals attainment

- The evaluations of problems impeding the successful attainment of business goals are in the same vein. Competition is among the most disturbing factors for the greatest part of the entrepreneurs since it is related to the daily business operation *(*Table 42*)*. The legal restrictions are among the most serious impediments in this group.
- Although the lack of e-commerce is put forward as a problem area, it takes the last place after all other problems *(*Table 42*)*. Obviously, the mass inflow of information technologies in businesses does not yet seriously affect the field of construction and trade with construction materials. Therefore, launching a platform for e-commerce should commence with raising the awareness of the entrepreneurs and convincing them of the positive aspects of such an initiative.

	1 Very Important	*2*	*3*	*4*	*5 Not at all important*	*DK/NA*
Finding trading partners through online search of company profiles.	30,0	13,0	7,0	8,0	7,0	35,0
Negotiating agreements that would serve as the terms and conditions of trading with particular trading partners	26,0	16,0	11,0	7,0	7,0	33,0
Joint product / service development with partners	14,0	20,0	15,0	7,0	12,0	32,0
Marketing Campaign Management	12,0	16,0	15,0	6,0	11,0	40,0
Exchanging documents and information for business transactions	17,0	19,0	12,0	6,0	12,0	34,0

Table 43: Necessity of automation of some basic commercial functions through a platform for e-commerce such as LAURA

- According to the estimates of the predominant part of the respondents, further activities related to the LAURA project would find wide application mostly in the improvement of the inter-company communications *(*Table 43*)*.
- In more concrete terms, the application of IT in elaboration and employment of standard conditions and terms of trade, prompt detection of business partners in an electronic way and not least - electronic exchange of official documents can be considered the main advantages that this project would bring for the entrepreneurs.

BUSINESS TRANSACTIONS	***1 Very important***	***2***	***3***	***4***	***5 Not at all important***	***DK/NA***
Product searching & info (price, availability)	41,0	23,0	11,0	4,0	4,0	17,0
Purchase order (Create,change,request etc)	29,0	21,0	22,0	4,0	4,0	20,0
Shipment, logistics, customs procedures / status	19,0	16,0	15,0	7,0	13,0	30,0
Invoice (Create, match, payment status, etc)	28,0	19,0	13,0	9,0	7,0	24,0
Post Sales (warranties, service packages, etc)	21,0	26,0	14,0	6,0	8,0	25,0

Table 44. Degree of significance of some major types of information exchange on business transactions

- The information technologies are first of all a means for easier discovery and dissemination of information. According to the evaluations of the businesspersons, this provides great advantages in business transactions in general. The remaining modifications of the same process are also considered important for the daily functioning of the small and medium business *(*Table 44*)*.

D. IT INFRASTRUCTURE

The IT structure of the SMEs in the construction field exhibits several typical characteristics:

- First, the introduction of IT in the working environment of these companies can be estimated as medium or relatively high. Considerably above half of the respondents declare that their companies dispose of at least one computer, while every fifth company has more than five computers. (Figure 68).
- Relatively high variety characterizes the peripheral equipment that companies of this type dispose of. In the general case, the technical means of the majority of the surveyed companies are limited to some basic equipment such as printers and scanners. However, a considerable number of the respondents declare also that they have equipment for recording CD *(*Figure 69*)*.

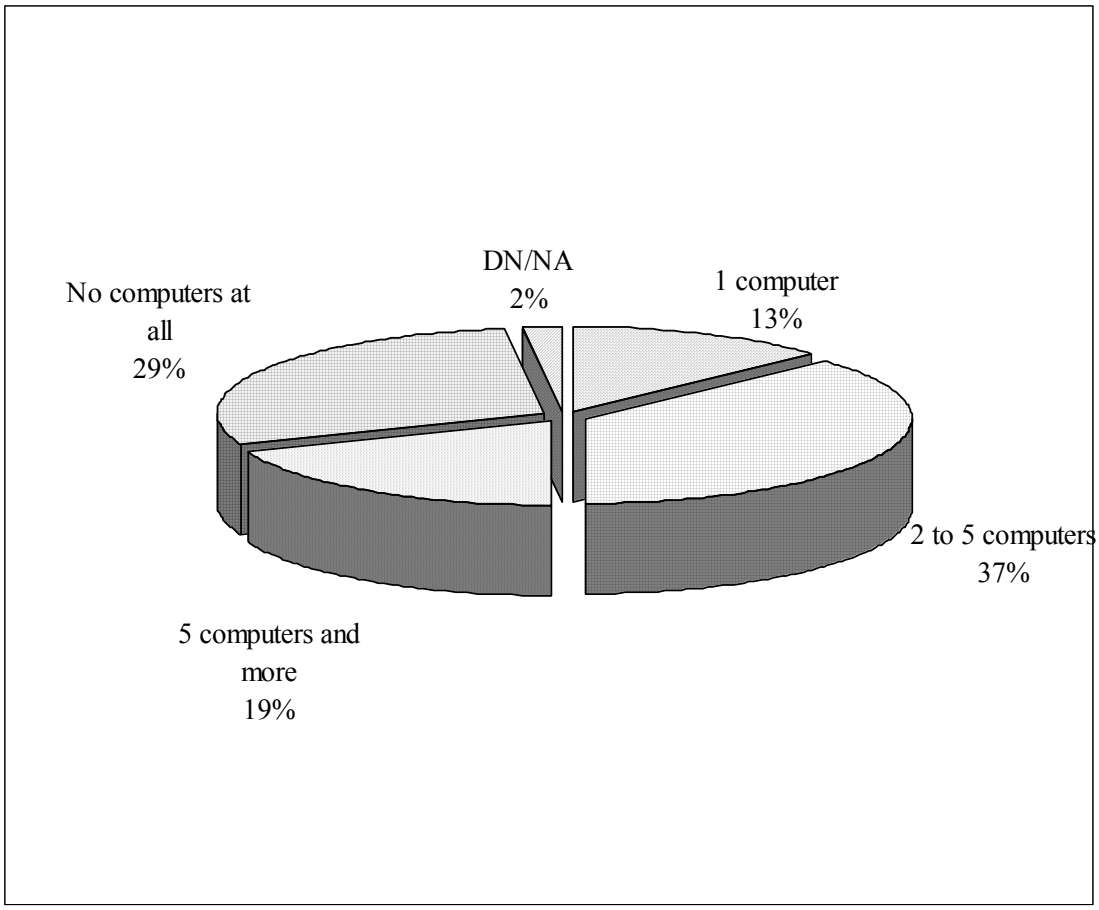


Figure 68: Total number of computers in the organizations

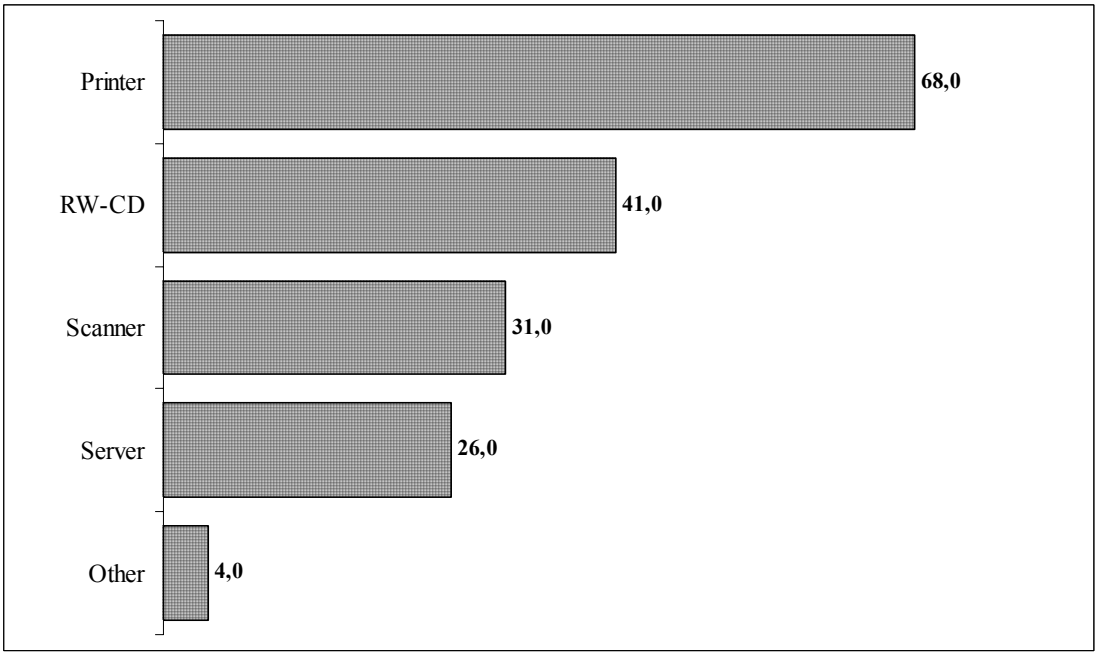


Figure 69: Peripheral devices

- Only about one tenth of the companies have a network infrastructure and opportunities to exchange data within the companies *(*Figure 70*)*.

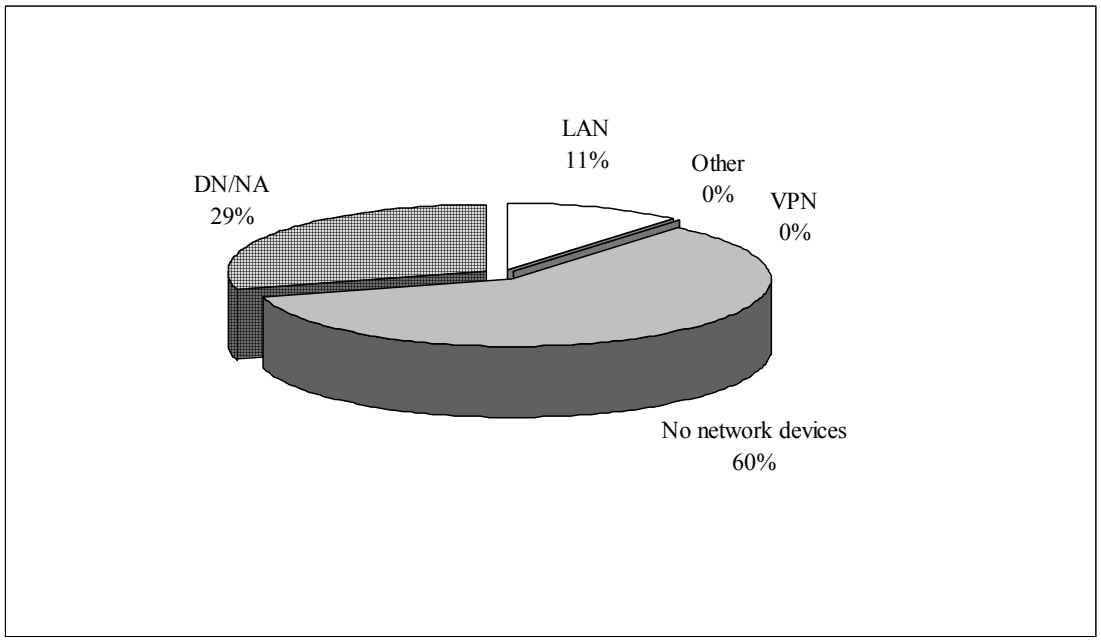


Figure 70 : Network devices

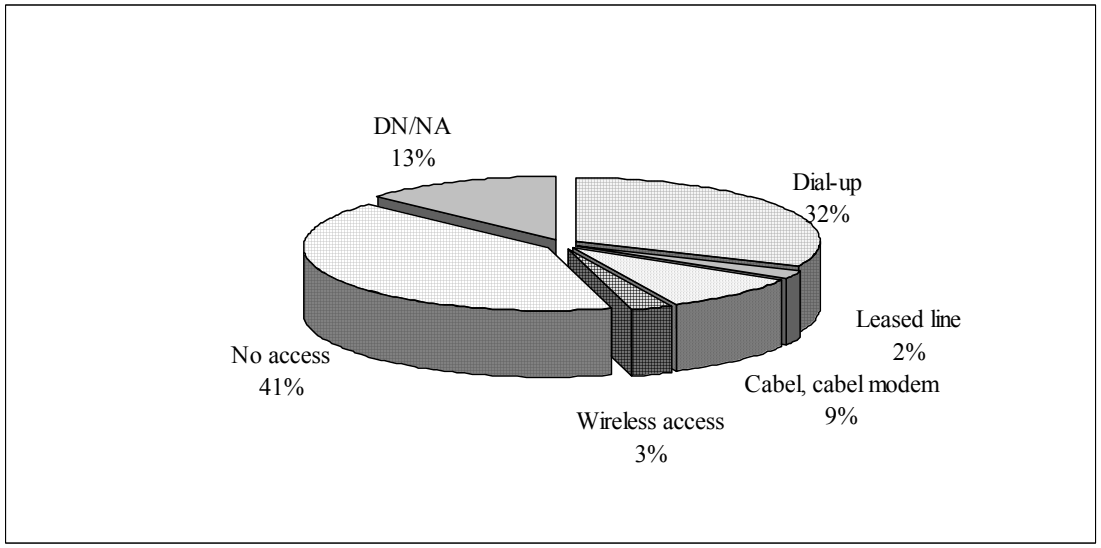


Figure 71: Type of Internet connection

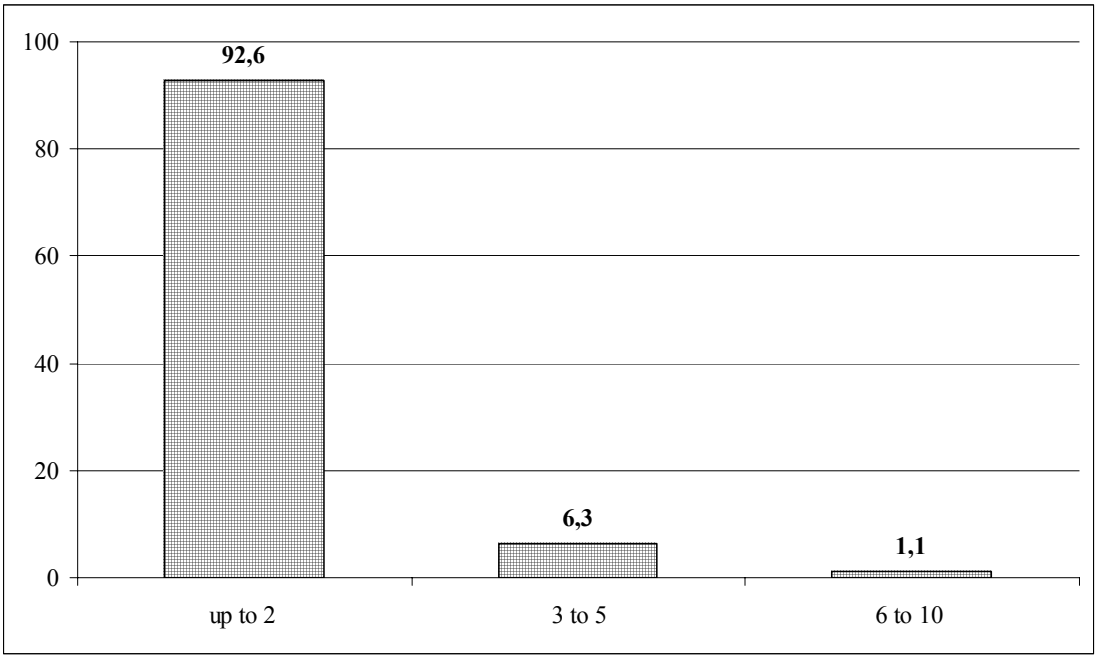


Figure 72: Number of computer specialists (IT specialists)

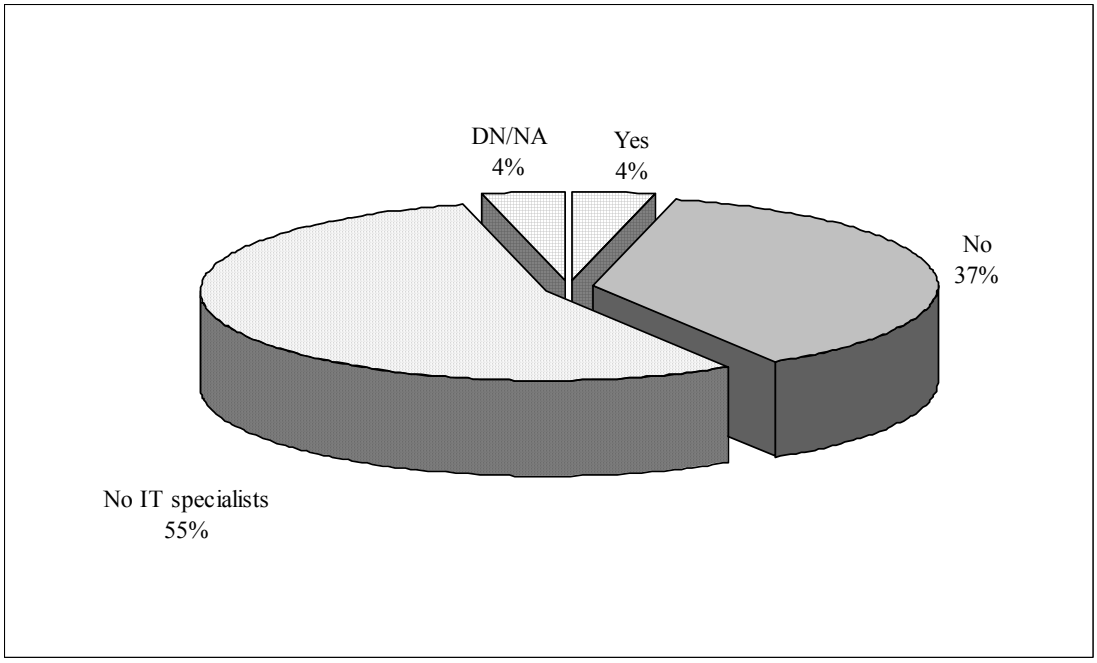


Figure 73: Availability of a training system for computer specialists

- In the majority of the companies, there are one or two computer specialists. The small scope and specific activity of the companies in this sector are among the main reasons accounting for the above fact *(*Figure 72*)*.
- Most of the SMEs in the construction field do not have established programs for training of computer specialists. The reasons are to be sought in the small number of persons employed in this sphere. *(*Figure 73*)*.

E. LAURA PROJECT INTEREST

- The expressed interest in regards to the project for establishment of a platform for e-commerce LAURA can be estimated as moderate. Generally, the reasons relate to the low popularity of the information technologies in this sector, as well as the general problems encountered by the businesspersons every day.
- About one fourth of the companies expressed willingness for further research under this project and demonstrated marked interest about the results of the current survey *(*Figure 74*)*.
- Nevertheless, nearly one fifth of the company managers estimate the participation in the pilot project as an insignificant activity *(*Table 45*)*.

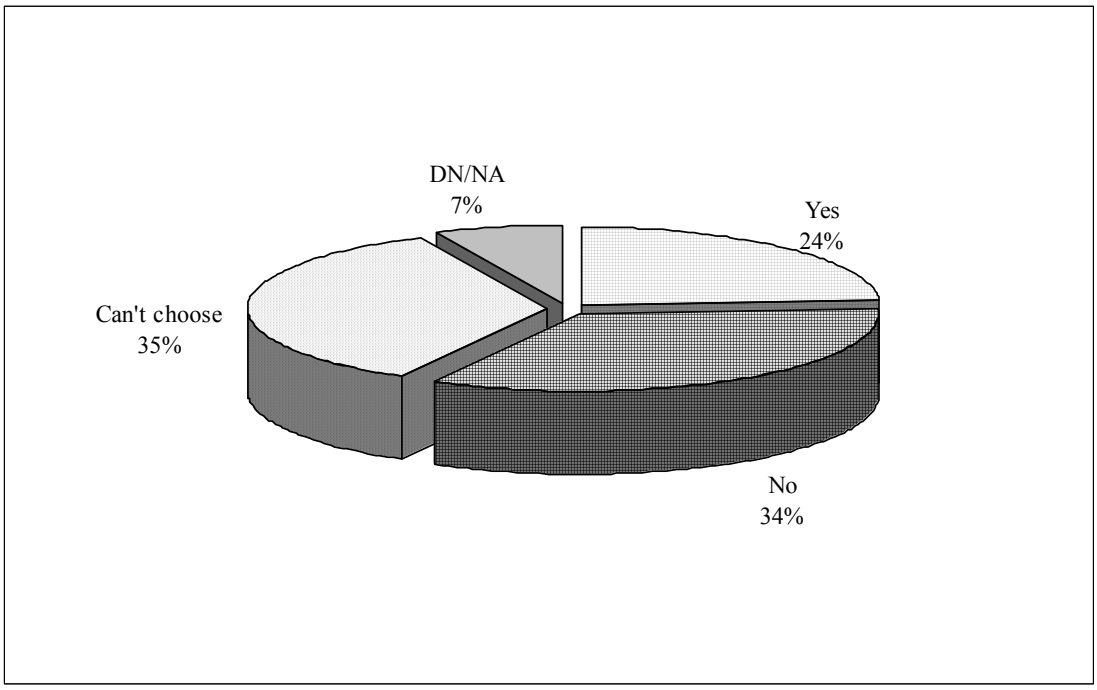


Figure 74: Willingness for additional research on the LAURA project

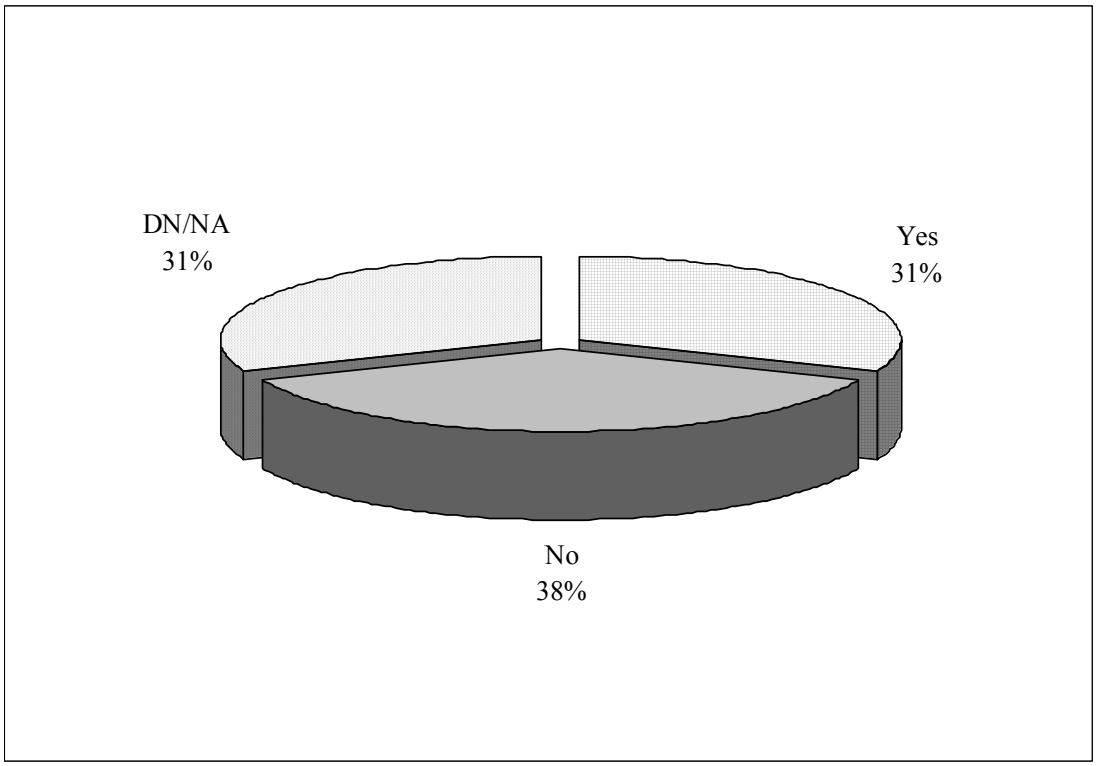


Figure 75: Willingness to receive summarized results

	%
1 Very Useful	11,0
2	13,0
3	17,0
4	18,0
5 Not at all useful	18,0
DN/NA	23,0

Table 45: Significance of involvement in the pilot phase of the LAURA project

4.3.3. Sector Agriculture – Food-Processing - Biotechnologies

Based on 21 Questionnaires

A. COMPANY PROFILE

The profile of the companies operating in the sector of agriculture can be summed up as follows:

- Half of the companies employ up to 10 people, and for 55.6% the annual turnover does not exceed € 150,000; 20% have a staff of up to 50, and one fourth of the companies employs up to 250 people. Barely 5% of the companies employ more than 250 people.
- About 30% of the companies placed themselves in the turnover category – between € 500,000 and € 1,500,000.
- The largest share of the companies surveyed (40%) have been operating in this sector for a relatively short time – 1-5 years.
- English is the most commonly used foreign language for business purposes. *(*Figure 76*)*

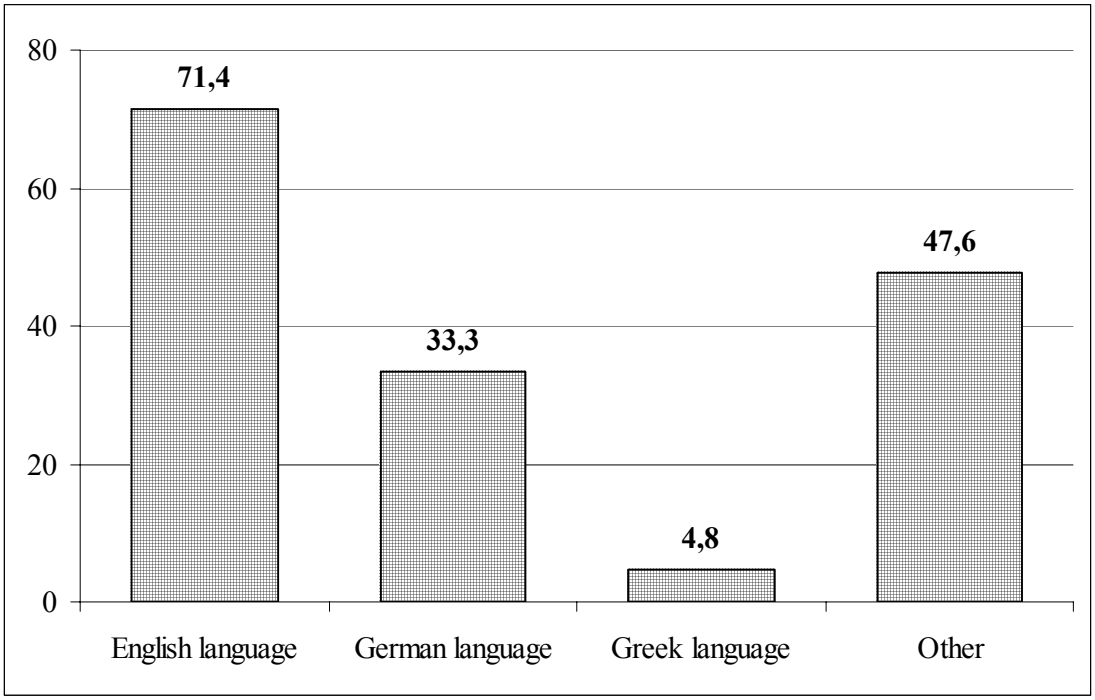


Figure 76: Foreign languages used in business operations

B. E-COMMERCE AWARENESS

	%
1 Very Familiar	0
2	9,5
3	4,8
4	14,3
5 Not familiar at all	71,4

Table 46: Awareness of the nature and conditions for electronic trade

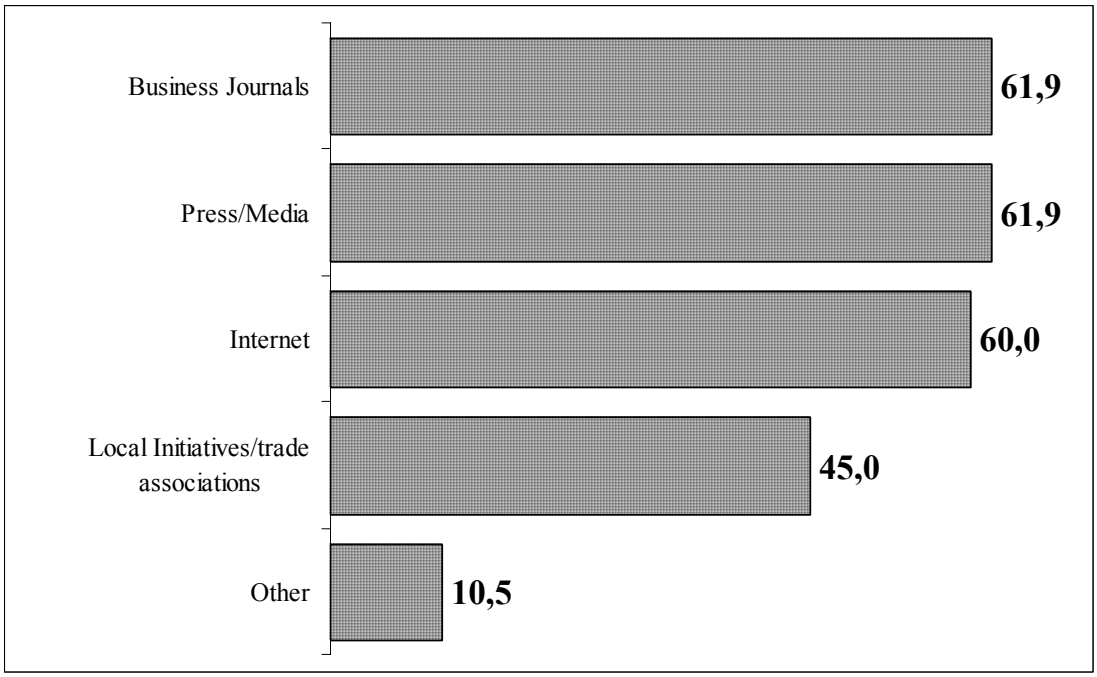


Figure 77: Commonly used sources of information about e-trade (%)

	Very important	*Medium important*	*Not important at all*	*DK/NA*
Press / Media	38,5	46,2	15,4	0,0
Business Journals	53,8	23,1	7,7	15,4
Internet	75,0	8,3	8,3	8,3
Local Initiatives / trade associations	55,6	22,2	11,1	11,1
Other	50,0	0,0	0,0	50,0

Table 47: Ranking of the sources of e-trade information used

- To the majority of the surveyed representatives of small and medium-sized business in the sphere of agriculture, the nature of e-trade and e-trade platforms proved an unfamiliar and unexplored area. The share of those who said they were aware of this modern means of business communication was insignificant compared to that of the respondents who were completely unfamiliar with it (Table 46).
- The most commonly cited sources of information about e-trade were the specialized publications, the mass media, and the Internet *(*Figure 77*)*.
- The ranking of these sources of information was similar, with leading importance attached to the Internet. On the other hand, the implementation of various local e-trade projects was cited as one of the most important sources of information. Yet its use is still uncommon in the practice of the majority of the companies. In this case, this source of information calls for future exploration and development (Table 47).

