HUMAN RESOURCES
IN THE CONTEXT OF REGIONAL DEVELOPMENT:
Company Skills Survey
in Selected Industries of North West Bohemia

Czech National Observatory
of Vocational Education and Training and the Labour Market,
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Contents

I. EXECUTIVE SUMMARY

The analysis of skill needs in the North West region presented in this report is based on three sources of information complementing each other. The context analysis identifies key structural and qualitative characteristics of the regional economy influencing the supply of and demand for skills ***(Phase I***), and includes an overview of the findings based on Continuing Vocational Training Survey (CVTS 2) implemented by the Czech Statistical Office.

The very information on skill needs was obtained through a detailed survey in the form of face-to-face interviews in 155 regional companies grouped into 5 industries (***Phase II***). The survey aimed at identification of (1) skill characteristics of the workforce as a factor affecting company economic performance, (2) the capacity of companies to identify skill shortages and their causes, (3) the approach of companies to design and implementation of measures addressing the skill shortages.

The survey findings were analysed and their implications as well as interpretations discussed in focus groups (***Phase III***). The participating experts also presented their views of various issues not covered or explained sufficiently by the survey findings. The active involvement of industry and local policy experts in this phase is to be regarded as an invaluable and indispensable contribution.

I.1 Context analysis

The context analysis outlined several development trends that can be considered as ***region-specific*** when compared to other regions or the Czech Republic average. Particularly, the regional labour market exhibits severe long-term ***structural imbalances*** that make the adjustment to macroeconomic development rather difficult and costly in terms of employment losses and unemployment increases.

While the regional capacity to create new job opportunities was roughly comparable with the Czech Republic average, it was not sufficient to compensate the above-average ***employment losses*** due to deep structural changes. Consequently, the North West region takes the second position as to unemployment rate in the Czech Republic. Even more discouraging are the ***structural characteristics*** of the regional unemployment as well as employment bases. These include both the high shares of low skilled employed and unemployed, and high share of long-term unemployed. The results of CVTS support the conclusion that the regional labour force, on average, has more limited access to training opportunities, largely due to the unfavourable structural characteristics of the regional economy.

Notwithstanding the generally unfavourable framework conditions mirrored in the key overall statistical indicators, there can be found rather large ***inter-industry differences*** as to performance characteristics and technology and skill intensities. Some industries underwent ***deep restructuring*** in the past and considerably improved their efficiency, productivity and export performance. These improvements were partly based on cuts of employment, which were, to a large extent, low-skill biased. Consequently, the skill structure in the companies improved. The passive adjustment was followed or accompanied with ***active adjustment*** in terms of introduction of new technologies, marketing and export strategies. Workers in these companies have higher skills, higher wages, better social benefits and training opportunities. The active adjustment strategies were largely supported/initiated by ***foreign capital*** presence.

The other, less productive and less dynamic, segment of the regional economy is more sensitive to the overall economic conditions. The ***passive adjustment*** phase has not been completed yet, or the resources are rather limited for the companies to embark on the active adjustment path. Their performance characteristics did not improve sufficiently, because of lacking entrepreneurial initiative, limited access to new technology, markets and to higher quality human capital. The economic environment in the region is also less favourable to the development of ***new business activities***, particularly in the segment of small enterprises.

The ***segmentation*** of the regional economy, highlighted by the context analysis on the industry level, was confirmed by the skill survey findings in many aspects. The differences between the dynamic and stagnant segments in the region are strongly reflected in contrasting attitudes toward ***human resources*** in respective companies. In case the segmentation trend continues to strengthen in the future, large groups of regional labour force (employed and unemployed) will be excluded from opportunities to improve the level of their ***human capital*** and, consequently, their ***labour market*** prospects. Under such circumstances, relatively high share of regional human resources will remain underdeveloped and underused, which raises severe challenges for social security system and regional social climate.

I.2 Operating environment

Most companies underwent ***large changes*** due to changes of external environment; in 60% of companies these included the market expansion. Only smaller group of companies (38%) is export oriented, most companies (87%) supply intermediate products to other companies. The share of companies making use of ***active adjustment*** is rather low, with only 25% increasing investment in new technologies and 21% increasing investment in human resource development.

Most companies, however, increased their performance characteristics in terms of ***productivity*** (73%), particularly due to better technologies, employment cuts and higher efficiency. The performance characteristics are largely industry and even company specific. The highest increases of productivity were reported in IT and telecommunications, and glass industries, the largest intra-industry differences in chemical industry. The productivity achievements are reflected positively in attention given to ***human resources***. Most companies declare a key role of ***quality based*** competitive advantage (81%), with the price still playing an important, however, not the decisive part in company strategies. Improvement of competitiveness position is largely based on enlargement of product range (62% of companies), much less on introduction of new materials or research and development activities.

Labour force is largely influenced by company strategies in terms of adjustment to external changes and by company performance characteristics. Employees are considered a ***major strength*** in 42% of companies, 37% of companies view the quality of their workers as satisfactory. The evaluation is more positive in the companies with increasing productivity. No companies consider the workforce as a limitation to their development. The workforce evaluations, however, are largely industry specific. In most companies, improvement of workforce quality is viewed as an important factor of development.

The chosen adjustment strategy is largely reflected in the changes of employment, which are also industry specific. Such changes are reported by 63% of companies (24% reporting decrease and 39% reporting increase of employment). The more productive companies also report higher employment cuts. On the contrary, the changes in structure of workforce were less important,

only in 25% of companies the structure changed. As to occupation classes, the most stable segments include the higher skilled workers, the least stable are those with low skill levels.

I.3 Labour turnover and redundancies

Labour turnover is quite a common phenomenon (56% of companies reporting) – however, for most companies (80%) it does not constitute a serious or unexpected problem, similarly, only 11% of companies consider the present turnover higher as compared to their expectations. That is why most companies do not undertake any special measures as to labour turnover. The views of turnover are industry specific, when the company development is intensive in labour force with specific skills. Most companies, however, view the voluntary outflow of workforce as a less costly alternative to employment cuts, i.e. as a positive phenomenon. Labour turnover is also skill biased; it is higher in less skilled workforce groups.

Redundancies were reported by 70% of companies and in terms of numbers they concentrated in large companies (65% of fired workers), only 18% of companies expect further redundancies in the future. As in the case of labour turnover, the redundancies (realized as well as expected) are again biased toward the low-skilled groups. The combination of higher labour turnover and higher redundancies in these groups improve the skill structure of company employment base, the implications for skill structure of broader labour market are, understandably, negative. Particularly, when the production expansion due to new market opportunities is mostly not expected to be labour intensive.

I.4 Skills and skill shortages

Most companies (87%) became ***more demanding*** as to the quality of their workforce, and expect the requirements will further increase in the future. Training is considered one of the possible routes for coping with these quality pressures. Within the framework of the increasing requirements, most companies (74%) assess their workforce as comparable with that of competitors.

Skill shortages are considered a ***problem*** only in minority of companies (30%); the problem is more severe in the industries that are technology more intensive and/or in companies with increasing productivity. The shortages are more intensive in the segment of high skilled workers, with specific technical knowledge required by the introduction of fast developing technologies.

As to the ***further development***, most companies (75%) that report skill shortages do not expect any changes in the future. Somewhat more pessimistic are the expectations in IT and telecommunications industry, due to its specific skill requirements. As to the occupation groups, the reported skill shortages predominantly concern the workforce with higher skills.

Most companies consider the skills of the workforce as ***very important*** for their competitiveness (only 6% of companies reports the opposite view). There are certain differences according to company size. More positive view of the workforce skills is reported by companies with 21-50 employees (81%) and over 100 employees (77%).

Most companies (83%) also ***assess the skills*** of their workforce, 75% of companies make such assessment on regular basis. The skills are mostly (in 88% of companies) assessed in relation to

the supplied products/services. The responsibility for the improvement of knowledge and skills of the workforce is declared by 88% of companies. Most companies (88%) consider their capacity of assessment of the present skill needs as sufficient, and 80% of companies declares such capacity also as to the future needs. However, 38% of companies make use of external information and consultation services in planning of future skill needs.

I.5 Recruitment and vacancies

School leavers were recruited by 46% of companies, mostly by large ones. The more important factor, however, influencing the decisions on recruitment of school leavers is that of skill needs in companies. School leavers are in larger extent recruited by companies with increasing productivity, with changing structure of workforce, and with shortages in high-skilled workforce groups. The most often recruited school leavers are those from secondary vocational schools (36% of school leavers) and from universities (26%). Rather limited scale of school leavers' recruitment is explained by lacking practical experience, low level of knowledge and skills, and bad work attitude.

Relatively high share of companies offers practical ***training to students***: 62% of companies to the students of secondary schools, 43% of companies to university students. Only a small number of companies (10%) provide initial training to recruited university graduates.

Filling of vacancies through internal recruitment is preferred by 48% of companies. Only 25% of companies reported problems with filling of vacancies, most of them are companies with increasing of productivity. However, the problems with recruitment do not influence the company performance, that is why no specific recruitment measures or policies were implemented.

I.6 Training and development activities

Training is provided for employees by 61% of the companies, mostly in larger ones and in those with increasing productivity and anticipating future skill shortages. Training opportunities are largely skill biased in favour of workforce with already higher initial level of skills. 45% of companies provide initial training for newly recruited workers.

The training of more skilled workforce is also ***more intensive*** and realized in a more systematic and long-term manner as opposed to ad hoc, irregular and short-term forms of training for less skilled workers. The training methods aimed at improvement of ***flexibility*** of the workforce are used in limited scale: multi-skilling in 41% of companies, retraining only in 17% of companies.

Training needs of workforce are assessed in 54% of companies. Only small number of companies, however, has a systematic and elaborated approach to the company management in the form of development programmes (26% of companies) or training programmes (34% of companies). Rather limited are also resources devoted to training – both financial (32% of companies) and personal (42% of companies).

Much lower number of companies (44%) ***assesses the effects*** of training activities of their workforce, in comparison with those that provide training. Performance of the workforce is assessed in 57% of companies.

As to ***external support*** for human resource development, companies would appreciate financial subsidies, better education policy, tax allowances. Most companies, however, assess the current situation as satisfactory.

I.7 Overview

The findings of the survey of skill needs are largely consistent both with the context analysis, including the findings of CVTS on training opportunities in the North West region as compared with other regions and Czech Republic average, and with the broader practical experience of consulted industry and local policy experts participating in focus group discussions.

Regional companies were largely affected by macroeconomic development trends that have become more favourable only recently in the Czech Republic. However, there are ***considerable differences*** between respective companies as to their capacity of adjustment and as to the nature of this adjustment. Those that underwent ***profound restructuring*** in the past were able to cope with the implied challenges better, in terms of productivity and export performance. They also have sufficient resources to embark on ***active adjustment*** path, including systematic approach to human resource development.

Performance characteristics of the companies appeared as the ***key explanation*** for their human resource policies with regard to recruitment, filling of vacancies and training and development activities. Such companies also report shortages as to specific skills, which encourage implementation of long-term and comprehensive human resource development and training programmes.

On the other hand, the activities of companies with less favourable performance characteristics with regard to human resource development are ***rather limited***, despite of the overall positive evaluation of the workforce and its role in company competitiveness. This could be explained by a ***satisfactory supply*** of the workforce with adequate skills on the labour market, when the vacancies can be filled relatively easily in case they appear at all. Such an explanation would be consistent with relatively low technology and skill requirements in the companies that have not yet embarked on active adjustment path or even have not completed the passive adjustment.

II. GENERAL INTRODUCTION

II.1 Background

During last decade the Czech Republic underwent many significant changes on the way to the market economy. These included privatisation, liberalisation of prices, and major organisational, structural and legislative changes. The economy experienced the initial transformation recession between 1990 and 1992, the economic revival in 1993 – 1996, followed by stagnation in 1997 with subsequent recession in 1998 - 1999, and gradual revival since 2000.

As the transformation process intensified, its social dimension also gained in significance. The gradual growth of inter-regional differences in socio-economic development (shown for example by developments in the regional unemployment rate), the ongoing processes of democratisation and decentralisation of decision-making and the need to create a system of regional policy in connection with the process of preparing for the EU Structural Funds led to a fundamental change in the Czech Republic's regional policy. The basic legislative and institutional framework of regional policy in the Czech Republic was created in 2000 through a set of acts passed by the Parliament in connection with setting up the system of self-governing regions in the Czech Republic. Regional policy is perceived as a planning activity on the part of the state and regional and local bodies with the aim of contributing to balanced and harmonious development in the individual regions of the Czech Republic, reducing unjustified differences between the levels of development of regions and improving regional economic structure[1].

In the framework of preparation for the structural funds the Government adopted in 1999[2] a decision that stipulated the competencies for economic and social cohesion and co-financing of the EU pre-structural funds for the year 2000 and subsequent periods. The Regional Development Plan was submitted to the European Commission. In addition, the Government approved operating programmes of the individual regions and selected sectors. North West Bohemia and Moravia-Silesia were agreed to be the NUTS II pilot regions to where Phare-2000 support is targeted.

The NUTS II Northwest Bohemia region (NW) comprises the Karlovy Vary and Ústi nad Labem NUTS III regions, which incorporate 10 districts (Cheb, Sokolov, Karlovy Vary, Chomutov, Louny, Litoměřice, Most, Teplice, Ústi nad Labem, Děčín) with the total population of 1130000 people. NW belongs among one of the regions most affected by the transformation process. The region currently faces accumulated, mutually inter-linked socio-economic problems, particularly unemployment, caused primarily by restructuring of coal mining and of other traditional industries. GDP per capita is below the average of the Czech Republic, and the environment in some districts is heavily damaged. The region suffers from an adequate structure of educational establishments and an overall lower level of educational attainment of the population.

The main strategic objective of the pilot Regional Operational Programme for NUTS II North West Bohemia was defined as strengthening and diversification of the economic base and combating unemployment in the region. Primarily it aims at the creation of job opportunities and increasing prosperity of the North West Bohemia, so that people would be attracted to continue

[1] National Development Plan of the Czech Republic, Prague 2001
[2] Government Decision No. 40/1999 to ensure preparation for the use of the EU Structural Funds and Cohesion Fund.

to live and work in the region. The Phare 2000 project fiche for North West region defines four measures in the field of employment and human resource development policies:

1) sustainable employment and adaptability of human resources;
2) social inclusion and equal opportunities;
3) development of life-long learning; and
4) human resource development in industry.

Implementation of these measures would require not only intensive inter-institutional cooperation and consensus on regional projects but also awareness of skill needs in the region and its companies.

The pilot regions eligible for Phare co-funding were selected by the European Training Foundation (ETF) for an international survey, which **aimed to analyse the key regional skill needs of companies, their human resource development practices and problems**. The survey was conducted in a selected group of economies in transition – in pilot regions of the Czech Republic, Hungary, Estonia, and Poland, and on the whole territory of Lithuania. The foundation initiated the survey with the view to support the development of a regional HRD strategy in the context of Phare planning and preparation to access the European structural funds to underpin regional economic and social regeneration.

In the Czech Republic **the demand-side survey of skill needs of companies in the North West Bohemia** was organised under the leadership of the Czech National Observatory of VET and Labour Market, National Training Fund. The National Observatory formed a team for project implementation comprised of the regional representatives and experts in different aspects and phases of the analysis.

II.2 Phases of implementation and methodology

Phase 1

The analyses consisted of several phases, each relying on different methodological approach. In the first phase the context analysis identified key structural and qualitative factors of the regional economy that affect the supply of and demand for skills. These factors include the effects of macro-economic developments on the regional economy (in terms of the change in economic standards and the development of employment and unemployment). The factors also comprise the region-specific structural characteristics, which influence and explain the decisions of economic entities (companies and the workforce) pertaining to the demand for and supply of skills. These characteristics include most importantly the education, occupational and skill structure of the workforce (the supply side) and the technology and skill intensities of production (the demand side). Specific attention was devoted to the structure of unemployment in view of the considerable difference in unemployment in the North-West region (the Ústí nad Labem sub-region) as compared to other regions. The context socio-economic analysis also included principal findings from a recent EUROSTAT Continuing Vocational Training Survey implemented by the Czech Statistical Office.

Phase 2

In parallel a company survey in the form of face-to-face interviews was prepared and implemented among the sample of 155 companies (the second phase). The survey involved **five selected industries**:

- chemical production,

- energy generation,
- manufacturing of glass, porcelain and ceramics,
- environmental protection, including recycling of waste and secondary raw materials, land and water purification,
- information technologies (IT) and (tele)communications.

The selection of industries respected the selection criteria specified by the European Training Foundation: to combine industries traditional for the region which undergo significant changes, growth potential industries and to respect a split between manufacturing and services sectors. The selection of industries was consulted with representatives of local employment services, chambers of commerce, local and regional administration of North West Bohemia.

The face-to-face interviews focused on the relationship between the company economic performance and the approach of the company to human resource development. Emphasis was placed on (1) identification of skill characteristics of the workforce as a factor which either positively or negatively affects company economic performance, (2) the capacity of the companies to identify skill shortages and what causes them and (3) the design and implementation of measures to address the skill shortages within a longer-term, targeted programme of human resource development.

The survey instrument was a detailed questionnaire originally designed by Department for Education and Employment in the United Kingdom as part of research on employer's skill formation practices and needs. The original questionnaire was designed for a massive sample exercise and therefore was slightly re-designed for a limited-scale sample survey, conducted by Salford University in North West of UK. The latter questionnaire was adopted by all five Central European countries participating in the survey. For the sake of international comparison only limited adjustment of the questionnaire to the national environment and sample characteristics was possible. Therefore the instrument had many limitations with the view to a limited sample and often unfamiliar nature of questions especially with regard to small and medium-sized enterprises. Therefore the team made particular efforts to consult alternative data sources in the framework of the context analysis and to involve HR experts and practitioners from the region into the process of interpretation (see further).

Due to the semi-qualitative nature of the field exercise, it was decided to limit **the sample frame** to 20 to 50 companies per industry depending on the overall number of companies in individual industry in the region. The survey was conducted with the direct involvement and kind assistance of local employment services in the region. The total of nineteen specially trained interviewers from ten labour offices were involved in the survey. The selection of companies was also conducted with assistance of employment services. The latter constructed a list of companies which evenly covered the ten districts and respected the company structure by industries in individual sectors. The companies were selected from the database of employment services for monitoring of companies on local labour markets ("*OK práce – monitoring firem*"), which covers approximately 85% of all companies in the region. Other databases, such as the general commercial register, often list companies under branches of industries which they operate only nominally, whereas their actual performance is in a different industry area. Therefore the database of employment services appeared the most useful for the purposes of involvement of companies from the selected industries into the survey. According to the opinions of labour offices, the database covers the absolute majority of companies, which are active in individual branches of industries and which are cooperative in one way or another.

The direct involvement of employment services allowed for a minimum drop-out of companies from the survey. 95% of contacted companies eventually participated in interviewing. 2% of companies refused to cooperate due to location of the head office including the personnel/HR department, outside the region. Only 3% of companies dropped out from the survey due to lack of interest on their side. The participation of companies in the survey was not however even among ten districts of the region. A human factor of both – the company representatives (willingness to participate) and the interviewers (capacity to engage the respondents into the survey) – played an important role. In some districts the drop out of companies reached almost 20% but they proved to involve adequate replacements into the survey (the case of Most). As the result only two districts are somewhat underrepresented in the survey (Sokolov and Cheb). This also influenced the sample of participated companies by industry where all industries are represented by approx. half of active companies in the region but only 26% of companies in glass and ceramics and only 34% of companies in chemical production participated in the filed research.

The survey was aimed to address six major areas:

1) The general characteristics of the companies and their workforce include their structure in terms of the degree of their independence as economic entities, the industry, the company size, legal status and year of establishment. This part also comprises basic information about the workforce of the companies, and particularly about the changes in their occupational structure, skill characteristics, the scope of training activities, as well as the development of labour productivity in the context of new approaches to company management and their impact on human resource development.
2) The characteristics of the company environment and the response of the companies to its changes include a range of factors which, directly or indirectly, influence the decision-making of companies in the area of human resources. The major factors in this respect are the scope of links to other entities within the regional economy and competitiveness in the domestic as well as foreign markets. Another important factor is the effort the companies make to improve their performance characteristics, for example by means of introducing new products and processes, implementing research, development and design activities, and cooperating with suppliers and customers.
3) The characteristics of labour turnover and lay-offs describe two important aspects of the stability of the company workforce which influence the skill needs and training activities of the companies. The extent of voluntary departures of employees was therefore examined as well as the capacity of the companies to identify the reasons for this and to adopt appropriate measures. Lay-offs reflect the company strategies aimed at improving productivity in relation to the performance characteristics. As regards the regional labour market, lay-offs imply the nature of and change in demand for the workforce.
4) Skill characteristics of the workforce and the existing skill shortages describe the capacity to identify gaps in the skill structure of the company and their seriousness, including projections of the development in this respect and ways of addressing such skill shortages. Identification of the gaps in the skill structure is based on the assessment of skills of the workforce, also by means of using external counselling services. The ways of addressing skill shortages reflects the importance assigned to skills of the company workforce in relation to competitiveness.
5) The characteristics of recruitment and filling of vacancies include the description of the form and extent of recruitment activities (external and internal), and identification of the difficulties associated with recruitment. Specific attention is paid to the recruitment of school leavers including the provision of placements and internships to students. The existing and anticipated difficulties in filling vacancies are described in terms of the skill structure. The

impact of these problems on company development activities is examined as well as the measures implemented to eliminate them.

6) The characteristics of training and development include the forms and scope of training and development activities. They are assessed particularly in terms of the length of training programmes, their types and ways in which they are delivered (using internal or external resources). Attention is paid to the consistent and systemic nature of the training activities and their incorporation to comprehensive company development policies, which reflects the importance assigned to training in longer-term development plans.

Phase 3

During the final third phase of the analysis the outcomes of the questionnaire survey were placed within the context of a socio-economic analysis of the region and were confronted and verified in focus group meetings. The latter were conducted in the interval of three months allowing for advancement from a) consultation on the results of the initial rough data processing - to b) the opinions on specifically formulated qualitative-type questions inside the draft text of the study. Due to the aforementioned methodological limitations of the questionnaire the interpretation phase appeared the most demanding and therefore contribution of experts and practitioners in the framework of the focus group meetings was seen by the project team as invaluable.

II.3 Project team

The European Training Foundation provided general guidance and coordination of all five countries involved into the project. An independent consultant - Jim Twomey (Pion Economics, UK) was responsible for provision of the methodological framework, design of the base questionnaire and consultation on project implementation in five involved countries. The National Observatory, represented by Olga Strietska-Ilina, was in charge of overall guidance and management at all stages of project implementation in the Czech Republic, taking a lead in the project team. Furthermore the National Observatory took the charge of methodological issues of the project at the national level, limited adjustment of the project tool, training of interviewers, introduction of alternative - qualitative - methods for interpretation of results, such as focus group meetings, project dissemination, negotiation of all matters with the European Training Foundation, and other matters. Pavel Weiss, the head of the Most District Office, was in charge of regional coordination and nomination of experts and practitioners to the focus group meetings. He also provided the general regional insight in terms of institutional, political and economic context. Miroslav Martinovský (Q1 Ltd.) coordinated the work of nineteen interviewers in ten district labour offices during implementation of the field survey. Petr Balek (University in Ústí nad Labem) was responsible for the survey data processing through the SPSS programme. Finally Anna Kadeřabková (Prague University of Economics) was a key expert of the project and a main author of the present study.

III. **CONTEXT SOCIO-ECONOMIC ANALYSIS OF THE NORTH WEST REGION** (ÚSTÍ NAD LABEM AND KARLOVY VARY SUB-REGIONS)

III.1 Introduction

The context analysis of the North West region highlights the aspects considered as important for the survey of the regional skill base in terms of supply and demand factors. The position of the region is assessed in relation to the Czech Republic' national average, in terms of key indicators, and a comparison is made at the regional (NUTS 2) and sub-regional (NUTS 3) level. The latter often shows considerable structural differences between the two sub-regions of the North West region (Ústí nad Labem and Karlovy Vary).

The demand for skills is primarily affected by the overall as well as industry-specific economic development of the region in the context of the macroeconomic development. The introductory information covers the region's economic performance in comparison with EU average and its changes. In terms of comparison over time, there are significant inter-regional differences in response to the macroeconomic performance. This response was very sensitive in the North West region with serious implications in terms of employment and unemployment. The economic prospects of the region including the situation in the labour market are influenced by direct foreign investment as an important source of capital, technology, know-how and market opportunities. Also, one of the prerequisites for off-setting the drop in employment due to restructuring is the development of own business initiative of economic entities. The development of the regional economy is considerably affected by the productivity and structure of the manufacturing industry. Its technology and skill intensity is then reflected in terms of training opportunities for employees. The nature of the training opportunities broken down by sectors is also described by means of the results of the survey on training of employees, which was implemented by the Czech Statistical Office for EUROSTAT in 1999.

The supply of skills is influenced by quantitative as well as qualitative characteristics of the labour market in terms of employment and unemployment. Attention is therefore paid to the age and education structure of the unemployed including unbalanced trends in relation to the wage levels and the specific problem of long-term unemployment. As concerns the employed, in addition to the age and education structure, the structure in terms of occupation and skill categories is considered.

The most up-to-date data available are used, particularly from the Labour Force Sample Survey (first quarter of 2001), the Ministry of Labour and Social Affairs, the Ministry of Industry and Trade, regional bulletins and other specific sources (EUROSTAT, the Czech National Bank). The inter-temporal comparison is made with the initial year of 1993 – because of the availability of consistent time series for labour market since this year.

It is necessary to point out that regional statistics in the Czech Republic have only entered the process of harmonisation with international standards and their structure is not fully in line with the needs of a territorial break-down analysis (i.e. the scope of examination is determined and therefore limited to a considerable extent by the type of available data). The situation is further complicated by the change of territorial administration in the Czech Republic (effective from 2000) which makes it impossible to compare a number of indicators over longer periods of time. A very specific problem – which is particularly sensitive in the North West region and its labour market – is the lack of data about the Roma population.

III.2 The economy and its changes

The economic performance of the regions is characterised by GDP per capita (in purchasing power parities - PPPs) in comparison to EU average (EU-15=100). The latest data available are for 1998.[3] If we disregard the exceptional position of Prague, the inter-regional differences in economic level in the Czech Republic are relatively small (Table 1). The difference between Prague and Central Bohemia (the region with the lowest level of GDP per capita) is considerable (almost 2.5 times lower) – however, this may be explained by the importance of commuting in view of the geographical proximity of the two regions[4]. As regards comparison over time, the impact of the development of macroeconomic performance (expressed in terms of GDP growth, Figure 1) on the development of inter-regional economic differences gains in importance.

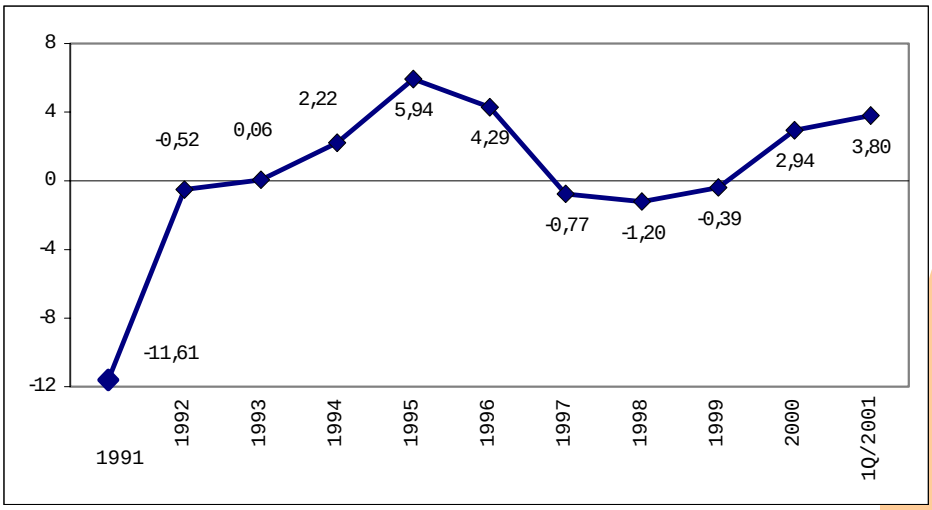
Table 1: GDP per capita, (%, EU-15=100) and its development (pp) 1995-1998, regions and sub-regions

	EU-15=100 (%)					Change (pp)				
	1995	1996	1997	1998	1998/95	1996	1997	1998	1996-98	1998/95
CZECH REPUBLIC	62,2	64,8	63,2	60,1	-2,10	9,21	2,40	-0,69	3,56	11,07
PRAGUE	**114,1**	**120,5**	**119,8**	**114,3**	**0,21**	**10,64**	**4,40**	**-0,31**	**4,82**	**15,16**
CENTRAL BOHEMIA	**48,3**	**49,3**	**49,3**	**46,8**	**-1,59**	**6,74**	**5,13**	**-0,93**	**3,59**	**11,17**
SOUTH-WEST	**59,0**	**61,9**	**60,1**	**57,2**	**-1,85**	**9,89**	**2,02**	**-0,69**	**3,64**	**11,34**
České Budějovice	56,6	58,6	58,0	55,0	-1,51	8,59	3,83	-0,77	3,81	11,87
Plzeň	61,8	65,6	62,6	59,6	-2,22	11,25	0,19	-0,59	3,48	10,81
NORTH WEST	**58,2**	**59,6**	**55,5**	**52,7**	**-5,55**	**7,21**	**-2,17**	**-0,86**	**1,31**	**3,99**
Karlovy Vary	57,1	57,7	53,5	50,8	-6,26	5,81	-2,49	-0,81	0,77	2,34
Ústí nad Labem	58,6	60,3	56,2	53,3	-5,29	7,71	-2,05	-0,87	1,50	4,58
NORTH-EAST	**54,1**	**55,4**	**55,2**	**52,5**	**-1,62**	**7,32**	**4,66**	**-0,73**	**3,69**	**11,49**
Liberec	53,0	54,4	53,4	50,7	-2,29	7,43	3,20	-0,79	3,22	9,99
Hradec Králové	54,2	56,3	56,5	53,7	-0,50	8,63	5,55	-0,69	4,43	13,88
Pardubice	54,8	55,4	55,3	52,5	-2,28	5,82	4,88	-0,74	3,28	10,17
SOUTH-EAST	**55,4**	**58,1**	**56,0**	**53,2**	**-2,15**	**9,81**	**1,35**	**-0,72**	**3,38**	**10,49**
Jihlava	50,4	51,9	50,3	47,8	-2,55	7,82	1,96	-0,74	2,95	9,12
Brno	57,7	60,9	58,6	55,7	-1,96	10,61	1,12	-0,72	3,55	11,04
CENTRAL MORAVIA	**52,9**	**54,7**	**53,9**	**51,3**	**-1,56**	**8,37**	**3,57**	**-0,62**	**3,71**	**11,54**
Olomouc	51,5	54,8	52,2	49,7	-1,83	11,46	0,06	-0,60	3,50	10,86
Zlín	54,3	54,6	55,8	53,0	-1,27	5,25	7,36	-0,64	3,93	12,26
OSTRAVA REGION	**58,7**	**62,7**	**59,3**	**56,4**	**-2,31**	**11,84**	**-0,62**	**-0,66**	**3,36**	**10,42**

Source: Eurostat, data provided at request, own calculations. GDP per capita expressed in EUR in PPPs

[3] Regional GDP in Central European Candidate Countries, Statistics in Focus, 4/2001, EUROSTAT.
[4] GDP in the region includes the income of commuters. The high GDP per capita in Prague therefore reflects the importance of this inflow at the expense of the regions from which the people commute. .