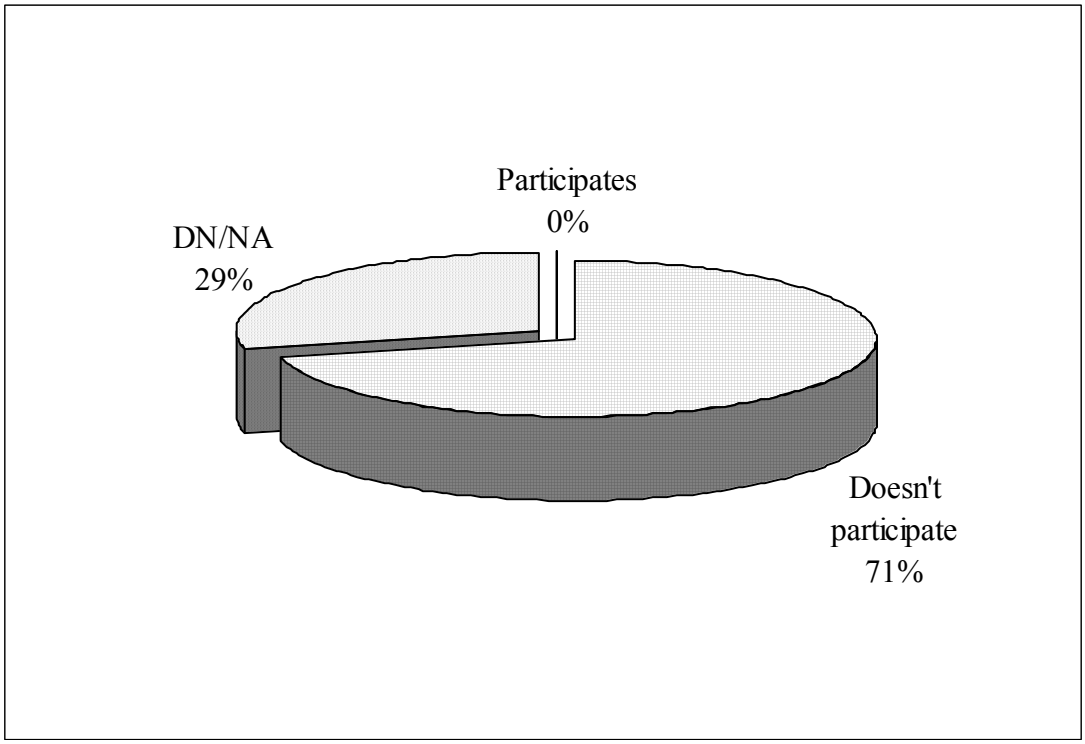


Figure 78: Participation in e-trade platforms

	%
1 We are very advanced	0
2	0
3	0
4	0
5 We are much less advanced	52,4
We don't use	4,8
DK/NA	42,9

Table 48: Rate of e-trade use compared to other companies in the same sector

- The practical application of the various aspects of e-trade proved weakly developed and largely unexplored by the companies in this sector of the economy *(*Figure 78*)*. The reasons for this could be sought in the low awareness, as further evidenced by the large share of respondents who failed to answer this question.

	1 Very Concerned	*2*	*3*	*4*	*5 Not at all concerned*	*DK/NA*
Cost of implementation	0,0	5,0	15,0	5,0	5,0	70,0
Service reliability	25,0	5,0	10,0	10,0	0,0	50,0
On going support	5,0	25,0	5,0	0,0	5,0	60,0
Confidentiality/security	28,6	9,5	4,8	0,0	4,8	52,4
Other	0,0	0,0	0,0	0,0	0,0	100,0

Table 49: Drawbacks of e-trade use

- Along with the weak popularity of the alternative trade forms, there proved to be a number of problems preventing small and medium business owners from starting to use e-trade. Almost one in four thought electronic transactions involved risks related to the reliability and security of the information, the proper performance of transaction procedures, and other aspects of successful trading (Table 49).
- Preserving confidentiality was another non-negligible problem in this respect. Concerns about the irregular maintenance of electronic services could also be referred to this group of problems.
- In this sense, the successful introduction, implementation, and subsequent development of e-trade need to start with addressing these particular issues.

C. COMPANY TRADING PRACTICES

	1 Extensive	*2*	*3*	*4*	*5 Not at all*	*DK/NA*
Local	28,6	4,8	14,3	4,8	4,8	42,9
National	25,0	5,0	15,0	10,0	10,0	35,0
International	15,0	20,0	5,0	5,0	10,0	45,0

Table 50: Geographic scope of the company in terms of clients and suppliers

	1 **Very Important**	*2*	*3*	*4*	*5 Not important at all*	*DK/NA*
Joint Product Development	42,9	14,3	4,8	0,0	0	38,1
Procurement	14,3	23,8	4,8	4,8	0	52,4
Shared Sales Forecast	42,9	4,8	14,3	9,5	0	28,6
Business Information Exchange	57,1	14,3	4,8	0,0	0	23,8
Research and Development	19,0	4,8	0,0	4,8	0	71,4
Marketing Agreements	42,9	9,5	14,3	0,0	0	33,3
Distribution Support	47,6	9,5	0,0	9,5	0	33,3
Other	0,0	0,0	0,0	5,0	0	95,0

Table 51: Importance of the joint activities with business partners (%)

- Most of the trading activities of the companies are done at local level, with some being carried out nationally and internationally (Table 50).
- The regular exchange of information about business operations, as well as the various aspects of joint business activity, from forecasting to actual distribution, emerged as the main issues in company inter-relations (Table 51).
- This category also comprises the joint activities related to new product development or improving any existing such products.
- In this sense, the introduction and automation of these processes would considerably enhance their operation and greatly facilitate entrepreneurs in their joint business activities.

	1 Extensively	*2*	*3*	*4*	*5 Not at all*	*DK/NA*
Email	42,9	4,8	14,3	0,0	14,3	23,8
E-catalogues	19,0	4,8	0,0	4,8	19,0	52,4
Fax	47,6	14,3	4,8	0,0	0,0	33,3
Paper based	47,6	14,3	14,3	0,0	0,0	23,8
Other	5,0	5,0	0,0	0,0	0,0	90,0

Table 52: Use of certain basic means of exchanging information with suppliers and clients (%)

- Modern means of electronic exchange of information were still rarely used by the representatives of small and medium businesses in the agricultural sector. Communication by fax and print materials still proved to predominate (Table 52).
- To a considerable number of respondents (nearly one in five), electronic catalogues were largely unfamiliar and not used in practice.

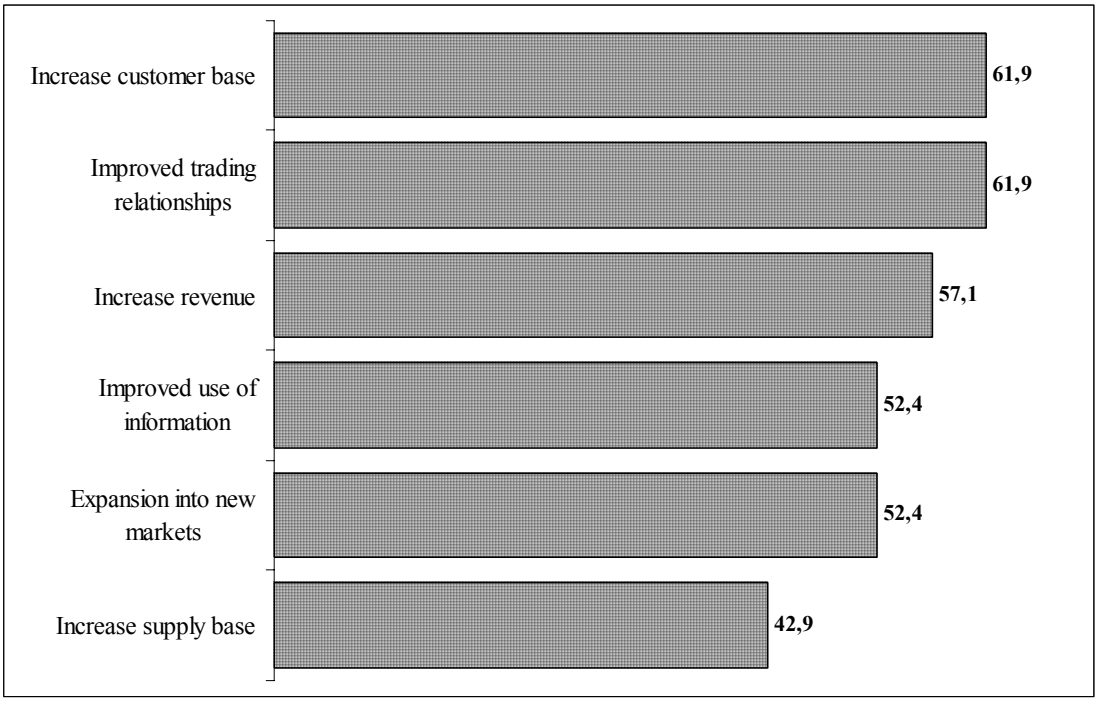


Figure 79: Main business goals

	1 Very important	*2*	*3*	*4*	*5 Not important at all*	*DK/NA*
Increase revenue	50,0	16,7	16,7	0,0	8,3	8,3
Increase customer base	84,6	15,4	0,0	0,0	0,0	0,0
Increase supply base	55,6	33,3	0,0	11,1	0,0	0,0
Expansion into new markets	63,6	18,2	9,1	0,0	0,0	9,1
Improved use of information	72,7	27,3	0,0	0,0	0,0	0,0
Improved trading relationships	69,2	23,1	7,7	0,0	0,0	0,0

Table 53: Ranking of the main business goals of the respective organization (%)

- To the majority of the respondents the leading motives of successful business were associated with attracting more customers and improving business inter-relations, rather than increasing profits *(*Figure 79*)*.
- The proper use of the information was also deemed an important business goal. In fact, according to those interviewed, correct and ethical contacts with the other companies in the sector constituted a crucial element of proper business operation.
- It was in this context that the respondents assessed the problems impeding the successful achievement of the goals in business. The largest number of respondents thought the lack of trust between partners accounted for a large part of the problems faced by entrepreneurs (Table 54).

- The absence of electronic trade was also noted as a problematic area faced by entrepreneurs in the pursuit of their business goals. Clearly this deficiency is becoming ever more tangible with the extensive advancement of information technologies in business in general (Table 54).

	1 Big threat	***2***	***3***	***4***	***5 No threat at all***	***DK/NA***
Increased competition	9,5	19,0	14,3	0,0	4,8	52,4
Geographical constrains	4,8	14,3	4,8	9,5	9,5	57,1
Regulatory / legal aspects	23,8	9,5	9,5	9,5	0,0	47,6
Trust / security issues	42,9	19,0	4,8	4,8	0,0	28,6
Lack of e-commerce capability	19,0	4,8	0,0	0,0	14,3	61,9

Table 54: Main threats to the achievement of business goals

	1 Very Important	***2***	***3***	***4***	***5 Not important at all***	***DN/NA***
Finding trading partners through online search of company profiles.	47,6	14,3	9,5	4,8	9,5	14,3
Negotiating agreements that would serve as the terms and conditions of trading with particular trading partners	57,1	4,8	4,8	0,0	4,8	28,6
Joint product / service development with partners	42,9	4,8	14,3	0,0	14,3	23,8
Marketing Campaign Management	38,1	4,8	19,0	0,0	9,5	28,6
Exchanging documents and information for business transactions	47,6	4,8	4,8	0,0	9,5	33,3

Table 55: Need for automation of certain business functions through an electronic platform such as LAURA

- The further activities related to the LAURA Project would find the broadest application mainly in improving inter-company communications (Table 55).
- In more specific terms, the use of IT in negotiating and implementing standard trade conditions and agreements, rapidly finding business partners, and last but not least,

electronic exchange of official documents would be the chief advantages that this project would bring to entrepreneurs;

	1 Very Important	***2***	***3***	***4***	***5 Not important at all***	***DN/NA***
Product searching & info (price, availability)	52,4	9,5	0,0	0,0	0,0	38,1
Purchase order (Create,change,request etc)	38,1	14,3	4,8	0,0	0,0	42,9
Shipment, logistics, customs procedures / status	42,9	9,5	4,8	0,0	0,0	42,9
Invoice (Create, match, payment status, etc)	52,4	4,8	4,8	0,0	0,0	38,1
Post Sales (warranties, service packages, etc)	38,1	4,8	4,8	0,0	0,0	52,4

Table 56: Ranking of certain basic types of exchange of information in business transactions

- In general, the use of IT provides the greatest advantages in terms of the exchange of information. Nearly all aspects of this process were deemed very important to the day-to-day running of small and medium-sized companies in agriculture (Table 56).
- The main ones could be said to be the search for various types of data, as well as the activities related to the financial operations of the companies. The introduction and development of e-trade platforms would facilitate entrepreneurs precisely in the use of these two specific elements of the electronic exchange of information.

D. IT INFRASTRUCTURE

The IT structure of the SMEs operating in the sphere of agriculture has several more notable characteristics:

- The rate of IT integration in the working environment of these companies can be said to be average. One in four companies only has a single computer, and barely one in five has more than five computerized workplaces *(*Figure 80*)*.
- The peripheral equipment of this type of companies is not characterized by great diversity. For the most part, the technical equipment of the companies surveyed was confined to basic devices such as printers and servers, and in some measure, scanners *(*Figure 81*)*.
- Merely about one fifth of the companies have network systems and possibilities for intra-office data exchange *(*Figure 82*)*.

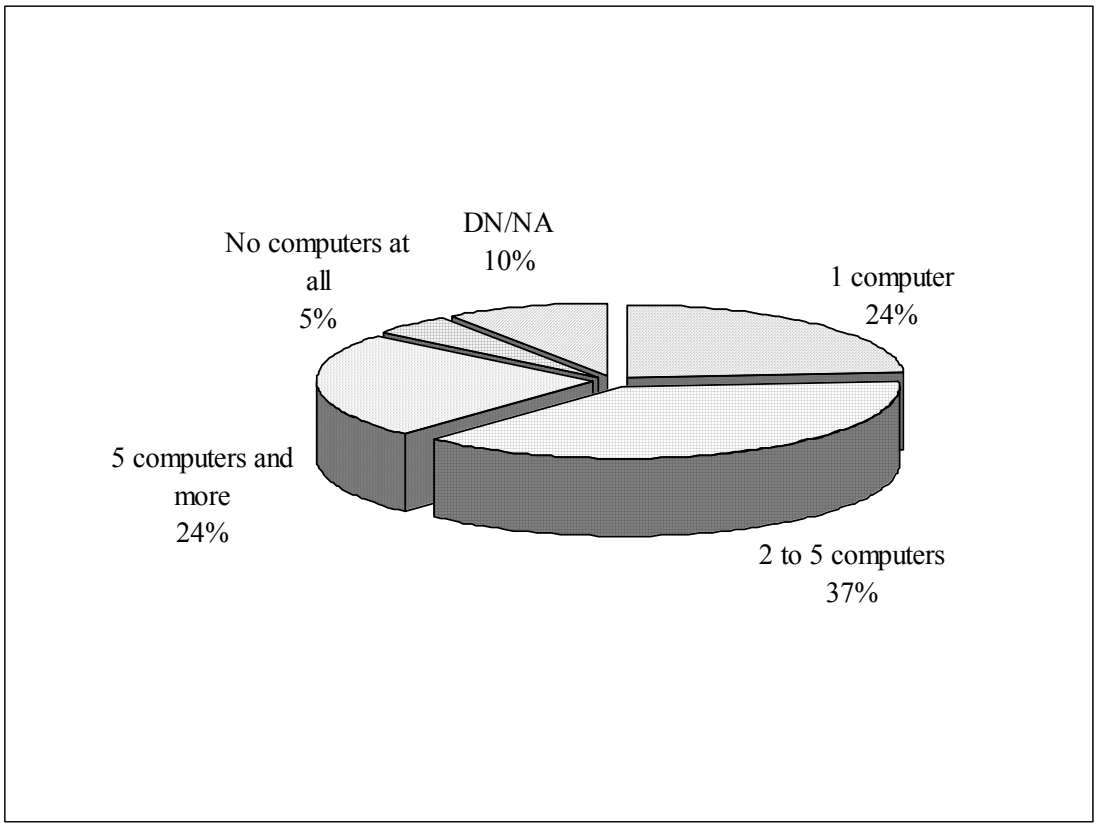


Figure 80: Total number of computers in the organization

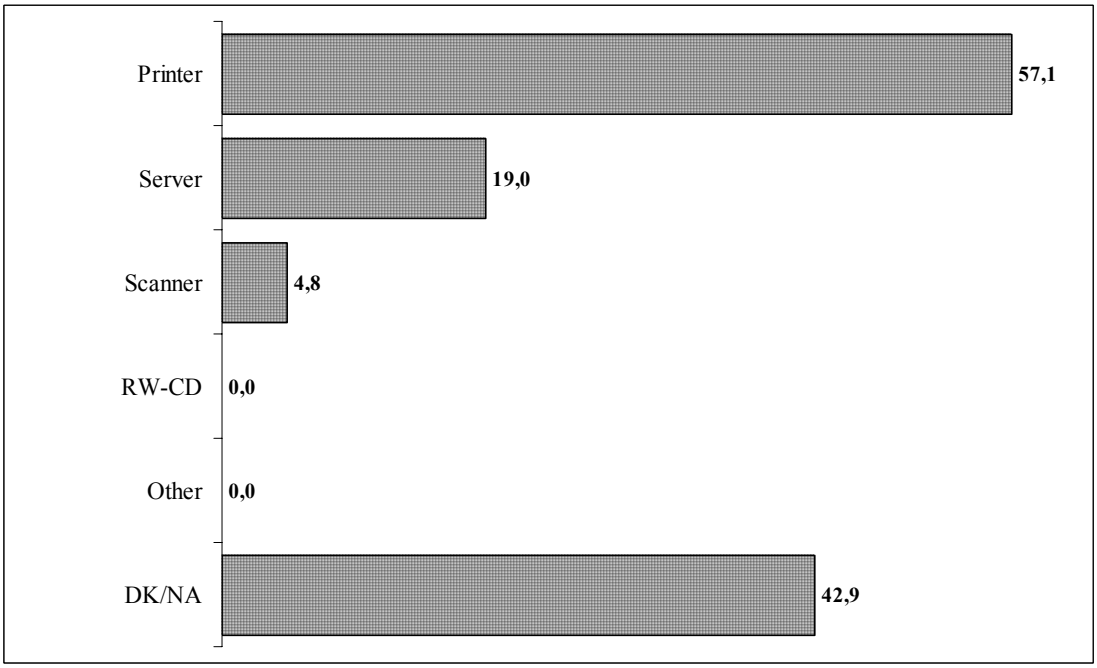


Figure 81: Peripheral equipment

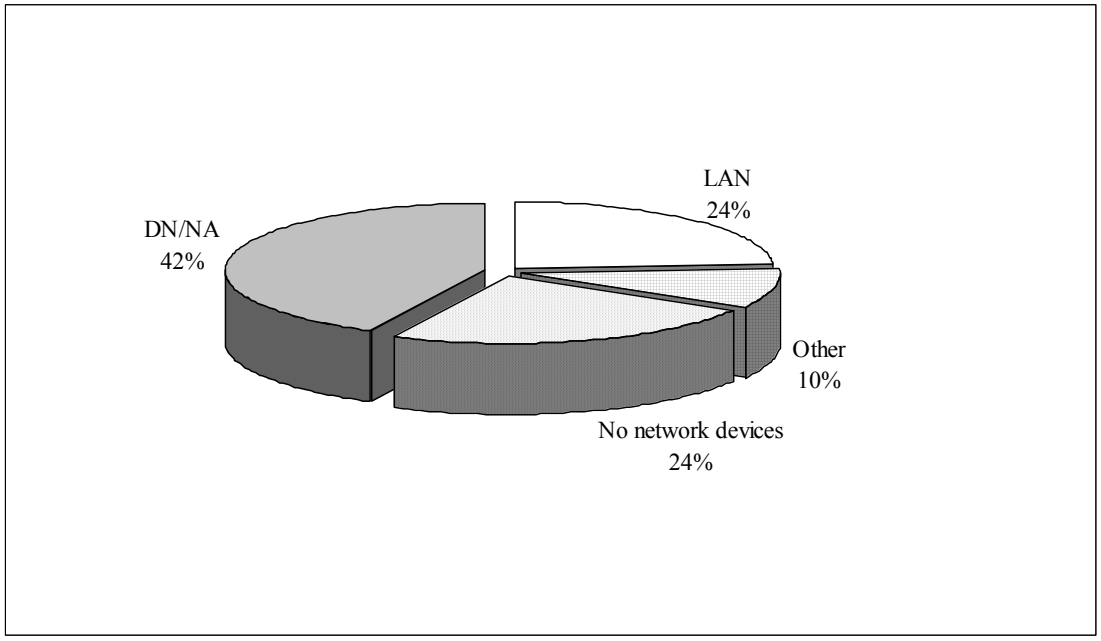


Figure 82: Network devices

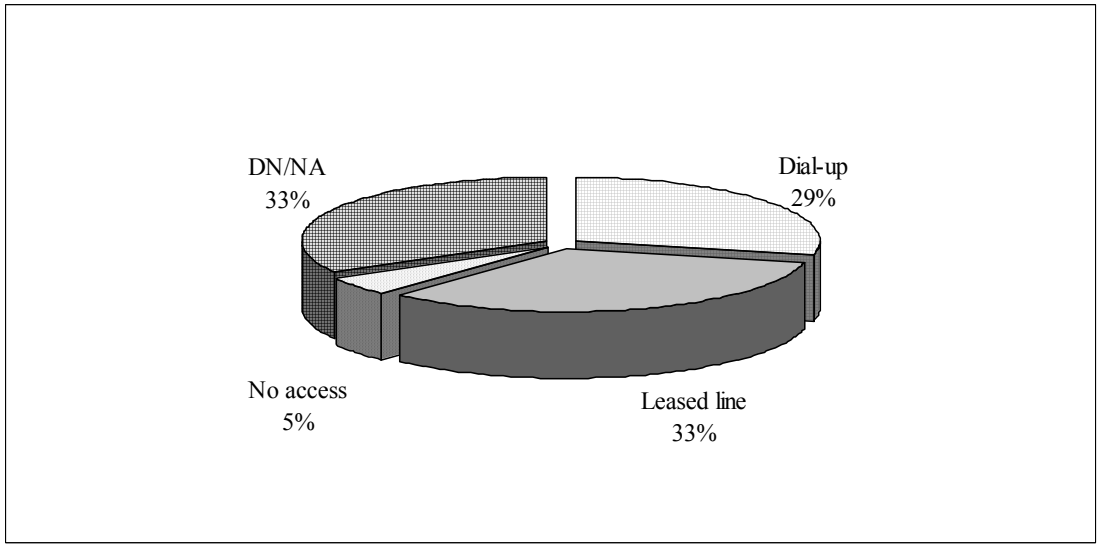


Figure 83: Type of Internet connection

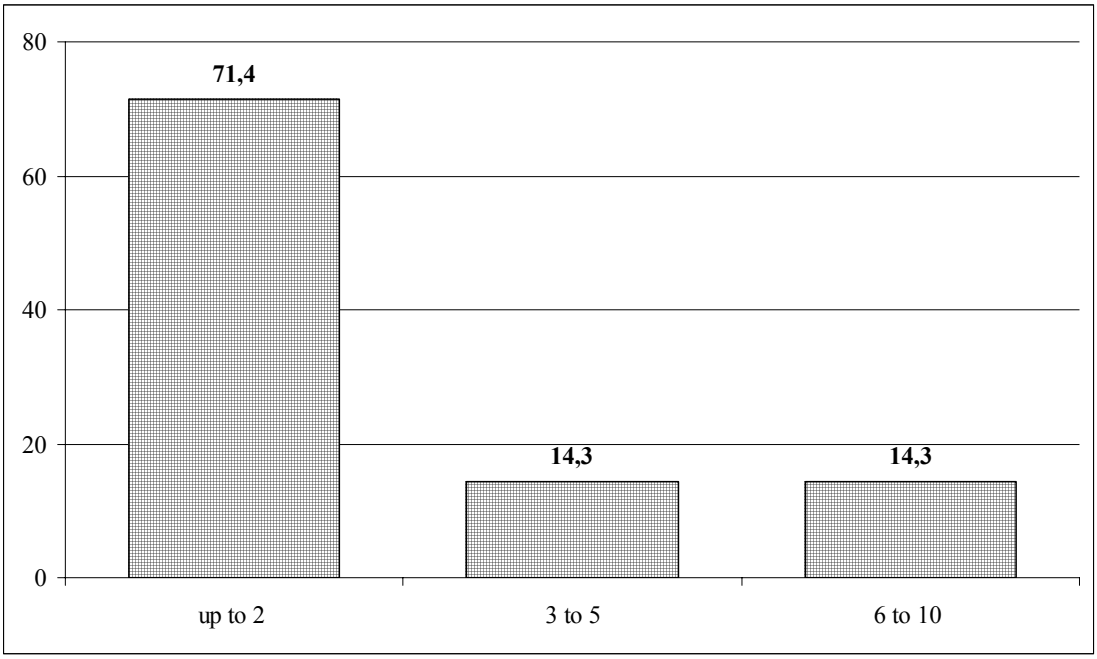


Figure 84: Number of computer (IT) specialists

- About 70% of the companies have one or two computer specialists. The small size and specific activity of the companies in this sector are among the main reasons accounting for this *(*Figure 84*)*.
- The majority of the SMEs operating in agriculture do not have established training schemes for computer specialists. This emerged as a generally unexplored area, as evidenced by the large number of respondents who failed to give a definite opinion.

E. LAURA PROJECT INTEREST

- Notwithstanding the above-mentioned problems related to the IT infrastructure in small and medium-sized companies in agriculture, there appeared very high interest in the LAURA Project for the establishment of an e-trade platform.
- Interest in further studies under this project, as well as in the findings of the present survey, were declared by more than half of the companies *(*Figure 85 and Figure 86*)*.
- About as many deemed participation in the pilot phase extremely important *(*Table 57*)*.

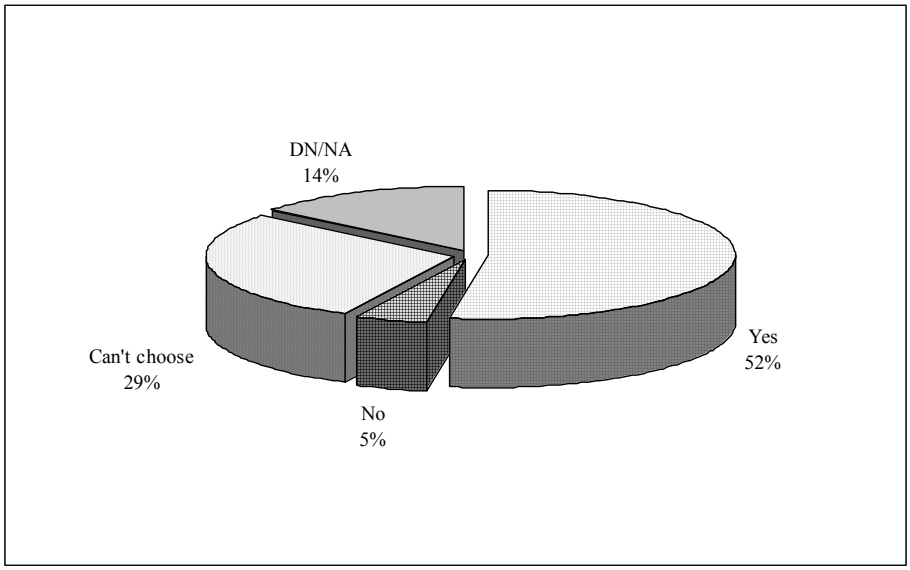


Figure 85: Interest in further studies under the LAURA Project

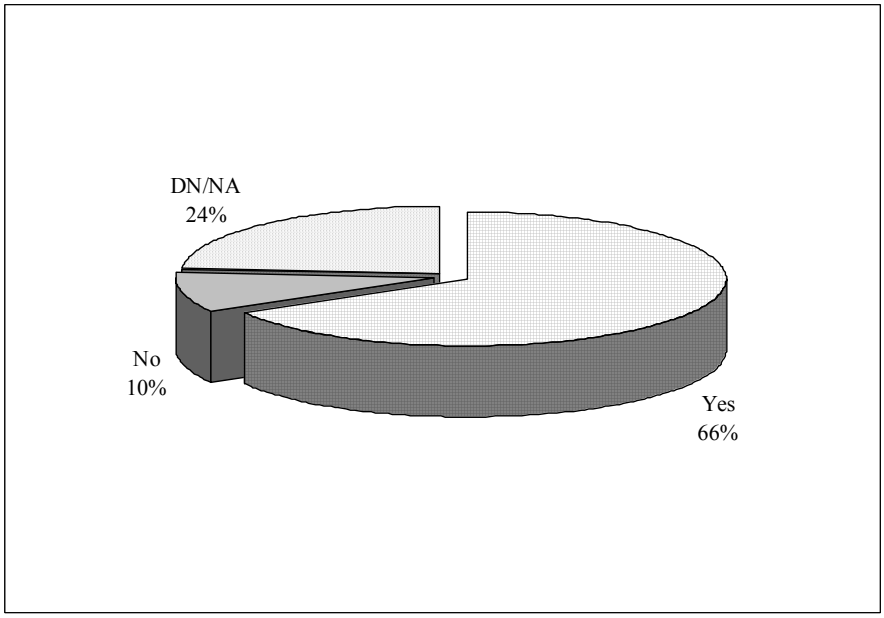


Figure 86: Wish to receive the summarized findings

	%
1 Very Useful	52.4
2	14.3
3	0
4	14,3
5 Not at all useful	4.8
DN/NA	14,3

Table 57: Importance of involvement in the pilot phase of the LAURA Project

4.4 *Germany - Saxony-Anhalt*

Based on 55 answered Questionnaires

The following evaluation is made for the whole of all branches. A separation in branches was not made, due to the small number of surveyed companies. The evaluation refers to the questionnaire regarding the situation of e-Commerce in SME's in the regions the Saxony-Anhalt and Mecklenburg-Western Pomerania.

A. COMPANY PROFILE

The results of the questionnaire indicate that 33% of the enterprises employ a number of co-workers between 10 and 49 (Figure 87). In addition, in sum 58% of the surveyed enterprises employ 10-249 co-workers. It also becomes clear in the evaluation, that 56% of the enterprises generate an annual turnover of more than 1,5Million €. (Figure 88). Therefore, most of the companies that responded to the questionnaire come from the classical medium-sized class in the federal states Saxony-Anhalt and Mecklenburg-Western Pomerania. It is to be emphasized that 69% of the enterprises are older than 11 years (Figure 89).

Branch	***Percent***
Food industry	**48**
Building industry	**23**
Furniture	**8**
Tourism	**2**
Other	**15**
No Comment	**4**

Table 58: Enterprise Branch (%)

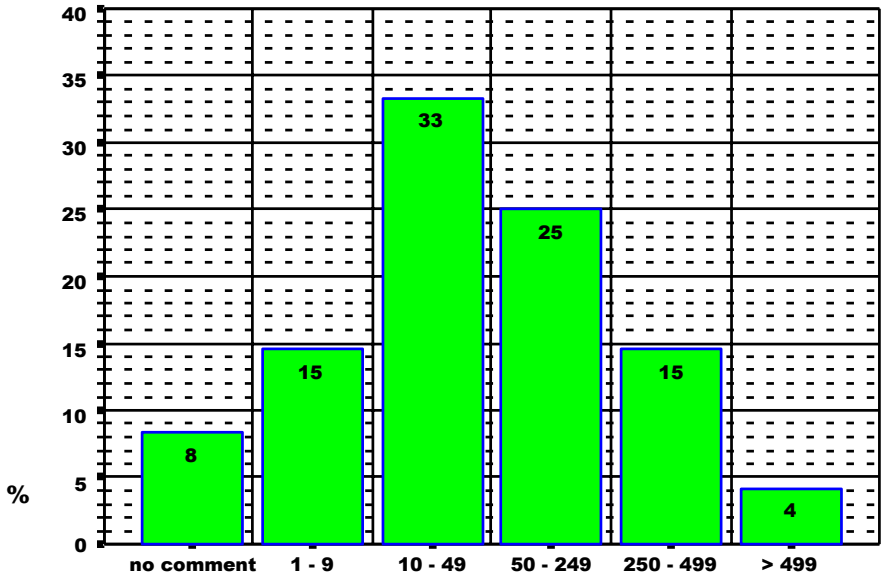


Figure 87: Number of employees in German companies

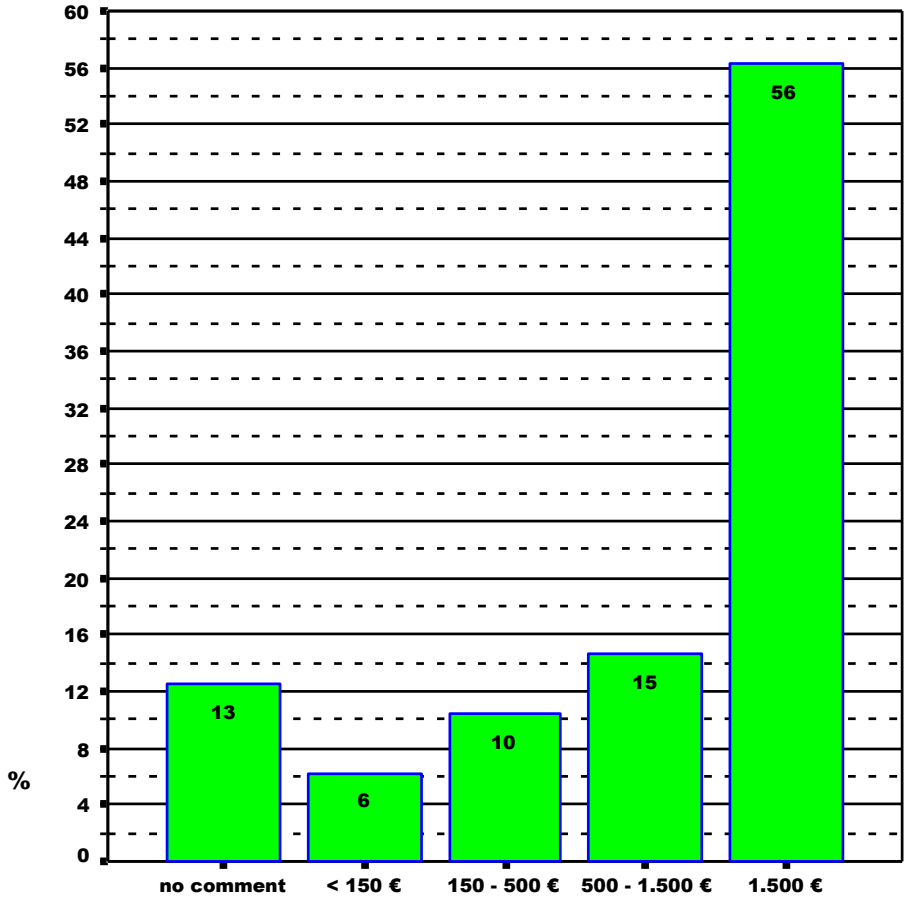


Figure 88: Annual Turnover of German companies

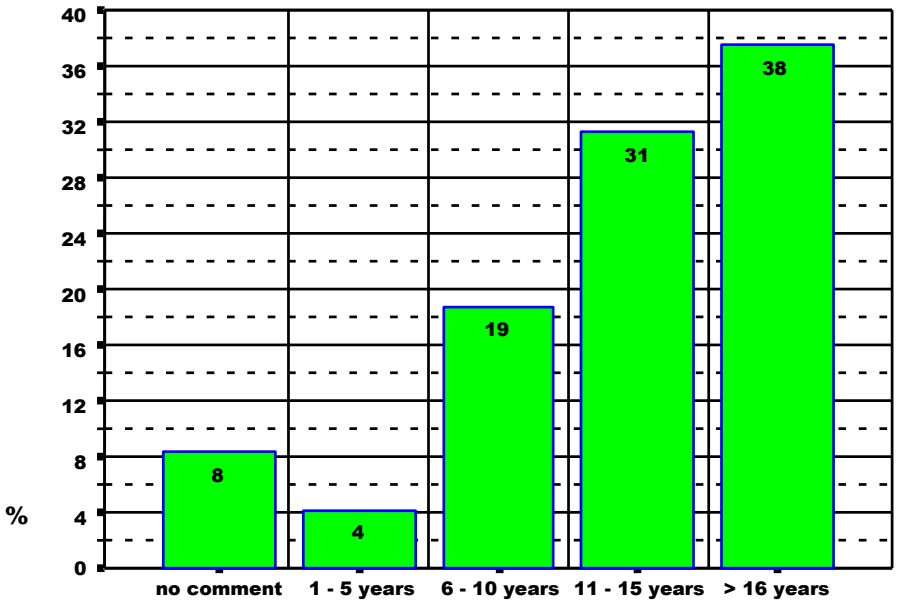


Figure 89: Age of surveyed German companies

B. E-COMMERCE AWARENESS

It becomes clear that 40% of the asked companies are rather familiar with the concepts and requirements of e-Commerce (Figure 90). They connect this with experiences with electronic marketplaces, on-line product catalogues, as well as electronic order procedures. The knowledge about e-trade is extracted from technical periodicals and the Internet. A list of the prioritization of the sources makes this clear (Table 59). It is clearly emphasized that branch federations and local initiatives become less important to the development of knowledge for the topic e-Commerce.

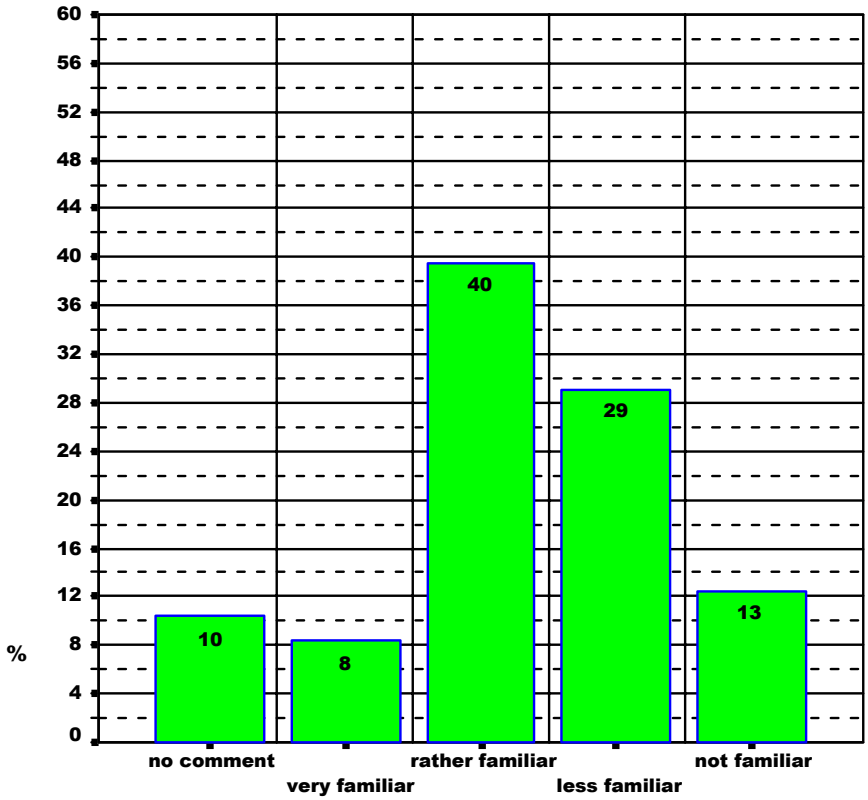


Figure 90: Familiarity with e-commerce

	Very important	*Important*	*Less Important*	*Un-important*	*No Comment*
Internet	19%	29%	17%	6%	*29%*
Business Journals	19%	29%	15%	4%	*33%*
Classified Branch	-	19%	15%	6%	*60%*
Local Initiatives	-	17%	23%	10%	*50%*
Press / Media	6%	25%	23%	6%	*40%*

Table 59: Ranking of the sources of information used

54% of the asked companies do not know any e-commerce initiatives of their enterprise branch (Figure 91), as for example www.grownex.com (foodstuffs industry/sweet goods). Only 10% of the asked persons indicate to have already participated in one or more e-commerce-initiatives of their branch (Figure 92). Due to the small number of responses to the questionnaire, a secured statement about the number of e-commerce participations in the case of the individual branches cannot be made. Nevertheless, the trend becomes clear towards an under-proportional participation in e-Commerce-initiatives in each branch separately (Table 60).

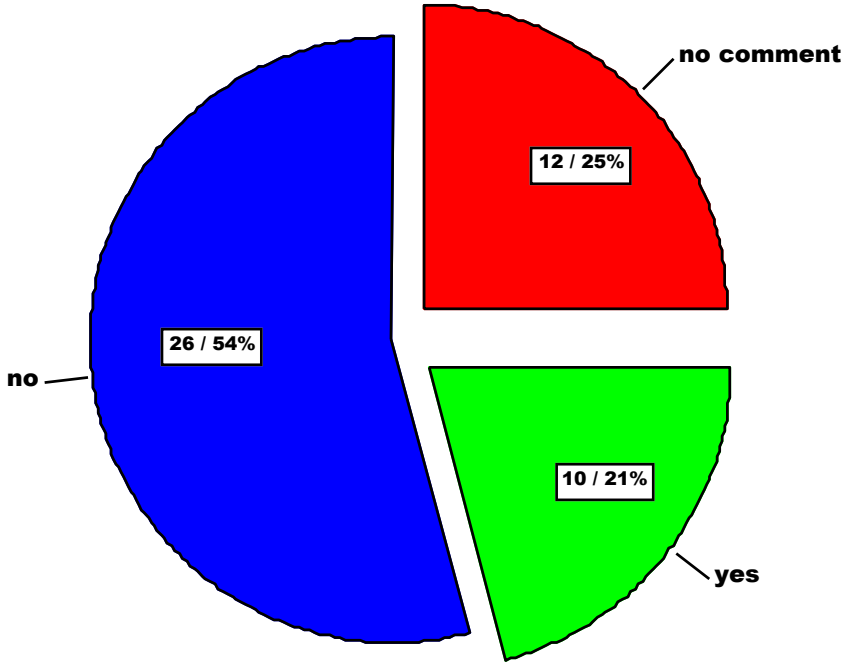


Figure 91: Knowledge of e-commerce initiatives

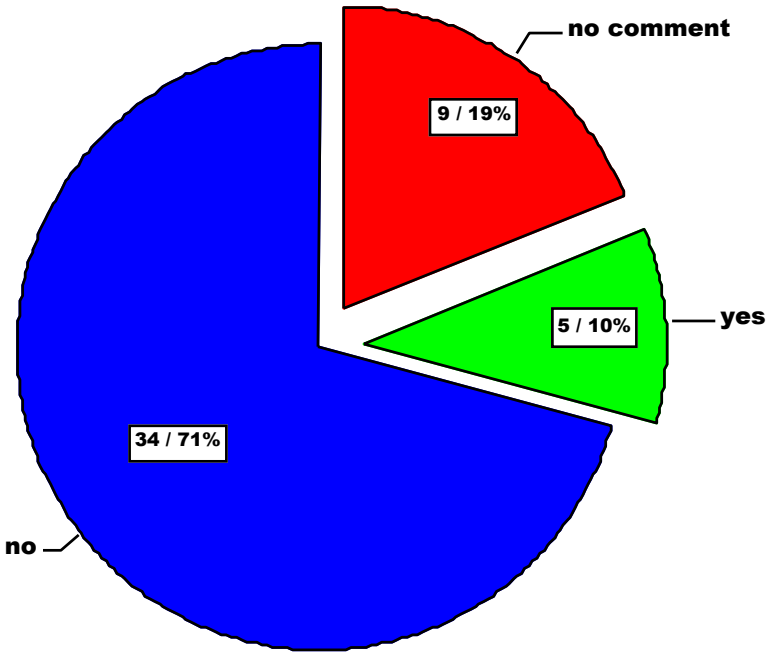


Figure 92: Participation in e-commerce initiatives

	yes	*no*	*No Comment*	*Base*
Food industry	8%	65%	*27%*	*26*
Building industry	23%	69%	*8%*	*13*
Furniture	-	75%	*25%*	*4*
Tourism	-	100%	-	*1*
Other	-	44%	*56%*	*9*

Table 60: Participation in e-commerce initiatives

From the acquired data there cannot be derived a connection between the participation in an e-Commerce initiative and the evaluation of the present e-Commerce position in the region. However, the trend that can be observed is that participants of an already started e-Commerce initiative estimate themselves to be more advanced with the use of the e-Commerce in comparison to their competitors. This trend is not systematically provable by the collection, because of the small sample size.

Nevertheless, 20% of the asked companies indicate, in spite of a clearly small use of the Internet in transactions, to be more progressive with the use of e-Commerce solutions compared with their competitors (Table 61).

	Percent
1 very progressive	4
2 rather progressive	16
3 rather less progressive	20
4 less progressive	15
5 no comment	45

Table 61: Rate of e-trade use compared to other companies in the same sector

Problems with the implementation and use of e-commerce solutions are complexly described by the asked persons. The results of the questionnaire make clear that the high costs to implement e-Commerce solutions are the main problem. More than 45% of the asked companies in this case mention the high costs. Scarcely 1/3 of the companies respond to the question about problems regarding e-commerce solutions with the answers of low customer acceptance as well as the associated low customer use. In addition, the technical and operational realization does not seem to be a problem from the view of the asked companies. A small percentage mentions the qualification of the co-workers as problematic (Table 62).

		yes	rather yes	rather no	no	no comment
High implementation costs	A	**16,4%**	**30,9%**	12,7%	3,6%	36,4%
Low acceptance by the customers	E	**16,4%**	**16,4%**	16,4%	16,4%	34,5%
Low customer use	F	**14,5%**	**16,4%**	20,0%	14,5%	34,5%
Low commitment of business transactions	I	10,9%	9,1%	25,5%	14,5%	40,0%
Lack of security	D	10,9%	9,1%	23,6%	16,4%	40,0%
Missing operative	C	7,3%	18,2%	18,2%	18,2%	38,2%
Qualification of employees	H	7,3%	12,7%	27,3%	20,0%	32,7%
Payment handling	G	5,5%	20,0%	29,1%	14,5%	30,9%
Credibleness	B	5,5%	18,2%	16,4%	20,0%	40,0%

Table 62: Assessment of certain aspects of e-trade

C. COMPANY TRADING PRACTICES

The analysis made clear, that with regards to the geographical allocation of the marketing areas in connection with the suppliers and customers, the regional and national market has the largest value. Three out of four of the asked companies indicate that their suppliers come from the national surrounding field. In comparison between the two groups of the customers and suppliers there is no clear deviation within the regional allocation of the markets. It can be emphasised that the European and international selling constitutes 1/3 of the transactions (Figure 93). Here are to be identified possible starting points for the project LAURA.

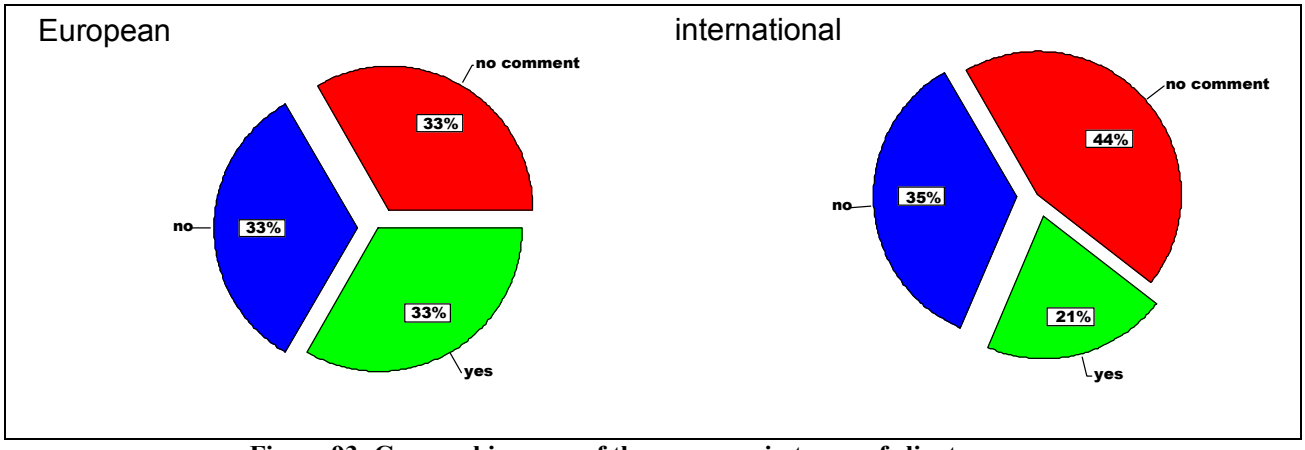


Figure 93: Geographic scope of the company in terms of clients

The focus of the co-operation of the asked enterprises with the business partners is put in particular on the exchange of business information. 58,2% of all enterprises indicates, that

the exchange of business information is important. Beyond that, 41,8% of the enterprises stresses the meaning of marketing agreement in co-operation with their business partners. The point of a common research is indicated in this connection only by 16,4% of the asked companies (Table 63).

		yes	rather yes	rather no	no	no comment
Exchange of business information	A	30,9%	27,3%	16,4%	10,9%	14,5%
Marketing agreements	B	12,7%	29,1%	23,6%	10,9%	23,6%
Common forecast	D	9,1%	21,8%	14,5%	20,0%	34,5%
Common distribution	C	7,3%	16,4%	23,6%	16,4%	36,4%
Common product development	G	7,3%	16,4%	18,2%	20,0%	38,2%
Common procurement	E	5,5%	12,7%	25,5%	21,8%	34,5%
Common research	F	0,0%	16,4%	23,6%	21,8%	38,2%

Table 63: Joint activities with business partners

The use of communication means is also explained with the identification of the meaning of the information exchange with suppliers and customers (Figure 94)

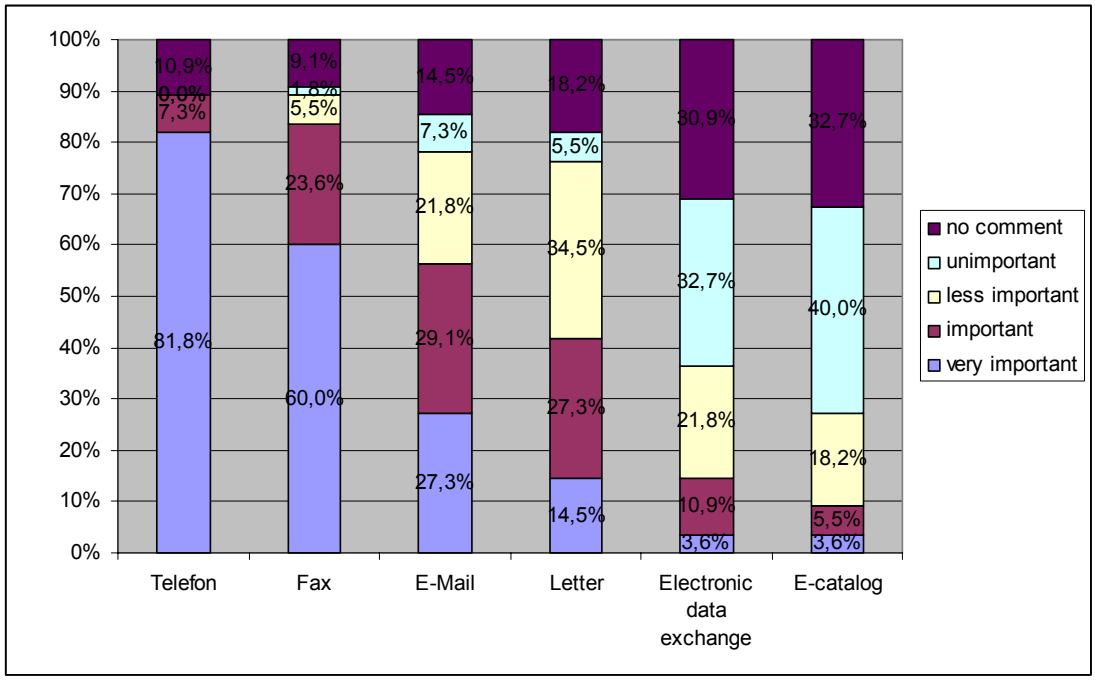


Figure 94: Means of exchanging information with suppliers und clients

The direct contact with the use of the telephone medium is used clearly with a frequency of 89,2%, as opposed to the modern systems of the Internet. Nevertheless, it can be observed that the electronic post overhauls the letter in its meaning. However, this does not let misjudge that there is still a strong gradient between the old and new communication

methods. 40% of all asked companies indicate that, for example, the so-called e-catalogues are insignificant for information exchange with suppliers and customers. This does not correspond with the present use forms of the Internet, e.g. the Business homepages, which are clearly arranged with the focus of the product presentation.

Approx. 80% of the enterprises favours the increase of the profitability with the prioritization and weighting of the company targets. The increase of the turnover as well as the extension of the customer base follows within the ranking. Comparing the opening of new markets, the focus is mainly put at the opening of new inland markets, as opposed to new markets abroad. The value of the improvement of information management is clearly under-weighted according to responses of the asked enterprises, compared with the other business goals *(*Table 64*)*. This is to be considered with the adjustment of the goals for the LAURA project.

		very important	important	less important	unimportant	no comment
Profitability increase	B	72,7%	10,9%	0,0%	0,0%	16,4%
Turnover increase	A	54,5%	21,8%	12,7%	1,8%	9,1%
Customer extension	C	47,3%	36,4%	5,5%	1,8%	9,1%
Opening of new inland markets	E	32,7%	34,5%	10,9%	9,1%	12,7%
Opening of new abroad markets	F	25,5%	18,2%	12,7%	16,4%	27,3%
Construct of cooperative business connections	H	14,5%	38,2%	27,3%	1,8%	18,2%
Improvement of information management	G	14,5%	32,7%	21,8%	7,3%	23,6%

Table 64: Main business goals

Above all, the responses concerning the business goals are justified by the fact that the SMEs are at present in a strong stress of price and competition (Figure 95). Approximately ¾ of all responses mention the main business threat to be the direct competition. Only 10% of the enterprises indicate that missing standards are significant business obstacles doe the realization of the own goals. This circumstance has to be allowed for the adjustment of the LAURA project.

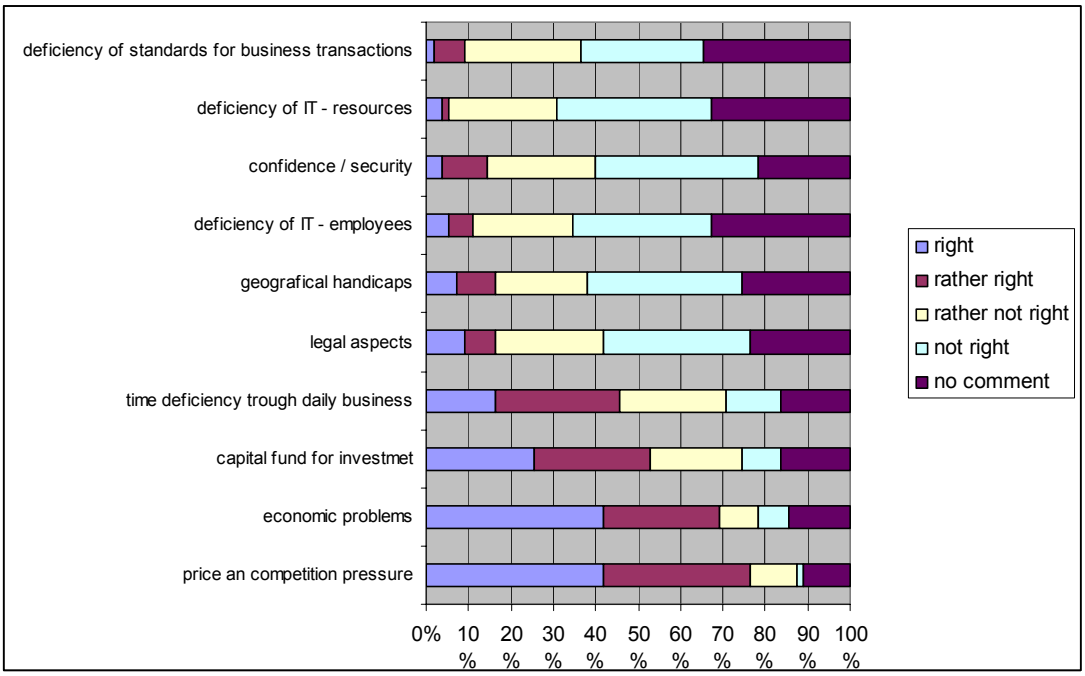


Figure 95: Obstacles and threats to the implementation of the company business goals

D. LAURA PROJECT

It can be made clear after evaluation of the questionnaires, that the enterprises favour with priority the service of an on-line search on the basis of enterprise profiles to identify potential business partners. Six out of ten of the asked enterprises would use this service in the context of their e-commerce activities. On the other hand, only 48% of the enterprises would use the service of prefabricated contract agreements, which facilitate e.g. the trade with international partners, in the context of e-commerce activities *(*Figure 96*)*. In the direct evaluation and weighting of the meaning, this trend is to be observed strengthened (Table 65).

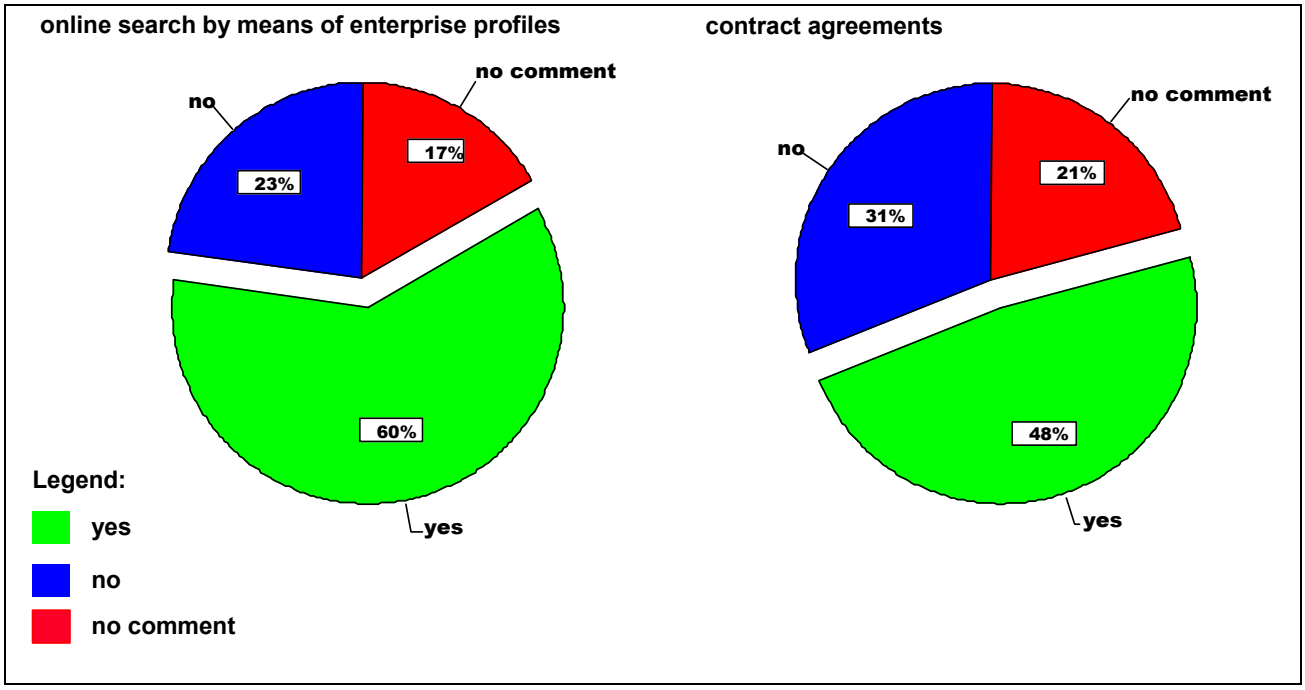


Figure 96: Implementation of the Laura project goals

	very important	important	less important	unimportant	no comment
Online search by means of enterprise profiles	13%	33%	27%	15%	13%
Contract agreements	10%	33%	21%	23%	13%

Table 65: Implementation of the Laura project goals

The positive trend of the meaning of systems to search for products and information continues during the evaluation of information exchange processes *(*Table 66*)*. 61,8% of the enterprises refers to the special position of product search and information. The support of processes within the area dispatch and logistics as well as after sales service plays a rather under-weighted role.

		very important	important	less important	unimportant	no comment
Product search and information	A	23,6%	38,2%	18,2%	1,8%	18,2%
Payment	D	20,0%	34,5%	21,8%	3,6%	20,0%
Order	B	12,7%	41,8%	18,2%	5,5%	21,8%
Forwarding and logistic	C	12,7%	30,9%	23,6%	9,1%	23,6%
After sales service	E	5,5%	27,3%	34,5%	7,3%	25,5%

Table 66: Automation of definite business functions through an e-commerce solution

E. INTEREST IN THE LAURA PROJECT

Only 15% of the surveyed companies indicated that they were willing to participate at further surveys as interview partners (Figure 97). In addition to that, only 19% of surveyed companies indicated that they would be willing to have the LAURA prototype installed in their premises (Figure 98). Companies to participate in the LAURA project will have to be selected from that small number of interested companies.