Figure 1: Real growth of GDP in the Czech Republic 1991-1Q/2001 (%)



Source: CSO, Quarterly National Accounts, 2000

Between 1995 and 1996 the economic performance of the Czech Republic improved in relation to EU-15. There was a decline between 1996 and 1998 (which continued in 1999 and 2000 to reach 58%). In 1996, Prague and Ostrava showed the highest growth in GDP per capita in relation to EU average, the improvement in the North West was the third lowest. In 1997 the North West region experienced the most significant decrease in GDP per capita in relation to EU average – i.e. there was the most severe macroeconomic downturn in this region. Overall, in the period under review the North West region shows more than 2.5 times stronger decrease in GDP per capita in relation to EU average as compared to the Czech Republic. This means that the North West region gained the least in the period of favourable macroeconomic development and lost the most in the period of macroeconomic downturn. Such performance characteristics are very unfavourable and point to more profound structural problems as compared to mere fluctuations of economic activity accompanying the economic cycle.

Development of employment

The seriousness of the structural factors is illustrated by the industry-specific development of employment between 1993-2001. Overall, employment decreased in the Czech Republic in this period. In regional terms, it is important to distinguish between the positive and negatives contributions of individual sectors to the change. The key question is, to what extent the decline in one industry was offset by an increase in employment in other industries.

The structure of changes in the Czech labour market between 1993 and 1Q/2001 (Table 2) is reflected in the decrease in employment in the principal sectors of NACE and in the number of the unemployed in the 1st quarter of 2001. The most severe decline in employment occurred in industry (-214.2 thousand) which represents a majority of the unemployed (48.8%). The decrease in employment in agriculture was similarly large as in the manufacturing industry. However, its proportion in the number of the unemployed is relatively low (similar to the mining and quarrying industry). The sector of services accounts for 45.3% of total unemployment with the overall increase in employment (+229.3 thousand).

Table 2: Employment Change, 1993-1Q/2001 (in thousand), number of persons employed over the last eight years in NACE industries and their proportion in the total number of the unemployed, 1Q/2001

	Employment change	Number of unemployed	*%of total unemployment*		Employment change	Number of unemployed	*%of total unemployment*
Agriculture, forestry	-149,2	20,0	*5,8*	Transport, post, telecommunications	-26,1	17,8	*5,1*
Mining and quarrying	-59,0	9,4	*2,7*	Finance and insurance	36,1	5,4	*1,6*
Manufacturing	-150,3	121,0	*34,9*	Business services	42,6	11,6	*3,3*
Electricity, gas, water	-14,7	3,1	*0,9*	Public administration	32,5	11,0	*3,2*
Construction	9,8	35,8	*10,3*	Education	-9,9	8,1	*2,3*
Retail trade, repairs	102,7	54,2	*15,6*	Health care and social activities	18,3	11,1	*3,2*
Hotels and restaurants	5,2	24,5	*7,1*	Other public and social services	27,9	13,5	*3,9*

Source: Own calculations based on Labour Force Sample Survey, CSO 2001.

At regional level it is necessary to distinguish between the contribution to the overall change by industries with increasing employment and those with declining employment (Table 3, 1A[5]). The highest overall decrease in employment occurs in the Ostrava, North West and Central Moravia regions. The capacity to create new jobs in these regions is comparable to the Czech Republic average – however, it is insufficient in view of offsetting the above-average decline in the number of jobs in other industries (the contribution of the industries with a decrease in employment is significantly higher than the contribution of the industries which show a growth in employment). In terms of development over time, (Table 4, 2A) the contribution of the industries in the North West region to the decrease in employment were increasingly lower from 1996. It is the period of favourable macroeconomic development (although the overall employment decreases as compared to the Czech Republic). On the contrary, from 1997 the contributions are increasingly higher, the macroeconomic performance deteriorates and the regions is severely affected by this. In the following period, the situation reverses and, finally, the changes in employment become favourable – i.e. contributions to its increase are quite significantly higher than the contributions of the industries to a decrease in employment.

Table 3: Employment change, 1994-2001, contributions to overall change

	ČR	PHA	STC	JHZ	SVZ	SVV	JHV	STM	OVA
Rate of unemployment, average of 2000	*8,8*	*4,2*	*7,5*	*6,0*	*13,8*	*6,9*	*7,8*	*10,6*	*14,3*
Industries with decrease in employment	-8,39	-7,6	-10,75	-8,75	-13,12	-6,22	-9,27	-11,84	-14,12
Industries with increase in employment	5,65	10,49	10,29	7,64	5,66	4,92	8,04	6,32	5,32
Change (%)	**-2,76**	**2,89**	**-0,46**	**-1,10**	**-7,45**	**-1,31**	**-1,23**	**-5,52**	**-8,79**
Change (in thousand)	*-134,3*	*17,4*	*-2,4*	*-6,3*	*-41,0*	*-9,2*	*-9,4*	*-31,8*	*-50,5*
Industrial concentration of empl. changes - total	1,39	1,83	2,07	1,81	1,61	1,06	1,87	1,98	1,86
Industrial concentration of empl. changes - decline	1,22	1,85	1,98	1,67	0,99	0,95	1,56	2,05	1,71
Industrial concentration of empl. changes. – increase	0,58	1,03	0,72	0,86	0,78	0,29	1,24	0,61	0,38

Source: Own calculations based on CSO data, The Labour Market in the Czech Republic, 2000.

[5] Tables marked with an A – see the Annex

Table 4: Contributions of NACE industries to overall change in employment, 1994-1Q/2001, North West

	1994	1995	1996	1997	1998	1999	2001	01/93
Contribution of industries with declining employment	-6,27	-3,38	-2,96	-3,06	-4,60	-5,05	-3,61	-13,12
Contribution of industries with growing employment	4,60	3,23	1,76	3,26	1,76	1,42	5,38	5,67
NW – change in employment	-1,74	-0,15	-1,20	0,21	-2,84	-3,62	1,76	-7,45
ČR – change in employment	1,09	0,73	0,19	-0,71	-1,43	-2,09	-0,47	-2,76
Difference NW and Czech Republic	-2,84	-0,87	-1,39	0,92	-1,41	-1,53	2,23	-4,69
Structural change intensity	*0,87*	*0,61*	*0,48*	*0,52*	*0,54*	*0,59*	*1,02*	

Source: Own calculations based on CSO data, The Labour Market in the Czech Republic, 2000.

In terms of sectors, the changes in employment in the North West region differ considerable from those in the Czech Republic (Table 5). There is almost a double contribution to the decline in employment by the industry and construction sectors, almost a 50% contribution to the growth in employment by market services and a significantly higher contribution to employment growth by non-market services. The resulting sectoral structure still shows an above-average share of the industry and construction in total employment and a below-average share of market services.

Table 5: Employment change, 1994-1Q/2001, share of sectors in overall employment changes, 1Q/2001

	ČR	PHA	STC	JHZ	SVZ	SVV	JHV	STM	OVA
Contribution to change in employment, 1994-1Q/2001									
Agriculture	-3,06	0,44	-3,22	-5,44	-2,76	-2,74	-4,85	-3,51	-2,14
Industry and construction	-4,39	-3,85	-4,22	1,44	-8,31	-2,72	-1,79	-5,79	-11,13
Market services	3,29	3,56	6,63	4,42	1,19	1,56	3,94	2,7	2,73
Non-market services	1,42	2,74	0,35	-1,53	2,42	2,6	1,47	1,08	1,74
Share in total employment, 1Q/2001									
Agriculture	4,8	0,9	5,6	6,7	3,2	5,5	7,1	5,5	2,8
Industry and construction	39,7	22,1	39,2	41,6	42,3	43,9	40,9	44,6	43,7
Market services	31,6	47,8	32,9	29,8	30,3	26,9	28,6	26,6	29,7
Non-market services	24,0	29,1	22,2	21,8	24,3	23,7	23,4	23,3	23,8

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000.

Let us summarise the principal development trends in employment in sectors and their industries over time and the current sectoral structure (Tables 5 and 6). There was the largest and constant decrease in the sector of mining and quarrying. Its proportion in total employment is still above the average and, in view of expected developments on the energy market, the downward trend is likely to continue. Finding new jobs for the workforce laid off in this sector may pose significant problems due to their unfavourable skills structure and high wage levels.

The second largest decline occurred in the ***manufacturing industry***. In the recent period (1999-1/Q2001), on the contrary, this industry shows a very positive contribution to employment changes – a favourable change. (Within the industry sector as a whole, the share of the manufacturing in the region is still below the average as compared to the Czech Republic). Its further development will to a large extent depend on the structure of the sector in terms of productivity levels, technology and skill intensities and an inflow of foreign investment. The key question is whether a possible expansion of the manufacturing will combine with increasing employment (in view of the pressure for an increase in productivity and the tendency to substitute labour with capital, which is a common tendency in areas with high average wage levels).

The decrease in employment in ***agriculture*** was lower than that in the Czech Republic. Nevertheless, the share of the sector in total employment in the region is below average. There is

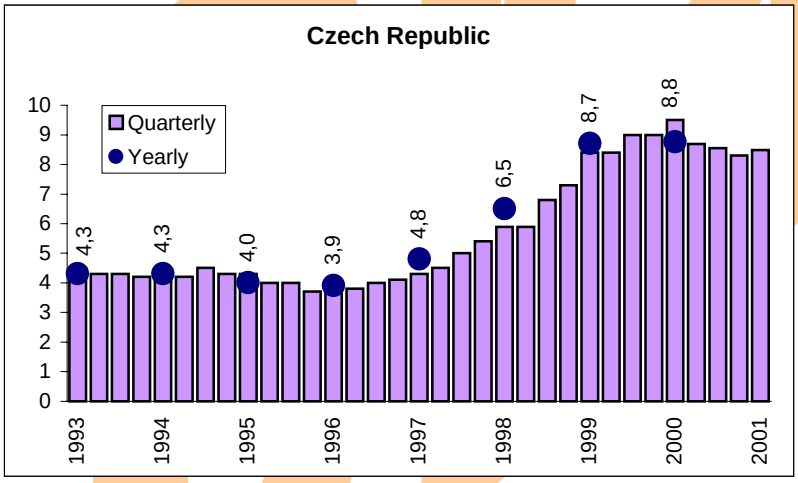
a long-term downward trend and, similarly to mining and quarrying, no change in this respect can be expected. The development in construction is very sensitive to the overall economic development of the region. Its proportion in employment is still above average and its future prospects will reflect the overall development of investment activities (including direct foreign investment).

The situation in ***services*** is industry-specific. Overall, the sector share in the North West region is only one p.p. lower as compared to Czech Republic average. Nevertheless, the sub-sector of market services is relatively under-represented and its contribution to employment increase is smaller as well. This is particularly the case of business services, banking and insurance, retail trade and repairs (and education within non-market services) – with considerable scope for further development. If these sectors do not fulfil their development potential sufficiently under more favourable macroeconomic conditions, the regional market will continue to have difficulties absorbing the redundant workforce.

Development of unemployment

The development of economic performance and employment affects the development of unemployment. The annual rate of unemployment in the Czech Republic was constantly rising from 1997, the quarterly rate since 3Q/1996. The increase continued until 2000 (1Q/2000) (Figure 3). The steep increase in unemployment in the Czech Republic until 1997 was due to delayed restructuring (and weak pressure for laying off redundant workforce) in the early years of transition.

Figure 2: Unemployment rate in the Czech Republic, average annual and quarterly rates, 1993-2001*, international comparison, 2000

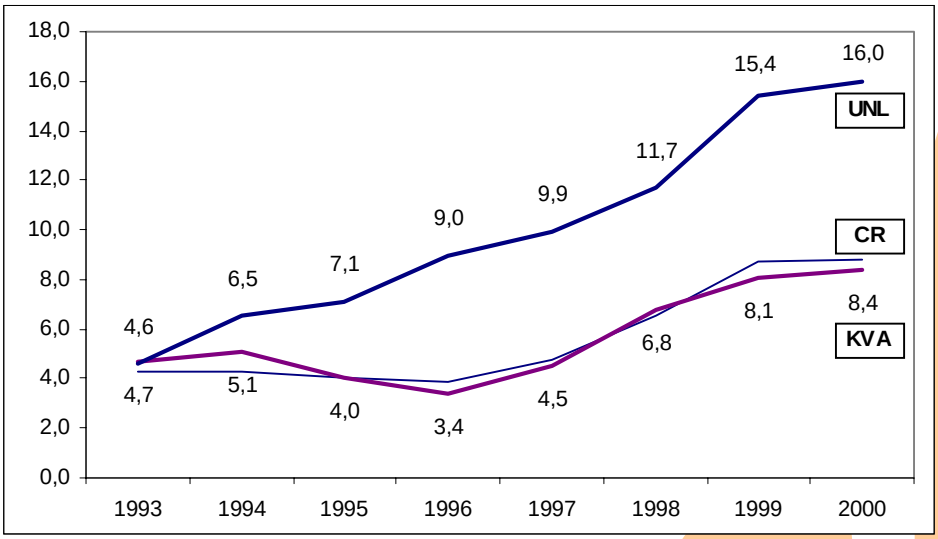


Source: Labour Force Sample Survey, CSO, 2001, The Labour Market in the Czech Republic, 2000, Economic Reform Monitor, 2001/2, DG Economic and Financial Affairs, 2001, p 50.

The very steep increase in the rate of unemployment over a relatively short period of time undoubtedly constituted a great burden for the labour market. Nevertheless, the current level of unemployment in the Czech Republic as compared with other candidate countries and EU itself still does not pose a severe problem. What is serious, however, are the inter-regional differences which, of course, increase at sub-regional level. The North West region has the second highest rate of unemployment in the Czech Republic, the Ústí nad Labem sub-region ranks first in this

respect (Table 4A). In 1993 the regional difference between Ústí nad Labem and the Czech Republic was only 0.3 percentage points, by 2000 it increased to 7.2 percentage points (Figure 3).

Figure 3: Unemployment rate, the Czech Republic, Ústí nad Labem sub-region, Karlovy Vary sub-region, 1993-2000



Source: Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000

In terms of the changes in the numbers of the unemployed over time, the differences in contributions of various regions and sub-regions are presented (Table 6). The largest contribution to the increase in total unemployment was that of Ostrava and North West regions (the Ústí na Labem sub-region). The contribution of these two regions to the rise in total unemployment in the Czech Republic was 45.2% (!) between 1993 and 2000. In the period under review, the number of the unemployed increased the most in the North West region (almost three times) and in the Ústí nad Labem sub-region (almost 3.5 times). In terms of development over time, the two regions responded to structural changes in the form of rising unemployment earlier than the rest of the economy. In the North West the most significant increase in unemployment occurred before 1996 - from 1997 the increase slowed down as compared to Czech Republic average. The region's contribution to the rise of total unemployment still remains high, but it is not any more the highest in the country.

Table 6: Unemployment change in the Czech Republic and contribution of regions and sub-regions to this change, 1994-2000

Contributions to unemployment change	1994	1995	1996	1997	1998	1999	2000	93/00		*STDEV 1994-00*
								Increase	Contr.	
Czech Republic (% change)	0,41	-5,93	-3,08	23,28	35,14	35,30	0,07	*106,5*		*17,0*
Prague	-1,77	-0,72	-1,68	1,34	2,33	1,40	0,27	*25,2*	2,46	*21,2*
Central Bohemia	-1,32	0,14	-1,83	1,79	3,78	4,41	-0,67	*76,8*	8,34	*25,1*
Sough-West	-0,41	-1,72	-0,14	3,03	3,14	2,47	-0,59	*66,7*	6,61	*20,6*
North West	3,77	0,32	3,27	3,18	4,35	5,12	0,66	*197,8*	24,17	*10,4*
Karlovy Vary sub-region	*0,32*	*-0,77*	*-0,48*	*0,94*	*1,41*	*0,63*	*0,19*	*84,6*	2,88	*22,9*
Ústí nad Labem sub-region	*3,45*	*1,09*	*3,75*	*2,23*	*2,94*	*4,50*	*0,47*	*241,5*	21,29	*11,9*
North-East	-1,32	0,27	-0,05	1,39	5,80	4,17	-1,56	*73,9*	9,87	*20,7*
South-East	-0,64	-2,22	-0,67	2,13	5,19	7,27	-0,79	*88,9*	13,8	*25,2*
Central Moravia	0,00	-0,27	-0,34	1,69	4,99	5,45	1,00	*137,3*	16,96	*18,8*
Ostrava region	2,09	-1,72	-1,64	8,73	5,56	5,00	1,74	*151,6*	24,3	*20,7*

Source: Labour Force Sample Survey, CSO, 2001, The Labour Market in the Czech Republic, 2000

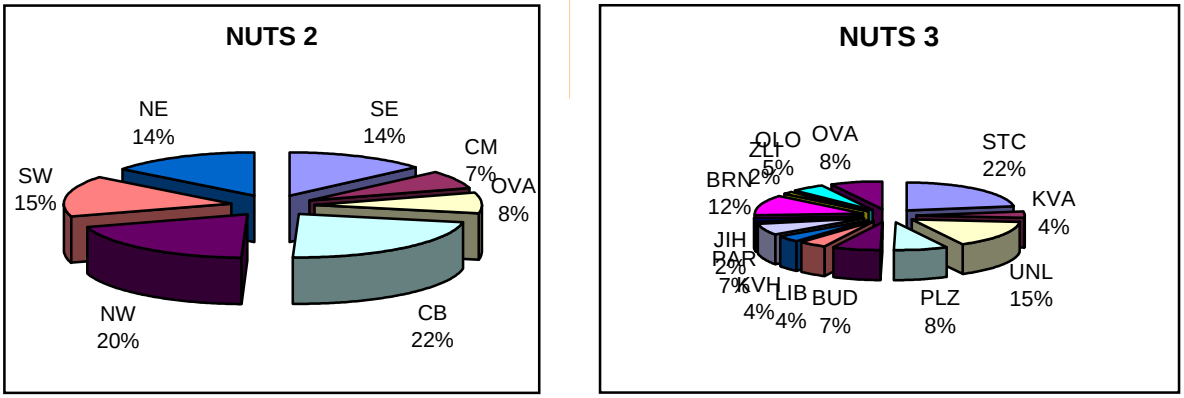
Of course, the question remains whether this trend will continue in future. In view of the still large difference between the unemployment rate in the North West region (more precisely in the Ústí nad Labem sub-region) and that in the Czech Republic, a long-term increase in employment will be necessary to redress this situation (also in view of the lower average age of the regional population).

III.3 Foreign direct investment

The data on foreign direct investment suggest two aspects that may be important for the regional development. First, there is the potential of transforming the in-flowing capital, technology and know-how into better economic performance of the region. Second, the inflow of investment is evidence of the attractiveness of the region for foreign investors and may spark off subsequent investment activities.

The data on foreign direct investment at the end of 1999 (broken down by regions) may be viewed from two perspectives. First, it is the share of the relevant region in total foreign investment in the Czech Republic (Prague excluded) (Figure 4). The exclusion of Prague region is important due to its dominant share in total foreign investment in the Czech Republic (48.2% - i.e. almost one half of FDI total).

Figure 4: Share of regions (NUTS 2, NUTS 3) in total foreign investment in the Czech Republic (Prague excluded), as at 31 December 1999



Source: Own calculations based on Direct Foreign Investment 1999-2000, CNB, 2001, pp 89-90.

The comparison implies that the regions may be divided into three groups as to their shares in FDI: 1. over 20% (Central Bohemia), 2. between 10-20% (North West, South-West, North-East and South-East) and 3. less than 10% (Central Moravia, Ostrava). At the level of sub-regions (in addition to the Central Bohemia sub-region which is identical with the Central Bohemia region) the Ústí nad Labem sub-region sticks out with an above-average share in foreign investment. In terms of districts of the North West region (Table 7) there are considerable differences. The position of the Děčín, Most, Teplice, Litoměřice and Karlovy Vary districts is clearly exceptional: 89.3% of foreign investment in the North West region are concentrated in these districts, although they accommodate only 54.8% of the region's population (the Karlovy Vary district itself received 78.7% of the investment in the Karlovy Vary sub-region, while its population accounts for 40.4%).

Table 7: Shares of foreign investment in districts in the North West region, as at 31 December 1999 (in %)

Děčín	Most	Teplice	Litoměřice	Karlovy Vary	Ústí n. L.	Cheb	Chomutov	Sokolov	Louny
21,2	18,9	17,9	15,6	15,6	3,1	2,8	2,5	1,4	0,9

Source: Own calculations based on Direct Foreign Investment 1999-2000, CNB, 2001, pp 89-90.

The second perspective is the importance of foreign investment indicated by the level of investment per capita in the respective territorial unit (Table 8). For the purpose of inter-regional comparison Prague must again be excluded (FDI per capita in Prague totals CZK 256,800). Prague excluded, the average level of foreign investment per capita in the Czech Republic totals CZK 35,900 (Prague included, the figure is 61,400). In this perspective, the position of the Ústí nad Labem sub-region (North West) is very good with the second highest level of investment per capita just after Central Bohemia.

Table 8: Foreign investment per capita NUTS 2, NUTS 3, CR, CR* (Prague excluded), as at 31 December 1999 (CZK)

Prague	CB	UNL	ČR	NW	PLZ	PAR	SW	KVA	BUD	ČR*	BRN	NE	LIB	SE	OVA	KVH	OLO	CM	JIH	ZLI
256.815	66.047	62.846	61.442	57.240	47.944	42.501	42.445	42.029	37.597	35.936	31.835	31.675	30.409	25.664	23.536	22.675	18.370	15.674	12.242	10.753

Source: Own calculations based on Direct Foreign Investment 1999-2000, CNB, 2001, pp 89-90.

The break-down by districts (Table 9) shows that the position of the two above mentioned districts with the largest share of foreign investment within the North West region is also exceptional in the Czech Republic. Both in terms of the total level of investment and in terms of the level of investment per capita these two regions rank at the top among all Czech districts. The level of investment per capita in the district of Most is 2.9 times higher than the Czech Republic average (Prague excluded) and it is 2.3 times higher in the district of Karlovy Vary. Consequently, the situation is far worse in the other districts.

Table 9: Foreign investment in districts of North West region, per capita and total for district, 1999 (CZK)

Foreign investment per capita (CZK)				Foreign investment – total (thousand CZK)			
Most (4)	102.987	Cheb (39)	20.958	Děčín (6)	13.758	Ústí (45)	2.004
Děčín (5)	102.849	Ústí (48)	16.900	Most (7)	12.274	Cheb (48)	1.820
Teplice (9)	89.483	Chomutov (56)	12.919	Teplice (8)	11.625	Chomutov (52)	1.620
Litoměřice (11)	88.636	Sokolov (62)	9.579	Litoměřice (9)	10.121	Sokolov (64)	909
Karlovy Vary (13)	81.930	Louny (67)	6.755	Karlovy Vary (10)	10.082	Louny (70)	582

Source: Own calculations based on Direct Foreign Investment 1999-2000, CNB, 2001, pp 89-90. The figures in brackets state the rank in inter-district comparison according to the level of investment.

On the whole the position of the North West region is in terms of the presence of foreign capital is favourable, although there are considerable differences between its particular areas. The capacity of foreign companies to create jobs (either directly or through stimulated demand) will therefore be of key importance.

III.4 Entrepreneurial activity

If the job losses are to be offset by new activities, the business entities in the region must show an appropriate level entrepreneurial initiative. This level may be expressed in terms of the number of business entities per 1000 inhabitants in comparison with Czech Republic average, and in terms of their size structure (Table 10). Regarding the first indicator – the number of self-employed persons per 1000 population – the situation in the Ústí nad Labem sub-region is significantly worse (second worst) as compared to Czech Republic average (as well as in comparison with the Karlovy Vary sub-region). The situation is similar as regards micro-companies (1 to 5 employees). The difference is not so large in the other size categories. In terms of the proportion of the individual size categories of business entities, the category of micro-companies is under-represented in both North West sub-regions, unlike the representation of other categories – it is above the average. The lower level of entrepreneurial initiative in the region is also documented by the ratio of entrepreneurs to the number of employed, which is below average in both sub-regions (Table 11).

Table 10: Number and structure of business entities according to number of employees, 2000

	Number of entities per 1000 population					Shares in the number of entities (%)				
	Self-employed	1-5	6-19	20-99	100-499	1-5	6-19	20-99	100-499	500 and more
Czech Republic	163,7	27,1	5,9	2,5	0,5	75,1	16,3	7,0	1,4	0,2
Karlovy Vary	165,4	21,2	5,7	2,3	0,5	71,5	19,0	7,6	1,7	0,2
Ústí nad Labem	140,9	18,2	5,2	2,3	0,4	69,6	19,8	8,9	1,5	0,3

Source: Own calculations based on Labour Force Sample Survey, CSO 2001.

The level of economic activity (the share of employed persons in the number of population over 15 years of age) is higher in both sub-regions (more in Karlovy Vary). Within the Czech Republic, the Ústí nad Labem sub-region shows the second highest proportion of persons working overtime and the lowest proportion of part-time workers. The high proportion of overtime work may reflect both the pressure of higher unemployment in the region, or lower willingness to hire new employees (because of uncertain future developments, high labour costs). The lower level of part-time work may be the result of lower representation of market services (a common source of this type of workload), or lower levels of economic activity of women (which, however, is only slightly lower than the Czech Republic average).

Table 11: Economic activity level, 2000

	CR	KVA	UNL
Level of economic activity in % (over 15 years of age)	60,3	64,9	61,0
Proportion of entrepreneurs in the number of employed persons	14,6	12,5	12,1
-without employees	10,5	7,8	8,8
-with employees	4,2	4,7	3,3
Proportion of employees with other jobs in the number of employed persons	2,7	3,5	2,0
Proportion of persons working overtime (full-time employment) in the number of employed persons	22,5	8,9	29,7
Proportion of persons working part-time in the number of employed persons	4,8	5,1	3,0

Source: Own calculations based on data from Labour Force Sample Survey, CSO, 2001.

Another indicator of the level of entrepreneurial activity is the classification according to ICSE (Table 12, 5A) which divides employed persons in the national economy into five broad categories (employees, employers, own-account workers, members of production cooperatives and assisting family members). Overall, the category of employees always dominates. Nevertheless, larger proportions of the last three categories (particularly own-account workers) suggest a wider scope of entrepreneurial activities, as well as an individual's capability to resolve the loss of a job by his/her own business initiative.

Table 12: Structure of employed persons in the national economy according to employment status, regions, 1993, 1Q/2001 (%)

	1993				2001				
	Employees	Employers	Self-employed persons	Members of production cooperatives	Employees	Employers	Self-employed persons	Members of production cooperatives	*Intensity of change 2001/1993*
ČR	87,0	2,7	6,3	3,7	83,7	4,0	10,7	1,1	*3,3*
North West	91,2	2,3	4,6	1,6	86,9	3,8	8,8	0,2	*4,2*

Source: Own calculations based on data from Labour Force Sample Survey, CSO, 2001, The Labour Market in the Czech Republic, 2000.

A higher demand on the part of companies for products of smaller businesses requires stronger sub-contracting links directly in the region (outsourcing). These links are dependent on the industry structure and, in particular, on the importance of the manufacturing sector (the proportion of which is below-average in the North West region) and the type of its industries. In capital-intensive industries where large companies predominate there is a tendency to secure the relevant inputs by own resources (not only in production itself, but also in the are of business services). This is the case of the Ústí nad Labem sub-region where a great part of the production within manufacturing is covered by capital-intensive, highly concentrated industries. Moreover, there is a large proportion of mining/quarrying and electricity, gas and water industries in the North West – where the concentration is extremely high. However, large companies with capital-intensive production have a number of favourable features: higher value added productivity, higher technology and skills intensities, paying higher wages and providing more extensive social benefits to their employees (including training).

The average size of industrial companies with 100 and more employees is higher than Czech Republic average in Ústí nad Labem, and below the average in Karlovy Vary (Table 13). The industry concentration (size of companies according to the number of employees) varies considerably (Table 14, 6A) and is biased in favour of capital-intensive industries.

Table 13: Number of employees per industrial company in category with 100 and more employees, 2000

ČR	PHA	STC	BUD	PLZ	KVA	UNL	LIB	KVH	PAR	JIH	BRN	OLO	ZLI	OVA
414	433	445	371	376	334	436	428	356	354	311	367	340	386	777

Source: Bulletin of the Ústí nad Labem sub-region, CSO, 2001, own calculations.

Table 14: Size and number of industrial companies with 100 and more employees, 2000

		Ústí nad Labem		Karlovy Vary	
		Number of employees	Number of entities	Number of employees	Number of entities
C,D,E	Industry	436	159	334	89
C	Mining and quarrying	2748	5	1678	4
D	Manufacturing industry	331	147	274	80
E	Electricity, gas and water	977	7	218	5

Source: Bulletin of the Ústí nad Labem sub-region, 4th quarter, CSO, 2001, own calculations. Average number of employees per one company.

Overall, the characteristics of entrepreneurial activity are not very favourable for the North West region (an particularly for Ústí nad Labem). On the one hand, various support programmes may certainly be recommended for SMEs which would facilitate their access to loans (which is particularly difficult for these entities). However, a prerequisite for success of smaller business entities is primarily the appropriate demand on the part of households and companies. This demand, in turn, reflects the overall economic situation in the region. Taking account of its high levels of sensitivity to the previous macroeconomic development it is necessary to show prudence in developing new activities on the part of economic entities as well as lending institutions.