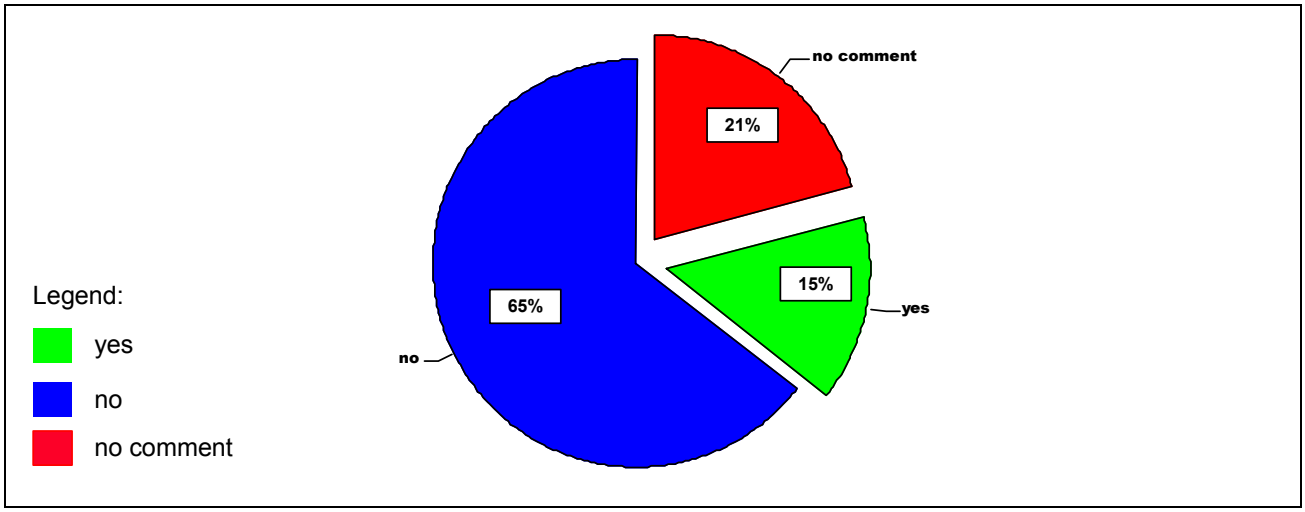


Figure 97: Participation at further surveys as interview partners

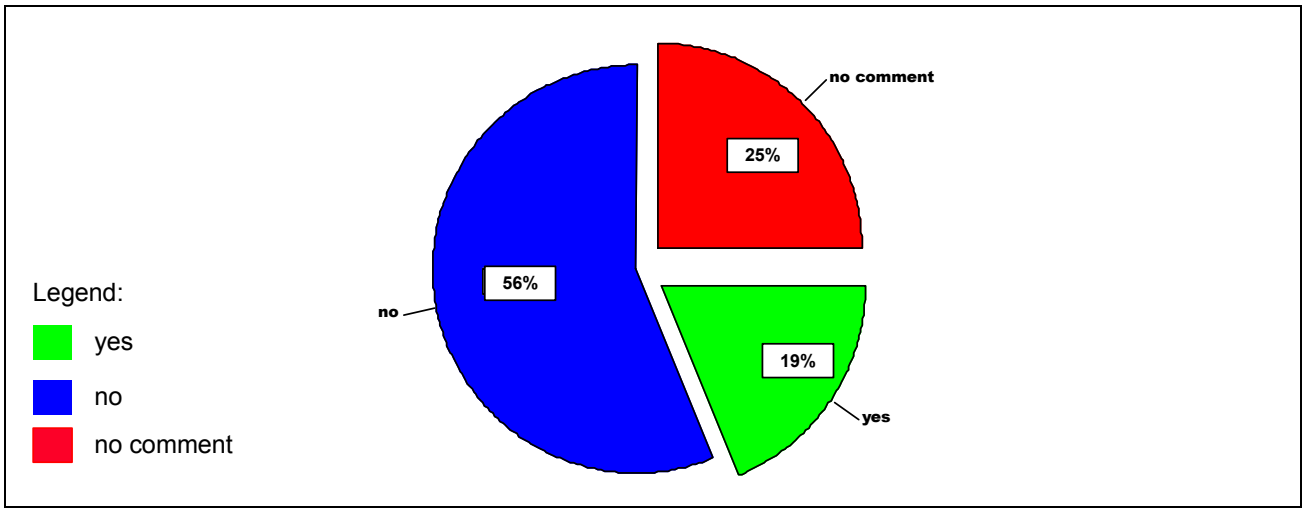


Figure 98: Implementation of the laura prototype

5. Definition of Actors' Needs and Requirements

5.1 *Functional Requirements*

5.1.1. Introduction

The definition of the functional requirements section refers to the first high-level requirements for the LAURA system, as those have been extracted from the responses to the questionnaire distributed to companies. More detailed requirements will arise from the face-to-face interviews that have been carried out with a smaller subset of companies that are interested to participate in the LAURA project. The interview questions that were asked are shown in Appendix 9.3 of this deliverable. The results from the interviews are not taken into account in the following analysis of the functional requirements, as they provide a much refined version of those requirements, which is outside the scope of this deliverable. The results from the interviews will be most notably used in Work Package 2 (Engineering of adaptive electronic commerce zone) of the LAURA project, and more specifically in Task 2.1 (Development of usage scenarios), Task 2.3 (Conceptual Modelling and design of the adaptive commerce zones), as well as Task 2.4 (Functional specification of the system to be implemented).

5.1.2. Analysis of requirements

If one looks at the languages that companies reported they could use for their trading activities (Question 1.6 on Appendix 9.2), the predominant one is English. Additionally, in the tourist sector mainly, some companies reported languages other than English. This was to be expected, as tourist companies from the nature of their business do need to know quite a few foreign languages in their day-to-day operations.

From the above arises the conclusion that the LAURA system will have to be written in English in order to allow for interregional cooperation between different countries. For intra-regional cooperation, it is possible that a local language version of the system is developed.

Regarding the importance of collaboration issues (Question 3.2 on Appendix 9.2), these vary according to region and sector. In the Construction Industry in Bulgaria the most important issues are Procurement and Business Information Exchange. In the tourism industry in Bulgaria the most important are Joint Product Development and Business Information Exchange, followed by Shared Sales Forecast and Marketing Agreements. In the Food Industry in Bulgaria most of the identified issues (Joint Product Development, Shared Sales Forecast, Business Information Exchange, Marketing Agreements, Distribution Support) were deemed of high importance. Only Research and Development (R&D) and Procurement were deemed of low importance or no answer was given. In the case of Germany, the most important issues were Business Information Exchange and Marketing Agreements. In the case of Messinia in Greece the most important issues were

Procurement and Shared Sales Forecast. In Epirus it was Marketing Agreements and Procurement.

From the above one can see the different priorities of companies from different regions and sectors regarding the importance of collaboration issues. The functionality that LAURA will offer will have to cater for the different needs of the companies in each region and sector, but placing the emphasis on the enablement of the common collaboration issues that companies face.

Research and Development was an area that was rated as not very important by the majority of companies from all regions, therefore one can assume that LAURA will not support such functionality. On the other hand, Procurement has to be a supported area of the functionality of the LAURA system, as it is very important for many regions. Automation of the procurement processes will give companies from the Less Favoured Regions (LFRs) of Europe a distinct competitive advantage, and will allow them to get new customers.

Business Information Exchange is an area that can easily be supported by the ebXML platform that will be used for the LAURA project. The ebXML messaging layer will enable companies to exchange business information that is useful to them.

Joint Product Development was deemed to be quite important by companies from the Tourism and Food Industries in Bulgaria, but not very important to other areas. However, joint product development is a function of the supply chain that responded companies said they are engaged in, and this could benefit from automation though the LAURA project.

Shared Sales Forecast is another important area that could be a candidate for the LAURA functionality. This functionality however, may be supported by existing ERP systems that currently exist in the market, and it is therefore questionable whether LAURA should duplicate such functionality.

Marketing agreements is an area that can be easily supported by the ebXML platform, and which will be aided with the use of Service Level Agreements that are to be used in the LAURA project. Finally, distribution support will depend on the availability of external systems from distribution companies, whose data can be fed in the LAURA system.

From the responses of the companies surveyed to the question on rating trading functions that would benefit from automation through introduction of e-commerce (Question 3.6 on Appendix 9.2), one can deduce a further set of initial high-level functionalities of the LAURA system.

Finding trading partners through on-line search of companies' profiles (Question 3.6.1 on Appendix 9.2), was deemed very important by the majority of surveyed companies from all regions. This implies that a search functionality be included in the LAURA system, which will allow trading partners to find each other, according to criteria that they specify (i.e. geographical location, types of products, prices, etc).

Negotiating agreements (Question 3.6.2 on Appendix 9.2) was also deemed very important by the majority of companies. This justifies the use of Service Level Agreements that the LAURA project suggests to use. These agreements will cover the legal aspects of

the transactions between trading partners, and can also serve as a measurement of the efficiency of trading partners. Templates for Service Level Agreements could be specified for each region and sector by the relevant Support Centres, and those could be modified by the trading partners according to their needs.

Joint product/service development (Question 3.6.3 on Appendix 9.2) was another area that was rated fairly high by respondents. Since this is a function of Request-Based Virtual Organizations that LAURA will support, such functionality will also have to be included in the LAURA framework.

Marketing Campaign Management (Question 3.6.4 on Appendix 9.2) was also deemed fairly important. LAURA has to support this area, by allowing companies to market themselves in the system. LAURA also has to allow for products to be sufficiently described in the system, in a way that attracts customers.

Document and Information Exchange (Question 3.6.5 on Appendix 9.2) was yet another area that respondents mentioned could benefit from introduction of e-commerce. LAURA will implement this with the ebXML messaging layer, which allows for documents and other data to be exchanged between business partners.

As a subset of Question 3.6.5 of the questionnaire, companies were also asked to rate the importance of various generic business information exchange transactions. Those were Product Searching and Info, Purchase Orders, Shipment and Logistics functions, Invoices and Post Sales.

Product Searching and Info (for example prices, availability, etc), was in all cases the most important cited business information exchange transaction. This corroborates the previously identified need to a search engine which, given appropriate search terms (i.e. product specification, price, location, etc), will find for the user the best available items.

All of the other mentioned business information exchange functions were also deemed important by companies from the regions surveyed. It is important for the LAURA system to implement the functionality of handling purchase orders (for example creating, changing, requesting, etc). The same holds for invoices (for example create, match with orders, get payment status, etc).

Post sales (warranties, service packages, etc) will be implemented in the LAURA system with the use Service Level Agreements. Clauses relating to post sales will be specified in the Service Level Agreement between two trading parties, and this will be used in the case of a claim.

The area of shipment, logistics, customs procedures/status, etc, will depend on an electronic link existing between the LAURA system and transport / courier companies, customs offices, etc.

To summarize, the following high-level functional requirements of the LAURA system have been identified from the responses to the questionnaire distributed to the companies:

Requirement	Description
System Language	English being the base language of the system, with the possibility of local customization for each country.
Service Level Agreements	The system should allow creation and negotiation of Service Level Agreements between trading parties, where all the details of their trading and collaboration arrangements are recorded.
Search Engine	The system should support searching for products/services according to criteria specified by the user.
Joint Product Development	The system should allow companies to join their forces in order to jointly create a product or supply a service. The details of the collaboration are to be specified in the Service Level Agreements.
Marketing Campaign Management	The system should allow the user to specify his products/services in a way that is attention-grabbing and enables the user to efficiently market his products to relevant parties.
Marketing Agreements	The system should allow two or more companies to join their forces in order to implement common marketing agreements. The details are again to be specified in the Service Level Agreements.
Purchase Orders	The system should allow the user to create, change, delete, etc, purchase orders. It should also allow a user to accept or reject such an order, query the status of an order, distribute this status to relevant parties, etc.
Invoices	The system should allow the user to create invoices, match them with orders received, check and amend the payment status for a product or service, process the payments received, etc.
Post-Sales	The system should allow the user to specify warranties, service packages, etc, for the products or services bought. This is to be implemented with the use of Service Level Agreements.
Logistics	The system should allow a user to examine the status of a shipment that is to be delivered. The feasibility of this functionality depends on the existence of links between the LAURA system and the relevant outside actors (transport/courier companies, customs offices, etc)

The areas of Joint Product Development, Marketing Agreements, Post Sales and Logistics are going to form the backbone of the Request-Based Virtual Organizations (RBVOs) that the LAURA project is going to support. The details of the arrangements are going to be specified through the use of the Service Level Agreements (SLAs). Identification of possible RBVO formations is going to be aided with the use of the search engine, and perhaps also by the signalling of opportunities from the Support Centres that will be established in each region. The actual formation of such RBVO entities will be formulated with the establishment of SLAs, where the details of the operations to be carried out, including financial, transportation, and other relevant arrangements are going to be

specified. The operational phase of the Request-Based Virtual Organizations is going to include the carrying out of the financial arrangements, the distribution of the products/services, the carrying out of marketing/design/manufacturing arrangements, etc. Finally, once the RBVO is terminated, the relative Service Level Agreements are going to be used to examine the performance of the companies participating in the RBVO.

More information regarding the concept of Request-Based Virtual Organizations and their function is provided in Deliverable 1.2 (Analysis of Technology and Market Related Trends) of the LAURA project.

5.2 *Operational Requirements*

From the analysis of the survey's collected data, it was also possible to extract the requirements of regional actors, in an operational and organisational level this time. The term "operational and organizational" refers mainly to specific operations or services that should be provided by the LAURA established "electronic commerce zones".

These operational requirements could be grouped under four main headings:

- **Undertake dissemination activities.**
- **Provide training services.**
- **Provide business support services.**
- **Undertake an administrative role.**

A small description of each category follows in the next paragraphs.

5.2.1. Undertake Dissemination Activities

During the survey, we had the opportunity to realise the degree of e-commerce awareness among SMEs in participated regions (Question 2.1 on Appendix9.2). Most of the companies in Greece (71,6% in Messinia and 85,6 in Epirus) and Bulgaria (around 80%) were little aware of e-commerce concepts and the opportunities that could arise from these solutions. This was not the case in Germany (Saxony-Anhalt), where most of the companies (60%) were rather familiar with the concepts of e-commerce.

Therefore, one of the project's major objectives will be to inform SMEs and stimulate their interest in e-commerce. Basic terms, opportunities, benefits, solutions, case studies, good practices and references will constitute the promotional content. Simultaneously, the LAURA consortium should disseminate the project (in competition to all other available e-commerce initiatives) to SMEs in order to make it further known in the local business society.

From the questionnaires (Question 2.2 on Appendix 9.2) analysis came up that the most appropriate mean for this dissemination activity is World Wide Web. In the majority of the cases, the predominant medium for SMEs' technology information was reported to be the

Internet. LAURA will exploit this fact through its Web site, where various pieces of information regarding the project will be displayed.

Other significant sources of information that may be used are:

- Press/Media, and
- Business Journals.

Besides, the LAURA project will upgrade the role of local business organisations, whose current contribution in e-commerce's promotion is relatively low. Nevertheless, these local or regional organisations have the potential, under the appropriate organizational scheme, to exploit their role and their excellent contacts, and stimulate the adoption of e-commerce processes.

Finally, under Work Package 5 (Dissemination and Implementation), promotional (prospectus, leaflets, folders and posters) has already been produced. This is in order to explain the purpose of the LAURA project, and to make clearer the opportunities offered by e-commerce.

5.2.2. Providing training services

From the above arise the need for companies' training with respect to e-commerce and which the LAURA project should address. This training should concentrate on the following subjects:

- Make clearer the opportunities offered by e-commerce. One of the most important things LAURA could do to increase business uptake and use of e-business is to make sure that businesses are aware of how ICTs can help them.

  The companies' main concerns about e-commerce should also be addressed. These varied according to region and sector, even in the same country. For example, in the Messinia region confidentiality and security issues are considered the most important issues, while in Epirus the most important issues are the implementation costs.

- Explain the purpose, the objectives, the outcomes (prototype system, support centres) and the potential benefits of the LAURA project.

- Present the e-commerce technologies in general, and LAURA project technical approach. This kind of training will mainly concern the SMEs IT employees, as long as very few companies offer training opportunities to their employees (Question 4.5 on Appendix 9.2).

- Demonstration and training on the usage of the LAURA prototype e-commerce system.

This training will be organized and supported by the Regional Support Centres, which will be established in the context of LAURA's EC Kernel, involving external expertise.

Further training needs will be extracted on a per-se basis for the companies of a region, and this will be especially important in the areas of Epirus and Messinia, and also in South-Central Bulgaria.

5.2.3. Provide business support services.

The questionnaires' analysis identifies the need for changes in SMEs' current business and trading practices in order to respond to the emergence of new e-commerce business models and increased market competition. Specifically, examining the answers in questionnaire's section "Company Trading Practices", we could identify the following issues:

- Looking at the geographical spread of the trading activities that companies from the surveyed regions undertake (Question 3.1 on Appendix 9.2), this is in most cases regional, with a small proportion national, and an even smaller proportion international. This holds for all sectors except for the tourism sector, because this sector has a large number of international clients. It is clear from this finding that LAURA must support interregional trading, in order to enhance the geographical spread of the trading activities that companies from the Less Favoured Regions (LFRs) of Europe undertake.
- In general terms, the importance of collaboration with the trading partners was rated relatively low in all regions and industrial sectors (Question 3.2 on Appendix 9.2). As there is a strong tie between "partners' collaboration" and the configuration of the LAURA E-commerce Zones, the consortium should undertake the appropriate actions to enhance and support business collaboration among the partners in intra-regional and inter-regional level.
- The Business Objectives of SMEs differ significantly from region to region as this has been identified during the survey (Question 3.4 on Appendix 9.2). However, in some cases (Greece and Bulgaria) the business objectives are determined in light of the traditional way of anticipating business. As an example, in Messinia and Epirus the "Increase of Revenue" is considered to be the most important business objective (77,4% and 78,6% accordingly), while the "Expansion into New Markets" and "Improved of use of Information" are rated very low. In this case, LAURA should lead and assist the regional SMEs in re-considering their business practices and possible re-defining their goals in a way that these will be in coherence with modern e-commerce initiatives.

As it is obvious from the above references, the SMEs participating in the LAURA project should have the appropriate assistance and guidance for the comprehension and adoption of the trading practices that the model of the Request-based Virtual Organisations introduces. The LAURA Support Centres should be able to provide effective consultancy services, when this is required, that will help SMEs to create and implement a realistic e-business strategy or overcome related problems. These services should be commercially independent, impartial and business focused.

5.2.4. Undertake an administrative role

Finally, the need for an organisational entity that should undertake an administrative role in the established e-commerce zones has been identified during the survey. Considering the survey's outcomes and European best practices, we have identified the following operational requirements for such an administrative entity:

- Set rules and codes of conduct for Business-to-Business trading transactions. These will be useful tools to enhance trust and confidence in the LAURA e-commerce zones (building trust).
- Operate as the intermediate in the process of introducing and supporting new business networks and synergies among the participating companies.
- Assessment of e-commerce impact on the regions or the industrial sectors. This could identify barriers and enablers to the greater uptake of e-commerce within the region or sector.
- Secure alignment with e-Europe priorities at the regional level.
- Provide collaboration with other complementary programmes. As long as the development and dissemination of new knowledge and good business practice are critical success factors, LAURA should participate in existing networks of co-operation.

5.3 *User Profiles*

In the regions of Greece (Messinia and Epirus) and South-Central Bulgaria where the questionnaire was distributed, the vast majority of respondents were small companies, with a small faction being medium companies (Question 1.3 on Appendix 9.2). This was not the case in Germany (Saxony-Anhalt) however, where most of the companies were of medium size.

Regarding the number of years that companies have been in operation (Question 1.4 on Appendix 9.2), in most of the cases this was more than 6 years, and in many cases more than 11 years. This means that companies are well versed in their business areas, and possibly have quite extensive experience and business contacts.

Only a very small proportion of the companies surveyed in all areas already participated in an e-commerce implementation (Question 2.3 on Appendix 9.2). This means that those companies are well versed in the concepts of e-commerce. Participation in another e-commerce platform is not a hindrance for participation in the LAURA project as well. However, as the purpose of the LAURA project is to help SMEs from the Less Favoured Regions (LFRs) of Europe, priority will be given to companies not already participating in an e-commerce platform. This will also have the advantage that e-commerce activities are spread to as big a number of companies as possible from the LFRs of Europe.

In all the participating regions, the respondents considered that they are less advanced in e-commerce use compared to their competitors (Question 2.4 on Appendix 9.2). However, there was a great percentage of replies that don't answer this question, considering that they

could not assess the technological gap with their competitors. The LAURA project could provide the chance to these SMEs of the less favoured regions to fully exploit the usage of e-commerce, achieving their business goals and gaining a strong competitive advantage.

Looking at the methods surveyed companies reported they use with the suppliers and clients (Question 3.3 on Appendix 9.2), this is mostly done the traditional way, with telephone and fax. LAURA could revolutionize this by introducing the electronic method of exchanging information. This will mean transaction cost benefits, as it is clearly easier and more cost-effective to electronically search for suppliers and customers, rather than have to manually go through catalogues and make phone calls.

Studying the questionnaires analysis outcomes, there is a great diversification from region to region, in what the companies consider as their major business objectives (Question 3.4 on Appendix 9.2). The only commonly identified important objective is "Revenue increase", while "Increase supply base" and "Expansion into new markets" are not considered so important. Similar were the results and in the identification of threats that companies encounter in meeting these business objectives (Question 3.5 on Appendix 9.2), where the replies differ significantly from region to region or from sector to sector. These diversities are normal as long as there are big contrasts in regional business culture and practices.

In any case, the solution (infrastructure and supportive services) proposed by the LAURA consortium should facilitate participated companies to respond in success to their objectives and get around the threats that they encounter in meeting their business objectives. As it is also mentioned and above, LAURA could even assist the regional SMEs in re-considering their business practices and possibly re-defining their goals in a way that these will be in coherence with modern e-commerce initiatives. Furthermore, the project concepts will be adjusted accordingly in order to suit the local business cultures and practices. This is an important issue because the involved actors (i.e. regional/local authorities, public/semi-public administrations, the various business actors from industry) are part of different policy environments and belong to different regulatory and legislative frameworks.

This diversity in culture among the LAURA regions is also impressed in the respondents' interest for participation in the LAURA project (Question 5.1-5.3 on Appendix 9.2). While in Greece and Bulgaria SMEs were quite interested in participating somehow (participate in face-to-face interviews, receive regional reports) in the LAURA project, the situation was more negative in the German region. Similar was the response in appreciating the usefulness of the LAURA prototype system in their premises. This attitude in the German region could originate from previous unsuccessful e-commerce projects in Germany, while the companies in Greece and Bulgaria consider the LAURA project as a good opportunity to get familiar with e-commerce and probably import this into their business practices. It should also be mentioned that in all regions there were also a lot of SMEs that stated that they were not sure about their participation in such a project.

5.4 *ICT Specifications*

Regarding the software that companies reported they use, the most commonly used were office software, accounting applications and databases. Enterprise Resource Planning (ERP) systems were rarely used, which was to be expected, due to the small size of the companies, and the relatively underdeveloped areas from which these companies come.

The fact that many companies use accounting applications, means that the LAURA system does not have to provide for complex accounting functions, but an interface could be developed in the long run, which would allow the linking of the LAURA system with the accounting applications companies use.

The majority of the companies surveyed reported that they do not have a network infrastructure, and a minority indicated that they have a LAN network in place. This probably means that in the case where no network infrastructure exists, LAURA will have to be used from a standalone computer in the company. This of course limits the number of concurrent users in a company that could use the system at any time.

Regarding Internet access, in most cases the majority of companies has some form of Internet access, whether ISDN, PSTN, Leased Lines or Wireless. Internet access will be a prerequisite for the LAURA project, as companies will need to access the ebXML registries of the system, which will be remotely located.

With regards to the number of IT-literate people that companies reported they employ, this is in most cases a small number, with an average of 1 or 2 such people in each company. The presence of IT-literate people in a company may prove useful for the LAURA project, in order to communicate issues of technical nature with regards to the system. These people could also be the final users of the system within the company.

Looking at whether companies have a formal education scheme for IT staff, this is in most cases negative. Only a very small proportion of companies surveyed indicated that they have such a scheme in place. This means that the LAURA project will have to organize the necessary training events for the LAURA system, so that companies could make the best use of it. Determination of the training needs and requirements of the companies should not be a one-off exercise, but should a continual process, in order to make sure that companies use the system they way they are supposed to.

6. General Issues

6.1 *Greece - Messinia*

Within the context of the LAURA programme and through many probing studies of the business environment in Messinia having taken place during other European projects and national surveys, a large number of companies were contacted in order to draw the profile of the business environment in this region, as far as the use of new technology in general and of electronic commerce solutions applied or are in the process of being applied, are concerned.

The general feeling received from all these studies is that ***there are serious problems in the application of such technological media of commerce*** and this is due to a number of various and diverse factors, sourcing from very diverse directions, too.

One and very serious source of problems is the lack of sense of the international commercial environment as the latter develops in our times due to the changes in business conditions and the use of new technological applications in all sorts and forms in production, manufacturing, logistics, economic management, distribution and communication, and the formulae of interconnection and interfacing between those until today separate process strings. The situation in Messinia, as with most of the rural regions of Greece, is one of disarray as far as a perception of the present and the future of businesses is concerned. Businessmen have little idea of how an enterprise is rendered viable within the modern business environment and, if forced to face reality, either refuse to understand or hesitate to accept the meaning of proper use of means. This appears to be due to the lack of feel of the whole international environment and the isolation in small-scale transactions within closed local groups of businesses. Aged population and language barriers have contributed much to this. And here we can observe the diversity of problem sources. Aged population is a result of the centralisation of businesses to urban centres and the immigration of young populations toward these sources of employment, leaving rural regions under the control of elderly people that see little of the future that lies ahead, or, if they receive adequate information of the international developments, lack the strength or agility to respond to them.

This last sentence puts through another problem source. Lack of information and information bottlenecks. It has been shown that information is the most difficult thing to manage. Especially if there has been no training in doing so. And at the moment, the way that the state operates, shows that most information is mishandled and mis-distributed, or, if we are allowed to say, misplaced. Because of this, a great deal of opportunities described in such information clusters are missed, resulting to slowing down of the development and growth, with direct effect to the economic viability of businesses which depends directly on keeping up with the times. Very little and partial information reach the ear of the beneficiaries, usually late. Huge effort is required for one to make in order to receive accurate and coherent details for commercial activities which many handle but few understand. Temporary dissemination networks are established and after a while fade away due to improper management. Job allocation is left to hierarchy and not to effective

evaluation criteria, resulting to inappropriate placement of personnel to vital positions. This has severe repercussions on the selection and handling of information and management of these processes, resulting to information dead-ends, *bottlenecks and vicious circles of tons of bureaucratic paperwork changing hands with no purpose at all. Clearly, this is a huge problem.*

Although one can see that there are quite a few problems to overcome, we would characterise the view from Messinia as optimistic, because the LAURA project could provide with a way to deal with the problems that exist and be an example of a healthy method of information exchange to be applied in order to introduce uniform communication-transaction systems throughout the European Union. *There is the feel that the project, if given the support and boost required to become a workable and applicable platform, shall become the basis of something greater than perceived. It will be the beginning of a European B2B platform to which all European businesses shall enlist and register in order to benefit from the ability to reliably exchange the information needed and materialise their transactions in a uniform fashion.*

6.2 *Greece - Epirus*

Most of the problems described above for the region of Messinia also apply to the region of Epirus. A special note that one should take very seriously is that a lot of companies, even if they did not answer the questionnaire, declared that they want to take part in project after it is materialised. This shows the big interest of companies for attendance in the processes of e-commerce when it becomes powerful.

The expected advantages from the LAURA project for Epirus companies are as follows:

- Companies' modernization & expansion into new markets
- Increase of customer base & cost reduction for trading operations
- Promotion of e-Commerce in the region of Epirus
- A common platform for cooperation with other countries

The main restriction in Epirus is the lack of IT support & training.

Future and follow up actions in order to stimulate and sustain SMEs interest in the project include the:

- Project promotion & advertisement from Local Authority
- Information of the participating companies on frequently bases regarding questionnaire outcomes, project findings and progress

Most of the points identified above also apply to the other Greek region of Messinia that was described in the previous section.

6.3 *Bulgaria – South-Central Region*

ARC Fund established close contact with the Regional Authority of South-Central Bulgarian Region and the other 5 District Authorities in the region. The project LAURA was promoted to them and its value, advantages and benefits were presented into details. The Regional Authority of South-Central Region, which is based in Plovdiv and four of the other five District Authorities, declared its support to the project. Only the District Authority in Haskovo did not express too much interest, so ARC Fund decided to contact the Recreation and Development Union. These organisations assigned one person per region to coordinate the regional work groups. Each District representative chose an expert in the following 4 sectors:

- Agriculture
- Food-processing
- Tourism
- Timber, Wood-processing and Furniture Production

The regional experts together with the 6 regional work group coordinators form 6 work groups. The experts from one sector from the 6 Districts together with the selected companies for the LAURA development stage form the Focus Groups. Every Focus Group chose a Focus Group Coordinator. The aim of these Focus Groups is to support the LAURA activities in the sectors in these regions.

6.3.1. Opportunities in the Region

The South Central Region as a whole has evident prerequisites for good economic development. Its economic status is clearly defined through the traditional statistical indicators of territorial and settlements network, demographic features, human resources, population's consuming capacity, GDP and others.

The general conclusion is that the South Central Region possesses an economic potential, which is a good basis for innovative support as a whole and of particular economic sectors. The latter become clear through the regional development plans and the basic economic indicators of the official statistics. According to the analysis of the regional development plans, in the 6 regions the priority branches for development are the following: ***agriculture, food industry, tourism, textile and clothing industry, timber and furniture industry that are mainly connected with the SME sector***.

From the 4 LAURA sectors only the construction sector is not of highest priority according to the regional development plans.

6.3.1.1. Basic Social and Economic Characteristics of the South-Central Region

A. Territory and Settlement Network

In territory the South Central Region leads among the remaining regions in the country with its 27516, 2 km^2.

The contemporary network of towns and villages comprises 1512 settlements, 59 of these are towns, and 1453 are villages.

With its 74,9 persons/km^2, the South Central Region repeats the average density of population of the country that is 74,5 persons/km^2. In the region itself different population density can be observed. For example, the population density in Plovdiv region is 122 persons/km^2, which is one of the highest in the country.

B. Demographic characteristics

The current demographic processes in the South Central Region are of worsened, unfavourable characteristics, which is typical for the whole country. The region makes no exception in relation to the lasting tendencies of negative population growth, low birth rate, high mortality rate, and broken age structure. The final result is a constant process of decrease of population (with about 8 000 persons for the period 1999-2000). In spite of that the real de-population of the territory of the South Central Region runs slower than in the remaining regions (Sofia town being excluded).

Similar conclusion can be drawn also in relation to the population reproduction rate. It is also measured in the negative, this being a tendency for the country as a whole. For the time being this demographic problem appears in lesser degree compared to the remaining regions. Still, the birth rate increases from 8,9 to 9,1% for the period 1999-2000. The mechanical movement of the population "alleviates" the unfavourable position of the natural reproduction rate. Some areas of the South Central Region, such as Plovdiv region, are still attractive for populating.