III.5 Manufacturing

The key sector of a regional economy is manufacturing – not only in terms of its share in employment and value added. The importance of this sector is given by its above-average innovative capacity, export and investment intensities as well as its impact upon the development of other sector – in directly as well as indirectly related supply and demand activities within industry sector and in services. The large size of the sector calls for structured assessment of its industry structure (specialisation), productivity and technology and skill intensities.

Specialisation

The industry structure of the two North West sub-regions is more specialised (Table 7A), in the case of Ústí nad Labem it concerns more the value added, in Karlovy Vary it applies more to employment. A higher level of specialisation is positive when resources are concentrated in the activities in which businesses make use of competitive advantage. On the other hand, lower diversification may pose a problem when demand changes - if adjustment is not sufficiently fast. Surplus capacities (capital, human) show more difficulties adapting to a new uses due to their one-sided orientation. Worsening performance (the loss of a competitive advantage) of a dominant sector (and related sectors) is more apparent in the regional economy. A weaker capacity to adjust occurs particularly in those sectors with high demand elasticity (income, price) – in national and particularly international terms of trade. In a region with a more diversified structure the effects of unfavourable development of demand (and insufficient adjustment of supply) are more evenly distributed among the sectors.

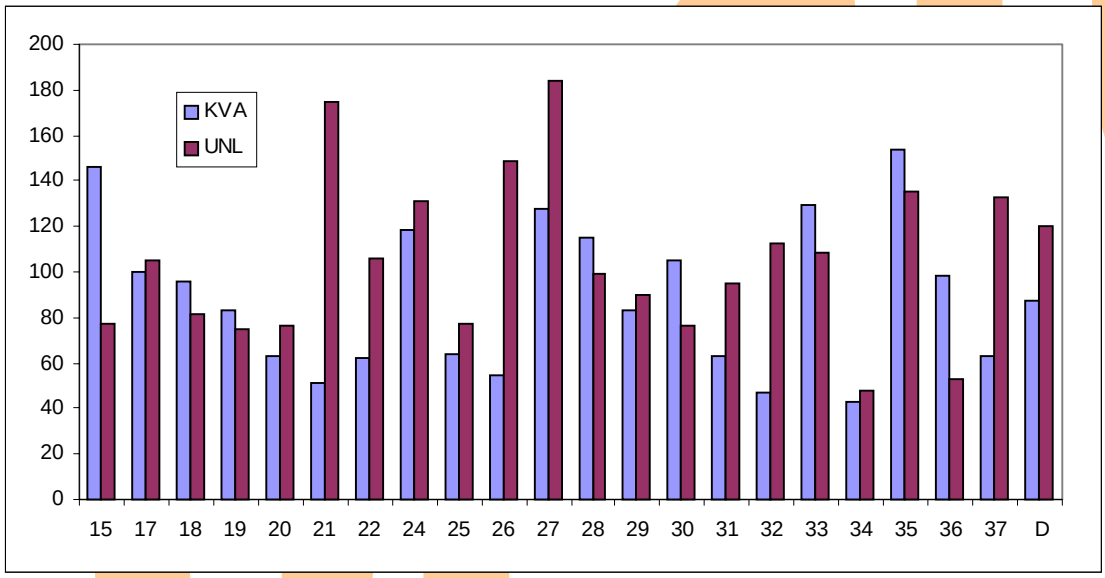
In terms of the value added shares (Table 8A) the Ústí nad Labem sub-region has an above-average (compared to the Czech Republic) representation of coking and oil refining, chemical industry (24%), glass, ceramics, porcelain and construction materials (16.8%), production of pulp, paper and paper-board (6.8%) and textile industry (4.1%). These four industries account for 51.7% of the total value added (but only 32% of employment). The structure is more diversified

in the Karlovy Vary sub-region. Food and drinks have an above-average representation (19.2%), glass, ceramics, porcelain and construction materials (17.0%), textile and clothing industry (9.3%), coking (8.1%), production of metal structures and metalwork (13.5%) and other manufacturing (6.0%). These seven sectors account for 73.1% of the total value added and 66.4% of employment.

Productivity

When comparing the sectors with the Czech Republic's average, there are considerable differences in productivity levels (Table 8A, Figure 5). In many cases this also applies to the comparison of sub-regions. Overall, the productivity of manufacturing in Ústí nad Labem sub-region is 20.3% higher (this has been undoubtedly influenced by the above mentioned significant fall in employment in this sector in previous years), and it is 12.5% lower in Karlovy Vary. In the Karlovy Vary sub-region, the proportion of industries with above-average productivity accounts for 53.4% of total value added and 38.0% of total employment, in Ústí nad Labem it is 63.4% and 42.8% respectively. The largest differences in the level of productivity between the two sub-regions occur in the food and drinks industry, production of pulp, paper and paper-bard, and in the glass, ceramics and porcelain industry.

Figure 5: Value added productivity, manufacturing industry, 1999, Czech Republic=100



Source: Own calculations based on Ministry of Industry and Trade data, Panorama of the Czech Industry, 2001. Industry codes – see Table 8A.

Differences in productivity between the two sub-regions as well as in comparison with the Czech Republic are relatively large and have serious implications for competitiveness of the individual industries and their future prospects. Lasting low levels of productivity weaken competitiveness – competition will be further intensified upon accession to the European Union (in 1999 the productivity of Czech manufacturing in terms of purchasing power parities was only 51.4% of EU average – and after appropriate adjustments it was only 35 – 45%).

The pressure to improve productivity may induce technological and organisational changes (achieving higher output per employee with a better use of the existing inputs) and/or workforce lay-offs (achieving higher output per employee while decreasing the number of inputs). Both

paths to productivity improvement are normally inter-linked. The first approach is desirable – however, it requires the appropriate investment in enhancing the quality of inputs (technology and human capital). In this respect there is usually a favourable influence of a foreign owner – as indicated by comparisons of productivity (as well as investment intensity, export performance) of foreign-controlled companies and domestic companies (this is not only true of economies in transition, but also of developed economies).

Skill and technology intensities

Production performance and the nature of an industry's competitive advantage (and therefore its stability or potential expansion in the market) reflect the industry skill and technology intensities, which may be divided into four categories from the low to the high intensity (low, medium-low, medium-high, high). A higher ***skill intensity*** has a favourable effect on the productivity of other inputs and the potential of quality based competitive advantage, and induces further investment in human capital. The workforce with higher skills are also more capable to adjust to eventual demand changes. A sufficient supply of high-quality human capital is not enough – it must be combined with an appropriate ***technology intensity*** of production and innovative capacity. More technology-advanced industries use inputs more efficiently, employ more skilled workforce, pay higher wages, provide more extensive benefits to employees and invest more in improving their skills. More technology-advanced industries also have a better capacity to grow: their products have a high income elasticity (with increasing income the demand for their products increases even higher), they create new demand and quickly replace older products, their competitive advantage is based on quality rather than on price and they are therefore more resistant to fluctuations in demand both on the domestic and foreign markets.

As regards both criteria, i.e. skill and technology intensities, the situation is different in Ústí nad Labem and in Karlovy Vary sub-regions. In terms of ***skill intensity*** (Table 15) in Ústí there is an above-average proportion of industries with a medium-high level (second highest proportion after Prague) – both in employment and value added. In Karlovy Vary the proportion of this industry group is below average. The proportion of the category with medium-high and high skill intensity accounts for 46.3% in Ústí nad Labem (value added) and 36.2% (employment), in Karlovy Vary it is only 22.7% and 21.2% respectively. This means that, in terms of the importance of industries with high and medium-high skill intensity as compared to Czech Republic average, the situation in the Ústí nad Labem sub-region is very good. One unfavourable feature in Karlovy Vary is the above-average proportion of industries with low skill intensity – the highest proportion in all sub-regions of the Czech Republic.

In terms of ***technology intensity*** (Table 16), the situation in the Ústí nad Labem is not so favourable as is the case of skill intensity. However, it is again more favourable than in Karlovy Vary. The proportions of individual industry groups in employment in Ústí nad Labem do not differ considerably from the Czech Republic average. As regards value added, there is a larger proportion of industries with medium-low technology intensity (particularly due to coking and oil refining) and a smaller proportion of industries with medium-high technology intensity. In Karlovy Vary there is a below-average representation of industries with medium-high technology intensity and an above-average representation of industries with medium-low (as regards value added and employment) and low (value added) technology intensity. Overall, industries with low and medium-low technology intensity prevail in both sub-regions. Their proportion in Ústí nad Labem is 69,7% (value added) and 66,8% (employment). In Karlovy Vary it is as high as 75,4% and 76,8% respectively.

Table 15: Structure of manufacturing industry according to skill intensity, 1999

	Proportion in value added				*Medium-high+ high*	Proportion in employment				*Medium-high+ high*
	Low	Medium-low	Medium-high	High		Low	Medium-low	Medium-high	High	
ČR	43,4	22,8	22,8	10,7	*33,5*	45,8	22,5	18,8	12,4	*31,2*
KVA	57,4	19,9	16,8	5,9	*22,7*	57,6	21,0	14,0	7,2	*21,2*
UNL	39,9	13,3	39,7	6,6	*46,3*	43,3	19,8	25,9	10,4	*36,2*

Source: Own calculations based on Ministry of Industry and Trade data, Panorama of the Czech Industry, 2001.

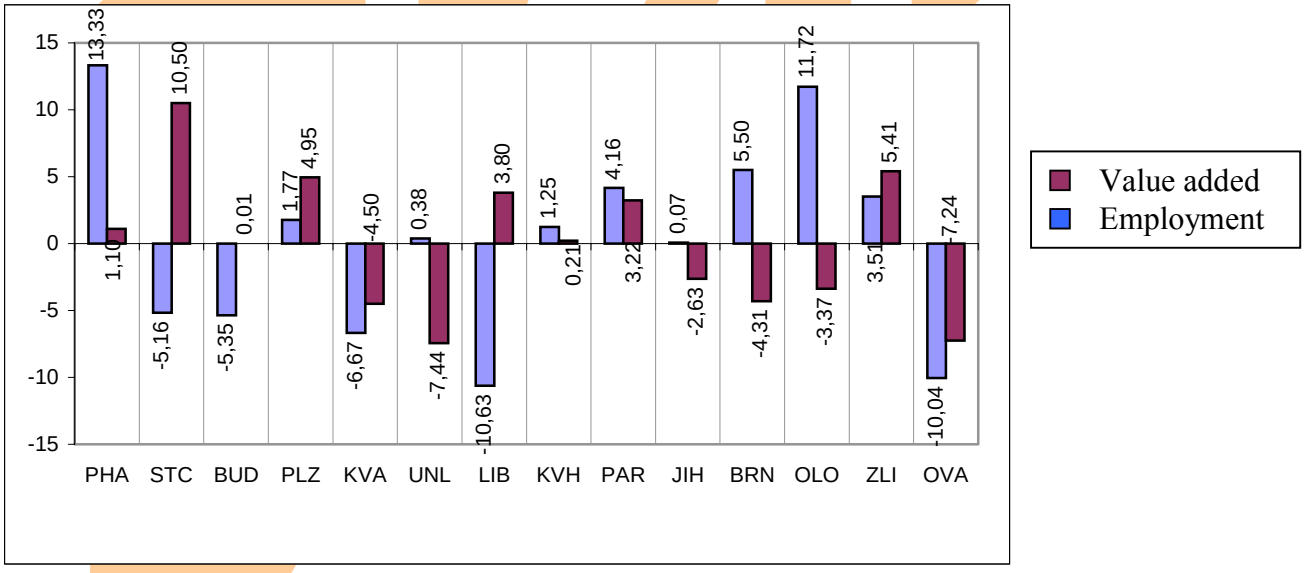
Table 16: Structure of manufacturing according to technology intensity, 1999

	Proportion in value added				*Medium high+ high*	Proportion in employment				*Medium high+ high*
	Low	Medium-low	Medium-high	High		Low	Medium-low	Medium-high	High	
ČR	28,0	34,2	35,6	1,8	37,4	31,8	33,8	31,8	2,2	34,0
KVA	33,4	42,0	23,7	0,8	24,6	32,2	44,6	21,4	1,7	23,1
UNL	24,5	45,2	29,0	0,8	29,8	32,0	34,8	31,3	1,3	32,6

Source: Own calculations based on Ministry of Industry and Trade data, Panorama of the Czech Industry, 2001.

The criterion of technology intensity complements the criterion of skill intensity. This is important particularly to distinguish between industries with higher technology intensity and lower or low skill intensity (an example may be the automobile industry, coking and oil refining). By means of combining both criteria it is possible to determine a group of industries with medium-high and high skill and, at the same time, technology intensity (Figure 6). In this respect the position of the Ústí nad Labem sub-region is relatively favourable thanks to a slightly above-average representation of this combined category (in terms of value added, not employment), the position of Karlovy Vary is considerable worse.

Figure 6: Structure of manufacturing according to technology and skill intensities (combined), 1999, difference from the Czech Republic (percentage points)



Source: Own calculations based on Ministry of Industry and Trade data, Panorama of the Czech Industry, 2001

III.6 Training and development activities

The nature of the demand for skills in the North West region is illustrated by the results of the CSO survey of training opportunities in the Czech companies, carried out in 1999. These opportunities are differentiated by the size of companies and by industries. The CSO survey has provided the following findings in inter-regional comparison. The training opportunities increase with the company size (Table 17, 9A). Employees of smaller companies are therefore at a disadvantage as compared to employees of large companies in terms of training opportunities. In inter-regional comparison, the lowest proportion of companies providing training is in the North West region, the highest in the Ostrava region. There is an above-average proportion of companies providing training in the North West only in the 10-to-19-employee size category and then in the category with over 500 employees. The proportion of companies providing training is particularly low in the category with 20-49 employees.

Table 17 : Companies providing continuing vocational education and training by number of employees (%), Czech Republic and regions, 1999

	All	10-19	20-49	50-249	250-499	500-999	1000+
Czech Republic	67,0	56,3	67,3	83,8	95,6	95,5	98,3
North West	65,0	57,9	60,5	82,7	93,5	100,0	100,0

Source: Own calculations based on CSO data, CVTS Development, 2001.

Education and training opportunities are industry specific. Training opportunities in the region will therefore differ depending both to company size and the industry structure (Table 10A). There is a higher proportion of companies providing training in mining and quarrying, electricity, gas and water (capital-intensive industries), in industries with higher technology intensity within the manufacturing (vehicles, transport machinery) and the progressive sector of services (financial services, telecommunications, business services). An important role is played by the presence of foreign capital.

In terms of training (Table 18) internally or externally managed courses predominate – in the North West region they are provided for by almost 90% of companies. The second most frequent type is participation in conferences and meetings (68.1% of companies).

Table 18: Type of training (in %) by company size, 1999

	10-19		20-49		50-249		250-499		500-999		1000+		All	
	ČR	NW	CR	NW	ČR	NW	CR	NW	ČR	NW	CR	NW	CR	NW
Courses	81,1	84,4	88,5	90,7	94,4	95,4	99,4	100,0	99,1	100,0	99,6	100,0	87,9	89,9
On the job	38,4	37,8	34,7	30,4	45,3	43,2	65,4	66,3	67,1	76,2	81,1	76,5	41,0	38,5
Job interchange	7,1	0,9	3,7	2,3	8,0	10,1	14,5	12,9	14,0	4,8	28,1	35,3	6,9	4,4
Study groups	7,3	6,5	4,5	0,6	11,8	11,5	18,3	19,8	22,2	23,8	26,7	17,6	8,4	6,7
Self-study	22,2	16,7	22,7	16,1	28,5	33,0	34,3	16,8	41,7	47,6	55,9	58,8	25,1	21,2
Participation in conferences	66,6	62,5	70,9	70,4	76,0	70,3	82,1	85,1	85,4	85,7	96,4	100,0	71,5	68,1

Source: CSO, CVTS Development, 2001.

As mentioned earlier, training opportunities rise with the company size. Another indicator concerning training opportunities is the intensity of training, i.e. the rate of participation and its duration. The rates of participation are expressed either as a percentage of the overall number of employees in the respective size category or of the number of employees of those companies which provide training. A gender distinction is also made (Table 19). The rate of participation in the North West region in relation to Czech Republic average is lower in companies providing training - as regards the size category, however, the situation is different. The situation is more favourable in larger companies (50-249 and 500 and more employees). However, in all size categories of the North West region the rate of participation among women is lower than Czech

Republic average. The combination of the rate of participation in companies providing training and in all companies shows that employees of small companies are not only less likely to work in companies providing training, but also that they are less likely to undergo training even in companies providing training. This situation is even worse in the North West region as compared to the Czech Republic.

Table 19: Rates of participation in training by company size – all companies and companies providing training (in %), 1999

	Participants in training in all companies						Participants in training in companies providing training					
	Czech Republic			North West			Czech Republic			North West		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
10-19	21,9	24,4	17,5	22,4	23,4	20,4	46,0	50,0	38,3	43,9	47,4	37,9
20-49	24,5	27,5	19,0	16,5	19,6	11,3	39,3	43,1	32,0	27,8	32,7	19,5
50-249	34,0	38,6	26,2	34,4	41,5	21,6	41,4	45,4	34,1	42,6	46,7	32,6
250-499	43,4	49,8	33,5	36,0	45,1	22,7	45,2	51,8	35,0	38,5	48,8	23,9
500-999	50,5	58,5	38,7	53,8	60,9	37,8	52,5	59,9	41,2	53,8	60,9	37,8
1000+	53,8	57,6	48,2	61,9	70,6	43,4	54,2	58,0	48,7	61,9	70,6	43,4
All	40,8	44,9	34,2	36,0	42,7	23,9	47,9	52,2	40,8	44,9	51,7	31,7

Source: CSO, CVTS Development, 2001.

The average number of training hours per one participant in the Czech Republic is 25. The North West ranks second worst among regions with a mere 21 hours (Table 20, 11A). In terms of company size, employees of small companies get a relatively good number of training hours. Although they have fewer opportunities to participate in training than employees of larger companies, when they do participate, the number of hours devoted to training is similar or even higher. Nevertheless, the situation in small companies in the North West is very bad. Companies with 10 to 19 employees provide the lowest number of training hours per participant of all regions, the same applies to the category with 500-999 employees. The second worst situation is in the category with 1000 and more employees.

Table 20: Number of paid hours of CVET per one participant, 1999

	10-19	20-49	50-249	250-499	500-999	1000+	All
ČR	29	25	24	30	34	21	25
North West	21	23	26	21	15	17	21

Source: CSO, CVTS Development, 2001.

Overall, the situation in the North West in the area of training is very bad in comparison with Czech Republic average (and other regions). The deficits are particularly severe in the category of small companies (in relation to Czech Republic average), the situation is better in larger companies. In view of the different industry structure it is possible to assume that the position of the Ústí nad Labem sub-region is better than that of Karlovy Vary as regards the category of larger companies (due to higher technology and skill intensities and size concentration of manufacturing), and, also, as regards the larger proportion of mining and quarrying and gas, electricity and water - industries which, on average, provide more training to their employees. On the other hand there is a lower representation of progressive services with a higher intensity of training in the region.

III.7 The labour market

The characteristics of the supply in the labour market established for the purpose of examining the respective skill needs include the structure of employment and unemployment, which, in the North West, shows a number of unfavourable features particularly in terms of the skill structure and the proportion of the long-term unemployed.

Unemployment structure

In terms of unemployment structure by age (Table 21) the Ústí sub-region has, in comparison with Czech Republic average, a larger representation of the 15-29 age group (the highest in the Czech Republic), which is a rather problematic group with regard to their low level of education. On the contrary, there is a far below average representation of the 45-54 age group. In Karlovy Vary the differences in age groups are not so extensive – the exception is the below-average representation of the group over 55, which may be considered more as a positive feature. As regards the structure according to education attainment, Karlovy Vary shows an alarmingly high (second highest in the Czech Republic) proportion of the category with basic education. In Ústí nad Labem there is a relatively high proportion of the category with secondary vocational education (without "maturita").

Table 21: Structure of unemployed persons by age and education, the Czech Republic and sub-regions, 1Q/2001 (in %)

	Unemployed by age						Unemployed by education			
	15-24	25-29	30-34	35-44	45-54	55+	Basic education	Secondary vocational (without "maturita")	Secondary technical and general with "maturita"	University
Czech Republic	25,9	14,6	11,1	21,7	21,1	5,5	27,2	44,5	25,0	3,1
Karlovy Vary	25,1	16,2	13,9	20,1	23,6	1,1	41,1	40,0	17,8	1,2
Ústí nad Labem	27,2	20,8	9,3	22,0	16,2	4,5	25,9	50,6	22,2	1,1

Source: Own calculations based on data from Labour Force Sample Survey, CSO 2001.

Overall, the structure of unemployed persons in the North West region reflects the age and education structure of the population (over 15 years of age) and that of employed persons (see below). The high proportion of the 25-29 age group in Ústí nad Labem mentioned earlier is the consequence of a high occurrence of low skill attainment in this group (at the same time, there is a high proportion of the unemployed with secondary vocational education without "maturita"). On the contrary, the below-average proportion of the unemployed with university education and the 45-54 category suggests an insufficient supply of persons with high productivity (combination of high levels of education and work experience).

An important indicator, which partially explains the long-lasting regional difference in the rate of unemployment, is the structure of the unemployed by the length of their unemployment (Table 22). In this respect the situation in the Ústí nad Labem sub-region is very unfavourable and is further deteriorating. In 1993 the difference in the proportion of the category of long-term unemployed persons (over 1 year) between the North West region and Czech Republic average was 7.7 percentage points, in 1999 it was already 12.5 pp (for example, the proportion of the unemployed for over two years is considerably larger).

Table 22: Structure of unemployed persons by period of seeking employment, 1999

	ČR	PHA	STC	BUD	PLZ	KVA	UNL	LIB	KVH	PAR	JIH	BRN	OLO	ZLI	OVA

Up to 3 months	19,9	27,3	20,2	29,8	24,6	28,3	12,7	15,4	23,7	27,2	20,5	22,2	17,8	21,1	16,0
More than 3 to 6 months	18,1	23,9	18,6	20,9	19,3	18,1	13,6	16,0	22,1	23,3	21,0	19,3	16,6	18,3	16,1
More than 6 to 12 month	24,9	23,9	27,4	21,5	23,0	22,0	24,1	26,9	26,3	23,8	29,0	26,6	26,5	24,0	23,2
More than 1 to 2 years	20,1	13,4	21,5	11,5	15,5	15,0	23,8	25,7	17,4	16,3	18,1	20,0	25,0	23,2	20,6
More than 2 years	17,0	11,3	12,5	16,8	17,6	15,7	25,8	16,6	10,5	9,9	11,9	12,0	14,5	13,4	24,1

Source: Own calculations based on CSO data, The Labour Market in the Czech Republic, 2000.

The structure of population and employed persons

The qualitative characteristics of the population include, in particular, the age structure, education structure (including a break-down in terms of selected level of education – ISCED 97). As regards the ***age characteristics*** of the population and their development over time, the position of the two sub-regions of the North West region is the most favourable in the Czech Republic (Table 23). In terms of the ***age structure of unemployed persons*** the North West sub-regions do not show any significant difference from Czech Republic average. In the Karlovy Vary sub-region there is a stronger representation of the 15-29 age group and a smaller proportion of the 30-44 age group. There is a larger proportion of the 45-59 age group in Ústí nad Labem.

Table 23: Structure of population by age groups, 1993, 1Q/2001 (v % of total population and total employed persons in the region)

	Structure of population							
	1993				**2001**			
	15-29	**30-44**	**45-59**	**60+**	**15-29**	**30-44**	**45-59**	**60+**
ČR	22,8	21,5	18,0	18,0	23,4	20,1	21,9	18,5
KVA	24,0	22,4	18,2	15,1	23,9	20,4	22,0	16,8
UNL	23,7	21,8	18,0	16,2	24,3	20,0	22,3	16,6
	Structure of employed persons							
	15-29	**30-44**	**45-59**	**60+**	**15-29**	**30-44**	**45-59**	**60+**
ČR	26,9	40,8	28,9	3,4	25,3	36,7	35,4	2,7
KVA	28,3	40,2	28,5	3,0	27,3	35,4	34,8	2,4
UNL	27,0	41,0	29,5	2,5	24,7	36,8	36,6	2,0

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000.

The ***education structure of the population*** (over 15 years of age) and of ***employed persons*** is the key qualitative characteristic of the region. Lower levels of education pose a severe problem in terms of adaptability to change (skills mobility, re-training capacity) and the resulting disproportions then have a long-term nature. As regards the proportion of groups with higher education levels, the position of the North West sub-regions is very unfavourable (Table 24). The category which predominates within the age structure is the category with secondary vocational education (i.e. without "maturita"). On the other hand there is a much smaller proportion of the categories with higher education levels (secondary with "maturita" and university) as compared to Czech Republic average.

Table 24: Education structure of employed persons in national economy, 1993, 1Q/2001, Czech Republic and sub-regions (in %)

	1993	**2001**	**Cha**

	Basic education	Secondary vocational (without	Secondary vocational and technical with	Secondary general	University	Basic education	Secondary vocational (without	Secondary vocational and technical with	Secondary general	University	
ČR	13,3	45,6	26,6	3,8	10,6	8,8	42,4	31,8	3,9	13,0	*8,1*
KVA	18,0	45,6	26,7	2,6	6,8	12,6	44,6	32,1	2,4	8,2	*7,8*
UNL	15,7	49,1	25,8	3,2	6,1	11,1	48,1	28,1	4,6	8,1	*5,8*

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000.

Classification of occupations (ISCO)

The ISCO criterion divides employees into ten categories which combine professional and skill criteria. To a certain degree this classification provides a better picture of the actual position of employees in the respective region in relation to their potential position in employment, which is illustrated by the employees' structure by education (Table 25, 12A). In inter-regional comparison, the North West region shows deficits (in comparison with the Czech Republic average) in groups with medium-high and high skill intensity. On the contrary, there is considerable surplus in groups with lower skills. In terms of development over time, the highest increase in this region is in the category of scientists and professionals (although from a significantly lower base) and the category of machine operators and unskilled and elementary occupations.

Table 25: Structure of employed persons in the national economy according to ISCO, 1993, 1Q/2001 (in %)

	White collars, high skills						White collars, Low skills				Blue collars, high skills				Blue collars, low skills				*Change intensity*	*Degree of difference*
	Legislators, senior officials and managers		Scientists and professionals		Technicians, medical personnel and teachers and associated		Low administrative workers, clerks		Service workers and shop and market sales workers		Skilled agricultural forestry workers (and associated disciplines)		Craft and related trades workers		Plant and machine operators and assemblers		Elementary occupations			
	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	*93/01*	*2001*
ČR	4,4	6,3	9,2	10,8	18,0	19,1	7,4	8,0	10,6	12,3	2,6	1,9	22,9	19,9	13,2	12,8	10,2	7,9	*1,89*	
PHA	5,6	7,7	18,1	22,1	25,4	26,4	10,0	10,0	11,2	11,7	0,3	0,4	14,7	12,3	6,8	4,0	7,3	4,8	*2,29*	*18,29*
CB	4,4	6,8	6,7	8,9	16,3	16,1	7,2	9,1	11,4	12,5	3,0	2,2	23,9	21,5	13,5	13,2	12,0	8,9	*1,88*	*4,23*
SW	4,3	6,3	7,5	7,6	18,5	19,9	7,4	5,9	10,3	12,3	3,8	2,8	21,8	19,8	13,7	15,9	10,2	8,4	*1,74*	*5,10*
NW	4,4	6,0	5,5	7,4	17,7	17,9	8,5	7,9	11,4	12,8	1,7	0,9	25,1	21,4	12,8	14,1	11,8	10,3	*3,25*	*4,90*
KVA	*3,5*	*6,7*	*7,2*	*8,2*	*15,9*	*17,4*	*9,1*	*9,1*	*12,5*	*13,1*	*1,5*	*0,7*	*25,9*	*20,3*	*12,1*	*15,0*	*10,7*	*8,5*	*1,74*	*4,25*
UNL	*4,7*	*5,7*	*4,8*	*7,1*	*18,3*	*18,2*	*8,3*	*7,5*	*10,9*	*12,6*	*1,8*	*1,0*	*24,7*	*21,8*	*13,1*	*13,8*	*12,2*	*11,1*	*2,12*	*5,53*
NE	5,1	6,1	7,5	9,2	16,9	16,6	6,8	8,1	10,7	11,3	3,2	2,3	25,3	21,8	13,4	14,7	10,0	8,8	*1,98*	*4,25*
SE	4,3	5,5	9,6	10,4	17,8	18,0	6,9	8,8	9,8	12,7	3,8	3,0	24,1	20,9	13,0	12,9	9,4	6,8	*2,08*	*2,50*
CM	3,9	5,9	9,4	8,0	15,7	19,2	6,8	6,9	9,6	12,3	2,8	2,3	23,4	20,8	16,5	14,6	10,4	8,8	*2,33*	*3,77*
OVA	3,1	6,0	8,5	11,2	15,3	18,8	6,0	6,4	11,1	13,0	2,0	1,2	24,7	21,2	16,4	13,7	11,3	7,4	*3,02*	*2,57*

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, CSO 2000. The difference from 100% includes the group of the military.

In order to capture the ***qualitative characteristics*** of the occupations, four categories of skills have been set up (the combination of so-called white and blue collars and high and low skills) – their proportions in various sub-regions are then compared. A distinction is also made between white and blue collars and low and high skills (Table 26). In both North West sub-regions there

is a below average representation of white collars and the dynamics of their increase is also below average. In Ústí nad Labem there is the third lowest share of the white collars and high skills category and the fourth highest share of the blue collars and low skills category in the Czech Republic. The position of Karlovy Vary is more favourable, although less in terms of development over time (the proportion of white collars and low skills category has increased).

Table 26: Structure of employees according to skills categories, 1Q/2001 (in %)

	WCHC	WCLC	BCHC	BCLC	BC	WC	HC	LC
ČR	36,2	20,3	21,9	20,7	56,4	42,6	58	41
±	*4,6*	*2,2*	*-3,7*	*-2,7*	*6,8*	*-6,4*	*0,9*	*-0,5*
KVA	32,4	22,2	21	23,5	54,6	44,5	53,4	45,7
±	*5,7*	*0,6*	*-6,4*	*0,7*	*6,3*	*-5,7*	*-0,7*	*1,4*
UNL	31	20,1	22,8	24,8	51,1	47,6	53,8	44,9
±	*3,2*	*0,9*	*-3,7*	*-0,4*	*4,1*	*-4,1*	*-0,4*	*0,5*

Note.: The difference from 100% includes the group of the military. Changes from 1993 in percentage points (±). OECD classification, Science, Technology and Industry. Scoreboard of Indicators, 1997, p 56. Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, CSO 2000.

The comparison shows a considerably worse skill and profession structure in the North West region (and, in particular, in Ústí nad Labem) – which is linked to the aforementioned deficits in the education structure. Improvement over time is below-average. A comparison with the above-average skill intensity in manufacturing in Ústí nad Labem therefore illustrates a severe gap between the skill levels in this sector and those in the rest of the regional economy.

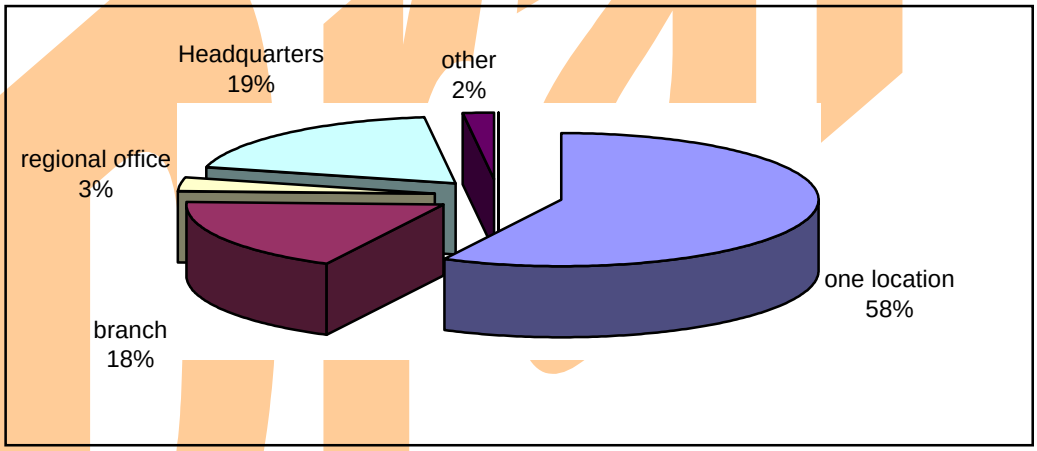
IV. ANALYSIS OF THE COMPANY SURVEY

IV.1 Sample characteristics

This part characterises the sample of companies in the survey from which the further analysis is derived. The sample includes 155 companies in five industry groups: (1) chemical industry, (2) environmental protection, (3) communications and IT, (4) energy, (5) glass, ceramics and porcelain. In addition to the industrial perspective the companies are broken down by type, size, year of establishment and legal status. Individual criteria are also combined in order to obtain more precise information about the structure (in terms of size and industry).

As concerns the **type** (Figure 7) the companies are characterised by their measure of independence (autonomous decision-making) which is usually lower in the case of branches (17.9% of companies) as compared with companies performing the functions of headquarters (19.2%). On the one hand the support of the centre plays an important role in terms of availability of resources, knowledge and technology for the branch's operations. What is always important, however, is the extent to which local specificities and responsiveness to the local community needs are reflected in the strategy of the headquarters located outside the region. In branches, the range of company functions that are more demanding in terms of skills and technology may also be limited (research and development, marketing), since these functions are concentrated in the headquarters.

Figure 7: Company Type

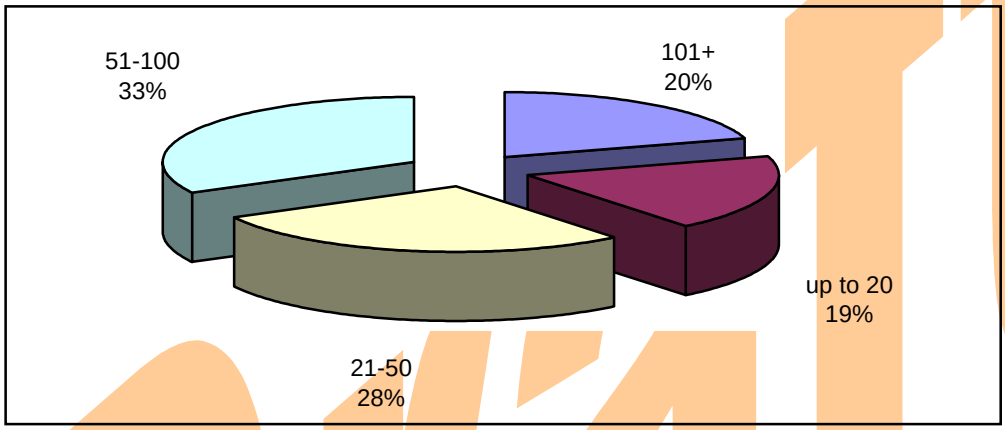


Companies with independent operations in one location constitute the largest proportion in the sample (57.6%). Local specialisation and independent decision-making linked to local specific needs is an advantage for these companies. On the other hand, the limited resources available to smaller companies of this type make them more sensitive to local market developments. The range of company functions may be wider – however, the standards of their performance often poses a problem due to a limited access to the necessary knowledge, technology and skills.

In terms of **size** expressed by the number of employees (four size-related categories – Figure 8) the largest category comprises companies with 51 – 100 employees (32.7%). The companies

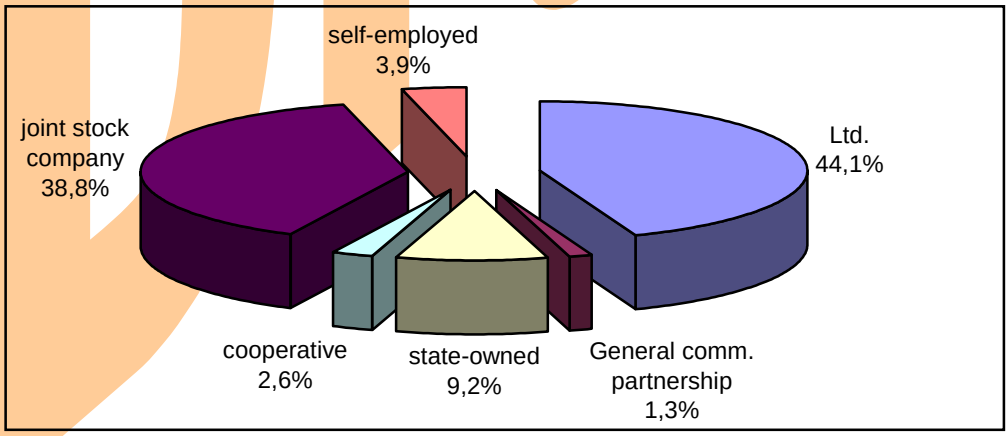
with fewer than 50 employees (categories up to 20 and 21 to 50 employees) account for 47.1% of the sample. Compared to larger companies, the smaller companies normally enjoy advantages related to higher flexibility in responding to market developments. However, their problem may be lower stability and higher sensitivity to the fluctuations of the external economic environment. Due to limited resources it is harder for smaller companies to withstand these pressures and, in periods of economic hardship, they experience more difficulties getting access to additional resources. The limited resources and difficulties in obtaining them also pose an obstacle to the expansion of the existing activities. In this respect it is also necessary to mention the unfavourable situation on the financial markets in the Czech Republic in recent years where banks have been reducing their lending activities. This trend, of course, has a particularly negative effect on smaller companies (as compared to the situation in the early years of transition when the banks' lending to this group of companies was relatively generous).

Figure 8: Companies Broken Down by Size



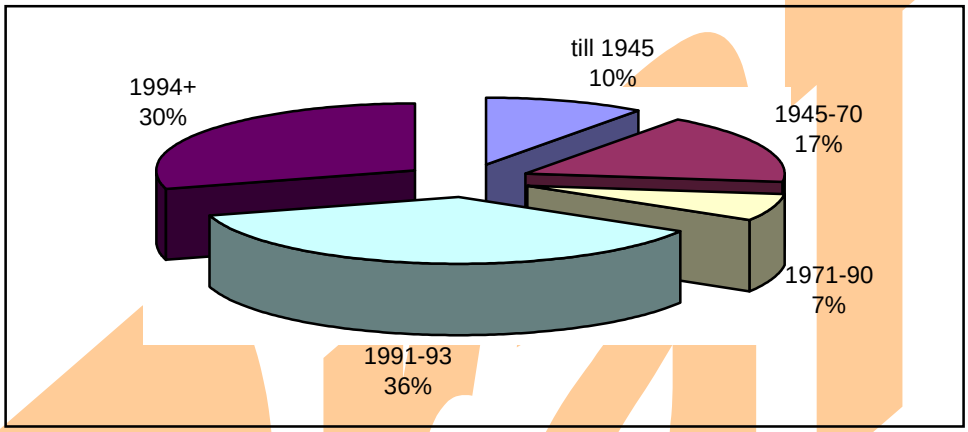
In terms of **legal status** (Figure 9) almost one half of the sample is formed by companies with limited liability (44.1%). The second largest group includes joint stock companies (38.8%). The proportions of companies with other types of legal status are negligible. State-owned companies account for 9.2%.

Figure 9: Company Legal Status



Regarding the **year of establishment** (Figure 10) there is a prevailing number of companies which were set up after 1989 (66.4%). Nevertheless, companies established in 1971-1990 are also represented (6.7%). The proportion of companies founded in 1991-93 is higher than the proportion of businesses set up since 1994 (36.9% and 20.5% respectively), although the latter period is twice as long. The reason for this disproportion may be twofold: first, the lower rate of new start-ups, and second, a higher rate of closedowns among existing companies. In both instances an important role was undoubtedly played by the aforementioned problems with securing loans in the later period of the transition and the impacts of macroeconomic downturn, which were particularly strong in the region. The question is whether a macroeconomic recovery will significantly contribute to the development of new activities while the banks remain prudent in terms of lending. On the other hand, companies which have survived the period of unfavourable macroeconomic and regional developments may be viewed, thanks to this experience, as a more resistant and stable component of the regional economy.

Figure 10: Year of Establishment of Company



In terms of the **industry structure** (Figure 11) the largest groups (as regards the number of companies) include companies concerned with environmental protection (38.1%) and communications (20.6%). The shares of remaining three industries are comparably large.

Figure 11: Industry Structure by Number of Companies

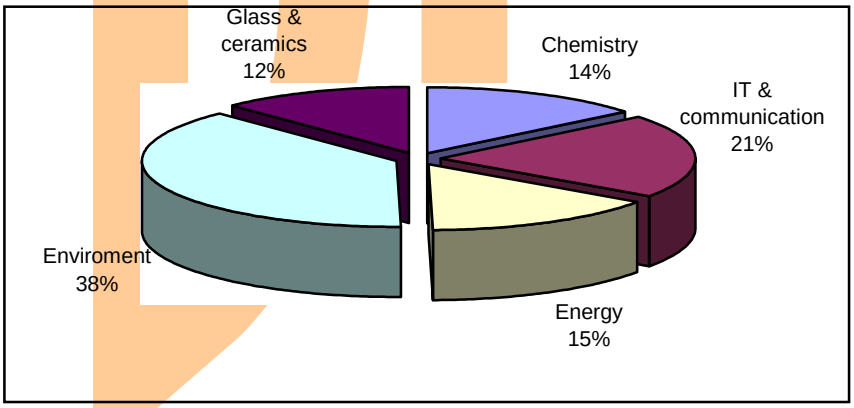
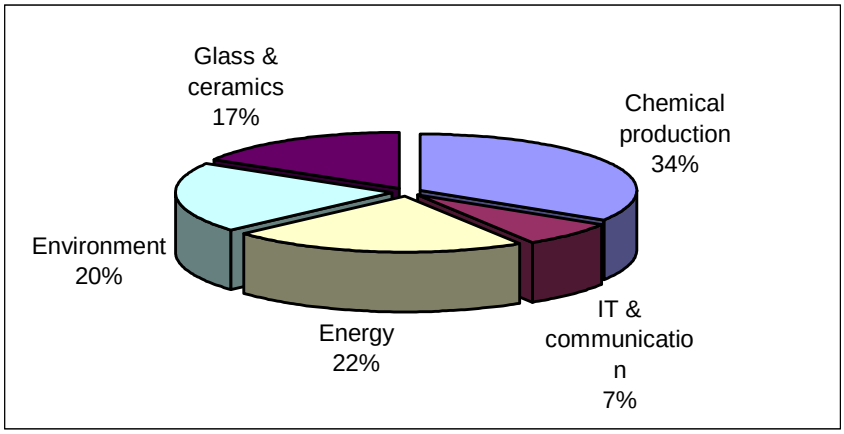


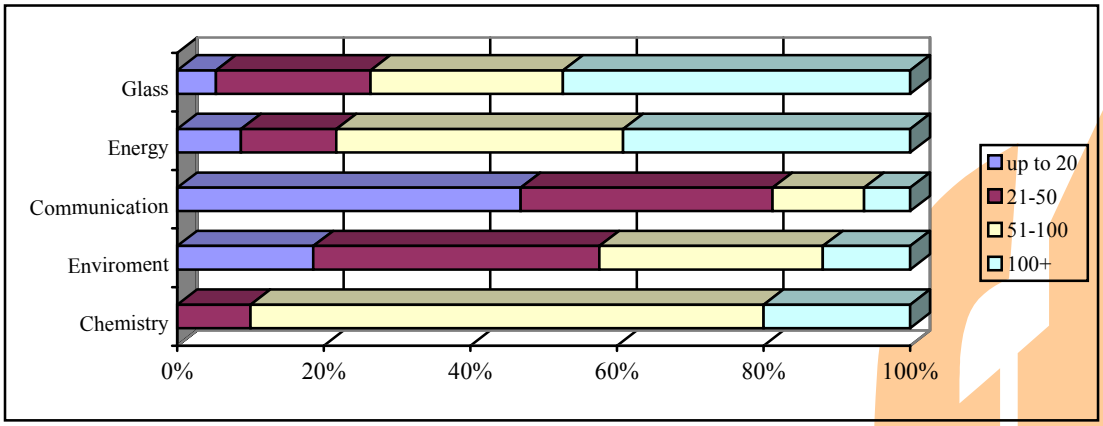
Figure 12: Industry Structure by Number of Employees in Companies



In terms of the different size-related structure of companies in individual industries (see Figure 13), a more precise picture of the structure of the sample under review can be obtained if the number of employees is stated (Figure 12). In this respect the chemical industry clearly predominates as a dynamic, highly productive and exports-oriented segment of the regional economy. Energy belongs to the region' traditional industries. There was significant decline in employment after the beginning of the transformation and its further development will to a large extent depend on the behaviour of new owners. The industry of environmental protection has a specific significance thanks to the considerable environmental burdens of the past. Its development depends primarily on the availability of financial resources (company as well as public) for re-cultivation and other recovery projects. In terms of the proportion in the total number of employees in the sample the glass industry is less represented. However, similarly to the chemical industry, it may be ranked among dynamic, highly productive and more exports-oriented industries. The lowest proportion is that of telecommunications and information technologies the dynamics of which are, to a large extent, influenced by the knowledge-intensive technological nature of the production (similarly to the chemical and glass industries).

The characteristics of the companies in the sample are further specified using combinations of the aforementioned criteria. In terms of importance of **company size in industries** (Figure 13) the structure is very different. Glass and energy have similarly low proportions of companies with up to 20 employees, this group is not represented in the chemical industry. In communications this category accounts for almost one half of companies (46.9%). This means that the concentration is the highest in the chemical industry, where the proportion of companies with over 51 and over 101 employees reaches 90%, the second highest concentration is in the energy industry (78,2%) and glass (73,7%). The remaining industries are much less concentrated – companies with up to 20 and up to 50 employees predominate there (57,6% in environmental protection, 81,3% in communications).

Figure 13: Company Size in Industries



In terms of the importance of **company type in size categories** (Figure 14) independent companies operating in one location always make the highest proportion. Their proportion is over 50% and similarly high in the first three categories (between 58.1% and 69.4% of companies). Their importance falls in the largest size category (101 and more employers – 34.5%) and, on the contrary, the importance of companies functioning as headquarters and branches rises (the total of 58.6% of companies).

In terms of the importance of **the type of company in industries** (Figure 15), independent companies operating in one location predominate in all industries except energy. Their proportion is the largest in chemical industry (71.4%). In the industry of environmental protection the proportion of companies functioning as headquarters is the largest of all industries (22.4% of companies), in energy the same is true of branches (45.5%).

Figure 14: Company Types in Size Categories

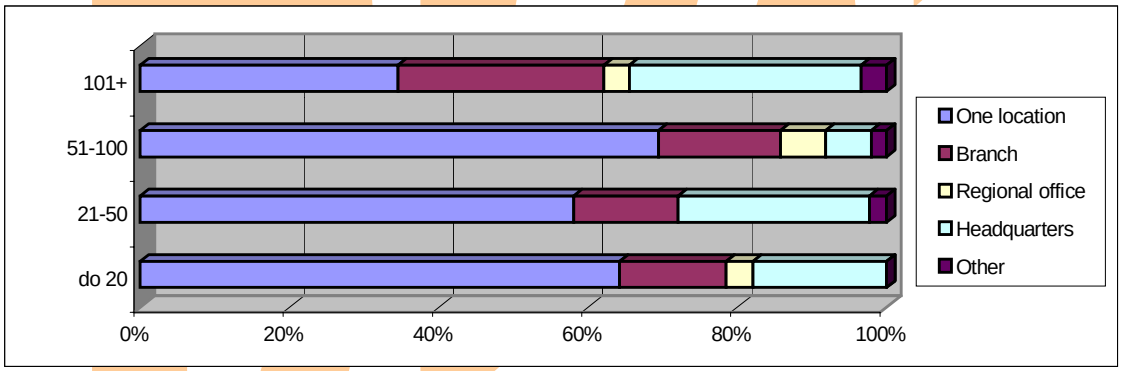
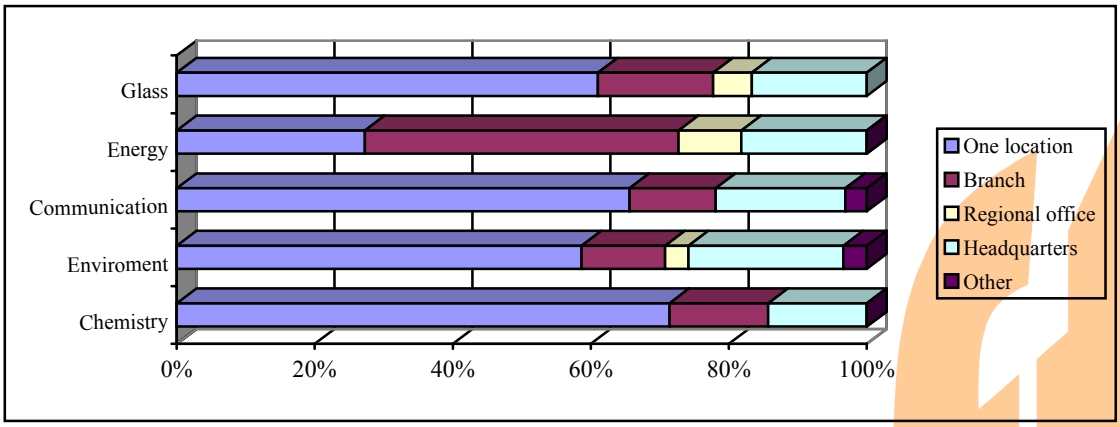
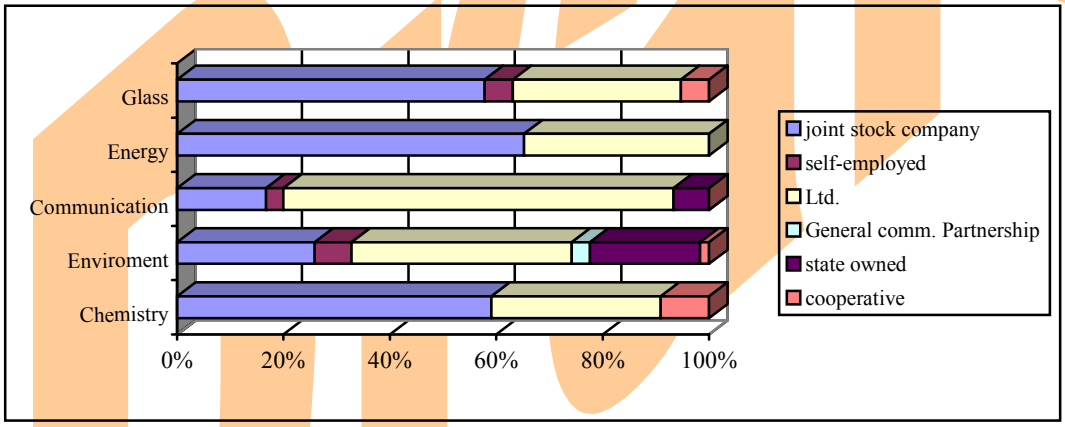


Figure 15: Company Types in Industries



In terms of **legal status in industries** (Figure 16) joint stock companies predominate in chemical industry (59.1% of companies), energy (65.2%) and glass industry (57.9%). Limited liability companies make up the largest proportion in communications (73.3%) and their proportion is similar in the other industries (between 31.6% and 41.4%). One specific feature is a considerable proportion of state-owned companies in the industry of environmental protection (20.7%) – state-owned companies account for 6.7% in communications and are not represented in the remaining industries.

Figure 16: Legal Status in Industries



IV.2 OPERATING ENVIRONMENT

The skill needs of companies are considerably affected by the environment in which the companies operate and its changes. The capacity of the companies to respond actively to these changes determines their level of productivity and competitiveness. These performance characteristics are then reflected in the company needs and policies in the area of human resources.

The skill needs of companies reflect their structural and performance characteristics, which, in turn, are affected by the changes in the external environment (overall economic conditions). The importance of the external environment is best described by the exports orientation of the companies and therefore by the pressure from foreign markets, and by the density and scope of inter-industry relations (i.e. dependence on the development in the demand-side companies). The key performance criterion is the development of productivity – i.e. the capacity to achieve higher outputs with the existing resources, or to achieve the same outputs with fewer resources. Subsequently, competitiveness points to the success in placing the produced outputs on the market. The first set of questions in this part is therefore focused on the assessment of the development of company productivity and competitiveness and identification of the causes for their changes. Special attention is paid to the qualitative characteristics of company activities, i.e. the importance of the introduction of modern technologies, the importance of customers for the company operations and of research and development activities and external relations.

The importance of the company environment for the skill needs is also illustrated by the development of performance characteristics and ways of their improvement in the area of human resources – both in terms of their importance for the company and its economic success and in terms of the impact on their numbers and structure. Attention is therefore paid to the assessment of the quality of the workforce by the companies (including comparison with the competition) and on the assessment of the role of quality workforce in improving competitiveness. The development of performance characteristics affects directly the workforce numbers and their structure in terms of groups of occupations. The overall importance attributed to the workforce on the part of companies is then reflected in the scope and focus of company HRD policies.

IV.2.1 General economic conditions

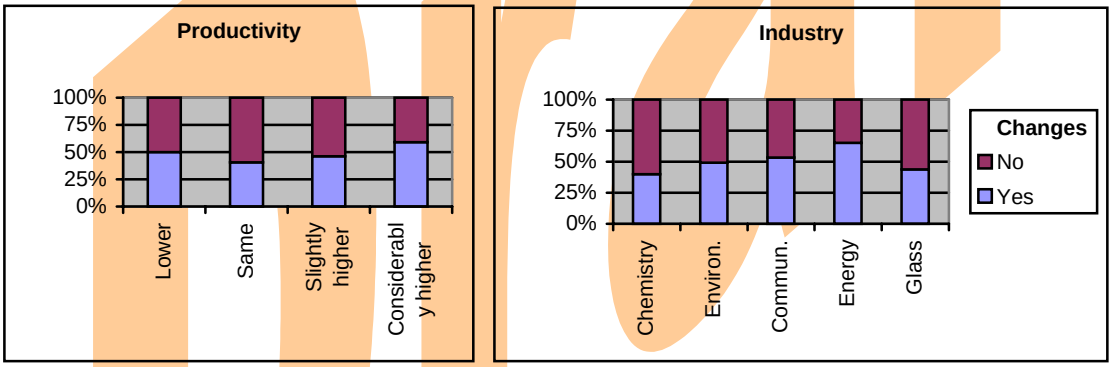
Company decisions are considerably influenced by the economic environment in which the companies operate. These economic conditions reflect the macroeconomic development and its region or industry-specific impact. The contextual analysis has shown that the North West region was quite severely affected by the deterioration of macroeconomic indicators in 1997-1999 - although the situation in the region has slightly improved in relation to macroeconomic recovery in 2000 (actually 3Q/1999). The capacity of economic entities to adjust to the changes in external environment is influenced by their exports orientation and the scope of inter-company relations. The adjustment capacity is of active and passive type. Active adjustment tends to involve qualitative, investment-intensive measures which improve the efficiency of the use of production factors in longer term. However, this investment requires appropriate financial resources and more stable development prospects for the related economic decisions. The

implementation of active adjustment procedures has a favourable (direct and indirect) impact on company HRD.

Changes affecting companies. Most companies under review have undergone significant changes over the last two years as a result of changes in the external environment. These changes particularly include market expansion (60% of companies). The importance of external changes is described in terms of the development of productivity and from industry prospective – i.e. using performance and structural characteristics. The external changes had a rather large impact on the energy and communications industries (Figure 17). In terms of productivity, the impact of the external changes is not clear. This may be explained by varying perception of the seriousness of the effects of external changes – this means that companies with worsened or unchanged performance characteristics (lower of unchanged productivity in the period under review) perceive the external changes as more important. On the contrary, companies with increased productivity levels perceive the external changes to be of less importance.

In the discussions of the focus groups this difference was explained by the fact that more dynamic companies are better prepared for potential changes because of their previous experience and therefore they do not perceive them to be important. Changes in the external environment have a relatively serious effect on the demand for the companies' products. The development in the foreign markets is, of course, much more important for exports-oriented companies while the development of domestic demand has a more indirect impact.

Figure 17: Impact of Changes on Productivity and Companies by Industry



Exports orientation and inter-industry relations. The impact of changes in the external environment is influenced by the level of exports orientation of companies. On the one hand, exports orientation constitutes a significant pressure on improvement of competitiveness and adjustment as opposed to companies which are limited to the domestic market. On the other hand, exports orientation provides a source of new market opportunities and expansion potential. In the sample under review only 38% of companies are exports oriented. This means that a majority of the companies are not oriented on exports. As a result of this, their situation is fundamentally influenced by the development of domestic demand. The influence of this factor is further strengthened by the position of the companies in the production chain where 87% of companies supply on average 81% of products to other organisations in the form of intermediate products. The intensity of inter-company relations is therefore relatively high within the sample. However, this implies a high level of dependence on the development of economic performance

of the demand-side companies, which the supply-side companies may influence only to a limited extent and more indirectly.

Active versus passive adjustment. In view of the aforementioned sensitiveness of the companies to external changes, their capacity of appropriate response (adjustment) is of key importance. Adjustment may be active or passive. Passive adjustment (normally under the pressure of unfavourable development of demand) primarily involves downsizing. Company strategies are rather defensive and concentrate on lowering costs and price-based competitive advantage. Active adjustment involves increased attention to qualitative characteristics of production (viewed as process as well as output). Active adjustment in production process is linked to investment in new technologies and human capital as important sources of improving productivity and competitiveness. As regards production output, active adjustment means the introduction of quality standards. The capacity of active adjustment also reflects the long-term nature of company development strategies and quality-based competitive advantage. Not only do companies respond to external changes, they are also able to anticipate them to an extent.

Table 27 clearly shows that the proportion of the companies which employ the methods of active adjustment to external changes is relatively low. Only 25% of the companies increased investment in technologies, 27% improved quality standards and 21% paid increased attention to human resource development. The proportion of companies which intensified their activities in relation to human resource development (in line with their statements in this respect) is even lower: only 10% of companies increased spending on training. The percentage of companies which are more active in human resource management and planning the workforce numbers is only slightly higher (14% and 13% respectively). The limited use of methods of active adjustment to external changes may be explained by prevailing focus on short-term business development under the pressure of unfavourable financial situation (lower profitability) expressed as a rate of margin. In consequence of its decline (which took place in the Czech economy in 1995-1999), the companies do not raise sufficient resources for investment, research and promotion – i.e. prerequisites of long-term development based on quality-oriented competitive advantage.

Table 27: Impact of external changes to company characteristics (in % of companies)

Changes	Increase	Decrease	No changes	No answer
Number of employees	13	17	18	52
Training budget	10	5	32	53
Investment in technologies	25	7	15	52
Quality standards	27	1	19	52
HR management	14	3	30	53
Planning of employee numbers	13	1	34	53
Human resource development	21	1	24	54

The importance of both types of adjustment in company strategies may be differentiated in terms of development over time. In the first stage of the transformation passive adjustment to shock-type changes prevailed (particularly under the pressure of the initial transformation recession and the loss of traditional external markets for exports-oriented companies). One accompanying

feature of passive adjustment was "pressurized" restructuring focused on cost cutting and, in large companies, also on separation of certain operations which were not directly linked to production. This stage of passive adjustment was experienced also by companies the stakes of which were bought by foreign capital. In the second stage of the transformation (after the entry of a foreign entity), the importance of active adjustment grows in dynamic companies (industries). The transition from the first to the second stage of adjustment is not, of course, automatic, which is clear from certain considerable and sometimes lasting inter-industry differences in production levels (as described in the contextual analysis).

In this context, the participants in the discussion of the focus groups pointed to the fact that many domestic companies have not yet undergone the second stage of adjustment, which has negative effects on their further development prospects. The relatively small attention paid by the companies in the sample to active adjustment methods still reflects a considerable uncertainty of the companies as regards further economic developments. This uncertainty, of course, increases the risk of major (long-term) projects or changes, or results in the postponement of their implementation.

As regards human resources there are differences concerning strategies of foreign owners mentioned above depending on the motivation of their investment. If their main motivation was cheap labour, the approach to human resources is rather inconsistent and the main criterion applied in assessing the workforce is low labour costs. The quality of human resources in such companies is also low and the level of turnover is high. Curiously, the companies do not consider any of these features to be a problem.