C. Labour market

A little fewer than 700000 people (690400 for 2000) are involved in the different economic branches and services in the South Central Region. The tendency as a whole is towards decrease in employment and increase in unemployment. The level of the registered unemployment has for the period 1999-2000 increased from 16,7% to 17,9%. To a great extent this negative tendency is related to the restructuring of the economy. The public sector generates less and less employment because of the running privatization. At the same time the private sector cannot engage the discharged from the public sector because the economic environment does not allow for its fast and aggressive development. In spite of that, the employees in the private sector in 2000 represent 52,7% of the total number of the people employed in the region.

From the point of view of the economic characteristics of the South Central Region the structure of the employed considered by economic sectors is of major importance. Agriculture and forestry as well as industry decrease their contribution in relation to employment. The greatest number of people is employed in the service sector.

D. Population incomes

Incomes are indicative about the consumption capacity of the population in the South Central Region, which on its side generates economic growth. Because of the increase in unemployment, that is decrease in employment, it proves that the income per household member has decreased by almost 100 leva (1 Euro = 1.95583 leva) per person for the period 1999-2000.

Practically, this excludes the consumption growth rate from the economic development of the region. For the same period the average annual salary per hired person in the South Central Region has increased with more than 200 leva for one year. This tendency shows better in the public sector (almost 500 leva growth) and less in the private one. The latter proves that great part of household incomes are obtained from the grey sector of the economy.

E. Basic economic indicators

The GDP as the most aggregated indicator shows a tendency towards economic growth for the period 1999-2000, both as a whole and as distributed per capita. The structure of the gross added value shows retaining of the industry positions (with a share of 31,1% and 31,3% respectively for 1999 and 2000 in the general structure). At the same time the agricultural sector loses its positions at the expense of the service sector. Investments also show some growth for the same period, including these in the private sector.

The present industrial situation of the South Central Region can be characterized as follows:

- Strengthening, though little of the "prestige" of the food industry which happens at the expense of other industrial sectors. The production of different foods, drinks and tobacco products at present forms about ¼ of the total amount of the industrial production. The traditions, the qualification and local raw materials are the factors to counteract the critical shrinking of the economic activity in this sector in the region;
- Metallurgy (mainly non-ferrous metals production) as well as production of chemical and plastic products, of paper, publications and printing materials, of clothes, textile and knitwear, are of relatively stable rate of development and their produce is demanded on the market (both in the country and abroad).
- Machine building (metal casting and metalworking), mining industry, production of electrical machines and equipment, lose their importance as structure defining ones for the economy in the region.

Nr:	Sectors and indicators	Measuring unit	Year	
			1999	**2000**
	V. Economy			
1.	GDP	million leva	4902	5337
2.	GDP per capita	leva	2365	2585
3.	Structure of the gross added value by economic sectors	%	100.0	100.0
	- agricultural sector	%	21.1	18.4
	- industry	%	31.1	31.3
	- services	%	47.8	50.3
4.	Investments,	million leva	719.9	780.8
	including those in the private sector	million leva	435.9	550.8
5.	Structure of the industrial production by branches	%	100.0	100.0
	- coal, oil and gas production	%	10.2	8.3
	- ore dressing	%	5.3	5.1
	- production of other raw materials	%	1.0	1.0
	- production of foods, drinks and tobacco articles	%	24.3	24.7
	- textile and knitwear	%	3.3	3.4
	- leather, leather articles, shoes	%	1.2	1.1
	- clothes	%	3.4	4.4
	- woodwork	%	2.1	1.8
	- paper, publishing and printing materials	%	5.2	5.3
	- chemical products and fibres	%	9.8	10.2
	- rubber and plastic goods	%	3.2	4.0
	- goods of non-metal and	%	2.8	2.6
	mineral materials	%	8.1	8.5
	- ferrous and non-ferrous metals	%		
	- castings, metal articles and machines	%	14.2	12.7
	- electrical machines and	%	3.1	2.6
	equipment		0.4	0.4
	- transport vehicles	%	0.4	1.3
	- other goods	%	2.9	2.6
	- electricity, gas, water			

Table 67: Basic economic indicators

Sectors	Bulgaria	SCR	Kardjali	Pazardjik	Plovdiv	Smolian	Stara Zagora	Haskovo
Agriculture, forestry, fishing	3268398	869318	97477	133890	287163	57178	163142	130467
Mining industry	384613	213306	606	38109	6136	3423	156385	3648
Processing industry	3928103	837547	58422	91361	330347	36222	187890	133305
Electricity, gas, water	1130495	264234	3673	4696	70438	3266	168504	13656
Construction	819745	161332	8152	11532	65823	12872	44228	18725
Trade and repair	2159598	376870	22364	49249	160358	19588	77164	48146
Hotels and public catering	542783	121991	5960	9294	63228	16833	1089	8587
Transport and communications	356985	391079	27662	58641	14581	24123	81481	53191
Finances, credit and insurances	699720	87166	5181	11112	36237	6626	15817	12193
Property operations and business services	3891710	760259	61352	99712	284561	87213	27599	49011
State management	1595144	276298	26937	40540	87213	27599	49011	44998
Education	917306	218093	19329	25225	90376	18319	39115	25729
Healthcare	417065	90270	7069	11716	33705	7075	18607	12097
Other services	420963	56750	4840	6171	23537	3523	11894	6785
Gross added value	22532628	4724514	354024	591250	1685102	290136	1187189	616814
GDP	25453649	5336978	399917	667896	1903551	327748	1341091	696744
GDP per capita	3115	2585	1987	2123	2612	2256	3492	2396

Table 68: Gross added value and GDP in current prices for 2000 (in thousands leva, with the exception of the last line about GDP per person of the population)

F. Small and medium size companies

The number and the distribution of the small and medium size enterprises are one of the criteria for the South Central Region's position in the economic structure of the country. At the end of 2000 there were 53809 registered companies in the region. They employed about 1/3 of the population in the South Central Region. At the same time approximately 93,5% of the small and medium size enterprises have from 1 to 10 employees. It would be difficult for these companies to generate innovation type of growth. Furthermore, for the establishment of a small or medium size company in the field of industry, more than 10 people have to be employed.

Nr:	Sectors and indicators	Measuring unit	Year	
			1999	2000
	VI. Small and medium size enterprises			
1.	Enterprises by groups according to the number of the employees	number	49046	53809
	- from 1 to 10 persons	number	45877	50322
	- from 11 to 50 persons	number	2569	2862
	- from 51 to 100 persons	number	446	439
	- from 101 to 250 persons	number	154	186
2.	Employed persons by groups of enterprises	number	186711	210988
	- from 1 to 10 persons	number	81676	96190
	- from 11 to 50 persons	number	54996	61041
	- from 51 to 100 persons	number	31217	30722
	- from 101 to 250 persons	number	18822	23035

Table 69: Small and medium size companies

The policy concerning science and research is one of the vulnerable points in the general economic policy. The tendencies in this field are especially indicative in relation to the lack of basis for innovation and technological development of the economic sector in Bulgaria. The official statistical information indicates that the interrelation between industry and research sector is weak.

6.3.1.2. Conclusions

The conclusions based on the above analysis are as follows:

1. The most serious limitation of the development and implementation of the activities related to the innovation and technological policy at enterprise level are of resource character – there is a lack of financial and human resources. In this sense the constantly dropping R&D expenditure and the number of the employed in this sector show that to a great extent the vitality of this sector is still strongly dependent on the public expenditure. At the same time the most integrated indicator – the relative share of R&D in the GDP for the country as a whole shows a negative tendency towards shrinking of these expenditures. For the South Central Region the indicators are far lower that the average for the country;
2. Secondly, the environment does not stimulate the creation of new technologies and products. The priority branches are the worst provided with financial and human resources needed to improve their competitiveness at the home and foreign markets;
3. The constantly decreasing values of the R&D indicators show that the relation between research and production loosens. Innovation and technological development of companies come second, following their struggle for survival at the market. Practically, that means lack of support

for collaboration between researchers, business and financial institutions. The decrease in R&D efficiency measured by the indicator "completed R&D projects" implies that the national statistics have to pay attention to the measurement of such an indicator as "the implementation of the completed R&D projects";

4. In the South Central Region there is no connection between foreign investments and the innovative development of companies;
5. R&D activity is mainly directed towards creating new methods and systems, that is, innovations and technological development. That is only valid for 2000 for the observed region, which implies that the tendency to rely on short-term effect has been changing.

6.3.2. Necessary changes (e.g. in culture, legal) and recommendations for regional actions

The necessary changes and recommendations for regional actions on a macro level are described in the **National Plan for Regional Development (2000-2006).**

The National Plan for Regional Development defined 6 regions for planning and development. They were proposed on the base of the National Law for Regional Development.

The regions for planning are the territorial basis for the development of regional development plans, which will integrate the plans of the provinces and will serve as the basis for co-financing of regional development activities from the funds of the pre-accession instruments of the European Union (in specific the investment support from the Phare programme for social and economic cohesion).

In the National Plan for Regional Development, the South Central Region is described as follows: "With a good development potential but also with problems in the regions for support – a big number of rural areas lagging behind as well as regions with industrial downfall mainly in the region of the Rodopi Mountain."

The 6 regions for planning are classified in three groups of regions for planning and development. The South Central Region is classified in the second (II) group (middle level of economic development) as follows:

South Central Region, SouthEast Region and NorthEast Region in which the policy for accelerated development will be implemented in parallel to actions for the regions for support.

The South Central Region is referred to as characterized by the presence of big centres with a potential for growth and weak peripheries (especially the Rodopi mountain region).

The most important problems of the National Policy for Regional Development are:

- The lack of coherent conceptual and long-term policy.
- Insufficient sector coordination.

- Insufficient local and regional initiatives and activities.
- Deficiency of actualized and reliable regionally differentiated information.

Major problems in the South Central Region according to the National Plan for Regional Development:

- Strong regional disparities between the Plovdiv and the rest of the sub-regions which are expressed in:
  - Disparities in the economic activity of the companies;
  - Disparities in the investment activity;
  - Disparities in the levels of supply with different resources.
- Lack of new investment in agriculture, necessary for the revival of leading productions – pig-breeding, fruit growing, rice-growing, vine-growing, etc.
- The existing industrial companies are not competitive and have a very weak market potential.
- The existence of "hot" sub-regions regarding the environment.

The above analysis of the situation in the South Central Region shows that sustainable development and industrial growth are only possible if foreign investments and modern technologies are involved and programmes for development of enterprises aiming at export are developed together with an active marketing policy.

The objectives of the strategy for the future development of the South Central Region are connected *on one side with the development of conditions for economic revival in the region through stimulation of the SME development and through increasing the employment of the population, and on the other side – with the creation of better conditions for development of the agriculture through stimulation of the agricultural processing industry and the introduction of new technologies*.

The measures that have to be taken have been identified by the official regional policy and should aim at:

- Strengthening of the production sector and of business competitiveness;
- Improving the business related infrastructure,
- Developing human resources and the labour market.

Most of the sectors have serious problems. ***The national priorities of industrial development include: support to the private sector, support to the small and medium size enterprises and introduction of the high technologies into production, into the reasonable use of energy and raw materials, as well as in improving the labour efficiency.***

The main goal is to strengthen the growth and development of the industrial business through providing modern premises and the necessary facilities, as well as through support of the help desks.

6.3.3. Necessary changes and recommendations focused on the e-business capabilities of the SMEs in South-Central Region

The Surveys, the Sectorial Meetings and all the other personal or indirect contacts with the companies from the region show, that despite that most of them use computers in their everyday business activities there is a strong need of further computer training including the whole range of activities – from use of operating system and e-mail to more advanced software, databases and e-commerce. The lack of staff experience is obvious. Most of the employees have never used or have very little and insufficient experience with even simple computer activities.

Promotion activities that would explain the most common idea regarding the possibilities of the Information and Communication Technologies should be taken. Further steps that popularise the opportunities that e-business and the platform LAURA offer should be made.

It can be summarised that the attitude to the usage of Information and Communication Technologies is positive and the companies from the 4 LAURA sectors are open-minded and are interested in further improvement of their business activities through e-commerce.

The SMEs from the region cannot be competitive without a clear strategy on the introduction of the Information and Communications Technologies in the management and marketing of the company. A clear vision about e-business and great attention to the modelling of the business processes in the organisations is needed. There are professional IT companies in Bulgaria, specialised in the sphere of the Information and Communications Technologies, which possess know-how, teams, marketing and management, and which will contribute to the introduction of modern technologies in the management and marketing.

6.3.4. Cooperation with other projects

After screening the projects on a regional and national level, ARC Fund identified the following three projects to cooperate with on the LAURA project activities.

- Innovation Relay Centre – Bulgaria (IRC-Bulgaria)
- Development of a Regional Innovation Strategy (RIS/Sc-Bg) for the South Central Region of Bulgaria
- Training e-business in tourism

Joint activities undertaken together with the above listed projects are as follows:

Innovation Relay Centre – Bulgaria

- The Sectorial group meetings were conducted as a joint activity between the IRC-Bulgaria and the LAURA project.
- Technology audits are conducted during the whole time period of the LAURA project also as a joint activity between the two projects.

Development of a Regional Innovation Strategy (RIS) for the South Central Region of Bulgaria

- The activities of the RIS/Sc-Bg project include a Direct survey (from 07/02/2003 to 28/02/2003) in the South-Central Region of Bulgaria on the following sectors – Agriculture, Food industry, Agrochemical industry, Electronics, Electrical engineering industry and High technologies, Tourism, Wood industry and Woodworking, including Furniture production, Tailoring and Textile industries, Perfumery and Cosmetics and Shoe industry. It is agreed between the two projects that in parallel to the RIS survey, the initial questionnaire of LAURA will be surveyed as well. It will help us to get an even better picture on the actors needs in the region and to identify more companies suitable for key players during the LAURA development stage.
- The Focus groups were established also as a joint activity between the RIS/Sc-Bg and LAURA projects.
- Parts from the "Economic Profile of the South Central Region" elaborated as a RIS/Sc-Bg project activity, were used to give a picture on the basic social and economic characteristics of the South-Central Region of Bulgaria.

Training e-business in tourism

- A nationwide survey on the Training needs in e-business in tourism was made as an activity under the implementation of this project. The outcomes gave a detailed picture on the present level of information technologies utilization by the companies in the tourist sector (one of the LAURA sectors) and their training needs.

More detailed description of the abovementioned 3 projects is following.

6.3.4.1. Innovation Relay Centre – Bulgaria (IRC – Bulgaria) - www.irc.bg

Since January 1997, IRC - Bulgaria (successor of FEMIRC - Bulgaria) is part of a Europe-wide network of 68 Innovation Relay Centres (IRC Network) in the EU Member States, Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Iceland, Israel, Latvia, Lithuania, Norway, Poland, Romania, Slovakia, Slovenia and Switzerland. The main goal of the IRC Network is to promote the spirit of innovation across Europe, and to improve the competitiveness of European industry through innovation.

The mission of IRC - Bulgaria is to foster the development of the Bulgarian industry through inward flow of technologies and know-how stemming from European industries and EU RTD programmes, and thus to enhance the competitiveness of the industrial companies and their ability to respond to market challenges.

IRC - Bulgaria, in cooperation with the IRC Network, provides constant inflow of information on European technologies and know-how that contribute to the harmonisation of the Bulgarian industrial development with European standards.

The **main role** of IRC - Bulgaria is to promote and facilitate appropriate technological interactions between the European and Bulgarian industrial and technology communities, where each participant gains from the interchange.

IRC - Bulgaria is hosted and coordinated by the Applied Research and Communications Fund, in partnership with the Agency for Small and Medium-sized Enterprises, the Bulgarian Industrial Association and the Bulgarian Academy of Sciences. The complementary knowledge and experience of the partners allow IRC - Bulgaria to effectively promote innovation and technological development in Bulgaria. The institutional networks of the consortium partners ensure local presence and local service delivery system allowing for a close and easy interaction with the small business and technology communities.

6.3.4.2. Regional Innovation Strategy of South Central Region of Bulgaria

The **overall objective** of the project is to create a climate conducive to innovation in the South Central Region for planning.

The **major result** of the project will be the elaboration of a regional innovation strategy with the corresponding action plan (concrete short-term, medium-term and long-term programmes) for the South Central Region. The strategy will be the basis for a continuous and sustainable RIS process, which will enhance the innovative capacity of the region and will facilitate its integration in the Network of Innovating Regions in Europe.

6.3.4.3. Pilot Project TRAINING E-BUSINESS IN TOURISM - Contract N BG/01/B/F/PP/132055

The project addresses the needs of the SMEs in tourism, for training of e-Business. It applies to all branches of tourism like: seaside tourism, mountain tourism, countryside tourism, history-sites tourism and hunting tourism. The satisfaction of such needs will contribute to the adaptability and entrepreneurship of tourism SMEs by development of Information and Communication Technologies / ICT/ culture in the context of **"The e-Europe - Action Plan "**(Brussels, 14 November 2000). The **main idea of the project** is *to promote and improve the development of enterprise e-culture in the tourism sector, especially tourism SMEs*. The project will be based on the use of the new information and communication technologies as a key aspect of work, as well as a tool to achieve our objective.

The **specific objectives** are as follows:

- to improve the training environment of SMEs by development of a methodology of training needs analyses in e-Business in tourism;
- to carry out within the partnership state of the art and training needs analyses in e-Business in tourism in Bulgaria, Austria, France and Greece;

- to develop and implement continuing vocational training system for tourism SMEs by designing and applying innovative training modules in the subject e-Business;
- creation of a Web site as a platform able to generate added value contents with reference to e-Business in tourism for SMEs;
- to accompany tourism SMEs owners (incl. women) in establishing e-business.

Target groups: owners of tourist SMEs, managers, administrations, users and companies; developers of courses in the field of e-Learning; associations as well as government authorities for the qualification framework of manager of e-Business in tourism.

The partnership comprises a training centre in Greece, training company in France, training organisation in Austria. The Bulgarian partner (Regional Development Agency in Plovdiv Region) will represent the particular interests, needs and experience of local tourist SMEs incl. family companies from outlying mountain regions.

The impact of the project refers to the development of a continuing vocational training for e-Business in tourism on European and national levels. Also the tourist sector will benefit from the results of the project with regard to higher competitiveness. For the first time vocational training will be applied into tourist SMEs in e-Business in outlying regions. The project will also affect the decision makers in the tourism sector. This is demonstrated by the interest that the project has attracted already.

6.4 *Germany - Saxony-Anhalt*

6.4.1. General comments for the region based on LAURA deployment partners' perception

Generally, most of the companies who perceived the LAURA project were interested to use the results, but didn't want to be an active partner in the development. In Germany there are actually some e-commerce initiatives running or were finished in the past without any large benefits for the companies. Many of the companies were very reserved regarding the outcomes of LAURA, given their experience of running e-commerce initiatives. Especially agriculture and food-processing companies were very interested in the project in order to use the future potential of LAURA as a new sales channel. They are very open for new ideas and ways of performing business in the future.

The timber, wood-processing and furniture companies perform their own business according to the old (basic) ways and were not very open. Some of them are selling on international basis and have a clear idea about LAURA's potential.

The tourist companies are very difficult to address, because of the heterogeneous structure in that field of business.

One has to recognize mainly marketing problems in the different sectors. Even if the companies from the relevant sectors have reasonable local or regional sales, there is still a lack of national or even international sales activities.

Besides the tourism industry there is the agriculture / food processing industry especially with bio products which have good chances to enter new markets with new technologies like Internet portals.

6.4.2. Opportunities in the region

For the region of Saxony-Anhalt the main response was in the two LAURA sectors agriculture / food-processing and timber-processing companies. These sectors have the most potential in Saxony-Anhalt to use the LAURA system, with regards to the interest of the companies, the number of companies, and their marketable products.

Most of the larger SMEs were developed from old East-German collective combines and if they are not owned by West-German companies, they are independent with a lot of difficulties in the market. The LAURA solution could help them to find new markets and customers. The advantage here is, the companies are familiar with international businesses especially with niche markets (e.g. in Asia with Arabic Emirates or others).

The smaller SMEs in the sectors were traditional firms (transferred to the owner in 1990 after the change), family owned firms or new firms with similar problems with the sales of

physical products than the large ones. Different is, that they act normally in the spread of regional or national market, with less experiences in international businesses. For them LAURA could open the way much more to the national market and German speaking market (complement with Switzerland and Austria) in order to perform supply chains with them. Some small innovative SMEs have the potential to introduce themselves with LAURA to the European market.

6.4.3. Recommendations for regional actions

Before defining the follow up actions for the project as a whole, it is worth individuating the main stakeholders, which the communication efforts are addressed to. The purpose of the LAURA consortium is to focus its actions at local, national and international levels, especially in the regions representing the LAURA partners, but also in other targeted areas. Three categories of stakeholders have been identified, namely:

- Users of the LAURA solutions: seller – supplier of the LAURA-system and inquirer/purchaser – customer of the LAURA-system
- "Investors" (potential LAURA customers = support centres performed by SME-associations or SME-foundations)
- Promoters (e.g. in the German regions existing "Marketing unions / societies, etc)

To stimulate and sustain the SMEs' interest in the project, it will be necessary to make the LAURA vision and goal much more transparent. That means in practical ways to realize quite quickly functional software models to show to potential SMEs the snapshots / approaches of the LAURA-solution. One has to integrate interested SMEs (a small group of SMEs serving as prototype users) in every sector to carry out stepwise SME-workshops, in order to cover all requirements on a practical way of development.

The other potentially successful way to stimulate and sustain SMEs' interest is the indirect one. One should disseminate the LAURA project (in competition to all other e-commerce initiatives) to potential "investors" and "promoters" in order to make it known. To promote the project and to provide continuously information to them, one should realize a **newsletter procedure** via e-mail from time to time.

In addition, the following regional actions are recommended for Saxony-Anhalt to make LAURA for the SMEs and potential support centres successful:

1. Focus the LAURA-project work in Saxony-Anhalt in the two sectors agriculture / food-processing and timber / building material processing companies (primarily). In this case, there is a network-portal under construction, which might be a cooperating partner to any LAURA support centre.
2. Tourist and furniture companies shouldn't be massively focused, for a lack of an important number of companies and interest in the LAURA project in Saxony-Anhalt. One is able to cover the sector furniture companies only together with the region of Mecklenburg-Western Pomerania. A next step will be the approach of the companies in this sector via the local chamber of commerce, the e-commerce-centres and the industry's employer-organisations. For the tourism industry, it is to

be investigated more in detail whether there can be a chance to have portals opened for B2B use in transnational activities.

3. Intensify the work and communication to the other potential LAURA customers (potential LAURA-support centres e.g. societies, unions and federations) in order to cover their requirements and to collect their experiences regarding e-commerce.

7. Evaluation of information collection methodologies

The purpose of this section is to evaluate the methods that have been adopted during the task of *"Definition of the regional actors' needs and requirements"* and draw a conclusion regarding the way that the project partners will continue to collect information for the participating regions on a regular basis. This evaluation process has been undertaken by LAURA's deployment partners, as far as they could not only anticipate the special problems of their regions, but also suggest specific solutions or improvements to the research approach.

7.1 *Regional Specific Methods Advantages and Problems*

In chapter 2, there is a short reference to the constraints and limitations of the methodologies that have been used for the collection of regional actors' needs and requirements. Beyond these inherent constraints, during this project's task some additional difficulties have been turned up especially during the direct surveys, both questionnaires and face-to-face interviews. These problems as well as the advantages of applied methodologies are discussed in this section for each region individually.

7.1.1. Greece - Messinia

In the region of Messinia, the number of identified companies, which could participate in the LAURA project, was 571. The questionnaire was distributed by fax to 410 companies from the selected industrial sectors. The same questionnaire was also distributed by post to 135 companies.

So, the questionnaire was sent to 545 companies, and only 5 of them have responded directly to our request. After that, it was decided to have a personal contact with all of them and perform face-to-face interviews in order to collect the required data. After a personal contact with the companies, 26 of them expressed their interest in the project and participated in the survey.

The major reasons for SMEs' unwillingness in completing the questionnaire are:

- Lack of interest from the majority of SMEs in the sectors,
- Lack of education and training in new technologies,
- Difficulties in completing questionnaires without external assistance,
- Lack of sense of the international commerce environment,
- Lack of further goals and strategies within companies.

The Messinia region's suggestions in order to overcome the above problems in questionnaire's surveying are:

- Simpler questionnaire structure,
- Shorter questionnaire size,
- External technical assistance in completing the questionnaire.

7.1.2. Greece - Epirus

Information for the region of EPIRUS was mainly drawn from existing surveys that were carried out by the Business Information Centre (B.I.C.) of Epirus, and the Chamber of Commerce and Industry of the city of Ioannina. Furthermore, several pieces of information from the members of the Hellenic Association of Young Entrepreneurs (HAYE) were also quite useful.

The main points regarding the unwillingness of companies in completing the questionnaire, as well as the suggestions in overcoming these problems that were identified in the region of Messinia described above, also apply to the region of Epirus. In fact, as Messinia and Epirus are 2 Greek regions that are LFRs (Less Favoured Regions) and are rather poor, they share many common characteristics regarding the profile of the companies that come from these regions. As in the case of Messinia, there is a lack of information and interest regarding new technologies, and companies are rather regionally focused, without an appreciation of the international environment.

7.1.3. Germany – Saxony-Anhalt

The Approach

A compact four-sided questionnaire with 36 questions was distributed to companies, in order to receive an overview of the present conditions for the implementation of e-Commerce systems in small and medium-size enterprises. The questionnaire was divided into six areas. First it was asked for typical enterprise characteristics such as turnover and occupation, as well as branch affiliation and age of the enterprise, in order to classify the surveyed companies. In the second area a weighted self-assessment of the experiences in handling and implementing Internet-based transaction systems was formulated. The surveyed companies were also asked to compare themselves with their competitors and also for barriers by the use of e-Commerce systems. The area business practice aimed at the illustration of internal and external communication methods and instruments, the visualization of marketing areas to customers and suppliers, as well as the realization of business goals and the obstacles encountered. In context to the project LAURA, potential applications of e-commerce were outlined and weighted after their meaning. The overall view of the surveyed company was rounded off with the questioning for the technical infrastructure of the enterprise. Concluding, the interest in the LAURA project had to be examined and participation in the LAURA pilot had to be identified. Furthermore the asked

companies could state individually their interest in a one-hour interview. After the questionnaire followed the selection of the test companies for the structured interviews. The surveyed companies received the evaluation of the questionnaire by mail. In parallel, date and time arrangements were done by telephone in order to carry out the interviews with the enterprises. The execution of the interviews was limited to maximum one hour. The interviews were carried out according to specified guidelines.

Beyond that, the German consortium operates with priority efforts to acquire industry and professional associations to support the project. Especially industry professional associations of the food and furniture industry were contacted. In addition, fair visits like "Grüne Woche Berlin" as well as "Internationale Süßwarenmesse Köln", were used to publish the project LAURA directly to stands of enterprises and federations.

The Evaluation

The methodology of information collection in Germany was focused on designing and sending a well structured and high quality questionnaire with a minimal number of pages. The number of pages of the questionnaire was reduced to two double pages with a professional look. Most of the German companies normally receive a lot of questionnaires per day. In general, nobody from the company who was responsible or had the necessary knowledge, had time to answer. The survey in Germany has got a return quote of 6 percent – that's quite good for surveys. The experience in Germany is that the return rate is normally smaller than 5 percent.

On the other hand, one was considered to send only questionnaires with qualified addresses. This means that most of the company addresses were qualified with existing contact names from existing databases (e.g. Hoppenstedt-Datenbank), or companies were called to ask for a contact person. The deployment partners provided personal contacts to companies to answer the questionnaire. Interviews were lead in interested companies and company associations/foundations. In Germany the "SPSS – Software" ("Multivariate analysis procedure") was used as a standard tool for the evaluation of all answered questionnaires. So it was easy to generate interim reports/evaluations to find very quick indications and trends regarding the LAURA questions.

The experiences related to the use of the methodology can be summarized as follows:

- Perform a high quality questionnaire with a minimal number of pages (two double pages maximum) and a professional look
- Send only questionnaires to companies with qualified addresses (existing contact persons)
- Use a known name (e.g. in Germany "University of Magdeburg") as the survey driver to realize trust and confidence to the companies.
- Use personal contacts of deployment partners for the survey
- Use "SPSS – Software" ("Multivariate analysis procedure") as a standard tool for the evaluation of the answered questionnaires

The experiences related to the problems and obstacles of the methodology can be summarized as follows:

- German companies normally receive a lot of questionnaires per day, a lot of questionnaires don't go beyond the secretary of the directors / responsibles of German companies.
- Increasing the number of answered questionnaires is related to the identification of the right contact person in the company, who is working at the relevant topic, or interested in the topic.
- During the daily business the companies are not normally available / or need to spend a lot of time to answer the survey's questions.
- Most of the answering companies are interested in the results of the survey, to find a benchmark regarding their position to other companies. This means sending the results of the survey back to the companies.
- Especially interested companies with very busy directors were difficult to reach to arrange a date for an interview.

Suggestions for Improvement

In Germany it's getting more and more common to realize Online-surveys regarding market analysis, especially to minimize the effort of the potential surveyed companies and maximize the outcomes / basis of statistical data. The University of Magdeburg and M-BIS are disposing of an online-interview-tool (EvolutionSanner). It is suitable especially for companies who are very familiar with the use of the Internet. It wasn't used for LAURA, because most of the companies in Saxony-Anhalt and Mecklenburg-Western Pomerania are not so familiar with the use of Internet, especially the smaller firms.

A potential way to perform a successful survey for the requirements / market analysis to SMEs, is the "Call-Mail-Call" procedure regarding the "one-to-one marketing" procedure. The first call is used to find the right contact person in the company, secondly a personal covering letter referring to the telephone conversation is written, and thirdly the contact person is called again to remind him to answer the questionnaire. This could be used for the LAURA project in the future.

Another potential way to improve the methodology is to be different from the other survey procedures. A survey procedure in the past was made in the following way - "Call-Mail-Mail-Call". The first call was used to find the right contact person in the company, secondly the mailing of the questionnaire to that person was realized, thirdly a picture postcard to remind him to answer the questionnaire was written and sent, and lastly the contact person was called again to remind him again to answer the questionnaire. This procedure was working well especially in a sector with a smaller number of potential companies.

7.1.4. Bulgaria - South Central Region

In the South Central Bulgaria region, the survey has been conducted in three different ways:

- Questionnaire
  - Post-mail version
  - E-mail version
  - On-line version, uploaded on the Information Society Promotion Office (ISPO) Web site (www.ispo.bg/laura-online.doc).
- Face-to-face Interviews
- Sectorial Group Meetings

Accordingly, the mailing had a very poor response as only 9 of 344 (percentage 2,61%) companies responded. The response rate proved to be quite poor even compared to the low average response rate (7%) for Bulgaria in such type of mailing surveys. This is because the companies in the area are not quite proactive and they have to be motivated against the questionnaire purpose.

The results were even worse for the e-mail and on-line version of the questionnaire as there were no actual answers.

On the other hand, the face-to-face interviews provided 100% feedback, and simultaneously had the advantage of promoting the LAURA project to the SMEs.

Therefore, the direct contact with the companies seems to be the best approach providing accurate information. It should be applied for future contact with regional SMEs that are interested in the LAURA project and could be chosen as key users for the project.