IV.2.2 Corporate performance characteristics

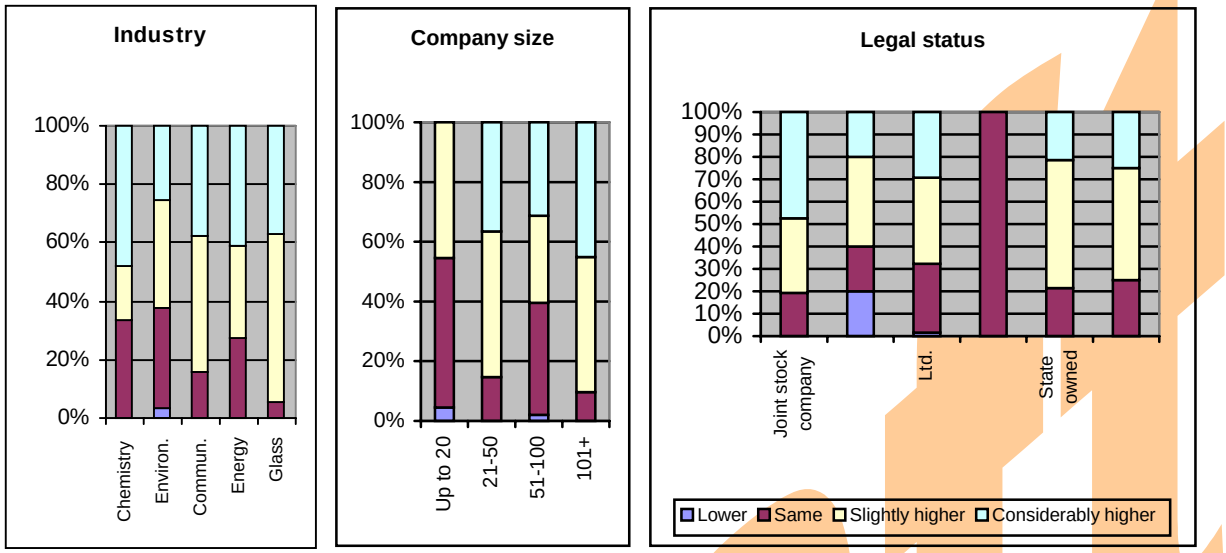
The development of productivity, which reflects the efficiency in the use of resources, is a principal indicator of economic performance and corporate success. The development of financial turnover complements the information about corporate development dynamics (however, it is only one of a number of aspects describing the financial situation of a company – the aforementioned indicator of the rate of margin is therefore more important). In terms of human resource development (and in the broader sense in terms of active adjustment factors) and the related issue of qualification needs, the economic performance of a company is a factor of major or even key importance. Dynamic and successful companies pay considerable attention to human resources (similarly to advanced economies which invest more in human capital). On the other hand, they may encounter more severe skill shortages which restrict their expansion. Increased attention to human resources is one of the methods of active adjustment to changes in external conditions (in addition to investment in new technologies and enhancing quality standards). Active adjustment methods are subsequently reflected in specific measures designed to improve competitiveness including measures in the area of human resources.

Development of productivity

Increase in productivity and its causes. Most companies have seen a growth in productivity over the last two years. Only 1% of the companies state a decrease in productivity, 25% report no changes and 73% improved their productivity. The causes for this increase include in particular: better machinery (i.e. increased capital intensity or replacement of labour by capital), changes in work organisation leading to the reduction of the workforce and growth in work efficiency (i.e. rather passive adjustment). However, there are also factors to be considered

which concern the quality of the workforce - such as enhancing skills and better work performance related to better motivation in the form of remuneration.

Figure 18: Changes in Productivity by Industry, Company Size and Legal Status



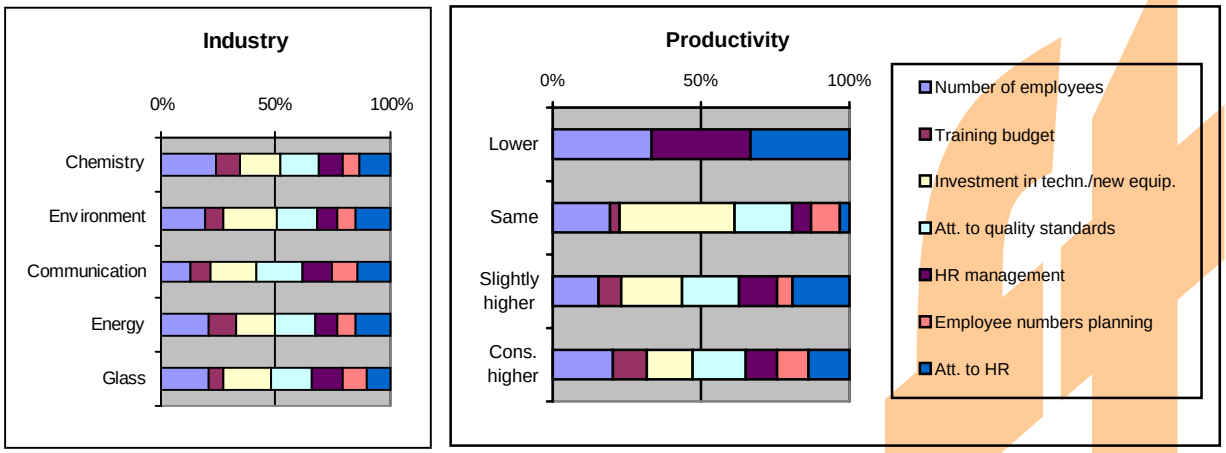
Changes in productivity by industry, size, legal status and year of establishment. The changes in productivity vary depending on which classification criterion is applied (Figure 17). As regards industries, the highest growth in productivity was experienced by the glass and communications industries. Conversely the number of companies with a significant increase in productivity is the smallest in the industry of environmental protection. There are over 40% of companies with a steep growth in productivity in the chemical and energy industries. At the same time, however, there is an above-average number of stagnating companies.

An important role is also played by the size of companies. The highest percentage of companies enjoying productivity growth is among companies with 21-50 employees and large companies with over 100 employees. In terms of legal status joint stock companies are the most successful. In view of the low representation of state-owned and cooperative companies the reported high increase in productivity should not be played out. At the same time, an increase in productivity is most often recorded by companies set up after 1994.

Human resources and productivity. The development of productivity is also reflected in the extent of using methods of active adjustment to external changes in the area of human resources (see above, Table 27). The extent of the use of these methods is also industry-specific. The following diagram (Figure 18) illustrates a certain relationship between changes in labour productivity and focus on human resources. The companies with increasing productivity also increased their attention to human resources. However, this relationship cannot be interpreted the other way round as a casual dependence. Such interpretation would require elimination of the influence of other related variables. On the other hand it is quite clear that employees of dynamic, productive companies have the advantage in the form of increased attention to human resources, which enhances their value as human capital. The data presented clearly shows that, on the whole, the companies under review pay more attention to the quality of their products and

staff development is only an accompanying issue. In terms of industries, slightly higher attention is given to human resources in the glass and communications industries.

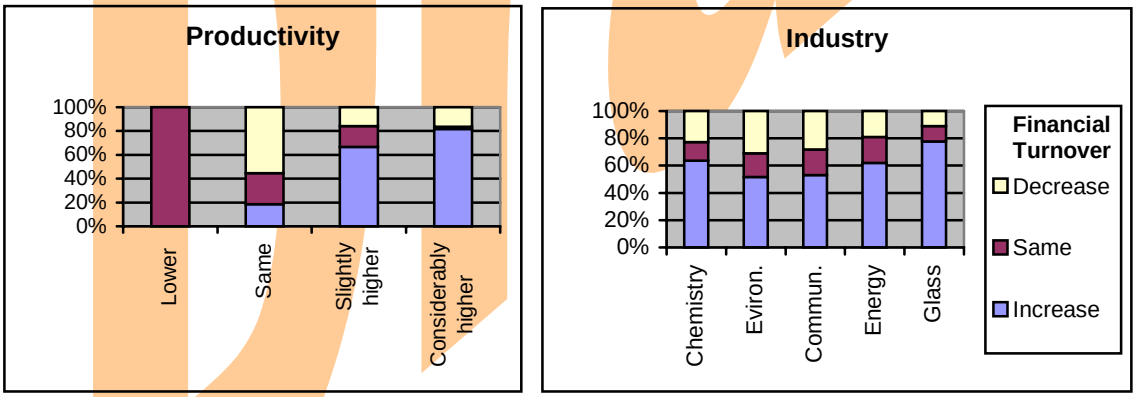
Figure 19: Areas of Change in Companies by Industry and Changes in Productivity



Financial turnover

Characteristics of higher financial turnover. The development of financial turnover in the sample of companies (as an accompanying feature of their dynamics) is quite favourable. 58% of the companies state an increase in their turnover, there are no changes in this respect in 25% of the companies and only 17% of the companies report a lower turnover. The changes in the financial turnover are shown by industry and productivity development (Figure 19). An increase in the financial turnover is also related to the company size. The most successful companies in this respect are large companies and those with 21-50 employees. A higher financial turnover is reached primarily by companies with an increase in the labour productivity.

Figure 20: Changes in Financial Turnover by Industry and Productivity Development



Competitiveness

Factors of competitiveness. Another key performance characteristic is competitiveness and, in terms of long-term development prospects, the strategy for its improvement (preferring quality rather than price-related factors). The reasons for better competitiveness (Table 28) include increased attention to the quality of production (81% of companies), widening the product range (67%) and development of products and services (42%). The results point to the agreeable fact

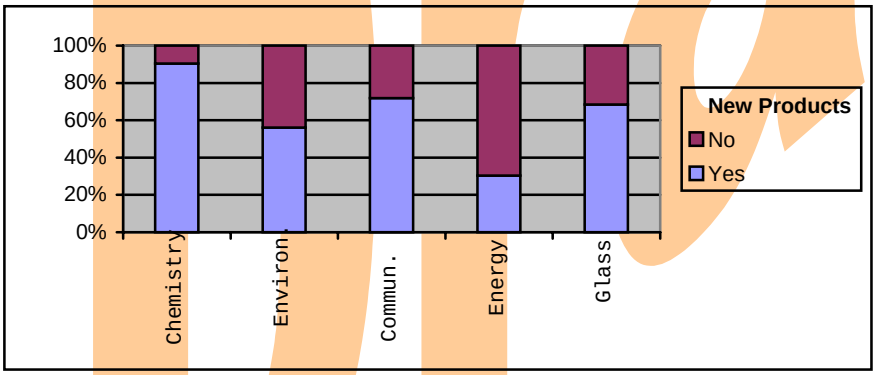
that although the price still plays an important role in the companies under review, however, it is not a decisive role. Much less importance is attributed to the quality of production, customer requirements and promptness of delivery. A less important role is played by factors influencing and reflecting product differentiation. This may be a result of a less important role of marketing strategies, nonetheless the reason, in view of similarly low importance of product differentiation, may be more likely the nature of the product range itself.

Table 28: Importance of factors in terms of competitiveness (% of companies)

	Quality	Customer requirements	Punctual delivery	Price	Product differences	Marketing
%	92	83	83	67	40	39

Approaches to increasing competitiveness. The assessment of factors influencing competitiveness is followed by a range of measures the companies take to improve it. In response to the changes in the economic environment the companies implement a range of changes while modernising their production. 62% of them introduced new lines of products (there are considerable differences between the industries – Figure 20) and 47% of the companies expand their operations to other areas of business. The pursuit of competitiveness is also reflected in the focus on modern technologies and materials: 21% of the companies use microprocessors or microelectronic components, 17% use new materials, 31% take part in some form of research and development and 15% of the companies have their employees dealing with research and development.

Figure 21: Introduction of New Product Lines by Industry



The importance of customers for company operations. The companies under review devote considerable attention to their customer requirements (Table 28) and the operations of the companies are, in turn, significantly influenced by their customers. This openness to external suggestions (which may also include the effects of exports orientation) undoubtedly has a favourable affect on the success of the respective competitive advantage. In the sample under review, customers have an impact on working procedures in 55% of the companies and influence the skills required from employees in 59% of the companies. The customer even affects design and development activities in 27% of the companies. The involvement of customers in the production process is a very positive feature which facilitates flexible response to the needs of the market and, to an extent, their forecasting as well. The customers are also an important source of the most up-to-date information about the competition.

The importance of research and development activities and external relations. The companies' own research and development activities are an important factor of competitiveness and its development over time. They have a fundamental influence on the sustainability and development of the competitive advantage – particularly in the long-term perspective. However, the proportion of such companies in the sample under review is relatively low. Research and development activities are implemented in 22% of the companies, which, on average, spend 12% of their total labour costs for these purposes. 24% of the companies have their own R&D staff (14% on average). There are 15% of the companies which have full-time R&D staff (the staff account on average for 28% of the workforce). The relatively low importance of research and development activities may be explained by the technological nature of production (i.e. lower technology intensity), or by a bigger importance of taken-over technologies (materialized and non-materialised technological changes). A relatively large proportion of companies (42%) cooperate with external suppliers, who may be considered as another source of external influences (knowledge and technologies).

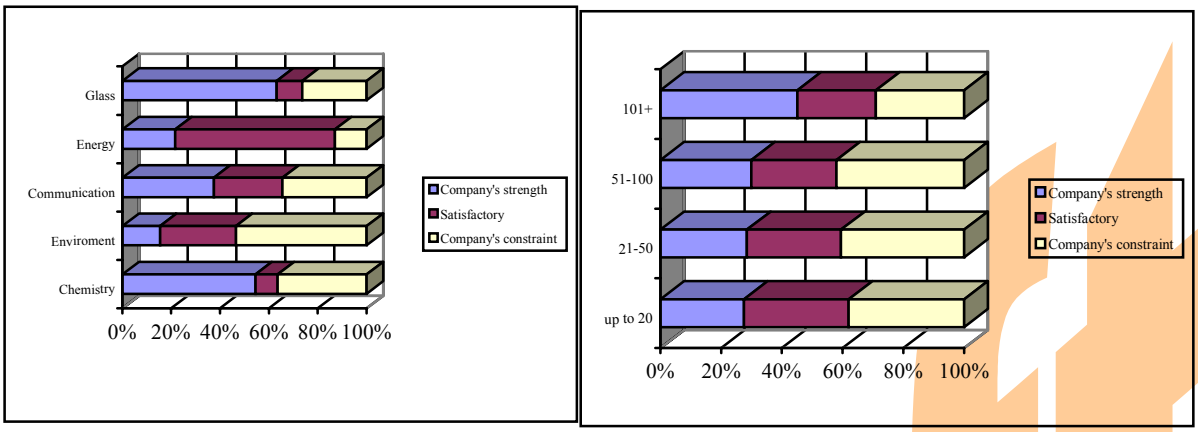
IV.2.3 Impact of changes on the workforce

The changes in the external economic environment, the adjustment strategies of the companies and their corporate performance characteristics have a comprehensive and key impact on the workforce. The related effects vary and may be distinguished in terms of the change in the number of workforce by industry and occupational category. Of course, the connection between the change in the number of employees and performance characteristics (i.e. particularly the development of productivity) is of major importance. Specific attention is paid to changes in companies in terms of the introduction of new products, services and production procedures as well as to related forms of training of employees. Changes are also viewed in terms of new management practices focused particularly on improving the flexibility in the use of production resources and production quality. If these new practices are to be successful, they require and imply the appropriate attention to human resources in the company. The perception and assessment of the importance of human resources is derived from the overall view of the companies of their workforce. It is also directly reflected in the role the companies attribute to HRD.

The overall assessment of the workforce

Appraisal of employees in terms of benefits for the company. Overall, the companies assign great importance to their workforce (Figure 22). Employees in companies examined are on the whole assessed positively, 32% of respondents rank them among the company's strengths. Employees were assessed to be satisfactory by 30% of respondents. The workforce is evaluated more positively in companies with rising labour productivity (this may be either the result of more favourable economic situation in these companies, or of higher attention they pay to human resources in general). One important finding is that none of the companies perceive their workforce as an obstacle to their development. This may suggest a relatively low tension between the supply of the workforce in the labour market and the demand of companies.

Figure 22: Workforce Ratings by Industry and Company Size



Nevertheless, the ratings of the workforce are quite industry-specific (Figure 22). The most positive assessment occurs in the glass industry (the workforce is rated as company's major strength by 63.2% of companies) and in the chemical industry (54.5%). The rating is less favourable in environmental protection (only 15,5% of companies rate their workforce as company's major strength and 31% as satisfactory). In the energy industry most companies rate their workforce as satisfactory (65.2%). The rating in the communications industry is quite evenly distributed. The differences are smaller in terms of size categories. The workforce is given the most favourable rating in companies with over 100 employees (45.2% rate it as company's major strength).

The participants of the focus group believe that the favourable appraisal of the workforce reflects the degree of restructuring achieved by the companies, which was preceded by considerable changes in the area of human resources under the pressure of productivity improvement. Restructuring meant selective downsizing, thanks to which the skill-level of corporate human resources increased. This selectivity reflected the need to adjust the number and structure of the workforce to the corporate needs of the moment.

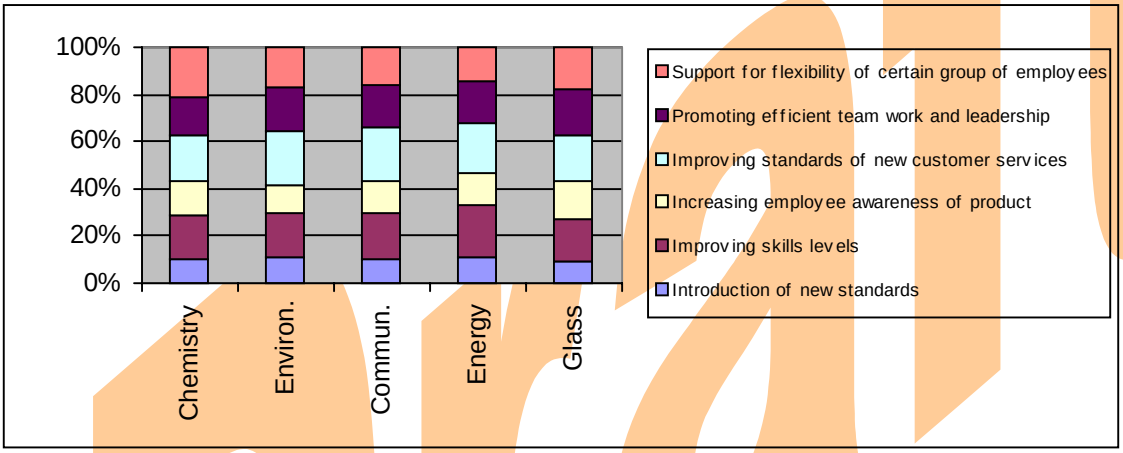
The objective of support for staff development. The relatively high appraisal of the importance of the workforce in terms of their benefit for the companies is reflected in the extent of support for staff development. Most companies attempt to support the development of their employees and the objective and motivation of this support are specified (Table 29). The objectives of staff development may be divided into two groups – those directly linked to the success of the company in the market (improving the standards of customer services, raising awareness of a particular product) and those focused on improving the efficiency of company operations (enhancing efficient team work, support for staff flexibility, introduction of new standards, upgrading general skills of the staff). It is interesting that motivation to increase the standards of customer services, which is the most frequently stated objective of staff development (84% of companies), is not appropriately accompanied by the objective of raising awareness of a particular product (52%). A favourable feature is an undoubtedly high proportion of companies where staff development is focused on upgrading the general skills of the staff (76% of companies), which positively influence the quality of human capital.

Table 29: Objective of support for staff development (% of companies)

Improving the standards of customer services	84% of companies
Improving the general skills of employees	76% of companies
Strengthening efficient team work	69% of companies
Promoting employees' flexibility	68% of companies
Raising awareness of a particular product	52% of companies
Introducing new standards	41% of companies

In assessing the structure of objectives of staff development the industry perspective is also considered (Figure 23). Overall, there is a lower support for staff development in the industry of environmental protection, the highest level of support is in the glass industry with the exception of the introduction of new standards. Chemical companies focus slightly more on staff flexibility but, as the diagram illustrates, the overall differences between the industries are not very large.

Figure 23: Objective of support for staff development (in % of companies)



The participants of the discussion within the focus group stress that active approach to the issue of human resources, which would be based on the awareness of their importance for performance characteristics, is very much company-specific and also very much influenced by the type of owner (foreign vs. domestic). Dynamic and productive companies devote appropriate attention to human resources – also in view of the degree of restructuring mentioned above. In terms of the labour market as such the effect of restructuring is rather unfavourable, unless the redundant workforce finds new employment (which is quite unlikely in view of the selectivity of lay-offs mentioned above). On the other hand, the improvement in the performance characteristics (i.e. increasing productivity levels) after the lower-quality segment of the workforce is laid off, enhances the position of the "remaining" workforce. Higher performance levels and more resources open up new investment opportunities for the companies including investment in human capital.

Changes in the number of employees

Changes in the number of employees constitute an important aspect of company operations and affect directly the situation in the labour market. Over the last two years, changes in the number

of employees occurred in 63% of companies (24% experienced a decrease and 39% an increase in the number of employees).

Change in the number of employees by industry. The changes in the numbers of employees which the companies experienced over the last two years are not equally distributed among the industries (Figure 24). It is necessary to distinguish between the overall turnover and the balance of changes in the staff numbers. A higher turnover of employees (the sum of decreases and increases in the number of employees) points to the dynamics of changes in the workforce in a company (industry). A negative balance of the employee change (decreases are higher than increases) expresses the impact of company or industry employment policy on the regional labour market. Increases in the number of employees are more frequent in the glass and communications industries where, however, is also the highest number of companies which decrease their workforce figures. In terms of changes in employee numbers the most stable situation is in the energy sector. The chemical industry has the highest number of companies which decreased their workforce numbers and the lowest share of companies, where the numbers increased – this implies the worst impact on the labour market (i.e. the balance of increases and increases in the number of employees). A larger part of companies (63%) do not expect an increase in the number of workforce in the future. Reasons for stable employee figures were presented only by 8.4% of the companies (due to this low proportion it is impossible to provide any relevant information about these reasons in individual groups).

Figure 24: Changes in the Number of Employees by Industry

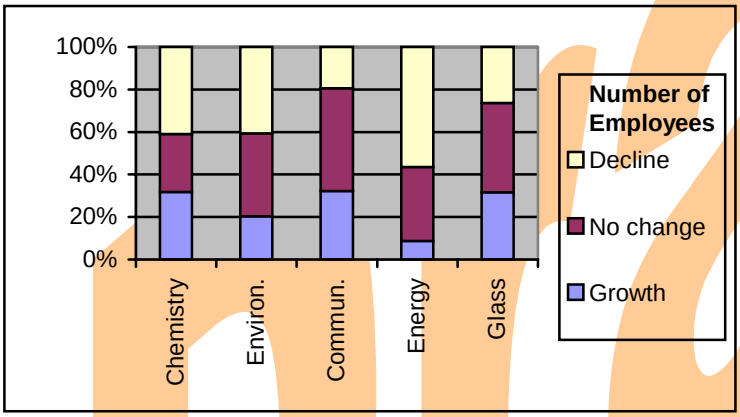
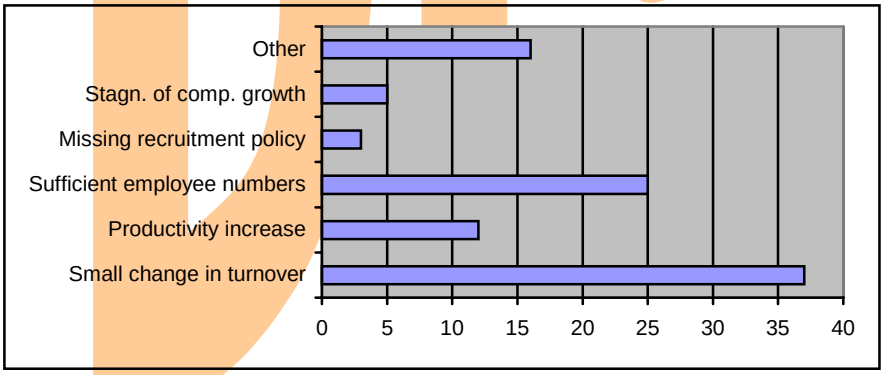


Figure 25: Reasons for Stagnation in Employee Numbers

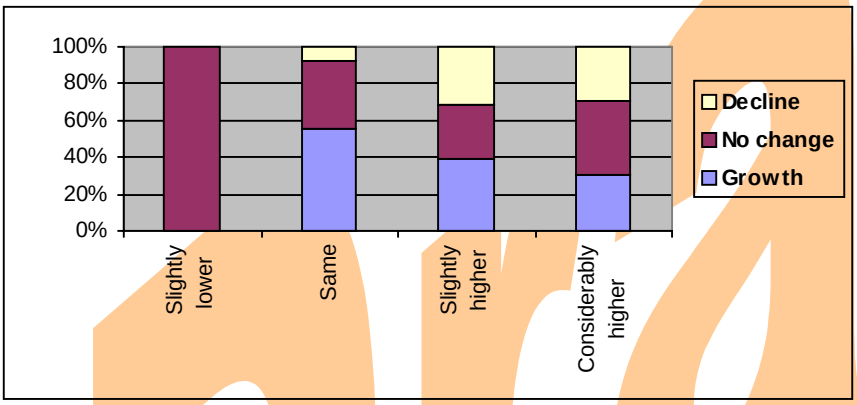


The question is to what extent it is possible to expect an increase in the number of employees in dynamic companies in the event that their competitiveness improves (they acquire a larger

market share) – i.e. to what extent the possible expansion of production will be demanding in terms of the workforce. In this case, a decisive factor will be the type of newly introduced technologies. The development up to now is rather in favour of replacement of the workforce by capital – i.e. the introduction of technologies which save the workforce. Another question is to what extent the possible increase in the number of employees could offset their decrease caused by the pressure for the growth of productivity. Finally, the third question is to what extent the possible increase in the workforce figures will be stable in response to the change in demand (this stability is higher in higher-skilled segments of the workforce, particularly if these skills are specific).

Changes in productivity and the number of employees. What is very important is the relationship between the change in the staff numbers and the increase in productivity. This relationship points to the key role of the decrease of employee numbers as a factor of productivity growth. It is therefore in line with the aforementioned findings concerning the relatively small importance of active adjustment of companies to external changes as compared to passive adjustment (Figure 26).

Figure 26: Changes in Productivity and Employee Numbers



In the group of companies which report productivity increases there were larger decreases in the number of employees as compared to companies with stagnant or lower productivity. At the same time, the number of employees increased the least in the companies with considerably higher increase in productivity. This implies that the improvement of economic performance characteristics of companies is to a lesser degree combined with increase in employment.

In response to the aforementioned issue of possible increases in the number of employees in the event of expanding production and improving competitiveness of the companies, the participants in the discussion of the focus group pointed out that it will be newly established companies which will be the more likely source of new jobs. The possibility of increasing employee numbers in the existing companies (even if their production increases) is not considered to be likely. In the case of the expansion of production the reverse trend is more common (a decrease in employment). Neither is the introduction of new production processes associated with demands for new workforce. And if such need does arise, it tends to be satisfied by means of reallocating workforce within the company.

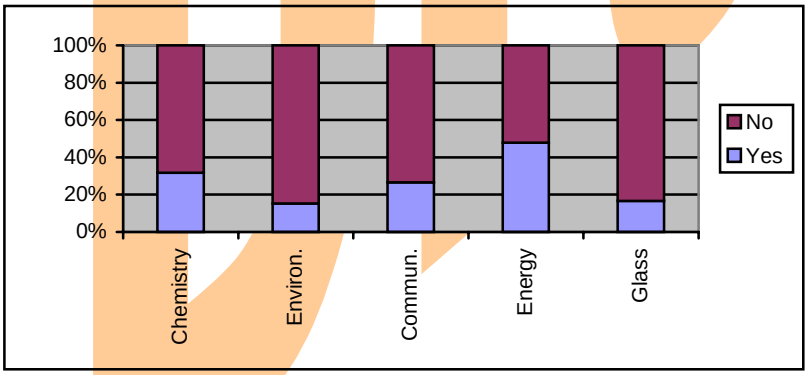
This means that there is a clear tendency to use technologies which save labour, particularly in activities for which lower-skilled workforce is utilised (this is a long-term trend in developed countries). The tendency to replace labour by capital is not only (or even primarily) the result of the pressure for labour cost cutting. One of the important reasons for this is the instability of lower-skilled segments of the workforce, their worse attitude to work etc. Again, it is necessary to warn in this context about the effects of these developments on the labour market (similarly to selective lay-offs). The skill structure of a company as well as its performance improves, and the "skill structure" of the unemployed deteriorates.

Workforce structure by occupation groups

Changes in the workforce structure. The question was directed towards changes in the structure of the company's workforce in the last two years. On the whole only 25% of companies state changes in the structure of their workforce – energy and chemical companies predominate among them (Figure 27). This means that the share of companies reporting changes in the structure of their workforce is considerably lower than the share of companies reporting a change in the number of employees (63% of companies). The very low share of companies stating changes in the workforce structure may be attributed to the relatively short duration of the period under examination. There would certainly be more companies admitting to changes over a longer period. The discussion within the focus group has confirmed this explanation. The most important structural changes in the area of human resources in dynamic companies already took place in the previous period.

The question was further specified according to groups of occupations. In this respect, the most stable group is senior officials and managers and lower administrative staff. Conversely, changes occur most frequently in plant and machine operators and unskilled workers. The number of answers to these questions was low. For the same reason, the answers cannot be classified according to any criteria. Nevertheless, groups with lower skills are normally the least stable segment of the corporate workforce, which, of course, has a very negative effect on the already low quality of the human capital. On the other hand, the flexibility or mobility of the supply of this segment is quite important. Also, it reflects to a large extent the relationship between in-work and out-of-work incomes.

Figure 27: Proportion of Companies According To Changes in Workforce Structure



Changes in the workforce structure and productivity. The link between the changes in the workforce structure and the development of productivity is not of any special importance. The number of companies with a rising productivity where changes in the workforce structure occurred is by some 15% higher than that of companies with stagnant productivity.

Corporate changes and their implications for the workforce

The activities of companies concerning the implementation of changes are distinguished according to the types of new production processes and products being introduced (over the last 12 months) and the type of new management procedures (over the last 24 months). All these changes are conditional upon the quality of available human resources in the company and, at the same time, have a major influence on them.

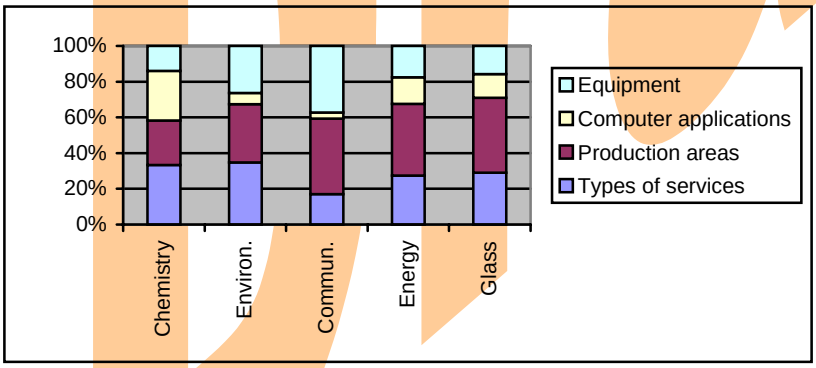
New production processes and products. Changes in companies focused on the implementation of new production processes and products suggest active adjustment. The frequency and type of these changes are shown in Table 30. Most companies implemented new computer applications, the importance of changes in the area of production is very low.

Table 30: The importance of corporate changes (% of companies)

Type of Change	Yes	No	Does not apply
New plant, machinery, equipment	50%	47%	3%
New computer applications	62%	34%	4%
New areas of production	19%	69%	11%
New types of services	42%	52%	6%

In terms of industries (Figure 28) the extent of changes was larger in communications than in other industries as regards new types of services and computer applications (which reflects the technology-intensity of this industry). Conversely, there is a smaller occurrence of changes related to the setting up to new plants, new machinery as well as new areas of production. New areas of business are sought the most in the chemical industry.

Figure 28: Types of Change in Companies by Industry

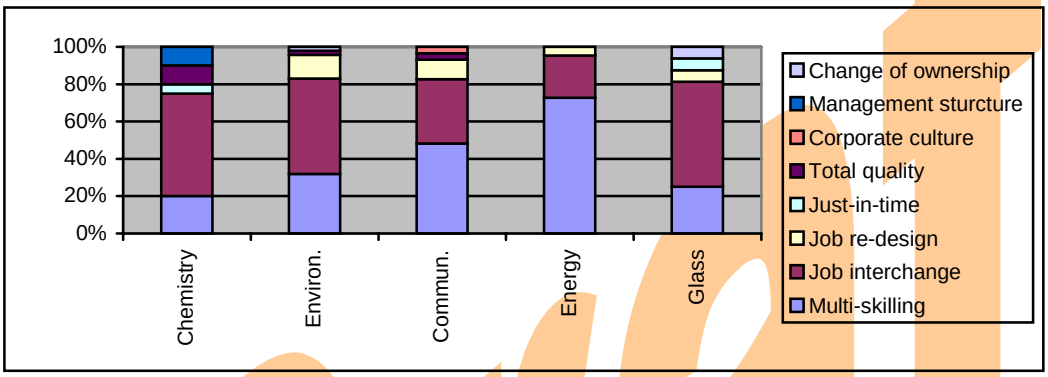


The relatively small importance of changes in the area of production were explained by the participants in the discussions within the focus group by the short period over which the changes were monitored. Implementation of the changes in this area requires more time. In this context let us point again to the problem already mentioned concerning the uncertainty related to the future development of the economic environment and the impact this uncertainty has on the employment of active adjustment methods.

Staff development and training related to corporate changes. Approximately 83% of companies concerned with the changes in production processes and products provide for staff development or training. As concerns the introduction of new types of production, training takes place in 93% of companies. The training is designed particularly of for technical staff and machine operators. However, the frequency in individual groups is two small and an analysis would fail to provide any representative results.

New management procedures. The most frequent change in the area of the application of new management procedures is job interchange which concerns some 44% of surveyed companies. Linked to this is the second most frequent change – multi-skilling – which is being implemented in 40% of the companies, followed by job redesign (8%). These three changes in the same sequence are believed to be the factors which most influence the requirements for the workforce.

Figure 29: Types of Corporate Change by Industry



The changes implemented are industry-specific (Figure 29). Multi-skilling predominates primarily in the energy industry and communications, job interchange is clearly prevalent in the other industries. Change associated with new management structures, total quality management and just-in-time logistics are implemented on quite a large scale in the chemical industry, and changes in ownership in the glass industry.

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Based on the findings and outcomes of the discussions within the focus group a relatively clear partial conclusion can be formulated concerning the importance of the corporate environment for decision-making of companies in the areas of human resources, research and development and other activities designed to improve the qualitative (performance) corporate characteristics: Dynamic and productive companies radically improved their performance due to restructuring which, for the most part, took place in the previous period – i.e. before the survey was conducted. In comparison with the scope of these earlier structural changes the changes which occurred in the following period are, understandably, perceived by the companies as less important.

The importance of active adjustment (i.e. including attention paid to the issue of human resources) is very closely linked to performance characteristics of the companies (which have undergone restructuring on a large scale) and with the presence of a foreign owner (provided he is not exclusively motivated by cheap labour). Labour offices claim that on the basis of their

experience, since recently, companies with such motivation have been experiencing difficulties finding people willing to accept the low wages they offer. The highly selective nature of restructuring connected with falling employment (introduction of technologies not demanding in terms of the workforce) has clearly negative effects on the regional labour market with a strong segment of low-skilled unemployed people.

In connection with the selective effects of restructuring (unfavourable for lower-skilled segments of the workforce) on the regional labour market it is also necessary to pinpoint to expectations of the companies in terms of demands for the workforce. The focus group has clearly concluded that neither will potential expansion of production nor successful penetration to new markets lead to the creation of new jobs (with the exception of very specific and high skills) – any potential needs for the workforce will be satisfied by means of staff reallocation within the companies.

What is unfavourable (nevertheless consistent with the relevant data about the Czech economy) is the weak role of research and development activities. This also concerns foreign-owned companies. The small importance of cooperation with external organisations from the tertiary sector, which was mentioned in the discussions, reflects the long-term difficulties caused by the lack of up-to-date technology as well as the relatively small importance of research at Czech universities. It must be pointed out that the non-existence of such cooperation is negative for both sides (and, as a result, the national economy as a whole) and worsens the chances of students (particularly in engineering disciplines) to get hands-on experience with the latest technological developments.

IV.3 Labour Turnover and redundancies

The company human resource policy is affected and, to a degree, has an effect on the turnover of the workforce where employees leave the company voluntarily. Higher levels of turnover and measures to address this problem are associated with additional costs. Turnover constitutes a particularly serious problem if it is concentrated in time or occurs in particular groups of occupations. The same is true of redundancies in terms of their impact on the local labour market.

The issue of workforce turnover may be viewed by companies as a problem hindering the implementation of their development strategies, particularly if the turnover affects a specific group of occupations. On the other hand, higher levels of turnover – in the groups with lower skills in particular, restricts their opportunity to enhance the quality of their human capital and the companies' motivation to provide such opportunities. Similarly, in the event of lay-offs, certain groups occupations may be more severely affected (primarily low-skilled and less productive ones). Consequently, the skill standards of the employee base are rising – however, not because of general upgrading of skills, but because of the departure of lower-qualified employees. This results in deterioration of the unemployment structure in the regional labour market where those with lower skill levels constitute one of the most problematic groups. The problem of turnover may therefore have serious implications for the implementation of company development strategies and, specifically, for the quality of the human capital of the lower-skilled segment of the workforce. The problem of lay-offs combined with the implications of the skill-biased turnover has a negative effect on the labour market. It worsens the skill structure of the unemployed, which, in turn, softens the efficiency of employment policy measures.

The questions concerning changes in the workforce due to turnover and lay-offs were focused on four major aspects. Firstly, attention was paid to the perception by companies of the seriousness of the problem of excessive turnover, expected developments in this area and the ability to identify the causes of the turnover problem. Secondly, the structural characteristics of the turnover problem were addressed – i.e. concentration of turnover broken down by company size, industry and occupation categories. This break-down is important both in terms of the impact on the implementation of company development programmes, and in terms of the impact on educational opportunities for human resources. The perception of the seriousness of the turnover problem and the ability to identify its causes then, in turn, influence anti-turnover activities of the companies and the types of measures. In view of the seriousness of this problem in the regional labour market, specific attention is devoted to the problem of turnover and lay-offs in terms of their causes and effects - various groups of employees with varying and, most importantly, lower skill levels are considered.

IV.3.1 The seriousness of turnover and its expected developments

The seriousness of the problem of turnover and its possible implications are described according to industry characteristics in terms of potential requirements for the workforce in relation to the development prospects. In this case the seriousness of the turnover problem depends: 1) on the requirements of a particular industry for specific skills in certain professions (the supply of which in the labour market may be inappropriate or the performance of which requires specific skills attainable through practical experience) and 2) on the requirements of the industry for the workforce in relation to the industry development (where an increase in production levels is linked to increasing employment rather than replacing labour by capital – be it because of

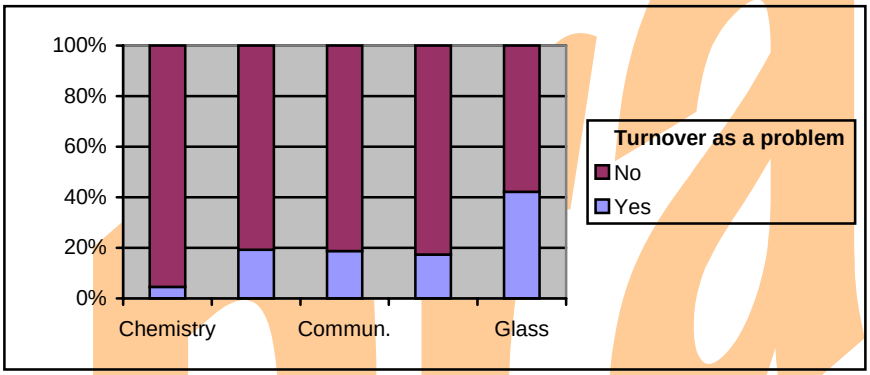
insufficient supply of required skills or pressure for cost cutting). In such cases a voluntary departure of employees may mean a setback in the implementation of company development plans. At the same time, inappropriate supply in the labour market may facilitate or even instigate voluntary departure of employees from companies. The perception of the turnover problem is directly linked to expected developments in this area – various industries and companies of various size are considered.

The current and anticipated developments concerning turnover

Importance of labour turnover. The natural turnover concerns 56% of companies left by 1381 employees). Only 16% of the companies state that no employment was terminated over the last two years. Labour turnover is therefore a common phenomenon. On the other hand, it does not pose a serious problem for 80% of the companies.

The turnover problem is industry-specific (Figure 30). In this respect, the difference in the perception of the turnover as a problem between the glass and chemical industry is illustrative. In the glass industry where employee numbers are rising, turnover is considered to be a problem. On the contrary, in the chemical industry with falling employee numbers there is a negligible proportion of companies which perceive turnover to be a problem.

Figure 30: Perception of the problem of turnover by industry



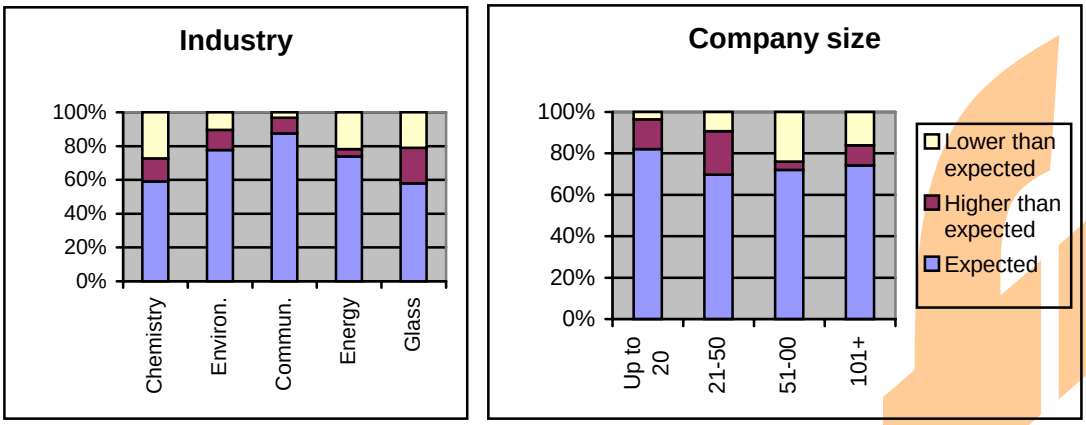
Expected and actual development of turnover. The problem of the labour turnover is, to a large extent, perceived differently depending on the actual development and expectations. Only 11% of companies consider turnover in the last year to be higher than expected. This means that the issue of turnover is generally perceived as stable and possible to anticipate.

There are differences in turnover expectations depending on the industry and company size (Figure 31). In the chemical and energy industry, the workforce turnover is more often (compared to other industries) assessed to be lower than expected. This is evidence of the fact that the seriousness of the employee turnover is perceived in relation to development prospects of the industry in terms of lower skill intensity, or that the development of the company is even associated with downsizing.

In terms of company size, a considerably larger proportion of small companies speak about higher turnover than they expected. The stability of the workforce in smaller companies is usually lower because of their higher sensitivity to the development of external economic conditions and the competition of more attractive (larger, more stable, more generous in terms of

pay) employers – their attractiveness for the workforce even rises with increasing uncertainty concerning future economic developments.

Figure 31: Development of labour turnover in relation to expectations by industry and company size



Anti-turnover measures. In view of the fact that labour turnover is not perceived to be a problem, only a negligible number of employ any anti-turnover measures. If there is such a measure in place, it exclusively concerns remuneration and, possibly, improvement of working conditions.

The participants in the discussions within the focus groups believe that if the companies perceive turnover to be a minor problem, it is due to continuing restructuring. Continual voluntary leaving of the workforce is, in this case, considered to be positive. It results in improved quality of the workforce because it is more likely for the lower-skilled workers to leave. This form of enhancing the skill structure of the workforce is more agreeable (and also less costly) for the companies than selective lay-offs. Another reason why turnover is perceived as a minor problem is because companies reckon with it in low-skilled jobs (based on previous experience) and it is considered to be a common phenomenon. This is also why anti-turnover measures are implemented only exceptionally.

IV.3.2 Turnover by occupational groups.

Turnover by occupational groups is specific particularly in terms of skill levels of the workforce, i.e. particularly for groups with lower skills which, in general, have fewer opportunities to accumulate skills during their career (one of the reasons being higher turnover). A decision to terminate employment need not necessarily be influenced by an unfavourable situation in the labour market in the segment of the lower-skilled unemployed (which may be the result of the structure of taxation and the social security system putting non-work income ahead of income from work). This structural distortion of the incentives within employment policy in combination with unfavourable skill level characteristics have serious implications for the local as well as regional labour markets.

Turnover by occupational groups. The most problematic category in terms of labour turnover is the category of elementary occupations (8.4% of companies) and plant and machine operators and assemblers (6.5%). These categories with low skills ("blue collars, low skills") usually show higher levels of turnover. One reason is that low skills are remunerated by low wages and a there is a certain stereotype in the working activities (second-class jobs) – this is the reason which is

most frequently cited in the survey as a cause of turnover. The link to the job under the particular employer is understandably not very strong and, in addition to this, a possible change of employment is accompanied by a minimum demand for skill improvement.

Despite a high proportion in the region of unemployed persons with low skills, this category of workforce are not even afraid of their future prospects in the labour market when considering termination of employment. In their situation unemployment may not necessarily mean a serious decline in living standards – the reason is the favourable ratio of unemployment benefits combined with welfare benefits to wages received in employment (i.e. the ratio of non-work to work income is near to 1:1 or may be even higher).

Moreover, the poverty trap is also an important factor – it weakens the motivation of low skill categories to maintain their current job (or to seek a new one). It is the situation where the increase in income from welfare benefits in the case of the loss of a job is higher than the increase in income from a job (this relationship is expressed by the marginal effective tax rate indicator). Moreover, this indicator itself expresses the influence on work motivation only in a limited way, since it is necessary to add to the money income the opportunity costs employment as opposed to unemployment: besides the not very attractive nature of the job itself it is the costs of transportation, the obligation to comply with work regulations etc.

A higher level of turnover among low skill categories is a common phenomenon and it makes it difficult or even impossible to improve skills in the working process. The skills that these workers have are limited to the handling of elementary tasks specifically linked to the employer's specific needs, and they are not transferable. It means that work experience from previous jobs does not increase the value of this workforce segment in the labour market. The prospects of a better position in the labour market cannot be much improved even by retraining which, in view of the low level of existing skills, can hardly open up opportunities for more attractive jobs for this type of workforce. This is why (besides the aforementioned high replacement ratio and marginal effective tax rate) their motivation to undergo retraining is, of course, not very strong.

Overall, accumulation of skills necessary to find and maintain a job is very difficult for lower-skilled groups (one of the reasons for this is the higher level of turnover in this workforce segment). These groups therefore find themselves in a vicious circle: their formal education is inappropriate, they have limited or no opportunities to upgrade their skills during the working career (due to high levels of turnover, companies are naturally less motivated to invest in their human capital). The price of this workforce in the labour market (and the number of jobs available) is therefore low as well and this lowers the attractiveness of work as a source of income as compared to social benefits. The influence of the structure of taxation and benefits in this respect (motivation to seek/maintain a job) is particularly strong in the groups with low income.

IV.3.3 The current and anticipated developments concerning lay-offs

The extent and anticipated developments concerning lay-offs constitute a sensitive problem particularly as regards its impact on the local and regional labour markets. The concentration of lay-offs therefore gains in importance – in terms of the proportion of large companies, operational areas and groups of occupations. Concerning the effects on the labour market, specific attention is, again, paid to the lower-skilled segment of the workforce. The lay-offs in

this segment combined with the aforementioned serious and specific impacts of turnover further deteriorate the already unfavourable structural characteristics of regional unemployment and has a negative effect on the efficiency of employment policies (calls for the appropriate differentiation of the respective instruments according to qualitative characteristics of these groups of the unemployed).

Extent and structure of lay-offs

Lay-offs. Some 70% of companies laid off employees – based on their data, this concerned 3,454 of employees. A decisive proportion of this number is represented by extensive lay-offs on the part of ten large companies which laid off 2,256 employees (i.e. 65.3% of the total number of lay-offs). On average, there are 31 lay-offs per each company. Most companies, however, laid off only up to 10 employees. In terms of operational areas, redundancies exclusively concern production/services and administration. Categories of occupations most frequently affected by lay-offs are illustrated in Table 31. Lay-offs are the most extensive in low-skilled groups of manual and administrative professions ("blue collars, low skills", "white collars, low skills") – i.e. groups whose prospects in the labour market are problematic.

Table 31: Groups of occupations and redundancies (% of companies)

Group of occupations	Number of companies (in %)
Elementary occupations	36
Plant and machine operators/assemblers	31
Crafts and related workers	12
Skilled agricultural/forestry workers	3
Service/shop/sales workers	11
Low administrative workers, clerks	24
Technicians, medical personnel and teachers	16
Professionals and scientists	9
Legislators, senior officials and managers	8

Expected redundancies. Some 18% of companies intend to lay off approximately 460 employees in the future. The decisive proportion of them will be laid off by 7 companies – each of them intends to lay off 25-100 employees. In terms of occupational groups the expected redundancies will concern low administrative workers, plant and machine operators/assemblers and elementary occupations in production (possibly in services).

Redundancies by groups of occupations

Concerning the group of elementary and unskilled workers ("blue collars and low skills"), the problem of turnover is also linked with the problem of lay-offs. Of course, one of the reasons is the effort to improve productivity – there is the tendency to replace less stable (and, in terms of work discipline, less reliable) segment of the workforce either by capital and/or enhancing efficiency of the existing workforce. This means that even in the case a company expands its activity, this low-skilled workforce will be in lower demand.

It should be also noted that, in view of the low skills and usually a more problematic attitude to work, the employers are more "sensitive" to the statutory component of labour costs (its level is given by the subsistence wages and social and health insurance contributions). In other words, taking consideration of their low skills and a worse work attitude, these groups are too expensive (It is necessary to note that the proportion of employer contributions in the Czech Republic is

among the highest in Europe and makes the workforce – particularly if they are less productive – disproportionately expensive).

In the category of lower administrative workers ("white collars, low skills"), which is also more significantly affected by lay-offs, the situation is different in many respects. Apart from a more significant deterioration of the income situation (in the case of the loss of a job) this category is more sensitive to the loss of a social position – this is particularly true of elderly individuals with long-term work experience, families etc.). There is therefore a stronger motivation to seek a new job and to retrain within this category. The key role in success in the labour market is played by an appropriate supply of job and business opportunities. On the other hand, what is important is adaptability and the capacity to make use of these opportunities (including own business activities).

Such opportunities could be provided within the services industry – however, their availability is conditional upon the corresponding demand, i.e. a favourable economic situation of the region. However, in terms of adaptability and use of the opportunities it is necessary to expect larger obstacles (as compared with the category of "white and blue collars with high skills"). Such obstacles (largely of a social and psychological nature) can be overcome only by means of stronger and specific purpose-tied support.

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Overall, the companies do not consider labour turnover to be a major problem, although it occurs in a majority of them. They perceive it to be positive in relation to on-going restructuring and increasing productivity – particularly if it concerns lower-skilled segments of the workforce. This is why companies do not adopt any major anti-turnover measures – the existing measures in this respect are designed to affect remuneration (i.e. they do not have a consistent, systemic nature). In terms of the labour market the implications of turnover are unfavourable (particularly in the group of lower-skilled workers) – this is even more so if the turnover is accompanied with lay-offs which are also mostly focused on this category. This combination of turnover and lay-offs further deteriorates he quality of human capital in lower-skilled categories and their situation in the labour market (in terms of company demand as well as supply of the workforce).

However, only a relatively small percentage of companies anticipate layoffs in the future (although lower openness in responding to this question should be taken into account). This relatively small number of companies which anticipate lay-offs may be explained by the degree of restructuring achieved (i.e. the fundamental changes in employment already took place) and by the improvement of the overall economic situation which reflects macroeconomic recovery. As regards the impact of lay-offs on the labour market the question is to what extent the scale of lay-offs would be larger in the event of deteriorated macroeconomic performance – in other words, to what extent the decisions concerning lay-offs will be responding to changes in demand (domestic, foreign).

IV.4 SKILLS AND SKILL SHORTAGES

Skills requirements depend on the importance companies assign to the quality of human capital of their employees as well as on the reported skill shortages. The ways of addressing the issue of skills also reflects the quality of company system of assessing skills.

The issue of skills and their shortages is analysed from three basic perspectives. The first perspective includes the overall skill trends (which reflect the current and anticipated development of company requirements for the workforce) and a comparison of the company skill levels with those of competitors. A specific feature is equality of men and women in senior positions and less traditional careers. This means that applying the first perspective results in the awareness of possible skill gaps of a company in a competitive environment and the most frequent ways of addressing the increasingly higher requirements from the workforce. The second perspective includes the level of seriousness of the existing and anticipated problem of skills broken down by their type and groups of occupations. Attention is paid to a possible concentration or lasting of problems associated with skills.

The third perspective includes the assessment of skills according to their importance for the company competitiveness, as well as the ways in which the companies carry out such assessment. Attention is paid to its regularity and to whether it is carried out by the company itself or with the use of external counselling and information services. The capacity to assess the existing and future skill requirements may point to a well-developed system of human resource development in a company. On the other hand, the openness towards external suggestions and information enlargers the spectrum of approaches. The external information and counselling services used by the companies are divided into various areas such as recruitment, pay tariffs and educational opportunities, and the degree of their importance may also reflect the varying importance assigned to these areas by the company human resource policy.

IV.4.1 Skills and skill trends

The starting point for assessing skill shortages within the workforce is the development of requirements placed on them by the companies and their readiness to ensure that these requirements are met (e.g. by means of training and upgrading skills). The level of attention paid to the quality of company human resources and the motivation to improve it is influenced, apart from other things, by a comparison of own workforce with that of the local and regional competitors.

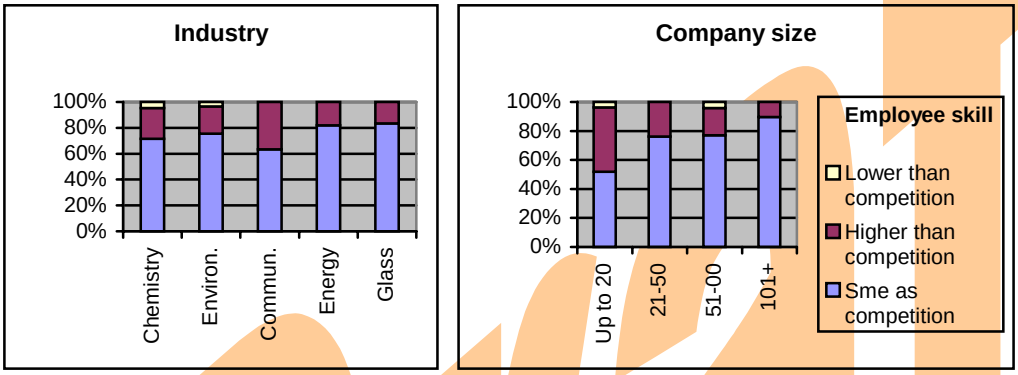
Requirements for the workforce

Requirements for the workforce and ways of meeting them. The decisive part of companies (87%) state that the requirements from the workforce increased over the last two years. The same number of companies expect that the requirements will further increase in the future. The most frequently stated possibility of meeting these requirements is training (it should be noted, however, that expenditure on training in response to external changes rose only in 10% of companies). The current and anticipated growth in requirements for the workforce may be understood as a positive approach to the quality of human resources on the part of the companies – similarly to the role of training in relation to the requirements for the workforce. The question is what importance companies actually assign to training in their human resource policies.

The focus groups concluded that the requirements for the workforce increase particularly in connection with the introduction of new or rapidly developing technologies. This factor also influences the requirements for narrow specifications in the workforce in dynamic companies**.**

Comparison of skill standards of own employees with those of competitors. Although the requirements for the workforce rose in a decisive part of the companies, the skill standards of employees are mostly assessed as positive. 74% of companies state that their employees' skills are comparable with the competition and 24% of companies say that their workforce is better than that of their competitors. As the following diagram illustrates (Figure 32), smaller companies rate their workforce more positively. In terms of industries there are no significant differences between companies. The rating of the workforce in comparison with the competition is slightly higher in the communications industry.

Figure 32: Comparison of employee skill standards with the competition by company size and industry



Differences in employment positions between males and females. Men have no problems with career development in 95% of the companies, the same applies to women in 94% of companies. As regards non-traditional positions, women are in senior positions in 71% of companies (these senior positions are not specified), and, conversely, only in 12% of companies men occupy the positions of administrative assistant.

However, women hold higher posts rather exceptionally – this means that the participants in the discussion of the focus groups do not assess the changes in the proportion of women in higher positions to be much different as compared to the past. Apart from "traditional" obstacles such as family commitments, their specific skills were mentioned which point to a lower proportion of women in engineering professions. Women tend to hold positions in business-related areas in human resource management rather than in production.

IV.4.2 Skills and skill shortages

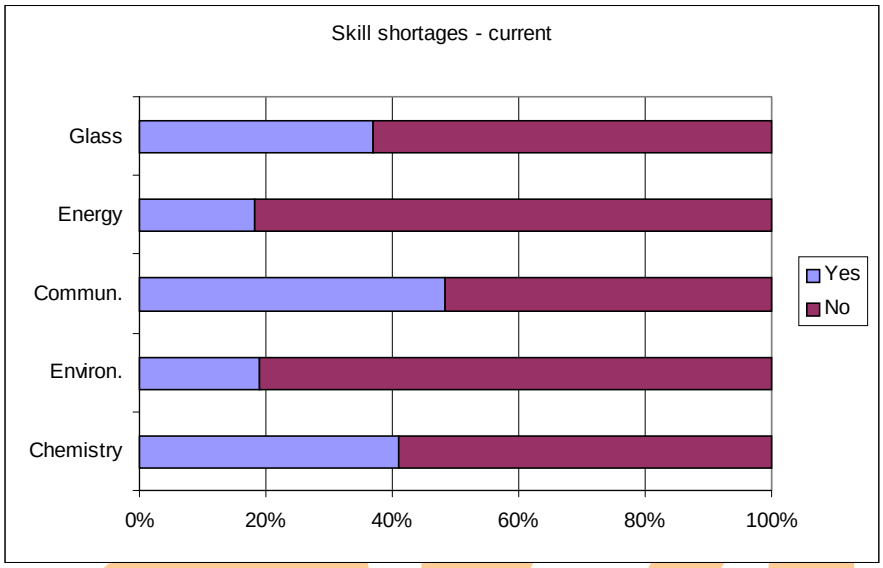
Skill shortages may constitute a serious problem in the implementation of company development strategies. On the other hand, this problem may be a key stimulus for the introduction or improvement of long-term, coherent programmes focused on the quality of the company human resources. The questions were focused on the incidence of long-term problems with skill shortages, i.e. a situation where it is impossible to fill a position by an individual with appropriate skills to perform a specific task, or where it is necessary to do with the existing, although inappropriate skills. Skill shortages are further specified as inability to perform specific

tasks (types of skill shortages) and as skill gaps in respective groups of occupations (i.e. not available on the market).

The problem of skill shortages

Skill shortages as a problem. Skill shortages are considered a problem in about 30% of companies. The problem is, at the same time, relatively industry-specific (Figure 33). Problems with skills are experienced mostly by companies in the chemical, glass and communications industries. The significance of other company characteristics has not been proved.

Figure 33: Skill shortages by industries



The industry-specific nature of skill shortages, to a large extent, reflects the technology intensity of production. This finding is consistent with the suggestions made by focus groups to the relevant issues. Skill shortages in technology-intensive industries are reported for branch specific, high-level skills, requiring specialized technical knowledge. The filling of these positions is, on the one hand, more difficult, as the job opportunities in the region are considered less attractive (the region is still viewed as that with damaged environment and unfavourable social climate). On the other hand, there is sufficient supply of attractive jobs in Prague (where most universities are located).

Types of skill shortages - general. The types of general skill shortages include the respective functional literacies: text, numerical, and computer. In terms of literacy, there are 89% of employees with numerical literacy, 84% of employees with text literacy and 57% with computer literacy. The lower proportion of employees who are computer-literate may be a problem in relation to the computerisation of production and sales processes. It should be noted that the introduction of new computer applications is the most frequently reported change in connection with changes in production processes.

Types of skill shortages – specific. In terms of specific skills, the most cited shortages include technical skills (13%), foreign language knowledge (12%) and communication skills (12%). A shortage of basic skills is reported by 8% of companies and 7% of companies lack computer

skills. The shortage of other skills is negligible. The criterion of company size cannot be applied due to the lack of the corresponding data.

Types of specific skill shortages vary depending on occupational groups – however, the differences are not very large. Table 32 shows the proportions of companies reporting some skill shortage in individual groups of occupations. In occupations that are not included in the table, skill shortages are exceptional. As the menu of specific skills in the questionnaire covers mostly those which are more relevant for occupations with higher skill level, the reported shares of specific skill shortages are biased in favour of these groups.