For the rest of the SMEs, mailing questionnaires method could be applied. The response rate will be increased in proportion to the raising of companies' e-commerce awareness.

7.2 *Future methodology for information collection*

The work under the project's Task 1.1 will end up with the identification of regional priorities and the elaboration of recommendations for measures for regional actions. Nevertheless, the analysis of the needs of regional actors will not be a single exercise, as their needs are changing accordingly to business environment's variations. For this reason, the analysis of companies' needs will be established as a regular practice during the LAURA project. The LAURA's partners will continue to collect regional information based on the set of indicators that have been already identified.

For the continuous collection and analysis of actors' needs and requirements, a new information collection strategy has been planned by the consortium. This strategy is based on methods that have been utilized during the task 1.1, considering however the

deployment partners suggestions in order to overcome problems and limitations met in participating regions.

The scope of this strategy is twofold:

- Sustain a continuous contact with a limited sample of SMEs (key users) in order to clarify operational and functional issues during the project progress, and
- Measure e-commerce awareness and innovative performance of regional companies in a regular base.

7.2.1. Surveying LAURA Key Users

By the end of the *"Definition of the regional actors needs and requirements"* task, the LAURA consortium has formed a detailed idea of the actual functional and operational requirements of SMEs in less favoured European regions with regard to intra-regional and inter-regional e-commerce development. These findings will provide the guidelines for the design of the regional Supports Centres and the implementation of the LAURA's prototype system.

Nevertheless, during the project a bi-directional channel of information flow should be established between the consortium and a small number of SMEs in each region. The purpose is the continuous exchange of ideas and comments in order to keep LAURA's progress and findings oriented completely to market needs. These companies will constitute the LAURA key users team.

This team will be constituted by companies that were interested in the LAURA project scope and objectives, and replied in a positive way to the invitation of the LAURA consortium (section *"LAURA project interest"* of the questionnaire).

The contact method that should be chosen, should secure the establishment of a reliable and coherent information channel among the projects' partners and the SMEs. Considering the response rate in task 1.1, face-to-face interviews have been identified by the deployment partners as the most appropriate mean to support such a communication approach. These meetings will be conducted occasionally, but avoiding to be quite pressing on companies.

These companies will be also the key users for the evaluation of the LAURA prototype system.

7.2.2. Measure e-commerce awareness and innovative performance of regional companies

Furthermore, a broader survey should be conducted (once) during the project in order to measure the improvement of e-commerce awareness and innovative performance of regional companies. This time, the companies will be contacted by postal or electronic (e-mail or on-line web form) questionnaires that will be forwarded to a broad sample of companies covering all the industrial sectors.

The questionnaire will be structured and built in response to the set of indicators identified during the task 1.1. In this way, the results could be comparable to those of the first survey.

The survey will be contacted in project's month 16 (November 2003), a year after the first questionnaire survey. The selection of this time period is related with the following issues:

- The dissemination of results will have already begun (month 13), and the survey will be a good opportunity to measure the effectiveness of these activities and the response they have in regional companies' base. It will be still early enough to make all the appropriate corrections in the applied dissemination plan.
- The prototype system will be already designed and implemented while the experimental use of electronic commerce zones will be about to begin. So, it will be an opportunity to approach SMEs that may be interested this time to participate in the project.

8. Conclusions

The purpose of this deliverable has been the "definition of the regional actors' needs and requirements". In order to accomplish this, two methodologies have been employed:

- **Exploitation of existing knowledge**. This was mainly carried out for the region of Bulgaria, as a lot of data existed for that region, and the LAURA specification pointed out that this methodology is to be used for the Bulgaria region only.
- **Direct survey of companies**. In order to accomplish this, industrial sectors that would participate in the project were defined for each region. The selection of these sectors was such that as big a number of SMEs from each region would benefit from participation in the project, and also interregional trading between the regions should be allowed by the chosen sectors. A set of 5 indicators was then developed, on which to gather information about the companies' innovative capabilities, technical infrastructure, general profile, business processes, and e-commerce awareness. A questionnaire was elaborated for the purpose of gathering data on the defined indicators, and this was distributed to the companies from the regions. The results were statistically analyzed in order to arrive at the first high-level needs and requirements of the actors of the LAURA project. Face-to-face interviews on a smaller number of companies were also carried out, but most of these results will be used for Work Package 2 of the LAURA project, where more detailed requirements definitions (e.g. for development of usage scenarios, conceptual modelling and functional specification) are needed.

The outcome from the above two methodologies, especially from the direct survey of companies, was the definition of the actors' needs and requirements, which was presented in Section 5 of this deliverable. From the analysis that was carried out, it was found that companies from the Less Favoured Regions (LFRs) of Europe are rather underdeveloped in the use of e-commerce, and of Information and Communication Technologies (ICTs) in general. This was more accentuated in some regions, for example Messinia and Epirus.

However, many companies from all regions showed an interest in participating in the LAURA project, given the competitive advantage that participation in an e-commerce platform will bestow to them.

Having described the actors' needs and requirements, Task 1.1 of the LAURA project has ended up with identifying regional priorities and recommendations for regional actions. As actors' needs and requirements change according to changes in the business environment, gathering of these requirements is not a single one-off exercise, but a regular practice that should be carried out in the future. To this end, an evaluation of the information collection methodologies that were used in Task 1.1 has been presented, together with a recommendation for the methodology to be used for information collection in the future.

9. Annex

9.1 *Cover Letter*

The following cover letter is the one sent to companies from the Messinia region together with the questionnaire. Similar cover letters were sent to companies from the other regions.

Dear Sir or Madam,

The Messinia Chamber of Commerce (MECCI) is undertaking an in-depth survey in the major industrial sectors of the Messinia region, examining the existing business practices in everyday trading transactions. This survey is conducted within the context of the European project "***LAURA*** – Adaptive Zones for Interregional Electronic Commerce based on the concepts of Request-Based Virtual Organizations and sector-specific Service Level Agreements", which is subsumed under the Information Society Technologies (IST) program of European Union's Fifth Framework (5FP).

LAURA Project

The European project ***LAURA*** aims to design and to develop regional and interregional electronic commerce zones (EC zones) in the Less Favored Regions (LFRs) of Europe. These commerce zones will introduce the latest electronic commerce business practices to the EC zones participants (local Small Medium Enterprises and regional organizations) improving companies' competitiveness, business efficiency and expanding their market in European countries.

The conceptual modeling of EC zones will be based on the utilization of the power concept of Request-Based Virtual Organization (RBVO) that comprise a cluster of partnering organizations or companies that have totally replaced their vertical integration into a virtual one. Within these RBVO's alliances, the management of quality services in operations among collaborative companies and the response to contracts' commitments during the transactions will be secured by the introduction of digital contracts and agreements among the trading parties, broadly known as Service Level Agreements (SLAs).

At a more practical level, during the ***LAURA*** project a conceptual model for intra-regional and inter-regional e-commerce will be produced and a prototype system will be implemented and evaluated in four (4) European Countries (Bulgaria, Germany, Greece and UK) covering various industrial sectors.

The implementation of the prototype system will be based upon common used, easily accessible and affordable technologies (Internet based technologies), while the global electronic business standards ebXML will be introduced during the project in order to capture a common interchange format for business data. EbXML will define the framework for global electronic business that will allow businesses to find each other and conduct business based on well-defined rules within the context of standard business processes which are governed by standards or mutually-negotiated partner agreements. Also, the prototype system will cover the aspects of anonymity and security, which are of utmost importance for the safe distribution of business information and the protection of confidentiality and intellectual property. This prototype will be tested and evaluated in a limited sample of companies from each region that will be considered as the steering team.

Furthermore, in each e-commerce zone "Support Centers" will be established both for intra-regional and external electronic trading. The idea behind the Support Centers is that of providing e-commerce support services for trading procedures, business co-operation and building of synergies between SMEs. The provided support services will also include education and training that will provide regional SMEs with the knowledge to access new technologies, to move beyond traditional

business models and to take advantage of this technology. The Support Centers will be organized and run by the local or regional organizations that participate in the ***LAURA*** project, safeguarding a smoother integration environment with the European Union.

In order to correspond to the individuality of each region, the EC zones' functionality and project concepts will be adjusted in regional business cultures and practices. This is of great importance as long as the involved actors are part of different policy environments and they belong to different regulatory and legislative frameworks.

Correlatively, ***LAURA*** project offers a chance to small and medium sized companies to bind together their business strengths, to set aside their competitiveness, be unified and finally have a presence in today's European market. The benefits will be considerably enhanced as soon as the co-ordinated introduction of EC-zones across a whole region and between regions could support the co-ordinated resolution of problems and learning difficulties among the participants.

The follow-up schemes that will emerge from the ***LAURA*** consortium, will aim towards the expansion and commercialization of the services that will have been developed within the ***LAURA*** project. Further Europeans regional parties and a substantial number of SMEs will be included in the initial prototype system, in order for ***LAURA*** to operate as a true transregional collaboration scheme accepting and hosting entities from throughout the European Union.

The Survey

The scope of the questionnaire survey and analysis is to look at the current state and the future perspective of trading and e-business practices in the above sectors and to provide basic data on the sectors as a whole and the companies within it. In the end of the study a summary report will be produced that will summarize the survey's findings and will present the initiatives for interregional and e-commerce development in the region. This report will be available for all the participated companies and it could be forwarded to your company after your own wish (question 5.2).

A second phase will follow where a number of face-to-face structured interviews will be conducted for the collection of detailed and precise information on actor's needs for all participating regions. In the present questionnaire your company could clarify if it is interested in participating in this phase of the project (question 5.1).

The three industrial sectors, that Messinia Chamber of Commerce intends to survey during the project, cover the major part of business activities in Messinia region. The selected sectors are:

- Agriculture
- Food Industry
- Tourism Industry

The enclosed questionnaire is being circulated to 200 Messinia companies that provide the appropriate information or may considered as possible prototype users during the project.

It would be greatly appreciated if you could complete the questionnaire and return it, using the prepaid envelope enclosed, to Messinia Chamber of Commerce by 31st October 2002. All data reported by participants are STRICTLY CONFIDENTIAL. The individual data will not be published nor made available at any level to the public; they will be used only for internal analyses.

If you require further assistance or advice in completing the questionnaire, please do not hesitate to contact the Messinia Chamber of Commerce.

Yours faithfully,

9.2 *Questionnaire*

1. COMPANY PROFILE

1.1 Company Name: XXXXXXX (filled in by the Deployment Partners)

1.2 Sector: XXXXXXX (filled in by the Deployment Partners)

Please enter core activity _____

1.3 Number of employees:

1-10	
11-49	
50-250	
251+	

1.4 Turnover (Categories denominated in local currency)

Less than €150,000	
€150,000 - €500,000	
€500,000 - €1,500,000	
Greater than €1,500,000	

1.5 Number of years in business:

1-5	
6-10	
11-15	
16+	

1.6 Does your company have the ability to trade with foreign companies using the following languages: (Tick all that apply)

English	
German	
Greek	
Bulgarian	
Other: _____	

1.7 Please complete your contact information:

Title: _____
Name: _____
Function: _____
Contact telephone no: _____
Fax: _____
Email: _____
URL: _____

2. E-COMMERCE AWARENESS

2.1 Are you familiar with the concept and terms of e-commerce (For e.g. e-marketplaces, on-line catalogues, e-procurement)?

Very Familiar				Not at all familiar
1	2	3	4	5

2.2 From what sources have you gained this awareness of e-commerce?
(Please rank sources in terms of importance: 1: Very Important, 2: Medium Importance, 3: Little Importance, 4: Source not used)

SOURCE	**RANKING**
Press / Media	
Business Journals	
Internet	
Local Initiatives / trade associations	
Other: _____	

2.3 Are you aware of any e-commerce implementations related to your particular industry sector?

NAME OF E-COMMERCE IMPLEMENTATION (WITH WEB ADDRESS, IF KNOWN)	**DOES YOUR COMPANY PARTICIPATE? (YES/NO)**

2.4 How do you rate your current use of e-commerce compared to your competitors?

We are very advanced				We are much less advanced
1	2	3	4	5

2.5 Do you have any concerns about the use of e-commerce?

CONCERNS	Very Concerned				Not at all concerned
	1	2	3	4	5
Cost of implementation					
Service reliability					
On going support					
Confidentiality / security					
Other:					

3. COMPANY TRADING PRACTICES

3.1 What is the geographical spread of your trading with suppliers and customers?

GEOGRAPHICAL SPREAD	Extensive				Not at all
	1	2	3	4	5
Local					
National					
International					

3.2 How important is collaboration with your trading partners for each of the following?

COLLABORATION	Very Important				Not at all important
	1	2	3	4	5
Joint Product Development					
Procurement					
Shared Sales Forecast					
Business Information Exchange					
Research and Development					
Marketing Agreements					
Distribution Support					
Other: _____					

3.3 To what extend do you use the following methods to exchange information with suppliers and customers?

METHOD	Extensively				Not at all
	1	2	3	4	5
Email					
E-catalogues					
Fax					
Paper based					
Other: _____					

3.4 What do you consider to be your main business objectives?

BUSINESS OBJECTIVE	Very Important				Not at all Important
	1	2	3	4	5
Increase revenue					
Increase customer base					
Increase supply base					
Expansion into new markets					
Improved use of information					
Improved trading relationships					
Other: _____					

3.5 What do you consider to be the threats in meeting these business objectives?

THREATS	Very important				Not at all important
	1	2	3	4	5

Increased competition					
Geographical constrains					
Regulatory / legal aspects					
Trust / security issues					
Lack of e-commerce capability					
Other: _____					

3.6 The following questions are concerned with the importance of trading functions that you think would benefit from automation through e-commerce implementation such as the LAURA project.

3.6.1 Finding trading partners through on line search of company profiles.

Very Important				Not at all important
1	2	3	4	5

3.6.2 **Negotiating agreements that would serve as the terms and conditions of trading with particular trading partners (For example payment terms, service levels, quality assurance, penalties)**

Very Important				Not at all important
1	2	3	4	5

3.6.3 Joint product / service development with partners (for e.g. needs determination, design, configuration and subsequent changes)

Very Important				Not at all important
1	2	3	4	5

3.6.4 Marketing Campaign Management

Very Important				Not at all important
1	2	3	4	5

3.6.5 Exchanging documents and information for business transactions

Very Important				Not at all important
1	2	3	4	5

3.6.5.1 Please now rank the importance of the following generic business information exchange transactions

BUSINESS TRANSACTIONS	Very important 1	2	3	4	Not at all important 5
Product searching & info (price, availability)					
Purchase order (Create,change,request etc)					
Shipment, logistics, customs procedures / status					

Invoice (Create, match, payment status, etc)					
Post Sales (warranties, service packages, etc)					
Other: _____					

4. IT INFRASTRUCTURE

4.1 Please indicate whether the following computer applications are being used in your company (Tick all that apply)

Office Software	
Groupware applications	
Enterprise Resource Planning (ERP) system	
Accounting Applications	
Databases	
Other: _____	

4.2 What type of network infrastructure does your company have? (Tick all that apply)

None	
LAN (Local Area Network)	
WAN (Wide Area Network)	
VPN (Virtual Private Network	
Other: _____	

4.3 What type of Internet access does your company have? (Tick all that apply)

None	
PSTN Dial-up connections	
ISDN connection.	
Leased lines	
Other: _____	

4.4 How many IT-literate people does your company employ? _____

4.5 Does your company have a formal education scheme for IT staff?

Yes	
No	

5. LAURA PROJECT INTEREST

5.1 Would you be willing to participate in face-to-face interviews or other means for follow-up information?

Yes	
No	
Not sure	

5.2 Do you wish to receive the summary of the findings from this questionnaire?

Yes	
No	

5.3 After having read the LAURA project description distributed with this questionnaire, in your judgement how useful would it be for your company to have the LAURA prototype installed during the pilot phase of the project?

Very Useful				Not at all useful
1	2	3	4	5

You are now at the end of the questionnaire. We would like to take this opportunity to thank you for the time you have spent in completing the relevant details.

9.3 *Interview Questions*

IT infrastructure

1. Hardware

How many standalone PCs (equipped with processor PII or higher) do you have? _____
How many networked PCs (equipped with processor PII or higher) do you have? _____
Servers: ☐ *File* ☐ *Web* ☐ *E-mail* ☐ *Application* ☐ *Other:* _____
Other hardware: _____

2. Software

Operating system: ☐ *Windows* ☐ *Linux* ☐ *Unix* ☐ *Other:* _____
Office Software: ☐ *MS Office* ☐ *Other:* _____
What Accounting Applications do you use? _____
Do you have an ERP (Enterprise Resource Planning) system? ☐ *Yes* ☐ *No*
If "Yes": Which one? _____
Databases: ☐ *Clients* ☐ *Personnel* ☐ *Other:* _____
Database software: ☐ *MS Access* ☐ *MySQL* ☐ *SQL server* ☐ *Oracle* ☐ *DB2* ☐ *Interbase* ☐ *Paradox* ☐ *Other:* _____
Other software: _____

3. Network

Type of network: ☐ *LAN* ☐ *VPN (Virtual Private Network)* ☐ *Other:* _____
Speed: ☐ *10 Mbps* ☐ *100 Mbps* ☐ *Other:* _____
Who is responsible for the network maintenance in your company? ☐ *Company staff* ☐ *Outsourced*

4. Internet access

Access through:

☐ *Dial-up* ☐ *ISDN* ☐ *Leased line* ☐ *Cable* ☐ *Wireless* ☐ *Other:* _____
Provider: *Provider name:* _____; ☐ *We use Internet card (no Provider)*
Speed: _____
Number of PCs with internet access: _____
Who is responsible for the Internet infrastructure maintenance in your company? ☐ *Company staff* ☐ *Outsourced*

5. Internet use

What do you use Internet mainly for? ☐ *e-mail* ☐ *browsing* ☐ *e-commerce* ☐ *other:* _____	
Do you have a company web-site? ☐ *Yes* ☐ *No*	
If "Yes":	How often do you update it? ☐ *Daily* ☐ *Monthly* ☐ *Weekly* ☐ *Other* _____
	Who is responsible? ☐ *Company staff* ☐ *Outsourced*
Do you have a content management tool? ☐ *Yes* ☐ *No*	
If "Yes":	Could you please provide more details? _____
Do you have an e-commerce application? ☐ *Yes* ☐ *No*	
If "Yes":	Of what type? ☐ *B2B* ☐ *B2C* ☐ *B2E* ☐ *Other:* _____
	Which trading practices does it support? *Please describe:* _____
	What percentage of your annual sales do you currently generate via the Internet? *%:* _____
	On which vendor's e-commerce platform is your application based on? ☐ *Microsoft* ☐ *Oracle* ☐ *IBM* ☐ *Other:*
	To what extent is e-commerce data integrated with internal applications? _____

6. IT budget

Approximately how much is the budget that your company allocates for IT per year? _____

Cost Analysis

1. Identification of transactions (with suppliers and customers) and relevant costs to be analyzed

What kind of transactions do you undertake, when you operate with your customers and suppliers? ☐ *Bank* ☐ *Insurance* ☐ *Transport* ☐ *Consultancy* ☐ *Marketing* ☐ *Customs* ☐ *Others:* _____ _____ _____
How do you track the costs associated with those transactions? ☐ *Invoices* ☐ *Manpower* ☐ *Other:* _____
What accounting method do you use? ☐ *Traditional Cost Accounting* ☐ *Activity-Based Costing* ☐ *Other:* _____
Could you provide us with sample statements from your accounting department, associated with the transactions mentioned? ☐ *Yes* ☐ *No*

2. Identification of possible LAURA transaction costs benefits

Do you think that the introduction of e-commerce will lead to cost benefits? *(Big benefits)* ☐ *1* ☐ *2* ☐ *3* ☐ *4* ☐ *5 (No benefits)*
What activities and business processes would financially benefit from the introduction of e-commerce ☐ *Sales* ☐ *Procurement* ☐ *Advertising* ☐ *Others:* _____
Which of your current costs associated with traditional trading practices would be eliminated with the introduction of e-commerce *1.*_____ *2.*_____ *3.*_____ *4.*_____ *5.*_____

Company Interest in e-commerce

Company e-business vision/goal for the next 2 years

Do you expect more intensive e-commerce use in your region within the next 2 years? ☐ *Yes* ☐ *No* ☐ *Do not know*
Do you expect your organisation to be more involved in e-business within the next 2 years? ☐ *Yes* ☐ *No*
To what extent is your company willing and interested to invest in resources required for an e-commerce implementation?

	Very Interested 1	*2*	*3*	*4*	*Not Interested 5*
IT personnel	☐	☐	☐	☐	☐
Training	☐	☐	☐	☐	☐
Infrastructure	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐

Services that support/enable e-commerce activities

1. Possible interaction with other parties (Local Authorities, Trade Organizations, etc)

Are you a member of a trade organization or other body? ☐ *Yes* ☐ *No*

If "Yes": Which ones? *1.* _____ *2.* _____ *3.* _____
What is the role of Local Authorities, Trade Organizations, Associations etc, in the value chain that you participate in? ☐ *Sector priorities* ☐ *Price Policy* ☐ *Control* ☐ *Others:* _____

2. IT Support requirements

Do you currently have a contract for IT support with an external provider? ☐ *Yes* ☐ *No*	
If "Yes":	Provider name: *1.* _____ *2.* _____ *3.* _____
What do you think should be the main IT services required after the introduction of e-commerce? ☐ *training* ☐ *hardware and software providing and maintenance* ☐ *software upgrades* ☐ *software problem fixing* ☐ *Others:* _____	

3. Training requirements

How many IT literate people from your organisation are able to support the daily running of a B2B platform? *Number of IT literate people:* _____
Do you intend to hire new staff to expand the e-commerce abilities of your organisation? ☐ *Yes* ☐ *No*
Do you think that these people will need initial training on the LAURA B2B platform? ☐ *Yes* ☐ *No*
Do you think that regular training will be needed? ☐ *Yes* ☐ *No* ☐ *Only if my organisation decides for additional training*

4. LAURA support requirements

Do you think that the establishment of a LAURA support center in your area is important? *(Very important)* ☐ *1* ☐ *2* ☐ *3* ☐ *4* ☐ *5 (Not important at all)*
In your opinion what should be the function of a LAURA support center? ☐ *product training* ☐ *dispute arbitration* ☐ *overseeing of trading activities* ☐ *setting of B2B rules and codes of conduct* ☐ *introduction of new partners* ☐ *Others:* _____

Technology and market related trend analysis

1. Company business goals for the future

Do you plan to expand your company geographically in the next 2 years? ☐ *Yes* ☐ *No*
Do you plan to enter new markets in the next 2 years? ☐ *Yes* ☐ *No*
Do you plan to expand your company activities in the next 2 years? ☐ *Yes* ☐ *No*
If "Yes": In what areas?

_____
Do you foresee any new or changed business processes / transactions in the next 2 years? ☐ *Yes* ☐ *No*
If "Yes": Could you please describe them: _____
What are the main issues that concern you regarding your future use of e-commerce? *Please describe:* _____

2. Company IT goals/investment for the future

What IT investments and upgrades do you plan for the next couple of years? ☐ *New PCs* ☐ *New software* ☐ *New network equipment;* *Details:* _____ ☐ *Others:* _____
What specific elements of e-commerce do you plan for use in the future? ☐ *e-mail* ☐ *e-catalogues* ☐ *EDI (Electronic Data Interchange)* ☐ *extranet* ☐ *Others:* _____

Business and trading practices

1. Position in the value chain

What is the value chain that your company is involved in? _____
What is your position in this value chain? ☐ *Supplier* ☐ *Customer* ☐ *Distributor* ☐ *Integrator* ☐ *Other:* _____
How many customers and suppliers do you have? *Suppliers:* _____ *Customers:* _____
How do you identify your customers? *Criteria:* _____
How do you identify your suppliers? *Criteria:* _____
How do your customers identify and select your company? *Criteria:* _____
What other companies and organizations are involved in your value chain and what are their positions?

Company	*Position*
_____	☐ *Supplier* ☐ *Customer* ☐ *Both* ☐ *Other:*
_____	☐ *Supplier* ☐ *Customer* ☐ *Both* ☐ *Other:*
_____	☐ *Supplier* ☐ *Customer* ☐ *Both* ☐ *Other:*
_____	☐ *Supplier* ☐ *Customer* ☐ *Both* ☐ *Other:*
_____	☐ *Supplier* ☐ *Customer* ☐ *Both* ☐ *Other:*

2. Company business processes and practices

What are the departments of your company? ☐ *Accounting* ☐ *Sales* ☐ *Marketing* ☐ *Others:* _____ _____ _____ _____ _____
Are there any formal workbooks or written-down guidelines that describe the methods and processes that your company uses for its interactions with suppliers and customers? ☐ *Yes* ☐ *No*

If "Yes": Could you please provide us with a copy? ☐ *Yes* ☐ *No*
If "No": Could you please describe them? _____
What do you consider as your company's major advantage towards your competitors? _____
What competitive factors influenced the formation of your strategic objectives? _____
How do you regard the overall strategy of your company? ☐ We primarily emphasize cost ☐ We primarily emphasize quality
Do you consider that your company has an active business strategy towards innovation (the introduction and implementation of new ideas in business)? ☐ *Yes* ☐ *No*
If "Yes": Which are the priorities areas (products or services) of your innovation strategy? *Please describe:* _____
Does your company support a constructive or defensive organization culture? ☐ *Constructive (looking for satisfaction, looking for new challenges, being open minded for improvements and changes, enjoying their job, building a future and taking the future in their own hands)* ☐ *Defensive (looking for security, looking for a safe place, looking for certainty, avoiding risks and uncertainties, behaving passively, being rather reactive than pro-active)*

3. Method of contracting (SLAs, etc)

What requirements do you specify in your contracts with suppliers and customers? *Please describe:* _____
Is the concept of Service Level Agreements (SLAs) known to you? ☐ *Yes* ☐ *No*
Do you currently use a method to measure quality of products / services bought and sold? ☐ *Yes* ☐ *No*
How do you define this quality? *Please describe:* _____
Do you offer warranties to your clients? ☐ *Yes* ☐ *No*
Do your contracts with customers and suppliers specify penalties (financial and other) for non-compliance? ☐ *Yes* ☐ *No*

4. Logistics Information

What method of transport do you use for sending and receiving products? ☐ *Transport companies* ☐ *Post-office or courier* ☐ *Air-freight* ☐ *Own vehicles* ☐ *Others:* _____

5. Methods of payment

Which of the following methods do you use for your transactions with customer and suppliers? ☐ *Cash-on-delivery* ☐ *Checks* ☐ *Credit Cards* ☐ *Bank Drafts* ☐ *Direct Debit* ☐ *Others:* _____

Please specify the major credit-cards that you accept: _____

6. Geographical trading coverage

What percentage of your trading is done regionally? _____
What percentage nationally? _____
With which regions? _____
What percentage internationally? _____
With which countries? _____

Preliminary Functional Requirements of LAURA

1. B2B platform functionality

Is it important that the following information be present in the B2B platform?					
	1 – Major importance				5 – Minor importance
Importance:	1	2	3	4	5
Company info: Company's Name	☐	☐	☐	☐	☐
Company's Address	☐	☐	☐	☐	☐
Company's Telephone	☐	☐	☐	☐	☐
Company's VAT number	☐	☐	☐	☐	☐
Sectoral breakdown structure	☐	☐	☐	☐	☐
Regional breakdown structure	☐	☐	☐	☐	☐
Description of products/services	☐	☐	☐	☐	☐
Price	☐	☐	☐	☐	☐
Availability (in quantities)	☐	☐	☐	☐	☐
Offer Duration	☐	☐	☐	☐	☐
Product picture	☐	☐	☐	☐	☐
Cost of goods/services delivery	☐	☐	☐	☐	☐
Methods/terms of payment	☐	☐	☐	☐	☐
Insurance of goods/services	☐	☐	☐	☐	☐
Partner (Supplier/Customer) Query	☐	☐	☐	☐	☐
Contract Templating	☐	☐	☐	☐	☐
Automation of contractual negotiations	☐	☐	☐	☐	☐
Product / Service Searching	☐	☐	☐	☐	☐
Product / Service Information	☐	☐	☐	☐	☐
Ability to change the Offer (by the SME itself)	☐	☐	☐	☐	☐
Provision of terms / deadlines of production /delivery in the offer	☐	☐	☐	☐	☐
Delivery terms	☐	☐	☐	☐	☐

Manage Purchase Order (create, change, request)	☐	☐	☐	☐	☐
Manage (choose) Shipment Procedures	☐	☐	☐	☐	☐
Monitoring Shipment Status	☐	☐	☐	☐	☐
Return of Product	☐	☐	☐	☐	☐
Communicate other Financial Information (loans, tax, insurance, etc.)	☐	☐	☐	☐	☐
Quality Assurance Procedures	☐	☐	☐	☐	☐
Provide and Administer: Warranties	☐	☐	☐	☐	☐
Service Packages	☐	☐	☐	☐	☐
Contracted Services	☐	☐	☐	☐	☐
Distribute sales information	☐	☐	☐	☐	☐
Search by: Keyword	☐	☐	☐	☐	☐
Geographical Area	☐	☐	☐	☐	☐
Company	☐	☐	☐	☐	☐
Product / Service Description	☐	☐	☐	☐	☐
Currency Information & Exchange Rates	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐

2. Information contained in a B2B transaction

Is it important that the following information be present in an offer in the B2B platform?						
		1 – Major importance				5 – Minor importance
Importance:		1	2	3	4	5
Offering company details:	*Company name*	☐	☐	☐	☐	☐
	Contact person	☐	☐	☐	☐	☐
	Address	☐	☐	☐	☐	☐
	Phone / fax	☐	☐	☐	☐	☐
	e-mail	☐	☐	☐	☐	☐
	Web site	☐	☐	☐	☐	☐
Offered company details:	*Company name*	☐	☐	☐	☐	☐
	Contact person	☐	☐	☐	☐	☐
	Address	☐	☐	☐	☐	☐
	Phone / fax	☐	☐	☐	☐	☐
	e-mail	☐	☐	☐	☐	☐
	Web site	☐	☐	☐	☐	☐
Title of Offer		☐	☐	☐	☐	☐
Date of posting		☐	☐	☐	☐	☐

Company category by sector		☐	☐	☐	☐	☐
Sub-category		☐	☐	☐	☐	☐
Message		☐	☐	☐	☐	☐
Offer description (incl. prices, VAT, etc.)		☐	☐	☐	☐	☐
Special terms and conditions		☐	☐	☐	☐	☐
Contract template		☐	☐	☐	☐	☐
Reply by e-mail to offer		☐	☐	☐	☐	☐
Counter of visits		☐	☐	☐	☐	☐
Other:	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐

3. Linkage with other applications

How important is the linkage between a B2B platform and each of the following?						
		1 – Major importance				5 – Minor importance
Office Software		1	2	3	4	5
Accounting Software		☐	☐	☐	☐	☐
ERP System		☐	☐	☐	☐	☐
E-mail application		☐	☐	☐	☐	☐
Other:	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐

4. Method of settlement of disputes

How do you currently settle disputes with suppliers and customers that may arise?
_____
What in your opinion should be provided in a B2B marketplace for the settlement of disputes (
☐ lawsuits ☐ internal complaints procedures ☐ friendly agreements ☐ negotiations
☐ mediation ☐ ombudsman programs ☐ arbitration ☐ Others: _____

LAURA project interest

What benefits do you expect from your participation in the LAURA project?
☐ *???* ☐ *???* ☐ *???* ☐ *???* ☐ Others: _____

Would you like to participate as a key user in the LAURA project? ☐ *Yes* ☐ *No*
Would you take time to participate in further follow-up interviews in order to identify in details the platform features? ☐ *Yes* ☐ *No*

Other comments

_____
_____ _____

10. APPENDIX – Exploitation of existing knowledge in Bulgaria

10.1 *Introduction*

In order to achieve LAURA's objective, the project has undertaken a comprehensive analysis of the current state of affairs in e-business/e-commerce in Bulgaria. The following research is a synthesis of the exploitation of existing knowledge (surveys and reports of the Ministry for Regional Development and Public Works, Ministry of Economy, the Agency for SMEs, the Agency for Economic Analysis and Forecasting, the Centre for Economic Development and other Bulgarian organisations). It develops an analysis of the results of surveys and studies carried out in Bulgaria during the recent years. The needs and requirements of regional actors are analyzed in broader terms to cover not only the technical issues of industrial innovation but also economic and organisational aspects like management, marketing, innovation financing, etc.