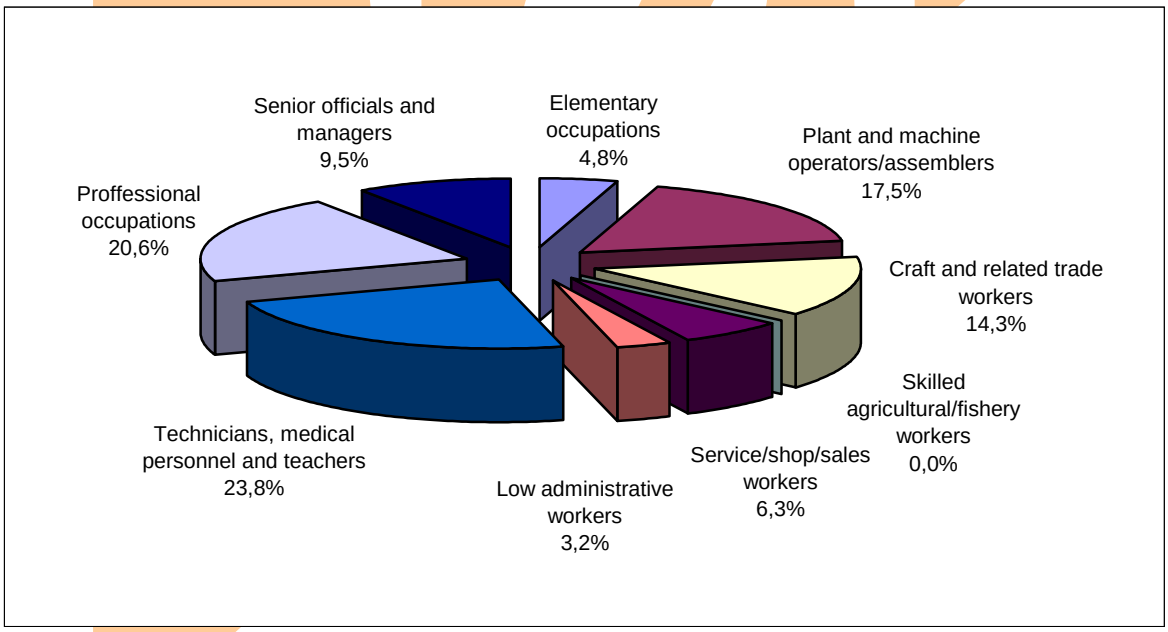
Table 32: Groups of occupations with skill shortages (% of companies)

Group of occupations	Machine operators	Crafts	Administrative workers	Technicians	Professional occupations
%	11	15	8	19	27

While plant and machine operators mostly lack technical skills, technicians often lack communication skills. Professional occupations frequently lack PC and interpersonal skills, foreign language skills as well as creativity and ability to work in teams.

Skill shortages – occupation groups. As to the skill shortages concerning unavailability of respective occupations, the problems are predominantly concentrated in the group of the higher-skilled ("white collars, high skills"). Of those companies, which reported current skill shortages (Figure 34), 54% report them in respect of this group, with roughly comparable shares of technicians (24%) and professionals (21%) and much lower share of senior officials and managers (10%).

Figure 34: Skill shortages by occupations



On the contrary, the share of skill shortages in occupations with the lowest skill level ("blue collars, low skills") makes only 22%, of which negligible is the share of elementary occupations

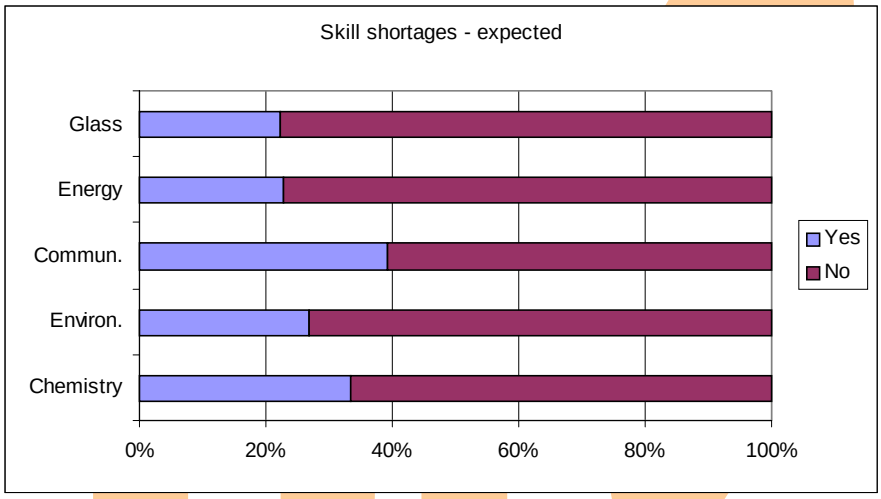
(5%), somewhat higher that of plant and machine operators/assemblers (17%). Another group with reported skill shortages is that of craft and related trade workers (14%).

Expected skill shortages

Expected changes in skill shortages. Besides the reported skill shortages, attention is also paid to the expectations of the companies in terms of their future development. The companies do not expect any extensive changes in skill shortages in the future. 27% of companies expect that the present shortages will have the same structure (in groups of occupations and operational areas) as at present. Most companies (75%) which reported skill shortages do not anticipate any future changes. In companies, which do expect changes in skill shortages, these will mostly include the occupations with lower skills. The shortages in these groups are expected to decrease to negligible level. In respect of groups with high skills, the shortages are expected to persist in the future.

In terms of industries (Figure 35), skill shortages are expected primarily by companies in the industry of communications and, to a lesser degree, in the chemical industry. Other industries have similar expectations of future problems.

Figure 35: Expected Skill shortages by industries



In sum, if the companies perceive or expect to perceive skill shortages, they do so in occupations with higher skill levels ("white collars, high skills"). In the groups of occupations with lower skills, the current skill shortages are expected to become quite small or even zero in the future. These differences between the perception of skill shortages in respective occupations suggest that the lower skilled groups of workers are viewed as easily replaceable with new equipment and machinery as opposed to the high skilled workers with specific competences and knowledge.

IV.4.3 Skills assessment

The prerequisite for the existence of appropriate human resource policy is a systematic approach to the assessment of the respective skills and to assessment methods. Attention was therefore concentrated on the perception of skills by the companies and on the importance they assign to these skills in terms of their own competitiveness. The companies commented on their own capacity to assess the existing and future skill requirements, or they specified the extent to which

they use external information and counselling services (and in what specific areas) in order to address problems in the area of human resources. The opinions of the companies about the responsibility for upgrading the skills of employees were also examined.

The importance of skills and their assessment

The importance of skills for competitiveness and their assessment. The skills of employees are considered to be very important for the their competitiveness by a majority of companies. The largest proportion of companies with such an attitude is in the glass industry (84%), this proportion is around 65% in other industries. On the contrary, only a negligible percentage (6%) of companies assess their employees as not very important in terms of competitiveness. This high proportion of positive responses is in line with the findings ascertained in the previous parts of the survey (the importance assigned in general to human resources in terms of competitiveness, the positive assessment of the workforce in comparison with those of the competitors). As regards the company size, there are 81% of companies in the 21-50- employee category which rate their workforce as very important for their competitiveness and 77% of companies in the category with more than 100 employees. The proportion in the category of companies with up to 20 employees is 55% and it is 57% in the 51-100 category.

Assessment of employee skills. The skills of employees are assessed in 83% of companies out of which 75% assess their workforce on a regular basis. The companies which do not assess the skills of their workforce account for a negligible proportion both by industry and company size. Most companies (89%) assess skills in relation to the products/services which they are currently selling. A relatively high proportion of companies which assess the skills of their workforce as well as of the companies which assess their workforce regularly may be considered as very positive. This is even more so if such assessment expresses the appropriate attention paid to human resources in general and their skills in particular.

The participants in the discussions of the focus groups believe that the relatively large proportion of companies which assess their workforce is rather distorted. The reason is that there are considerable differences between companies in understanding the content and form of workforce assessment. Only exceptional (and related to performance characteristics) is a consistent approach to workforce assessment with a system of feedback designed to boost the performance of the workforce. The survey data concerning the number of companies which conduct workforce assessment must therefore be interpreted very carefully.

Responsibility for employee skills improvement. 88% of the companies under review state that the responsibility for improving the knowledge and skills of employees lies with the respective company. At the same time, however, 40% of companies also stress each individual's responsibility for his/her development. The large proportion of companies which declare their responsibility for their workforce development may, again, be considered as a very positive feature – provided that this responsibility finds its way into the respective workforce development plans and the appropriate training opportunities.

Skill assessment methods

Capacity to assess skill needs – in-house and with the use of external services. The capacity to assess the existing skill needs is considered as sufficient by 88% of companies, 80% of companies assume that they are able to assess future needs as well. In spite of this some 38% of

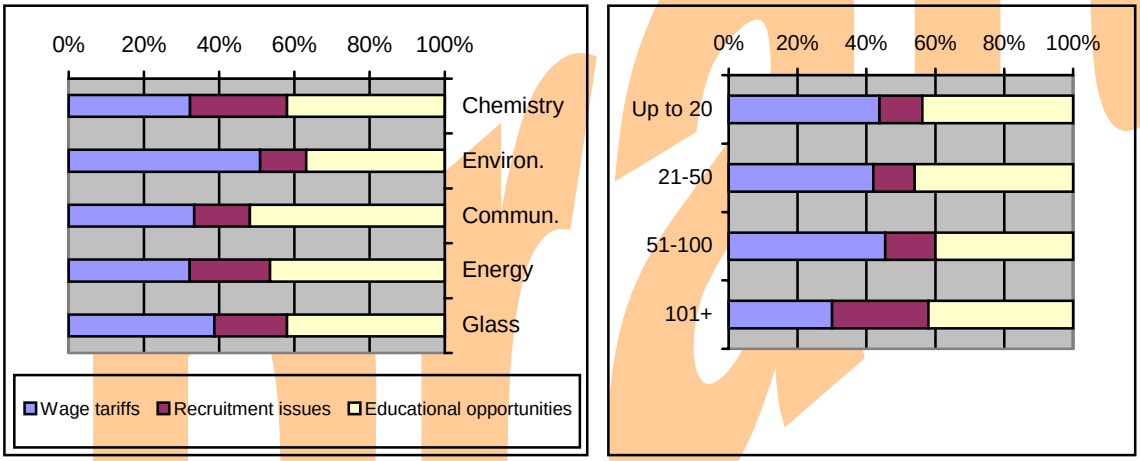
companies use information and counselling services in order to plan their skill requirements. There are no significant differences between industries. In terms of company size, external information or counselling services are used the most by the group with 51-100 employees (36%), the least by companies with up to 20 employees (14%). However, information from external organisation is used on a larger scale – as the following table illustrates.

Table 33: Areas in which external information and counselling services are used (% of companies)

Use of external information and counselling services	Recruitment issues	Wage tariffs	Educational opportunities
Yes	45%	20%	48%

As regards industries and company size, there are certain differences between companies in the use of external information and counselling services (Figure 36). Company with over 101 employees tend to use counselling in the area of wage tariffs and educational opportunities. In the glass industry, services in the area of educational opportunities and recruitment issues are used on an above-average scale.

Figure 36: Proportion of companies using external information and counselling services by industry and size



Types of external links. The organisations with which the companies most frequently establish contacts in the areas of assessment and planning of skill needs and the related issue of human resources include labour offices, training centres, chambers of commerce, professional organisations and commercial institutions.

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Overall, the workforce has received positive ratings. Again, this is due to the degree of restructuring achieved, the negative impact of which affected mostly the lower-skilled segments of the workforce. Consequently, the skill level of the remaining employees improved as compared to the period before restructuring began. However, there are still difficulties in satisfying skill-intensive (specific) needs of the companies, which reflects the rapidly rising technological standards of production. The survey has shown that most companies pay attention to human resources (assessment of employee skills and responsibility of companies for up-

grading these skills). The question is to what extent this attention is materialised in the form of actual measures and programmes in this area.

IV.5 RECRUITMENT AND VACANCIES

The current as well as anticipated problems associated with recruitment have an effect on the motivation of companies to make use of the supply of available human resources by means of external and internal recruitment procedures. One way of finding new recruits (which takes account of long-term development prospects) is the provision of placements and employment opportunities for school leavers. This is also important in view of the problematic position of this group in the labour market.

The issue of recruitment directly influences company approaches to the development of human resources. It may be therefore expected that the companies which have experienced difficulties filling vacancies over longer term will devote more attention to their own training of the workforce to ensure they have the appropriate skills. A specific group which may be exploited to resolve recruitment difficulties covers school leavers. The provision of placements and employment opportunities for school leavers suggests efforts to establish longer-term company HRD strategies. On the contrary, companies with short-term strategies will tend to prefer recruits with experience (work experience signals that the new recruit may be potentially more beneficial for the company). At the same time, the longer-term nature of company human resource development strategies reflects the overall economic conditions. If these conditions deteriorate and the respective industry is particularly sensitive to these changes, the companies tend to resolve possible problems with the filling of vacancies by means of internal recruitment. On the contrary, in the period of favourable economic developments the companies may be expected to show more willingness to recruit from external sources (external recruitment) including school leavers – this is particularly true if the supply of the workforce with experiences is limited.

The characteristics of the demand for the workforce with experience as compared to the demand for school leavers have serious implications for the labour market. The group of school leavers is generally considered to be problematic due to the "vicious circle" in which they are trapped. Their major shortcoming in the eyes of prospective employers is the lack of experience, while their opportunities to obtain experience are limited. The restricted supply of employment opportunities for school leavers may also stimulate their outflow from the region (particularly thanks to the attractiveness of Prague, which is relatively close). This further deteriorates the region's already unfavourable structure of supply of the workforce. Moreover, unemployment of school leavers – particularly if it is of longer-term nature – is linked to a decrease in the quality of human capital. Unemployed school leavers cannot exploit the education they have achieved (and its value without subsequent practical experience declines), and their dependency on the system of social security is maintained and grows stronger over time. This dependency further weakens the school leavers' motivation to change their situation. Frustration resulting from the impossibility to find appropriate employment and to achieve appropriate social and economic position may instigate the pursuit of alternative (problematic for the society) ways of finding one's own position in life. The focus of company recruitment policies on school leavers therefore has a much larger social, psychological and economic impact on the region. Such policies should be given appropriate attention in labour market policies.

IV.5.1 Recruitment and assessment of school leavers

One of the ways in which the companies may ensure the quality of their employees is to educate them by their own means. This task is carried out by means of recruitment of school leavers and cooperation with schools. These activities are essentially of long-term nature and may be

beneficial not only for the companies themselves, but also for the cooperating educational institutions which may be given the appropriate feedback in designing the content of their study programmes. The experience the companies have with recruitment of school leavers is also reflected in the assessment of their strengths (or weaknesses) and in the subsequent development of this form of addressing skill shortages.

Recruitment of school leavers

Recruitment of school leavers by industry and company size. In the last two years 46% of companies recruited school leavers. As the following diagrams show (Figure 37), school leavers are hired primarily by large companies in the communications, chemistry and energy industries. Larger companies generally show more interest in school leavers – one of the reasons being their stronger focus on long-term HRD strategies. Also, larger companies normally have a better developed system of working with school leavers, who require appropriate attention on the part of employers, if their potential is to be exploited in the relevant way. No conclusions may be drawn from the answers as regards the occupational groups.

Figure 37: Recruitment of schools leavers by company size and industry

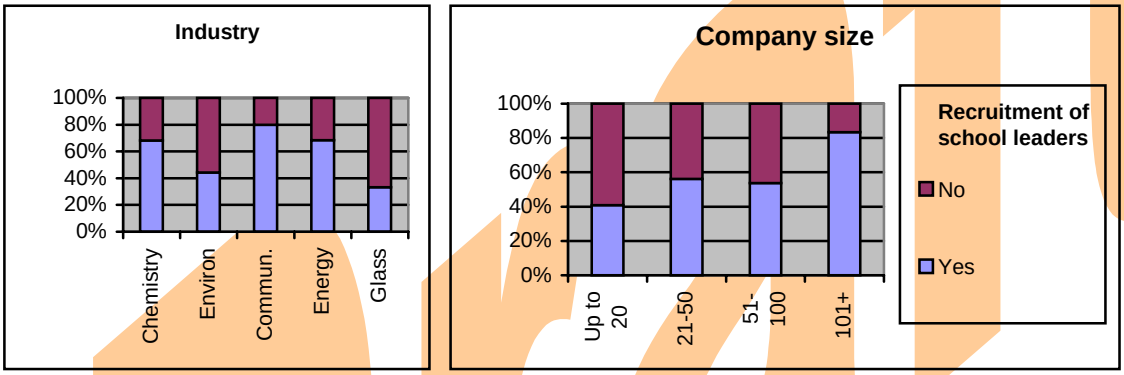
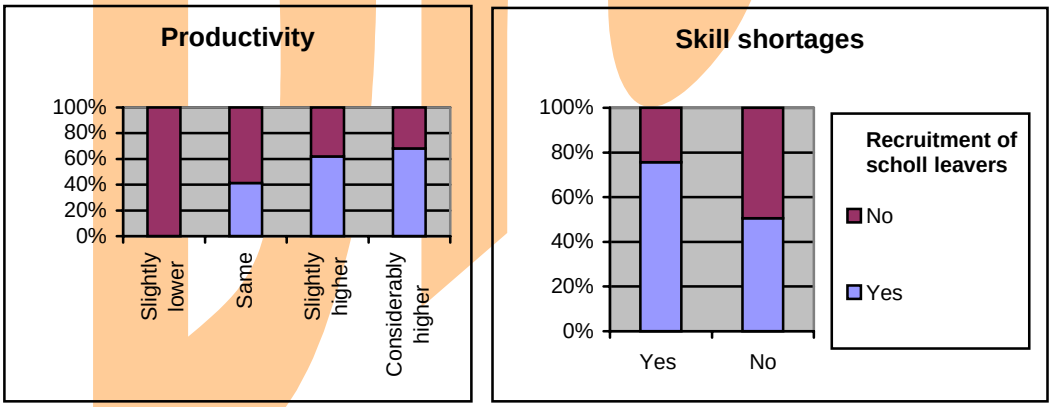


Figure 38: Factors influencing recruitment of school leavers



Recruitment of school leavers – other factors. A more important role in recruiting school leavers (as compared with the industry and size perspective) is, however, played by the actual skill needs of the companies. The following diagram (Figure 38) shows that school leavers are in greater demand in companies with rising labour productivity where the structure of employees

changes (which results in the need for qualified workforce). School leavers are recruited in considerably larger numbers by companies with skill shortages. This fact may reflect the overall low supply of the workforce with higher skills in the regional labour market.

Structure of recruited school leavers

Recruited school leavers by education and occupational group. Table 34 illustrates the structure of school leavers by their education and occupational category. The table clearly shows that it is secondary technical school leavers and university graduates who are hired most frequently (i.e. groups the supply of which in the regional labour market is at a below-average level). The school leavers are hired most importantly for administrative and technical positions.

Table 34: Structure of recruited school leavers by education and occupation category (in %)

Education of school leavers	Machine operators	Crafts	Administration	Technicians	Professional occupations	Senior official and managers	**Total**
Vocational without "maturita"	3%	6%					**12%**
Vocational with "maturita"	3%	4%	3%				**11%**
Secondary general			8%	3%			**13%**
Secondary technical	1%	3%	16%	12%			**36%**
Higher professional				3%			**5%**
University				10%	8%	5%	**26%**

School leavers' shortcomings. The following table shows which shortcomings are hindering recruitment of school leavers on a larger scale (Table 35). The major shortcoming of school leavers with lower levels of education is a lack of skills and knowledge as well as bad attitude to work. As concerns school leavers with higher skills, employees miss their appropriate experience.

Table 35: Shortcomings of school leavers as a reason for lower recruitment levels

Shortcomings	**Percentage of companies**
Technical skills	22
Professional knowledge	19
Bad attitude	21
Little experience	27

The focus groups believe that the major cause for the low numbers of recruited school leavers (or the obstacle to higher demand on the part of companies for this category of the workforce) is their inappropriate structure – more precisely - their lack of technical knowledge. This shortcoming may be explained by the low attractiveness of job opportunities in the region for high-quality school leavers (mentioned earlier), and also by the overall low proportion of gradates from engineering disciplines (as opposed to humanities).

IV.5.2 Provision of placements and internships for school leavers

The provision of placements and internships for school leavers constitutes an opportunity for the companies to get to know young prospective employees and to establish more coherent cooperation with educational institutions. However, this form of recruitment requires an appropriate background in the form of a long-term programme for the development of company human resources and a clear policy for the projection of skill needs. If placements and internships are to be mutually beneficial, the companies must also have a well-developed system of incorporating the interns in the company activities. The development of such programmes and human resource policies is, again, more likely to occur in larger companies which have the appropriate resources for their implementation.

Characteristics of placements and internships

Work placements and internships - by education attainment. Some 62% of the companies under review offer work placements and internships to secondary school students and apprentices, 43% of the companies provide for work placements for university students. However, the training of recruited university graduates is implemented only in 10% of the companies and only concerns companies with over 100 employees. This means that a relatively larger part of companies provides for placements and internships of university students, however, the proportion of companies who train newly recruited university graduates is low.

Work placements and internships according to company characteristics. The provision of work placements and internships is also linked to the recruitment of school leavers – this is illustrated in the following diagrams (Figures 39 – 41). Work placements and internships are provided to students by the same companies which then employ them. These are companies with rising labour productivity, larger employee numbers and a lack of qualified workforce.

Figure 39: Supply of work placements for secondary school students according to company characteristics

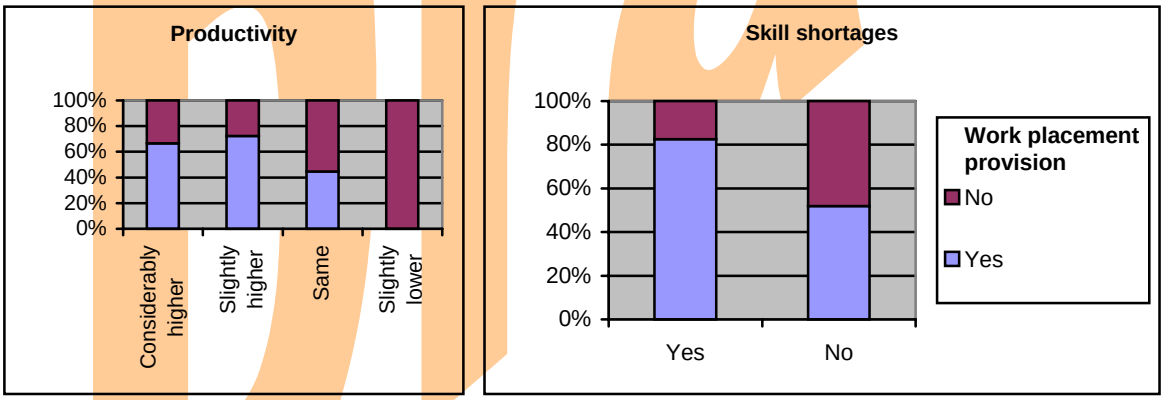


Figure 40: Supply of work placements for university students according to company characteristics

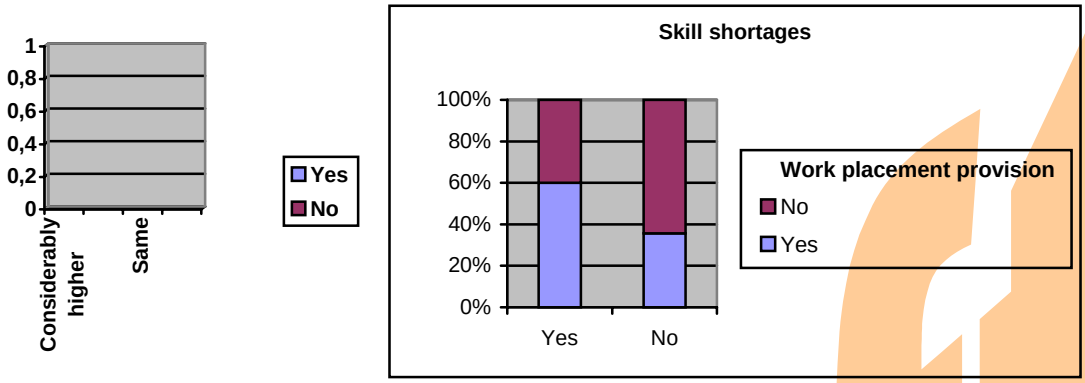
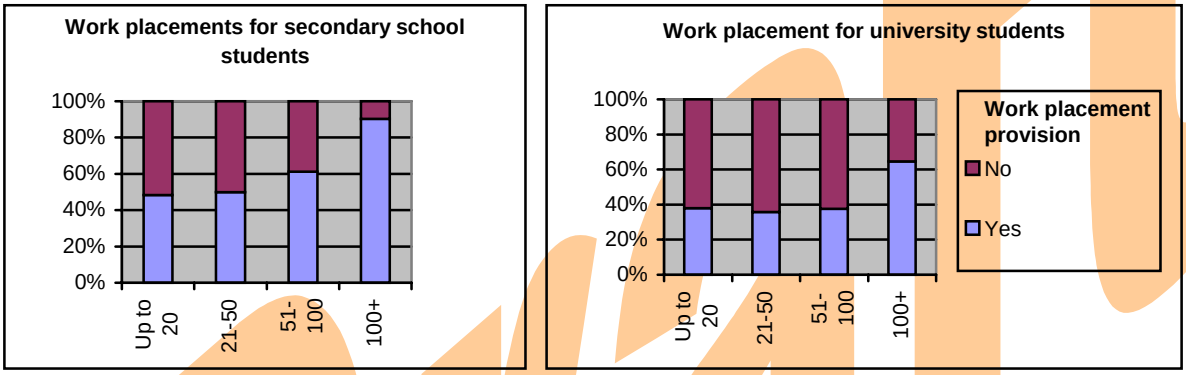


Figure 41: Supply of work placements depending on company size



IV.5.3 Filling of vacancies

Procedures for the filling of vacancies differ depending on whether internal resources of the company are used or the supply of the labour market is exploited (internal vs. external recruitment). The preferred way of recruitment is also reflected in the problems companies experience when filling their vacancies. These problems and the way they are perceived by the companies (including anticipated future developments) then, in turn, influence the adoption of recruitment measures. Overall, recruitment problems have an effect on the general situation in the regional labour market.

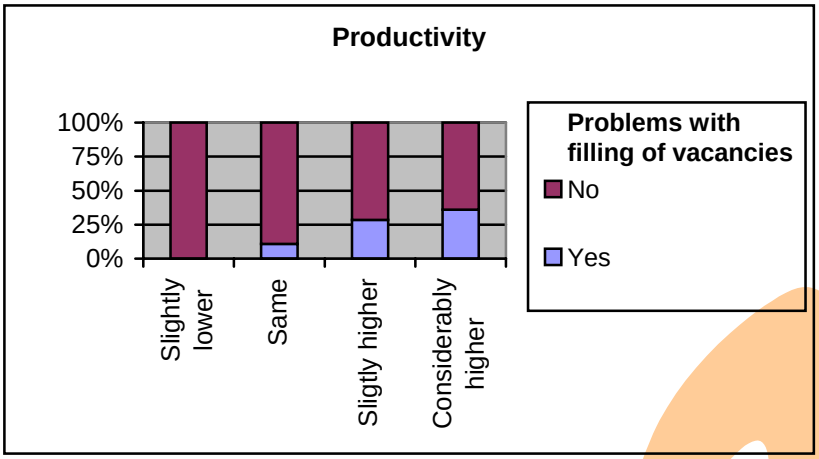
Internal vs. external recruitment

Internal vs. external recruitment. Internal recruitment is preferred over external recruitment by 48% of companies. The reasons in favour of internal recruitment include: the employee understands the work concerned, the company knows the employee, the speed factor, lower costs, identification with the company – in other words, higher benefits of work experience to date in the home company as opposed to new recruits). Companies with long tradition which were set up before 1945 use internal recruitment 16% more often than the rest of the companies.

Problems associated with filling of vacancies and their solution

Problems associated with the filling of vacancies. Only one quarter of the companies have problems with recruiting employees. As the following diagram shows, the most severe difficulties are experienced by the companies with rising labour productivity – irrespective of other characteristics. The size of the company has no effects on recruitment problems.

Figure 42: Problems associated with filling of vacancies



Recruitment difficulties by occupational groups. Problems with recruiting employees occur in all occupational groups in the same measure. These difficulties cannot be identified for operational areas.

Recruitment of employees – the problem and its solution. Although problems with recruiting employees do occur, their influence on the performance of the companies is negligible. This is why the companies do not adopt any measures within the recruitment function. Neither in the area of recruitment do the companies anticipate any considerable changes. The companies which are encountering this kind of problems at present expect similar problems in the future.

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Overall, the problems with recruitment are more strongly felt by dynamic, productive and technology-intensive companies. Also, these companies recruit school leavers and provide placements and internships for students on a larger scale. Recruitment of larger numbers of school leavers is hindered by their inappropriate structure – i.e. their skills fail to meet the company needs. On the contrary, the supply of school leavers with required skills is often insufficient, which was one of the findings the earlier parts of the survey. With the exception of specific skills, the companies do not consider the difficulties with filling vacancies to be serious (this fact may be also explained by the overall low requirements for new recruits, since any such requirements tend to be satisfied by transfers within the companies). The companies therefore do not take specific measures in the area of recruitment.

IV.6 TRAINING AND DEVELOPMENT ACTIVITIES

Training and development activities (beyond the framework of minimum initial training required by safety and other regulations) constitute the key factor affecting the quality of human capital. In addition to the extent and ways of implementing training and development activities, their benefit for the company and its workforce also depends on the way these activities are incorporated into long-term company strategies.

Training and development significantly improves the quality of company human capital and its prospects in the labour market. In this context a distinction is made between training activities involving general skills which may be transferred into new employment and which raise the value of the workforce in the labour market, and specific skills, the application of which is more limited to the existing job. This distinction of training and development activities is also reflected in the way they are carried out (long-term programmes vs. short-term introductory training in the workplace). Company training programmes also represent one of the forms of life-long learning the efficiency of which is strengthened by the direct access to practical experience. This means the company training programmes enhance the flexibility of the workforce that is apparent in its capacity to adjust to new demands.

A specific aspect of company development and training programmes is their bias toward certain occupational groups – those with already higher initial skill levels. In consequence of this preference there is a tendency to focus training rather on groups with higher skills. Their training programmes are longer, more costly (i.e. of higher quality), designed to be more generally-focused and to provide more generally applicable knowledge – in comparison with groups with lower skills. The advantage of initial higher skills, which improves the prospects in broader labour market, is therefore further strengthened in the course of professional career.