This analysis has been carried out for Bulgaria only and not for the other regions participating in the project. This is in accordance to the LAURA specification, which mentions that such an analysis is to be carried out for the region of Bulgaria only. In fact this is quite reasonable, given that data on a large scale exist mainly in the region of Bulgaria.

The main operating assumption of the analysis is that e-business in Bulgaria is only one aspect, albeit a central one, of a broader economic transformation. E-Business is a central component of a new economic system, which is powered by ICT, is dependent on highly educated, autonomous and motivated labour, and is organised around electronic and organisational networks. The adoption of new economy practices depends not on the diffusion of new ICT, but on the dynamic interrelationships between technological transformations, firms' organisational and knowledge-creating capabilities, emerging industry structures, and public institutions and regulatory frameworks. It is the dynamic interdependence of these conditions that is the source of innovation and value creation in the new knowledge-driven economy. In other words, for new ICT that powers the new economy to be able to spread throughout the whole economy, thus enhancing productivity growth, business firms, the culture and institutions of society, and the factors of the production process need to undergo substantial change.

Bulgaria has had a tradition of excellence in producing information technology products. During its affiliation to the Council for Mutual Economic Assistance (COMECON) the country specialised in production of mini computers, processors, peripherals (magnetic disk and tape memory devices), teleprocessing systems and devices, and personal-professional computers. Bulgarian computer exports amounted to 48 percent of the entire COMECON market in the 1970s. This market share was maintained until the early 1990's.

According to official statistics for 1989, electronics and telecommunications accounted for 25 percent of Bulgarian industrial production. A total of 130,000 people were employed in this sector, of which 8,000 were highly qualified engineers.

According to independent sources, in 1989 about 95 percent of the total production in this sphere was sold on the COMECON market, mostly to the former Soviet Union. In the late 1980s Bulgaria was the leading supplier of 5th generation computer systems to Soviet research institutes. Bulgaria also covered a large share of the Soviet markets for personal computers. Many of the private branch exchange (PBX) systems for the COMECON region were also produced in Bulgaria.

These markets were artificially protected and Bulgaria's ICT industry suffered a serious shock with the political transformation and the transition from centrally planned to free market economy after 1990. A number of factors such as global competition, poor corporate management of local enterprises, lack of government support and funding, and disintegrating mechanisms of supply and demand within COMECON led to a dramatic decline in production capacity and severe drop in export figures. The country lost most of its markets in the former Soviet Bloc countries. This led to serious social problems and disqualification of the labour force.

Since 1997 the Bulgarian economy has been going through a period of structural adjustment. In a stabilised macroeconomic environment, characterised by a low level of inflation, an effective currency board, and hands-off approach of the state toward economic activity, ICT has been one of the most dynamic sectors of the economy.

Presently Bulgaria is still at a relatively early stage of preparedness to utilize the benefits, which information and communication technologies can offer for achieving economic growth and competitiveness, for enhancing the quality of the education system, or improving the efficiency and transparency of government operations.

However the government acknowledges the importance of ICT for development and demonstrated a strong political will to support active development of information technologies and high-tech end products.

10.2 *Analysis of E-Business Environment in Bulgaria*

10.2.1. Macroeconomic environment

The established economic stability in the last few years and the preconditions for growth, together with the forthcoming membership of the country in NATO and the EU are sufficient proof of the secure and predictable economical and political behaviour of Bulgaria.

The Bulgarian Government Program defines the general economic priorities that are to lead to sustained and real growth. These priorities are both a factor, which, if absent, would impede many of the suggested measures, and an effect as all program targets are designed to create prosperity.

The Bulgarian Government's key objective is sustained economic growth as high as 5-7% on average per year in 2002-2005. Most of the targets and economic levers are geared up to

reach that economic goal. Moreover it is an indispensable condition to ensure a new quality of life and to raise the standard of living. Generation of conditions for rapid economic growth leads to job creation and higher income. The IT environment as one of the most dynamic tools of the new economy plays a substantial role in the creation of qualified jobs and directly favours the GNP growth.

The Government pursues a national industrial policy in line with the processes of globalisation of economy and liberalisation of world trade. The Government is well aware that the support for small and medium business in the country is crucial for the success of the reform. The development of small and medium-sized enterprises, which are the biggest employer and the biggest investor in Bulgaria, are promoted in every possible way.

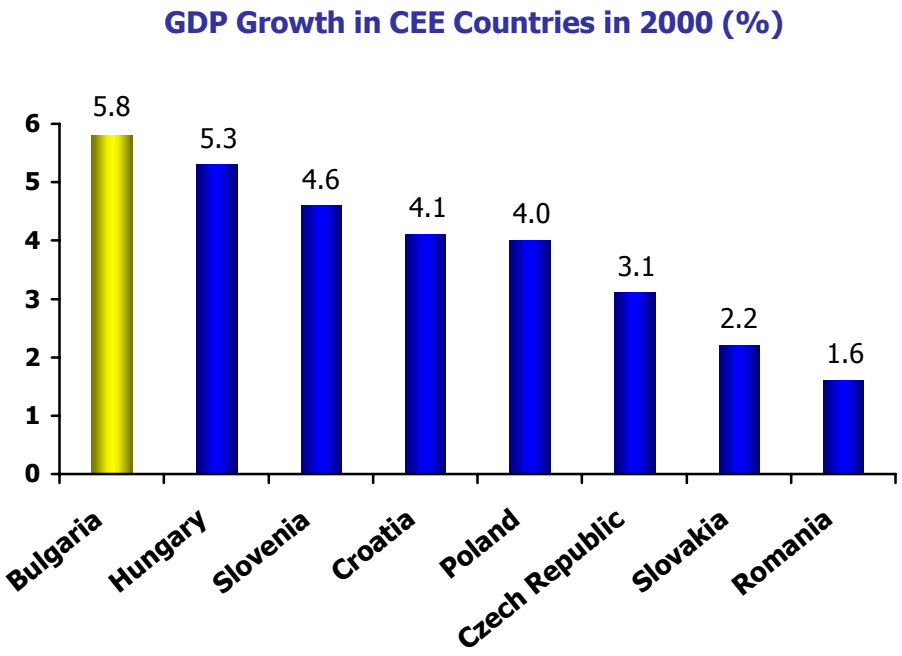


Figure 99: GDP Growth in CEE Countries in 2000 (%)

Source: Business Central Europe and Ministry of Finance

	1996	1997	1998	1999	2000	I-X 2001	2001E	2002F
Foreign debt (% GDP)	243.5	91.1	72.1	77.5	74.1	73.3	68.4	64.4
Balance of payments (USD m)	-724	1,205	-95	96	137	-52	-221	242
Current account (USD m)	-56	367	-61	-652	-701	-597.3	-801	-812

Current account (% GDP)	1.7	10.3	-0.5	-5.3	-5.8	-4.4	-6.2	-5.7
Trade balance (USD m)	122	321	-381	-1 081	-1 175	-1 247	-1 528	-1 575
Exports (USD m)	4 689	4 809	4 193	4 006	4 825	4 254	5 096	5 373
Imports (USD m)	4 568	4 488	4 574	5 087	6 000	5 501	6 624	6 948
Import coverage (months)	2.1	6.5	6.4	5.8	5.4	4.6	4.8	4.7
FDI (USD m)	256	636	620	766	1 001	522	858	981

Table 70: Macroeconomic Indicators

Source: Ministry of Finance

Investment policy is an aspect of the Bulgarian growth model. The Government's economic strategy plans to attract sizeable foreign investment averaging between 1 and 1.2 billion US dollars each year from 2002 to 2005. A declared commitment of the Government is to create an environment that is friendly to Bulgarian and foreign investment and to the balanced development of small, medium and big business. The Government sticks to clear rules and offer incentives to local and foreign capital while it abides to the principles of the market economy.

Improvement of the trade balance is an indispensable condition and a lot of effort is put forth. An aggressive export promoting policy and making Bulgaria a big exporter of high value-added products are key priorities of the Government in limiting the trade deficit and the current account deficit. The improved export/GDP ratio will improve the balance of payments and cement the country's macroeconomic stability. Foreign economic policy plays a key role in the country's foreign policy and overall economic development is of paramount importance for Bulgaria. The Government combines bilateral, regional and multilateral initiatives to offer better opportunities to Bulgarian industries and to help Bulgarian exporters enter new markets.

Fiscal policy with a currency board arrangement in place is a key economic policy tool. Its proper use and the right budget planning item by item determine what the country's whole economy will be. Financial and budget discipline is strictly maintained in the budget deficit reduction policy with the ultimate goal of zero deficits in 2005.

The monetary policy ensures macroeconomic stability by maintaining an anchored Lev/Euro exchange rate until Bulgaria joins the European Monetary Union. The replacement of active monetary policy in 1997 by a currency board regime (BGN 1= EURO 0.5113), in combination with additional measures in the fiscal, banking and real sectors, has proved to be decisive for stabilising the Bulgarian economy.

GDP Growth	Inflation

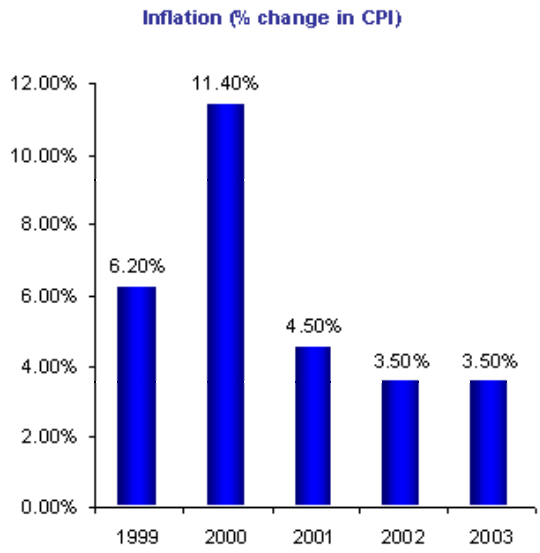


Figure 100: GDP Growth and Inflation

Source: Ministry of Finance

The tax and customs policy seek to attract investments and achieve economic growth. The Government proposed to cut down those direct taxes that will let the individuals and the businesses retain higher net incomes, push up demand, promote investments and business, and finally improve the budget revenue performance in the long run. Such policy measures will sizably cut direct taxes – profit tax, income tax and capital gains tax.

The Government has decreased the tax burden:

- Personal taxation – the highest rate drops from 38% to 29%;
- Corporate profit tax – down to 15%;
- Zero VAT rate on export of software;
- Zero capital gains tax on sales of shares and tradable rights on the Bulgarian Stock exchange.

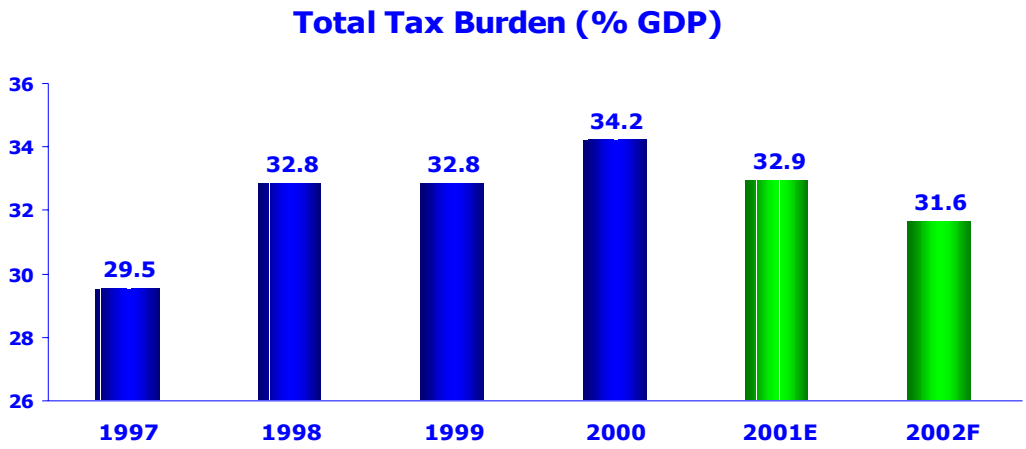


Figure 101: Total Tax Burden (%GDP)

Respectively industrial sales grew an impressive 19.3% in Q4.01 and the investment goods component in imports is significant. Bulgaria credit rating for the last year has been upgraded 3 times by all major credit agencies (Moody's – B1 November 2001, S&P – BB November 2001, Fitch – BB January 2002) and the country had the first Eurobond issue, seriously oversubscribed (Registered subscriber interest – EUR 1,100M – 4.4 x oversubscribed).

10.2.2.Regulatory and legal framework for e-Business

The state policy in the field of information and communication technologies (ICT) is among the key issues when assessing the country's e-readiness for e-Business. The analysis below examines the governmental policy in the ICT sector in general focusing mainly on the legal framework of ICT as the most significant and powerful instrument for State intervention.

Developments of high technologies, stimulation of information society and creation of optimum environment for implementation of ICT by the Bulgarian enterprises, have been priorities of the government policy for the last few years. A particular example of that policy is the enacting of many new laws and updating a lot of regulations so as to encourage the progress of e-business on a better economic, social and political background. Here are some of the most important political initiatives:

- *Strategy for Information Society Development of the Republic of Bulgaria* adopted in October 1999. The Strategy defines the national priorities for transition to Information Society at legislative, technological, economical and social levels and outlines the basic related activities. It combines the Information Society concept of the European Union with the national interests and the specific realities of the country.

- *National Program for Information Society Development of the Republic of Bulgaria* adopted in October 1999 and updated in April 2001. The Program is based on the adopted Strategy and specifies in details the measures to be undertaken and the governmental body responsible for their implementation.

- *National Strategy for E-Commerce adopted* in June 2000. The national strategy for development of the e-commerce can be considered a part of the Strategy on Information Society Development in Bulgaria. Its main objective is to transform Bulgaria into a qualified participant in the European and the global electronic market and a leader in the same area for South-Eastern Europe. The document includes:

  - The essence and basic characteristics of e-commerce, international experience and e-solutions, necessities and prerequisites for the development of e-commerce in Bulgaria;

  - Goals and priorities for the development of e-commerce in Bulgaria – basic principles, financial sources, role of the state, the private sector and the society;

  - Legislative background and standardisation.

- *National E-Government Strategy*, adopted in December 2002. This document outlines the strategy for the implementation of information technologies in the public administration and for the attainment of the priorities underlying the contemporary e-government concept. The main objective of the strategy is to organise and support a long-term process of introducing the e-government at the highest government level.

10.2.2.1. Access to Information

The development of e-Business depends to a great extent on the legal regulation of the access to information and the protection of communication rights. The basis for the establishment of an effective legal framework for dissemination of information has been already created with the adoption of the new Constitution in 1991. The detailed regulation in this field has to be provided in three separate laws concerning the access to public information, the personal data protection and the confidential information:

- *The Law on Access to Public Information* was adopted in July 2000. It defines the term "public information" and declares the principle of free and unlimited access to such information. The Law also specifies the procedures for obtaining public information and the authorities responsible for its provision.

- *The Law on Personal Data Protection* was adopted in December 2001. It corresponds to Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regards to the processing of personal data and on the free movement of such data and is considered as a prerequisite for the ratification of Convention No. 108 of the Council of Europe for the Protection of Individuals with regard to Automatic Processing of Personal Data, signed by Bulgaria in June 1998. The Law specifies the obligations of the persons dealing with personal data processing, the protection of such data, and the terms and procedures for providing access to personal information and also envisages the establishment of an independent Commission on Personal Data Protection.

- *The Law on Protection of Classified Information* was adopted in 2002. The Law established a modern legal framework in conformity with the NATO policy and standards and specifies the principle and procedures for the protection of classified information as well as the responsible specialised authorities and their powers. The Law also provides for the establishment of a State Commission on Security of Information to carry out the overall organisation, coordination and control in this field.

10.2.2.2. **Telecommunications**

The legal regulation of telecommunications is provided by the Law on Telecommunications adopted in 1998. In 2001 substantial amendments to the Law have been introduced, which entered into force on February 5, 2002. The Law defines the terms "telecommunication" and "telecommunication activity" and specifies the regimes for operation of the telecommunication operators. The Law envisages a number of authorities exercising powers in the field of telecommunication:

- The Council of Ministers determines the state policy in the field of telecommunications by adopting Sector Policy for the Telecommunications. The Sector Policy lays down the strategy, the principles and the stages of development of the sector "Telecommunications".

- The Minister of Transport and Communications implements the telecommunications policy on the basis of the Law on Telecommunications and the Sector Policy and also adopts the respective secondary legislation.

- The Council for the National Radio Frequency Spectrum at the Council of Ministers carries out the state policy on the radio frequency spectrum (the spectrum including the frequencies between 3 kHz and 3000 GHz).

- The Commission for Regulation of Communications as an independent specialised state authority implements the sector policy by regulating and supervising the implementation of telecommunications.

The legal framework of the competent authorities follows the principle of dividing the functions related to the state governance (assigned to the Ministry of Transport and Communications) and the ones related to the regulation of the telecommunication market (assigned to the Commission for Regulation of Communications).

10.2.2.3. **Electronic Document and Electronic Signature**

The newly adopted Law in Electronic Document and Electronic Signature is effective since October 7, 2001. The Law corresponds to the main principles of Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures.

The Law defines the terms "electronic statement" and "electronic document", envisaging provisions on the signatory, the owner, the addressee, and the intermediary of an electronic statement as well as on the determination of the time and place of sending and receiving electronic statements. The Law also stipulates that with the composition of an electronic

document the written form is considered observed. Three types of electronic signatures are specified (simple, advanced and universal) depending on both the technological means used for their creation and their legal validity. The simple and the advanced electronic signatures have the effect of the handwritten signatures except for the cases where the owner or the addressee of the electronic statement is a central or local state authority, while the universal electronic signatures have the same effect also in the public sphere.

The status of the certification-service-providers and their relations with the owner and the signatory are also regulated. A registration regime is envisaged for the providers issuing certificates for universal electronic signatures. The registration is performed by the Commission on Communications Regulation.
Initially the electronic document and electronic signature will be applied in the commercial turnover, while additional legislative changes or governmental acts are needed to expand their implementation in the operation of public administration and other state institutions.

The effective implementation of the Law depends to a great extent on the timely adoption of the respective secondary legislation. Unfortunately the deadline for its preparation and adoption was not observed by the responsible state institutions – the State Telecommunications Commission and the Council of Ministers. However in the very end of 2001 the State Telecommunications Commission successfully finished its work on the preparation of the draft regulations and presented them to the Government for adoption.

10.2.2.4. Copyrights

Copyrights are regulated by the Law on Copyrights and Related Rights adopted in 1993. The Law includes special provisions concerning the protection of copyrights on computer programs and data bases specifying in details the types of operations the user of the program is permitted to perform. The free copying of computer programs for personal use is explicitly prohibited. Sanctions under the form of fines are envisaged for illegal possession, reproduction, distribution or use of computer programs and seizure of the subject of the violation is also provided.

The Law also contains provisions on the use of works subject to either copyrights (works of literature, art, and science) or related rights (records and movies) by providing access to them through wireless means, cable or other technology, for unlimited number of persons, allowing this access to be obtained from a place and in a time, individually chosen by each of them. Such use requires a prior permission by the author, the performer or the producer and imposition of fines is provided for violation of this requirement.

10.2.2.5. Computer Crimes

The Law on amendments to the Criminal Code adopted in 2002 regulates the criminal offences and the penalties imposed for their commitment. The Law introduces new criminal offences such as unlawful access to computer resources, unauthorised copying or use of computer data, unauthorised damaging or deleting of computer programs, entering of computer viruses within a computer of information network, dissemination of computer or system passwords followed by the disclosure of personal data or state secret, etc. The Law also provides definitions of some computer crimes related terms.

The existence and the implementation of these documents ensure a favourable environment for introduction and implementation of new technologies in Bulgaria. That is a further proof of the readiness of the Bulgarian political elite to adopt the new opportunities that come with the increasing popularity of the Internet in all aspects of social and economic life.

10.2.3.Level of ICT readiness of the Bulgarian economy

During the 1960s Bulgaria acquired a number of COMECON specialisations in the production of communication equipment, which made it possible to begin extensive training of personnel, developing R&D organisations and the respective production capacities. As a result, Bulgaria achieved a monopoly position with over 48 percent of the electronics market in CMEA since late 1970s to late 1980s. Employment in the ICT sector reached 200,000 in 1980s and the production capacity of microprocessor plant in Pravetz reached 100,000 annually. 130,000 were employed in electronics and telecommunications in 1989, 8,000 of them being highly qualified professionals.

Almost the entire production (95%) of the sector (equal to 25% of the industrial manufacturing output) was export oriented, mainly targeted at the USSR market.

Since 1989, the beginning of transition to market economy, a dramatic decline in electronics production and export was observed. Among the main factors contributing to this situation were: increased international competition, poor corporate governance, lack of state financing and collapsing supply and demand mechanisms within CMEA.

Thus, for instance, export decreased more than 20 times over a period of 10 years from $ 1.5 billion in 1984 to less than $ 75 million in 1994. The result was significant structural unemployment, leading to serious social problems and labour force dequalification, especially in towns whose urban growth was based on new technologies specialisation.

In expert estimates, the Bulgarian ICT market amounts to about BGN 1.6 billion, accounting to 6% of GDP. Among the fastest growing markets are mobile communications (preliminary circa BGN 700 million), cable televisions (estimated at BGN 250 million), Internet access and, especially during the second half of 2001, Voice over IP (estimated at BGN 15 million). The computer market is around BGN 480 million, the largest share – 64% being that of hardware, 21% - services, and a small share for software – 15%. The growth is still dependant more on hardware, infrastructure and access to technologies rather than on IPR or services transmitted via them.

10.2.3.1. Computers in business

Unfortunately, computer and internet usage in business has not been studied systematically and by representative samples. Nevertheless, a few specialised studies targeted at different types of companies could serve as a starting point for analyses. At the end of 1999 "around 23% of SMEs had computers and 5.7% had intranet". A study of the innovation potential of Bulgarian SMEs in the third quarter of 2000 found that 40 percent

of the companies used electronic networks, databases and Internet. According to Vitosha Research estimates, around 30% of the active companies in Bulgaria use computers in their daily work.

Computers in business are not uniformly distributed and are not effectively used. Only 7.3 percent of workplaces have PCs installed, and only 20 percent of companies with computers have built their own intranets. New computers in private business (excluding finance and telecom sectors) are rarely shipped. Private business and home users segment altogether account to only 14 percent of all new shipments. The government has the largest share of new computer imports – 46 percent of the total volume.

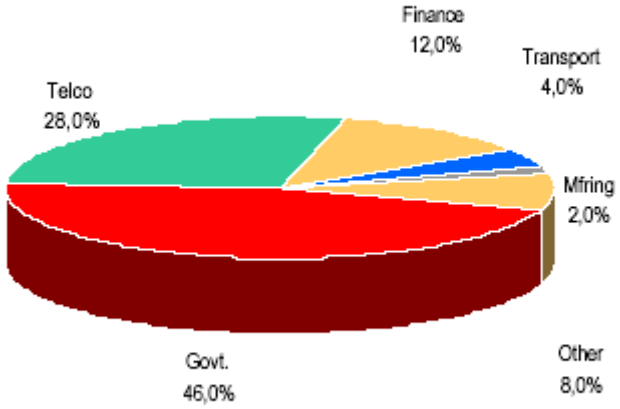


Figure 102: Shipment of new computers by sector

Source: IDC 2000

In the majority of companies, computers are being used for document processing, accounting and legal information systems. Fax machines and telephone, as well as personal contacts, are perceived as key to doing business. It is still required to have signed paper documents almost everywhere.

10.2.3.2. Internet and web use in business

Around 40% of companies having computers, or 12% of the active companies, are connected to the Internet. Only 3.85% of employees have access to the Internet, which is predominantly used for email communication. This fact could be explained by two factors – (a) a large amount of outdated computers (prohibiting effective use of the Internet) and (b) lack of understanding among business managers about the role of Internet as a driving force for business development.

There was an initial boom of launching Internet sites by companies in 1999 and 2000. The general pattern was to leave the site very simple and not updated. 2001 marked a slight change of the migration of companies to Internet. New sites tend to be more sophisticated and regularly updated. The growth is rather linear than rapid exponential development (as

is the global trend). According to optimistic estimates 5% of Bulgarian companies have Internet sites. Currently, around 1,900 domains are registered in .bg TLD, being used roughly by 700 organisations. About 2,500 domains are registered in .com, .net and .org, but quite a large number of companies maintain two or more domains. In addition, 800 company sites are believed to be hosted by local portal sites (including free hosting) – i.e. www.hit.bg, www.dir.bg, www.online.bg, www.bol.bg, www.search.bg and others. Company sites present mainly basic, static and rarely updated information, often limited to a short company profile, address and brief description of products and services. Expert estimates suggest that 75 percent of company sites fall in this category. The interactive sites and detailed corporate presentations with actual and dynamic information are rather an exception to the rule.

"Quality of Internet sites"	Short presentation of the company, not more than 1-3 pages	Detailed presentation, incl. product catalogues, price lists, etc	Dynamic information, news	E-commerce, online payment or payment on delivery
Frequency	75%	20%	3%	2%

Table 71: Distribution of company sites by quality (expert assessment)

Source: *Expert assessment by Bazar.bg*

There are significant discrepancies in Internet use and quality of websites according to the area of company activity, size, ownership and other characteristics. Foreign companies, export-oriented companies, larger companies, those in the banking and finance sector, software development companies, hardware dealers and technology support centres, and human resource management companies usually have good and updated web pages and use ICT extensively in their everyday work. Small, locally targeted Bulgarian firms use, if at all, Internet primarily for communication purposes and computers – for accounting and warehouse databases or secretarial tasks. There are also a few small Bulgarian internet based retailers.

In a survey (FDI 2000) of companies with foreign direct investments carried out in December 2000, 75.3% of firms (with capital over $10,000) were found to use email and Internet in their everyday work. Despite the obvious use of Internet for general information gathering (74.1% of all firms), Internet is mostly used for interaction with company suppliers – 45.9%. About one-third of the firms used Internet for communication with clients and just 7% were involved in ecommerce.

Internet usage	FDI 2000	GCR'99
e-commerce	7.1%	12.8%
Servicing clients	34.1%	37.1%
Relations with suppliers	45.9%	47.1%
General information	74.1%	83.9%
Do not use at all	24.7%	16.1%

Table 72: Internet use in enterprises in Bulgaria

The data support the tendency observed by the Global Competitiveness Report for 1999 (CGR'99) (field research conducted in January 2000).

10.2.3.3. Electronic commerce

Still the share of revenues generated over the Internet is symbolic – 1.06% according to the GCR 2000. 7.6% of companies report that around 2% of their revenue is generated over the Internet. 2.8% report values in the margin of 4 to 11%. It should be noted that the revenue is either generated from outside Bulgaria or trough external online payment systems.

There are two existing e-payment systems in Bulgaria, ePay.bg being the most developed:

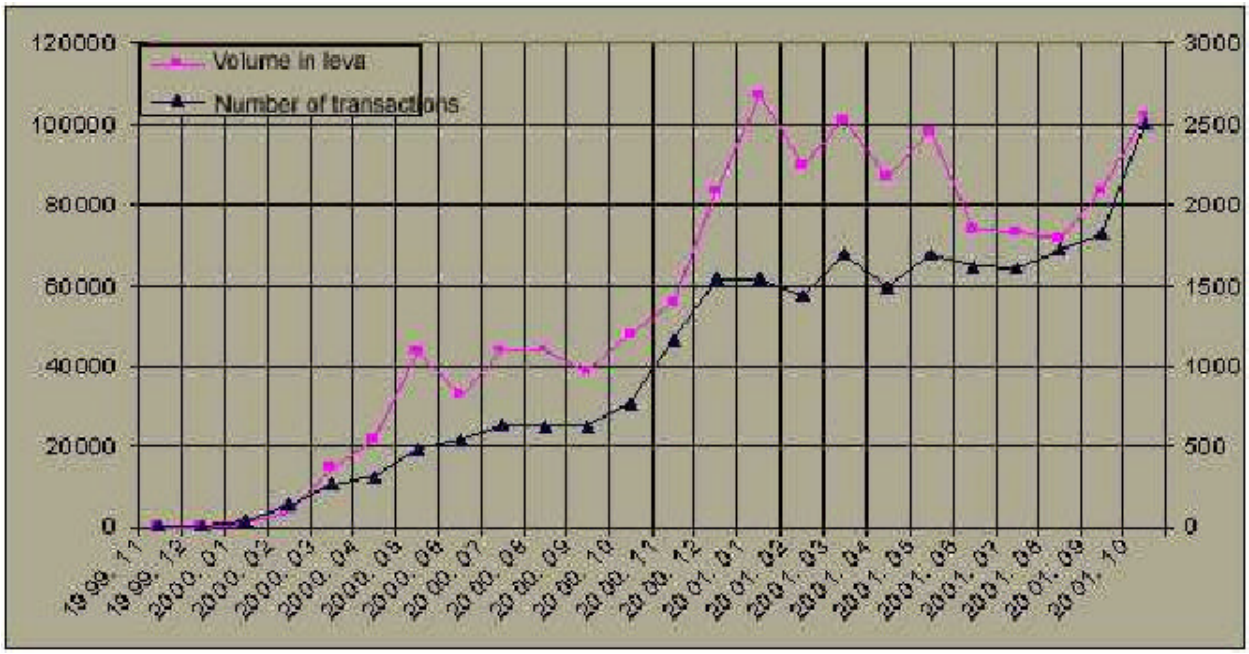


Figure 103: Electronic payments through epay.bg for the last two years

(LEFT SCALE – TURNOVER; RIGHT SCALE – NUMBER OF TRANSACTIONS)
Source: Borika

There is a clear trend of relatively stable transfers via the Internet of about BGN 80,000 monthly. Two major factors account for this situation – demand has already peaked and there are not enough attractive goods and services available for online purchase. The somewhat clumsy and complicated procedure for online debit cards registration is yet another negative impact – only 1.4% of debit card holders are currently registered in ePay.bg. A second e-payment system, BGPay, was launched in mid-2000 but still has no real turnover. A relatively new service, Net-Card, for e-payment by prepaid cards is fast growing. In just 3-4 months of existence, registered users of the service are about 3,000 with a total of 11,000 transactions worth BGN 60-70,000.

B2C

E-commerce development in Bulgaria is still at an early stage, when it is difficult to determine the market niches and their potential. The current distribution of existing internet shops/e-commerce sites is given in the following table. The respective share of turnover is based on expert estimations.

Type of payment	Number of Internet shops	% of total turnover
Payment through debit cards	10-15	20-25%
Payment through credit cards	7-8	7-10%
Payment on delivery	40	60%
Payment services only for utility bills	1	8-10%

Table 73: Distribution of Internet shops by type of payment

Source: Expert assessment by Bazar.bg

There is a bit of confusion in the overall business language related to e-commerce and most of the Internet shops currently in operation are in fact company catalogues for home/office delivery with payment in cash upon delivery. Rough estimates show that they account to 60% of the total turnover, compared to online sales by debit cards accounting to only 30-32% (including payment of utility bills). Although the number of credit cards is significantly less than debit cards, they account for 7-10% of the volume of online transactions.

Based on data from Internet shops and e-payment systems, the major categories of goods and services traded over the Internet are given in the following table:

Books	45%
Internet access cards	10%
Flowers and souvenirs	10-12%
Music	7-8%
Electronics, GSM telephones	6-7%
Payment of utility bills	12-15%

Table 74: Type of products and services sold on Internet

Source: *Expert assessment by Bazar.bg*

The average transaction through ePay.bg is BGN 45-50. The low average level is determined by the low consumer purchasing power. There are some seasonal variations in Internet transactions, partially due to higher utility bills in January (BGN 85 on average).

January 2000	September 2000	January 2001	August 2001	October 2001
19,1	62,29	69,49	41,61	40,82

Table 75: Average transaction through epay.bg in bgn

Source: ePay.bg

B2B

Business-to-business e-commerce is still negligible. Although there are individual attempts for transactions and software platforms for information exchange and internal payment between branches of a company, there are no portals or specialised sites for B2B.

Besides partially payment of company utility bills (water, heating) there are no other major services or goods offered over Internet that could be classified in the B2B category. A few online bookstores (www.office1.bg, www.buloffice.com and others) provide options for online ordering of stationery, but still the majority of orders are made by phone. Rough estimates show that the ration of B2B compared to B2C is about 15:85.

The major barriers for B2B development are low qualifications of company buyers and unwillingness to change stereotypes of work in dealers. Additional factors might be difficulties in accounting and dealing with banks. It was discussed earlier in this report that Internet is mostly used by people younger than 30 years, yet the decision-makers in companies (chief accountants, buyers or even managers) and the majority of public servants feel frightened by the new technologies and do not effectively use computers and the Internet.

Availability of e-payment instruments

The overall assessment is that Bulgaria has a favourable legal framework and technological infrastructure of trade and financial institutions, allowing for online authorisation and settlement of e-commerce transactions. The majority of the banks issue debit cards and some – also credit cards.

The number of debit cards was 800,000 in mid-2001 and credit cards were between 7,000 and 10,000. An annual growth rate of 50% was observed in the last two years. Credit cards issued in Bulgaria have a stable growth of 400-700 new cards issued each month. The credit cards growth is low due to tough requirements by banks – initial deposit in the range of $300-2,000 (3 to 7 times the average monthly salary) and because the usage of credit cards in Bulgaria is limited. According to the latest available data there are around 3,000 VISA and 4,000 MasterCards in the country. International debit cards Maestro are around 66,000 but the majority of Internet shops do not accept them as a payment instrument.

Electronic cards could be used by around 10% of the population through 565 ATMs (as of July 2001) installed in 100 towns and even villages in Bulgaria. There are 200 ATMs installed in Sofia alone (as of end of 2001). In spite of the overall growth of 35% in ATMs, the number of towns/villages covered by the network remains stable in the last year. The major towns and tourist centres are covered by a network of ATMs. POS-terminals, which are more important for e-payment development than ATMs, account for a significant growth – from 500 at the end of 1999 they reached 1,600 in mid-2001.

In October 2001 the last remaining five large banks joined in the system of electronic payments and the number of potential users grew by 150% reaching 800,000 people.

Card holders	Total	With possibilities for electronic transactions	Registered in ePay
December 2000	534 000	120 000	5 000
December 2001	810 000	780 000	11 000

Table 76: Card holders

Source: Borika

Debit card transactions doubled in 2000. The turnover trough ATMs in 2001 increased with 82.8% as compared to 2000, and the growth in Internet payments is even bigger – 180%.

	December 1999	December 2000
Withdrawal from ATMs (in BGN)	2 900 000	5 800 000
Payment through Internet (numbers)	6	1535
Payment through Internet (volume)	168,38	82 883,68

Table 77: Debit cards use

Source: Borika

Electronic payments are made also trough prepaid cards and e-banking: pc banking, telephone banking and online banking. The major difficulties to e-banking include the lack of adequate qualification of bank employees, combined with conservative attitudes towards new technologies, security-related problems, and lack of understanding among the businessmen.

10.2.3.4. Security of the Internet Transactions

The security in the Internet is always an issue when there is a discussion about e-commerce, new business e-solutions or just communication over the net. The most frequently addressed problem is the security of the data transmitted in the virtual space. The ever-advancing high technologies and the increasing popularity of the Internet among different social and economic categories make the maintaining of satisfactory levels of security in the Internet a highly complicated problem. The news for updated versions and latest encrypting methods come along with information for successful computer frauds in massive proportions, penetration in "high-security level" data bank files and hacker attacks. The sum of it all brings about great concern and suspicion in the fields of the Internet consumers around the world.

The corresponding situation in Bulgaria could be referred as even worse if we add the problem with the credit and debit cards. Not until long ago, the cards issued by banks were completely unfamiliar to the Bulgarian consumer. People are very much used to the basic way of buying goods and services and paying for them physically with cash in their hands. Sales trough catalogue, phone calls and television generally did not exist only a couple of years ago. All that comes to show in one way how many obstacles lay on the way of the development of e-business in Bulgaria and in another the necessary and adequate state policy needed for promoting the Internet and changing the perception of it.

Naturally, the broad introduction and increasing commercial popularity of the Internet require the adoption of a set of adequate precautionary measures in order to guarantee a certain level of security of e-transactions. One of the first steps in that direction is the enacting of the due regulations that correspond to the current business environment.

By coming into effect in 2001, the law for the electronic signature and document marked the beginning of the updating and changing the Bulgarian legislation in this field in accordance with the demands of the new economic processes.

As a matter of fact, the e-commerce existed in Bulgaria before the moment the law came into power. Many people with advanced views used to close deals and operate in the Internet without the protection of the law. A lot of the parties in that e-commerce did not even have an idea what the "e-document and e-signature" were all about. The state did not have the background and the readiness for such a regulation either. Therefore, a year after the promulgating of the law it needed a number of amendments. On that stage were taken into consideration the Directive 1999/93 and was ratified the model for digital signature of the United Nations Commission on International Trade Law.

The problems that the law for the electronic signature and document has to eliminate for the Bulgarian users are basically two – the identification of the parties in an electronic transaction and the verification of its content. The long-term goal of the law is to lay the foundations for a broader set of regulations in the not distant future. That way the implementation of new e-solutions and the development of e-commerce would have a solid legal background which will further facilitate the stimulation of the e-business in Bulgaria. So far the law for the electronic signature and document does not regulate the legal status of business transactions for which the existence of a written form or keeping a physical record is required. In that case the physical possession of the document or a copy of it has a special legal purpose, e.g. bonds, shares, bills of lading, etc.

The most essential part in terms of the Internet transactions security that the law constitutes is the introduction of specific requirements for generating and signing of e-documents. The law will apply the transformation of the electronic statement with reference to a maximum level of security through an asymmetrical cryptogram. The latter will be accessed by a double checkpoint key – private and public. In order to guarantee the authenticity and the integrity of the signed e-documents, the law imposes the participation of third parties – providers of verification services, who can issue a specific certificate.

Creating adequate regulations that constitute the activity of the third parties – the providers of certification, and the application of methods for improvement of the e-signature, ensured the proper functioning of the law. To succeed in that initiative the Bulgarian legislation issued several decrees regulating:

a. The operation of the providers of verifying services, the order of issuing certificates and the procedure of termination of the latter;
b. The registration and licensing of the providers;
c. The requirements for the methods for improvement of the e-signature.

As a result of these legislative steps in April 2002 another law came into effect – the Law for protection of private information. Its important contribution can be defined in two ways. It was another step toward harmonising the Bulgarian law system with the European one in terms of protection of the human rights. Its application is a necessary condition for establishing secure transactions over the Internet and the implementation of new high technologies.

Moreover, for the exceptional importance of that law stands the necessity of providing a lot of detailed personal information in any kind of e-business activity – name, phone number, address, age, sex, etc. The interpretation of that law in Bulgaria led to further requirements for its implementation in the communications sector. That initiated more legislative efforts and resulted in a more specific law – The law for protection of the personal information in the sphere of telecommunications. Practically, its coming to effect filled the vacuum in the legislative frame dealing with the protection of the private information in the Internet.

Due to the diversity and complexity of the ongoing e-commerce, the specially created laws and regulations can hardly separately solve any problems evolving from its activity. Therefore all the existing regulations related to commercial transactions are enabled too.

Apart from the legislative regulations for protection of companies and people doing business over the Internet, there are many technical solutions for improving the level of security of the virtual transactions. Two of the protocols providing a guaranteed security and are most frequently used in Bulgaria for transmitting information are SSL and SET.

SSL (Secure Sockets Layer) is a system for protection of the exchange of data. It is a product of the efforts of Netscape – the company amongst which creations is the second most popular Internet browser. SSL encrypts the transmitted data, e.g. the number of a credit card, and does not allow the information to be read by unauthorised parties. A yellow pad-lock appears on the bottom row of the browser when the consumer activates the SSL. The servers in SSL regime have their address starting with https://.

SET (Secure Electronic Transaction) is invented exclusively to guarantee financial transactions over the Internet. It is a combination of the existing security tools and PKI (Public Key Infrastructure). It requires electronic certificates from both the owners of credit cards and the dealers. PKI is applied when it is necessary to be confirmed whether each of the parties in a contract is really the one it represents itself for. That function is of tremendous importance in the Internet where there is no set routine for confirmation of the identity of a person or institution. It is also owing to the PKI that the implementation of a conception for approving or denying Internet-based payments can exist. The potential buyers of products and services offered in the Internet cannot litigate their payments after a deal is closed because the e-document would be signed by their e-signature which can not be faked.

Despite the existence of the above-mentioned legislative and technical guarantees for the security of e-commerce, the Internet consumers should be well aware of the fact that the development of new technologies permanently sets new standards and challenges against the status quo. There is no 100% guarantee both in the e-commerce and the traditional business.

10.3 *Current State of E-business in SMEs in Bulgaria*

According to the analysis of the marketing agency JNN Consulting, published in June 2002, 97.8 % of the researched companies have access to the Internet in 2001 (for the year 2000 the index is 89%). At first glance, these indicators are surprisingly positive. At second, however, studying the methodology of the research in detail, it gets clear what are the reasons for that unexpectedly high level of popularity of the Internet among the Bulgarian businesses. Although these businesses are repeatedly referred to as "small and middle" in the analysis, they actually feature companies with 50 to 250 employees. These numbers automatically exclude the studied companies of the definition "small and middle" knowing the fact that according to the Bulgarian legislation, concerning the number of employees of a company, "small" are the ones with personnel up to 50 employees, and "middle" – up to 100. In this regard, it should be taken into consideration that 98% of all businesses in Bulgaria are "micro" and "small" according to the statistic data provided by the National Statistic Institute for the year 2000, and the companies with 50 to 250 employees represent only 1.62%. Therefore, the conclusions drawn from this specific research about the high Internet services consumption are more likely to be misleading and irrelevant to produce any true assessment.

Company Size	Access to computers %	Access to Internet %	Access to e-mail %	Web Page %
Micro (up to 10 employees)	56	37	39	12
Small (up to 50 employees)	83	50	52	17
Middle (50-100 employees)	100	60	67	22

Table 78: IT use per company size

The information posed by the Bulgarian Agency for small and medium-sized enterprises is far more realistic. The data from the research, done in 2001, about the business environment in Bulgaria, is represented in the above table. The results bring to the attention the fact that relatively small parts of the "medium-sized and small" enterprises in the country benefit from the resources the Internet offers although they have the necessary means (good computers, internet access). For most of them Internet is hardly anything more than using the e-mail.

Another interesting result of the research is the proportion of "medium-sized and small" enterprises having their own domain/URL/site in the Internet and those having computers is 1 towards/against 5. This proportion points to the result that nevertheless more flexible and open to new technologies, very few of them have managed to make a good use of the

opportunities Internet reveals. The reason for that outcome could be either unawareness of the potential benefits of presence in the Internet, or lack of financial resources to take part in the e-business.

Examining the results of the same research by branches of economy, it clearly evinces that the SMEs in Bulgaria, i.e. the people who manage them, discount the importance of having a web site. Its availability for a hotel, or a company focused on trade and services would be of a great advantage and in the same time wouldn't be too big an expense.

Branch of Economy	Access to computers %	Access to Internet %	Access to e-mail %	Web Page %
Transport and communications	82	57	57	24
Hotels and Restaurants	74	70	70	18
Construction	100	60	67	22
Industry	55	35	37	16
Commerce and Services	54	34	38	9

Table 79: IT use per branch of economy

A recent research of the economic activity of 2 250 companies in the real sector, gives another perspective and provides information about the level of popularity of the Internet and the ICT in the Bulgarian marketplace. It is an initiative of the Centre for Economic Development, in the framework of a project of The Japanese International Collaboration Agency (JICA) and is conducted by the National Statistics Institute. The companies participated in the research are located in all the 28 administrative districts of the country and represent a good number of different industries – mining and processing, production and distribution of electricity, water, natural gas, construction, automobile mechanics and dealerships, home improvement, restaurant and hospitality, transport of people and goods, etc. A whole section of questions target precisely the degree of implementation of the up-to-date ICT in the Bulgarian small and medium-sized companies.

The result of the inquiry shows that only a few companies consider the Internet to be a reliable and important source of information. Just about 11.5% of the respondents marked the web as a source of information about what is happening on the market, as compared to 35% that obtain the same data from self conducted research, and another 24% that communicate with business partners to get it.

The Bulgarian companies are not familiar well enough with the opportunities that the Internet holds out for economic growth and development of business. In the biggest share the net is used for communication purposes – 27% of the respondents indicate that they use e-mail, less than 13% of the companies specify that they have advertised using the Internet and close to 19 % have gathered information about ISP's and potential sales through the net.

One of the positive tendencies derived from the answers of the inquiry is about undertaking first steps towards using the Internet for managing financial and pecuniary/material flows. Nearly 7% of the companies have declared to be using some

form of electronic banking and 0.6% are involved in e-commerce in its full definition of electronic sales, purchases and settling accounts.

Although these figures are far from satisfactory for those who crave for the development of e-commerce, the ever-growing interest towards the Internet and its presence in the strategies of both state and private companies suggests that in the overall picture the time of the real Internet economy is coming. Having in consideration that up to the present moment more than 15% of the population of Bulgaria and 50% of the "small and medium" businesses have access to the Internet, it is beyond doubt that the first steps towards the global electronic markets are made. In addition, the popularity of the Internet will be influenced by the snowball effect of constantly increasing demands and new generation of executive bodies in the companies. That, in a way, will also contribute for the faster development of e-commerce in the Bulgarian economy.

The following analysis is based on the results of two successive national annual studies of the e-business environment in Bulgaria. These studies were conducted at the end of 2000 and at the end of 2001 under EU projects.

The main target groups in both studies were companies from all over the country, developing different types of basic activities, with staff numbering predominantly between 50 and 250, and installed computer capacity between 5 and 50 computers, in other words – predominant among the respondents in the upper segment of medium business.

In 2000, 89% of the surveyed companies in the country had Internet access. In 2001, the percentage of the companies in the sample with Internet access was already 97.8 %, i.e., only 2.2% of the surveyed companies did not have Internet access yet.

There is substantial Internet penetration among the companies of medium-sized business as well.

10.3.1. Internet access among small and medium-sized business in Bulgaria

In December 2000 ***In December 2001***

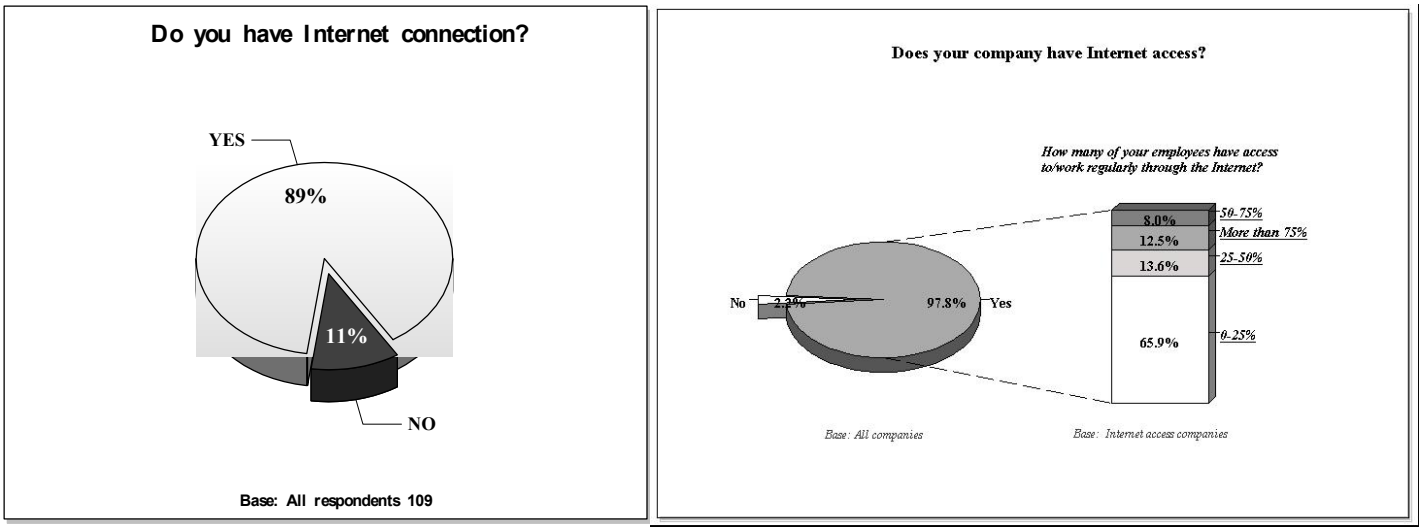


Figure 104: Internet access in 2000 and 2001

Source : EU-ENLARGE Project, CLPP, JNN Consult

In 2000, 43.3 % of the companies included in the study had Internet access using leased lines, for 41.2% that access was via analogue modems, 7.2 % - via ISDN, 1.1% - via radio modems, and 7.2 % of the managers did not know what Internet connection they had. In 2001, 42% of the companies had their Internet access using analogue modems (9.6-56 Kbps), for 22.7% their Internet access was via cable or ASDL connection, 15.9% - via ISDN modems (64-128 Kbps), 6.8 % - via radio modem, 5.7% - via leased line, 2.9% - via fibre optics connection, 1.1 % - via satellite connection; 3.4 % of the managers did not know what connection they were using.

10.3.2.Type and speed of the Internet connection

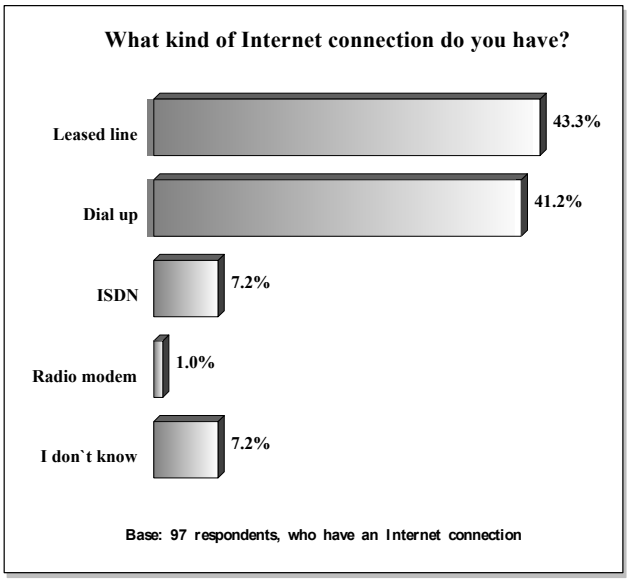


Figure 105: Type of Internet connection in December 2000

Source : EU-ENLARGE Project, JNN Consult Ltd.

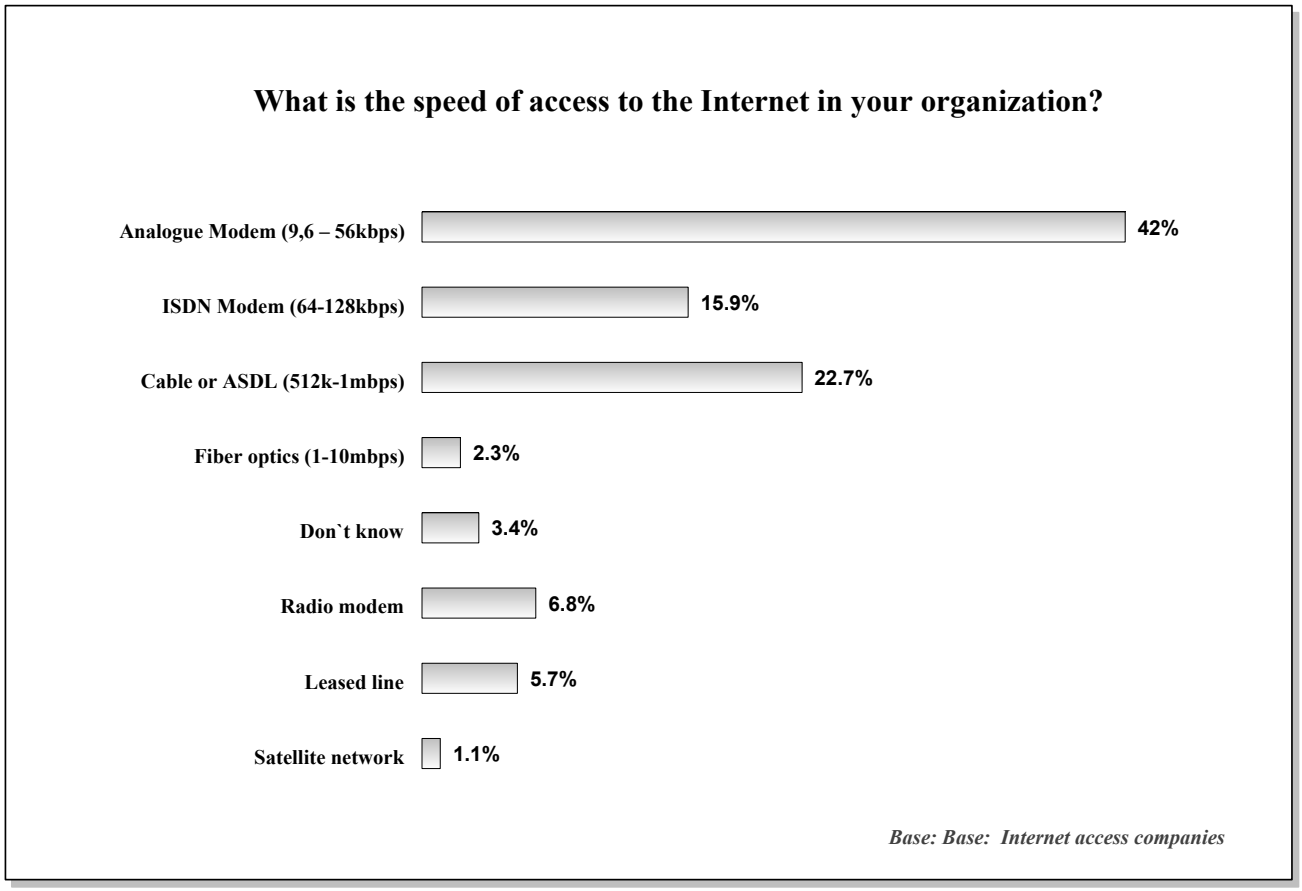


Figure 106:Type of Internet connection in December 2001

Source : EU-ENLARGE Project, CLPP, JNN Consult

It can be seen that the percentage of the companies with Internet access using analogue modems remained approximately the same, while the percentage of the companies with access via leased lines decreased from 43.3% to 5.7%, at the expense of Internet access via cable or ASDL connection (22.7%), more than twice higher percentage of the companies with ISDN modems (from 7.2% to 15.9%), more than five times higher - via radio modems, and the emergence of companies with optic and satellite connection.

10.3.3.Availability and purpose of the web-site

In terms of the design of web sites, 52.3% of the companies in the survey had their own web site in 2000. Although 70% of the companies with Internet access had their own web site in 2001, only 21% of them operated on-line. A large part of the companies perceived their web site only as an additional marketing means, e.g., similar to a TV commercial or advertising in the newspapers. The web site for them is merely a new attempt at advertising, which is very far from the interactive possibilities and solutions offered by the Internet and e-business.

The Internet is most frequently used for communications (e-mail), moreover mainly in the following departments:

1. Marketing and sales

2. IT
3. Management
4. Customer service

The age group using Internet the most is between 25 and 40 years. However, the most frequently used modes of establishing contacts with the business partners and customers are through personal meetings, telephone and fax.

In terms of the need of training with a view to effective use of the Internet in business, 73.4% of the respondents in 2000 indicated that they needed training.

Although most companies assess their IT training and their progress with respect to the e-business technologies as "good" in 2001, 60 % expressed their need of training on the proposed topics.

10.3.4. Priorities for initiating an e-business strategy in the company

In 2001, 82.2 % of the companies included in the survey had not participated in e-business initiatives, but they believed that the introduction of the e-business strategy in their company would have a positive effect on relations with their customers. Among the main reasons for initiating e-business strategy in the company the respondents cited first the penetration to new markets, followed by competition, lowering of the costs, pressure on the part of the partners and the parent company (see Figure 107).

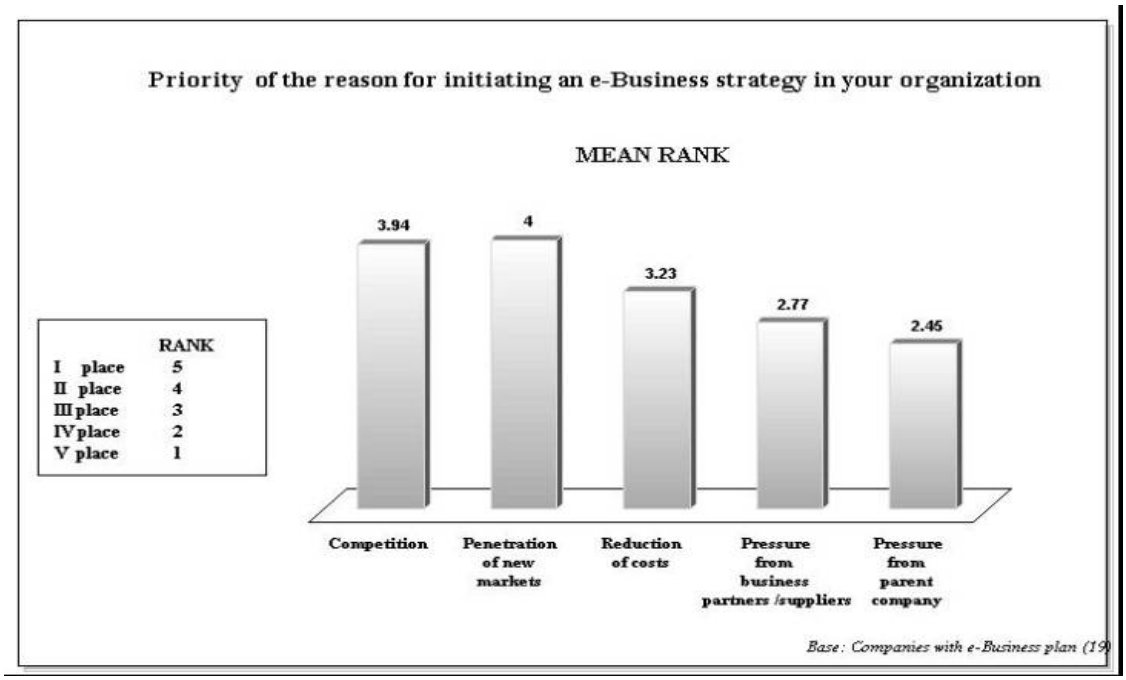


Figure 107: Priority of the reasons for initiating an e-business strategy

Source : EU-ENLARGE Project, CLPP, JNN Consult

The companies attach the greatest importance to the establishing and developing of e-business in Bulgaria to the "security of e-payments." The problem with the existing payments by Internet is definitely not technical but more of a psychological nature. There were three times more payments through ePay.bg for 2001 compared to 2000, according to data of BORIKA EOOD. More than one million Bulgarians possess debit cards.

In today's globalised world and economy a company cannot be competitive without a clear strategy on the introduction of the information and communications technologies in the management and marketing of the company. In the past two years the leading companies in Bulgaria, those with a clear vision about business, Bulgarian and foreign, devote great attention to the modelling of the business processes in the organisations, the certifying of the quality, planning and management of the company resources (ERP solutions), human resources management (HRM solutions). There will be development and management of the relations with customers (CRM solutions), application of GIS technologies for the needs of the CRM solutions, development of the management of relations with partners (PRM solutions), introduction of e-business platforms for development of their business. The introduction also of e-ERP, e-HRM, e-CRM, e-PRM solutions and e-business solutions is forthcoming. There are professional IT companies in Bulgaria, specialised in the sphere of the information and communications technologies, which possess know-how, teams, marketing and management, and which will contribute to the introduction and use of modern technologies in management and marketing. The development of e-business in Bulgaria is imminent.

10.4 *List of Sources*

The following sources of data and information have been used in performing the above analysis:

Institutional sources:

· National Statistical Institute
· Ministry of Finance
· Ministry of Transport and Communication
· Ministry of Economy
· Ministry of Education
· Internet Service Providers (ISPs)
· Bulgarian Association of Information Technologies (BAIT)

Documents:

· Annual Report of Bulgarian Telecommunications Company (BTC)
· Annual Report of Mobikom (mobile telephone operator)
· Annual Report of Mobiltel (national GSM operator)
· Quantitative surveys of research agencies – Vitosha Research, BBSS, Alfa Research, Gfk, IDG Bulgaria, JNN Consult etc.
· European Survey of Information Society
· IT analytical reports of Bulgarian and international organisations
· Expert assessments of members of project task force group
· Quantitative and qualitative surveys of Vitosha Research agency