Company activities in training and development are assessed according to three basic criteria. The first criterion is the way in which training is provided and its characteristics by occupational group and extent. These characteristics describe the availability of training opportunities and, consequently, opportunities for improving the human capital of employees (including new recruits). The second criterion is the nature of training in terms of the forms of its provision – from systematic, long programmes to short introductory training. Specific attention is paid to the provision of training by external organisations and training activities designed to improve the flexibility of the employees though multi-skilling and retraining. The third criterion is the systemic nature of training and development activities which expresses the importance that is assigned to training by the company itself and the way in which training is incorporated in comprehensive, long-term company development programmes.

IV.6.1 Training activities

The starting question is the actual way in which companies provide training, characterizing the extent and availability of training opportunities for employees. These opportunities are broken down by industry and company size, performance characteristics and skill needs. The implementation of training activities is differentiated according to respective occupational groups. The scope of these activities in terms of the number of days over the last 12 month is also considered.

These indicators may point to possible biases in training toward initial skill levels of employees. Specific emphasis is placed on the extent of training activities organised for new recruits. The reasons why companies do not provide training are also important. In addition to company-specific reasons (performance characteristics, economic situation and its prospects, a lack of interest on the part of the employees), the reasons may also reflect the overall situation in the labour market and its impact on company human resources (current as well as expected). The pressure for the implementation of company training activities is low if the company does not experience any major problems associated with labour turnover, recruitment or skill shortages.

The provision of training and its characteristics

The provision of training. Training is provided for the employees by 61% of the companies. In terms of industry and company size these are primarily large companies in the communications, energy and chemical industries (Figure 43). These characteristics confirm the findings of a survey conducted by the Czech Statistical Office for EUROSTAT, an overview of which is presented in the context analysis. A relatively important role in the implementation of training activities is played by the company performance characteristics – i.e. rising labour productivity and, consequently, the anticipated need for skilled workforce (Figure 44).

Figure 43: Provision of training by industry and company size

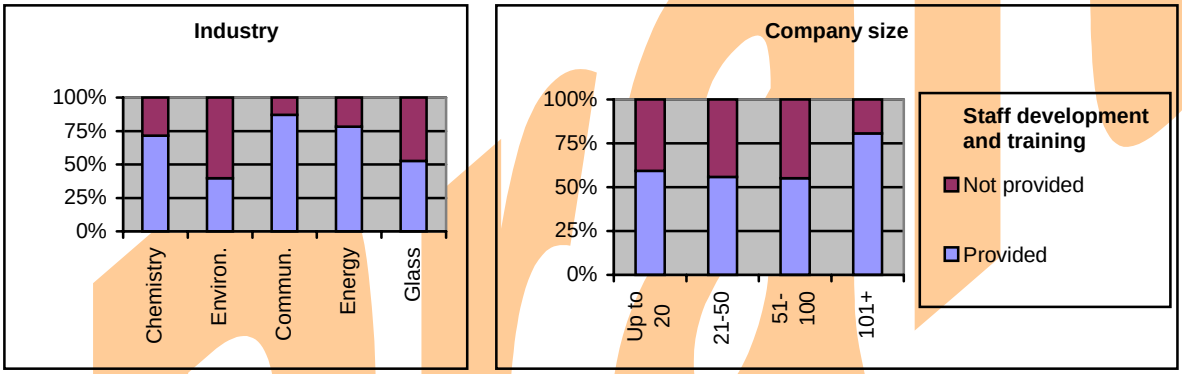
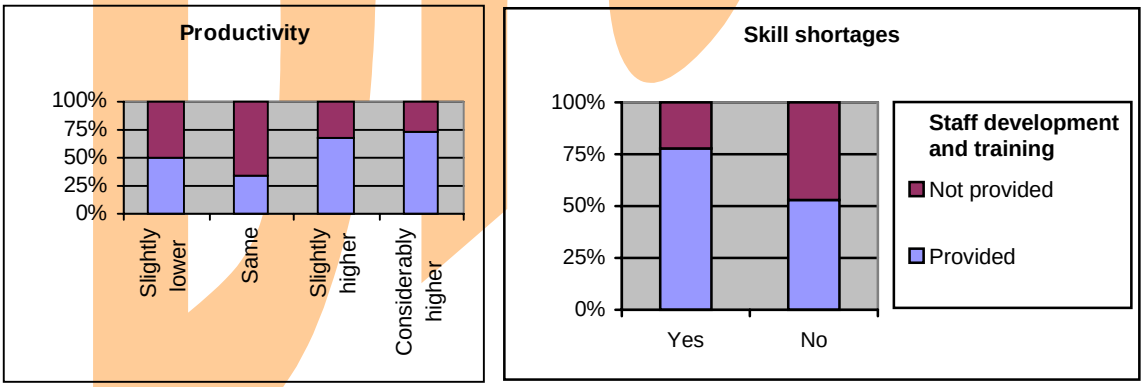


Figure 44: Provision of training according to productivity and expected skill shortages



Characteristics of training activities. In terms of occupational groups, training activities are focused primarily on non-manual professions. As the following table shows (Table 36), the occurrence of training activities is lower in groups with lower skills. Training of manual work-

related occupations is only exceptional and short-term. Approximately one third of the companies train employees in predominantly non-manual occupations (the category of non-manual occupations includes research and development – a position which is rarely present in the companies under review). Each employee in these occupations normally gets one week of training.

Table 36: Proportions of companies providing training and its scope (% of companies, occupational groups)

Number of companies providing training and the scope of the training	Machine operators	Crafts	Administration	Technicians	Non-manual occupations	Senior officials, managers
% of the companies	12	16	30	33	14	32
Average number of days	9,6	4,5	8	20	14,8	19
Median	3,5	4,5	5	6,5	5,5	10
Modus	3	2	5	3	5	10

The training for new recruits. The training in the form of initial and systematic instruction for new recruits who have not performed the respective work before is provided by 45% of the companies, in 4.5% of the companies such training depends on the nature of the work. The scope of initial instruction by occupational group is too low. Training for fresh university graduates is provided only by 10% of companies.

Reasons for non-provision of training. It should be reiterated that training is provided by 61% of companies. The most frequently presented reasons for non-provision of training on the part of the companies include:

Table 37: Reasons for non-provision of training (% of companies)

Reasons	% of the companies
Number of employees does not change or decreases	23
Employees are not interested	8
Work does not require much skill	18
The company employs only trained people	10

The sufficient supply. Let us note that only 25% of the companies experience recruitment difficulties and only 30% of the companies experience skill shortages. This situation probably does not call for any extensive activities focused on raising the skill level of the workforce (possible problems with inappropriate supply of the workforce, or, more precisely, with their inappropriate skill structure, occur in companies with positive performance characteristics which, as we have mentioned, provide training activities).

Insufficient interest of employees. It is surprising that, in this situation, there is also lack of interest in training on the part of employees (this reflects to a large extent the age characteristics – the interest is lower in the group of older employees). This reason is stated the third most important obstacle to training provision in a comprehensive assessment.

IV.6.2 Characteristics of training and development activities

The characteristics of training and development activities are further specified in terms of their forms – i.e. the prevalence of longer, systematic programmes over ad-hoc, irregular and short programmes (induced by the needs of the moment). Training activities are also specified in terms of occupational groups. These specific characteristics further confirm the unbalance in the distribution of training opportunities in terms of professions and skills. The importance of external training providers is also considered. Specific attention is paid to the scope of training activities aimed at multi-skilling and retraining, which increase the flexibility of the workforce both in the current job and in terms of future prospects in the labour market.

Forms of training

Forms of training –by occupational groups. The forms of training and development activities vary depending on occupational groups and range from irregular to more systematic activities. The training also takes place at different locations – in the workplace or outside it. Individual forms of training include "learning by doing" during work, informal training in the workplace (irregular), structured and systematic training outside the workplace, and flexible or open education including its distance forms. The forms of education in various occupational groups are illustrated in the following table (Table 38). In the case of manual work-related occupations irregular training in the workplace predominates (most importantly the initial instruction), non-manual occupations more often get systematic training.

Table 38: Forms of training by occupational groups

Forms of training by occupational group	Elementary	Machine operators	Crafts	Administration	Technicians	Non-manual occupations	Senior officials, managers
None	56	60	60	53	52	71	60
Learning by doing	27	18	17	15	8	0	4
Irregular in the workplace	7	6	0	10	9	0	9
Systematic in the workplace	0	10	6	16	16	8	10
Systematic outside the workplace	0	4	5	7	14	14	14
Flexible open	0	0	0	0	2	3	9

The presented results also confirm the answer to the discretional question: In which training activities did the companies invest the most? The most frequent answers include initial instruction in the workplace and training outside the workplace which was focused on the use of computer technology and foreign languages. 24% of the companies carry out training activities to meet the respective legal regulations.

External training institutions

External training institutions. The external institutions used for the training of employees primarily include private educational establishments (44% of the companies), universities (16%) and industry-specific facilities (14%).

Multi-skilling a retraining

Multi-skilling and retraining. Training for multi-skilling is organised by 71% of companies that organise any training. Relatively more training for multiskilling is provided by companies in the environmental and (tele)communications sectors. Retraining is organised by 28% of companies that organise any training. The differences by company size are negligible. The figures for groups of occupations and operational areas are so low that they make any further analysis non-meaningful. The focus groups explain the somewhat low importance of retraining by its high costs. It is much more simple as well as cheaper for the company to replace a worker with missing skills by another employee as compared to retraining him/her. However, labour offices claim based on their experience that neither do the companies make appropriate use of financial support for retraining activities.

IV.6.3 The importance of training and development activities

The importance of training and development activities in companies also reflects, to a degree, the company approaches to the assessment of training needs of employees and to the evaluation of the benefits of training. Another aspect of the attention companies pay to training is the way it is provided for in personnel and institutional terms. A systemic approach to training is primarily reflected in the role attributed to it by companies in their comprehensive development plans.

Training facilities

Training needs and facilities. 54% of the companies assess the training needs of their employees. However, only 35% of companies have a development and training plan, 26% have management development programmes. It is again companies with rising labour productivity which assess their training needs and have comprehensive management development programmes. The proportion of companies which have resources earmarked for training is also low (32%). There is a designated person responsible for training in 42% of the companies – only 4% of these people devote more than one half of their working hours to training, 36% less than one half. 10% of companies have their own training facilities (or access to such facilities).

Evaluation of training results. The results of training are evaluated by a smaller proportion of the companies in comparison with those which provide the training: 44% of the companies carry out assessment, 15% do not. The performance of the employees is evaluated by 57% of the companies, 3% of them do not evaluate it**.** The lower proportion of companies which evaluate training weakens the relevant feedback for the companies.

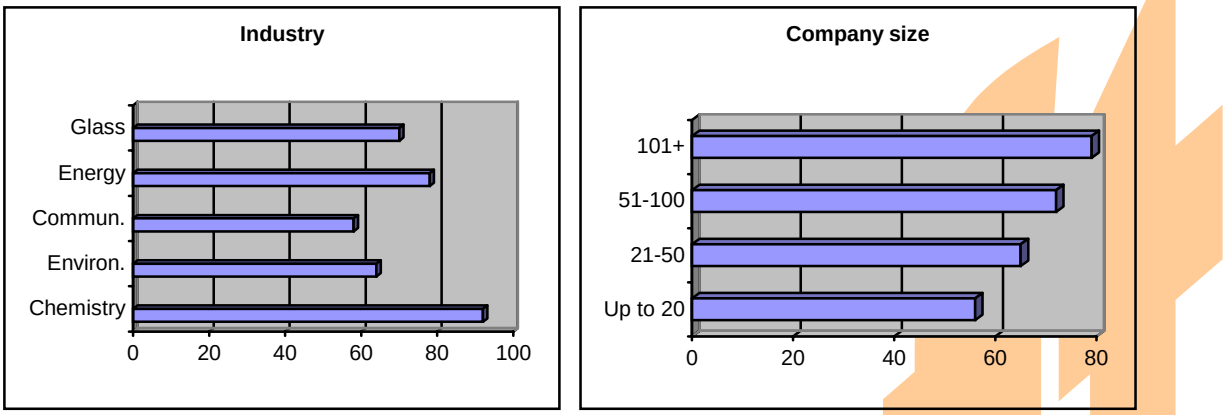
Importance of training for the organisation

The training activities – scope, reasons. Although the presented data does not show a large level of activity of the companies in the area of training, 32% of the companies state that the scope of training expanded over the last two years due to the introduction of new technologies and increase in competitiveness.

The business development plan and training plan. Only 40% of the companies state that they have a business development plan, 17% of the companies do not have such a plan. In terms of industries, this plan is common in the chemical industry (92% of the companies), in other

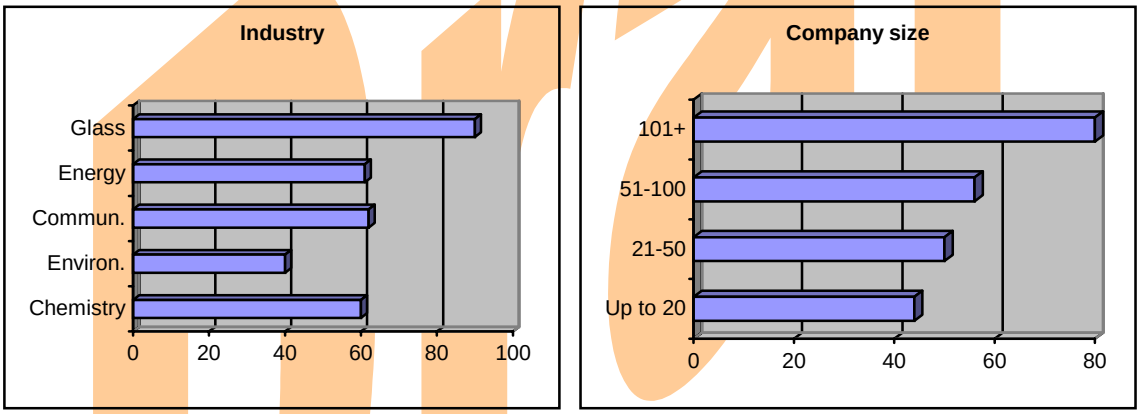
industries it is not so common. (Figure 45). In terms of company size the business development plan is available rather in larger companies.

Figure 45: Business development plan by industries and company size (v %)



As it has been mentioned, a training plan is available only in 34% of the companies. As concerns industries (Figure 46), it is most frequently used in the communications industry (90%) and the least frequently in the industry of environmental protection (41% of the companies. As regards the company size depending on the number of employees, the likeliness of the existence of such a plan increases with the company size.

Figure 46: Training plan by industry and company size (in %)



External support for human resource development. The companies would welcome financial subsidies, better educational policy and tax allowances as a possibility of external support for human resource development. However, the most frequent answer is that the current situation does not constitute a problem and is, on the whole, agreeable.

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Further to the relatively large proportion of companies which assign considerable importance to the quality of their workforce and declare their responsibility for its improvement it is agreeable that most companies do provide training for their workforce. The implementation of training activities is closely linked to company performance characteristics, since dynamic and productive companies are more likely to encounter difficulties in fulfilling their skill needs. In

view of the rather inappropriate structure of school leavers (mentioned above) such companies pay more attention to their own training activities. An important role in this respect is also played by the technology intensity of production and its rapid increase, which is accompanied by rising skill requirements for the workforce. In this case training is necessarily continuous and the quality of human capital of the workforce also increases continuously during the working career.

However, training opportunities in companies are considerably biased in favour of employees who already have higher level of skills. This fact is reflected in the higher proportion of companies which provide training for occupational groups with higher skills, as well as in the content and form of such training. This means that training of these occupational groups is longer, more systematic and tends to be organised outside the workplace. This concentration of training in higher-qualified categories is understandable also because the companies in the sample under review do not experience any major difficulties concerning recruitment of other (lower-skilled) segments of the workforce. Another reason for this concentration of training opportunities is, no doubt, the less demanding nature of work tasks performed by lower-skilled employees (i.e. a high degree of standardisation of the technologies used).

Although the companies under review claim they assign considerable importance to the issue of human resources and a relatively high proportion of them provide training for their workforce, only a small number of companies have a systemic approach to human resource development (i.e. include this issue in comprehensive company development plans, or at least have a training plan). A comprehensive approach to the issue of human resources (including allocation of appropriate resources and assessment of the efficiency of the respective activities) tends to be adopted by larger and dynamic companies. This is also in line with the data ascertained in the previous parts of the survey.

V. CONCLUSIONS AND RECOMMENDATIONS

V.1 Segmentation of regional economy and training opportunities

The context analysis highlighted severe long-term structural imbalances, the implications of which for the quality of regional human capital are rather discouraging. With regional capacity to create new job opportunities having been roughly comparable with the Czech Republic average, it was not sufficient to compensate for the above-average number of jobs lost in the region since 1993. Besides the second highest rate of unemployment being itself a heavy burden, the structural characteristics of labour force are particularly alarming in respect of high shares of low skilled employed and unemployed, and high share of long-term unemployed. The employed with lower skills have more limited access to training and are more likely to become redundant. The unemployed with lower skills are disadvantaged when searching for new jobs and less motivated for an active search and retraining.

As to the training opportunities for employees, they largely depend not only on their initial skill levels, but also on the productive performance of the companies. The more dynamic and technology intensive companies underwent deep restructuring in the past and considerably improved their efficiency, productivity and export performance. After completion of passive adjustment they embarked on active adjustment path (largely supported/initiated by foreign capital presence), investing in new technologies and developing new marketing and export strategies. Such companies provide training for their employees in larger extent and in a more systemic way. Due to skill-biased employment cuts they also improved the quality of their workforce, so the training activities became more efficient. In sum, workers in these companies have higher skills, higher wages, better social benefits and training opportunities. These companies, however, even when further expanding their production, will not generate much new job opportunities in regional labour market. Their active adjustment strategies were and are likely to be more intensive in capital than in labour, with the demand limited to highly specific skills (which are in short supply in the region).

The companies in the less productive and less dynamic segment of the regional economy have not completed the passive adjustment phase yet, or their resources are too limited to embark on the active adjustment path. Performance characteristics in these companies did not improve sufficiently, because of lacking entrepreneurial initiative, limited access to new technologies, markets and to higher quality human capital. The higher sensitivity to the overall economic conditions and more difficult access to external financial resources also make the investment horizons in these companies rather short-term, and increase the decision-making uncertainty. Consequently, the generally stronger risk aversion persists even when economic conditions improve. In case the new investment is undertaken, it tends to be directed in the improvement of the stock of physical rather than human capital.

In sum, relatively large inter-industry as well as inter-firm differences as to productivity levels and technology and skill intensities imply correspondingly large differences in the resources and efforts devoted in the respective companies to the development of their workforce. As the structural imbalances tend to reproduce and strengthen in time, the inter-industry (inter-firm) gap in the opportunities for human capital improvements, confirmed by the survey findings, becomes wider. The unavoidable continuous deterioration in quality of regional human capital and its worsening labour market prospects make the adjustment of labour force and the efficiency of

respective policy measures even more difficult in time and raise severe challenges for social security system and regional social climate.

V.2 Operating environment

Overall economic changes became more favourable in the period under review, with about 60% of companies reporting market expansion. Most companies strongly depend on domestic demand, with only 38% of companies being export oriented. Economic recovery, however, started only in 2000, and the preceding economic recession hit the regional economy severely. Consequently, although most companies improved their performance characteristics in terms of productivity (73%), the share of companies making use of active adjustment strategies was rather low: only 25% of them increased investment in new technologies and 21% in human resource development. The highest increases of productivity were reported in IT and telecommunications, and glass industries, the largest intra-industry (i.e. inter-firm) differences appeared in chemical industry. The still less important role of active adjustment strategies in most companies was also confirmed by rather limited scale of research and development activities or introduction of new materials directed to competitiveness improvement. However, most companies (81%) reported the orientation to quality based competitive advantage (mostly through the enlargement of product range), which can be regarded a minimum precondition of changing attitudes.

Company adjustment strategies have important implications for the labour force, regarded a major strength in 42% of companies, and as satisfactory in 37% of companies. Despite of some inter-industry differences in respect of the workforce evaluations, no company considers the workforce a limiting factor to its development. Most companies view the improving quality of human capital as an important ingredient in their future prospects The evaluation of workforce is more positive in the companies with increasing productivity, i.e. in the companies that made larger, skill selective employment cuts. Consequently, their employment base became more skilled and the human capital utilization more efficient. Changes in employment were reported in 63% of companies (however only 24% reporting decreases as opposed to 39% reporting increases of employment). The selective nature of changes of employment was confirmed by the differences in respect of occupation groups: the most stable segments being the higher skilled workers, the least stable are those with low skills.

V.3 Labour turnover and redundancies

Employment instability in terms of labour turnover and redundancies is quite a common phenomenon: 56% of companies report occurrence of labour turnover, 70% of companies report redundancies. However, for most companies (80%), labour turnover does not constitute a considerable, nor unexpected problem (as far as it does not concern the workers with specific and high-level skills). Only 11% of companies considered the perceived labour turnover higher as compared to their expectations. Labour turnover is mostly skill-biased, i.e. is more frequent in case of workers with lower skills. So the companies mostly take the voluntary outflow as a less costly alternative to employment cuts. These perceptions also explain the absence of systemic anti-turnover measures.

Despite of the above mentioned, rather frequent occurrence of redundancies, only 18% of companies expect further redundancies in the future. The relatively small number of companies anticipating further lay-offs may be explained by the already achieved degree of restructuring

and by the improvement of the overall economic situation. However, as most companies consider the question of future redundancies rather "sensitive", the reported numbers should be interpreted with care.

When the less skilled workforce leaves the company, its performance characteristics improve and more resources can be devoted to the development of the employees. The implications of the skill-biased labour turnover and redundancies for regional labour market are understandably quite detrimental, particularly in the region with large-scale, deep-rooted structural imbalances. The situation is made even worse with very low share of companies reporting retraining activities (only 17%), considering it more costly and difficult than replacement of the workers whose skills became obsolete.

V.4 Skills and skill shortages

Most companies consider the skills of the workforce as very important for their competitiveness (only 6% of companies report the opposite view, 74% of companies assess their workforce as comparable with that of competitors.). There are certain differences according to company size. More positive view of the workforce skills is reported by companies with 21-50 employees (81%) and over 100 employees (77%). The positive rating of the workforce skills is even more encouraging when most companies (87%) report increasing requirements as to the quality of their workforce, and expect the requirements to further increase in the future.

Skill shortages are considered a problem only in minority of companies (30%); the problem is more severe in the industries that are technology more intensive and/or in companies with increasing productivity. The shortages as to the specific types of skills are more intensive in the segment of high skilled workers (professionals and technicians), with specific technical or management competences required by fast technology changes. Most companies (75%) that report skill shortages do not expect any changes in the future. Somewhat more pessimistic are the expectations in IT and telecommunications industry, due to its specific skill requirements. As to the skill shortages in respect of occupations, the expectations roughly reflect the current experience, both as to the scale and structure, with relatively higher share of skilled occupations shortages (professionals and technicians) expected to persist in the future (as opposed to the lower-skilled occupations).

The responsibility for the improvement of knowledge and skills of the workforce is declared by 88% of companies. Meeting the increasing requirements and coping with current and potential skill shortages make the regular and systemic assessment of the workforce necessary. The regular and systemic assessment provides the management with useful feedback in respect of human resource development. Most companies (83%) assess the skills of their workforce, with 75% of companies making such assessment on regular basis. The skills are mostly (in 88% of companies) assessed in relation to the supplied products/services. Most companies (88%) consider their capacity of assessment of the current skill needs as sufficient, and 80% of companies report such capacity also as to the future needs. Only 38% of companies make use of external information and consultation services in assessing current and future skill needs.

V.5 Recruitment and vacancies

Overall, the problems with recruiting employees are more strongly perceived in dynamic, more productive and technology-intensive companies. Filling of vacancies through internal recruitment is preferred by 48% of companies. Only 25% of companies reported problems with filling of vacancies, the share of such companies increases with increasing productivity. Except for high-level and specific skills, the companies do not consider the difficulties with filling vacancies as serious (which may be also explained by the overall low demand for new workers due to continuous restructuring), or negatively influencing the company performance. Consequently, no specific recruitment measures or policies were implemented. In respect of further development, the current problems with filling of vacancies are expected to persist in the future (which is quite in line with the stability of expectations in respect of skill shortages).

School leavers were recruited by 46% of companies, mostly by large ones. The more important factor, however, influencing the decisions on recruitment of school leavers, is that of skill needs in companies. School leavers are in larger extent recruited by companies with increasing productivity, with changing structure of workforce, and with higher-skill shortages. The most often recruited school leavers are those from secondary vocational schools (36% of school leavers) and from universities (26% of school leavers). Rather limited scale of school leavers recruitment is explained by lacking practical experience, low level of knowledge and skills, and bad work attitude. Relatively high share of companies offers practical training to students: 62% of companies to the students of secondary schools, 43% of companies to university students. Only a small number of companies (10%) provide initial training to recruited university graduates, they are all companies with more than 100 employees.

V.6 Training and development activities

Findings on training and development activities are broadly consistent with those in preceding sections: with most companies declaring the importance of its workforce quality for competitiveness and with most companies declaring their responsibility for the improvement of this quality. Even if the share of companies actually providing training for their employees is lower (61%) than the shares of companies that made the above mentioned declarations. In respect of industries, training is provided on larger scale in IT and communications, energy, and chemistry, in respect of size-bands, more training is provided by larger companies. The characteristics of companies providing training are again biased toward those with increasing productivity and those anticipating skill shortages in the future.

The close link of training activities to company performance characteristics also corresponds to the above mentioned findings, since dynamic and productive companies are more likely to encounter difficulties in filling the skill needs (and are more likely to anticipate their future development). The scale of training provided in such companies is also influenced by the perceived inappropriate structure of school leavers together with high and fast changing technology intensity accompanied by continuously rising skill requirements.

Besides the training opportunities being better in larger companies and industry specific, they are also biased in favour of the workforce with already higher initial level of skills. The training of more skilled workforce is also more intensive and realized in a more systematic and long-term manner as opposed to ad hoc, irregular and short-term forms of training for less skilled workers. The training methods aimed at improvement of flexibility of the workforce are used in limited

scale: multi-skilling in 41% of companies, retraining only in 17% of companies. The most frequent reasons for not providing training include the stagnant or decreasing number of employees and low skill intensity of the jobs.

Despite of relatively high proportion of companies assigning considerable importance to the development of their human resources and relatively high share of companies providing training for their workforce, only a small number of companies have a systemic and elaborated approach to human resource development and incorporate it into comprehensive company development plans (only 26% of companies have such plans). Training needs of workforce are assessed in 54% of companies; training programmes are formulated only in 34% of companies. Rather limited are also resources devoted to training – both financial (32% of companies) and personal (only 42% of companies report a person responsible for training). Much lower number of companies (44%) assesses the effects of training activities of their workforce, in comparison with those that provide training. Performance of the workforce is assessed in 57% of companies.

V.7 Overview and recommendations

Productive performance characteristics of the companies appear the key explanation for their human resource policies with regard to recruitment, filling of vacancies and training and development activities. The more dynamic and technology intensive companies also report shortages as to specific skills, which encourage implementation of long-term and comprehensive human resource development and training programmes. On the other hand, the activities of companies with less favourable performance characteristics with regard to human resource development are rather limited, despite of the overall positive evaluation of the workforce and its role in company competitiveness. This could be explained by a satisfactory supply of the workforce with adequate skills on the labour market, when the vacancies can be filled relatively easily in case they appear at all. Such an explanation would be consistent with relatively low technology and skill requirements in the companies that have not yet embarked on active adjustment path or even have not completed the passive adjustment.

From the point of view of regional labour market developments, three implications of skill biased human resource policies and relatively large inter-industry (inter-firm) performance differences appear as particularly severe.

- First, the up-skilling of employment base in the more productive companies (through the employment cuts biased toward the workforce with low skills) contributes to deepening of the already large structural imbalances in respect of high shares of the low-skilled unemployed. Moreover, the increasing competitive pressures make the continuous restructuring necessary. So even in the case of expanding production, that is expected to be rather capital than labour intensive, i.e. not creating new job opportunities (except for relatively small number of highly specific skilled workers).

- Second, the employed with lower skills have more limited access to training opportunities (also due to relatively higher labour turnover in this workforce segment) and are more likely to become redundant. Moreover, not only the training opportunities, but also the motivation for participation in training is largely skill-biased. Consequently, the labour market prospects of the lower-skilled employed (and potentially unemployed) are negatively predetermined by the low initial level of their human capital which tends to persist in time.

- Third, relatively large performance gaps as to productivity levels in number of regional industries/companies suggest that further passive adjustment in the form of (skill-biased) employment cuts are to be expected. At the same time, the embarkment on the active adjustment path, which could at least partly counterbalance the unfavourable effects of the passive adjustment for the regional labour market, is made extremely difficult by limited material and human resources in the companies with worse current performance characteristics.

As to the company strategies in respect of human resources, one key implication of the survey findings appears quite straightforward. Despite of relatively high ratings assigned by companies to their workforce, and despite of relatively high share of companies providing training to their employees, the survey revealed rather low share of companies that implement (1) active, systemic and long-term oriented strategies in respect of the development of their human resources, (2) based on systemic and elaborated assessment of current and expected skill shortages, and (3) incorporated consistently in comprehensive business development programmes. Consequently, in most companies there is still rather large gap between the generally positive view of the role played by higher-quality human capital in improving competitiveness and the capacity of turning its perceived potential into real performance increases. In other words, human resources are mostly considered an asset, influencing positively the company performance characteristics, but less much a capital good, the investment in which can generate high and increasing returns.

Considering the deep-rooted and persistent problem of generally lower level of human capital in the region and the key role to be played by companies in its improvement, the undertaken strategies and respective measures must be (1) systemic and comprehensive, (2) involving broad range of regional agents, (3) organized and implemented effectively and efficiently.

Systemic and comprehensive approach. The undertaken measures must complement each other, so that their effects are mutually strengthening.

- Tax/benefit structure should be redirected to strengthen incentives for companies and labour force to increase investment into human capital. Specifically, the incentives of the unemployed to participate in retraining and incentives of companies to recruit school leavers must be used more intensively. The tax/benefit structure should reflect the principle that when companies invest more in their workforce, the benefits accrue not only to the companies themselves, but to the society as whole in terms of lower expenditures on re-entrance of higher-skilled unemployed (who became redundant) into employment.

- Increasing investment in human capital is a necessary, however not sufficient condition for the improvement of its quality and for positive contribution of the higher quality human capital to overall company performance characteristics. The companies must have appropriate knowledge on how to assess their workforce skills, how to project their skill needs and make their workforce more productive in combination with new technologies. In other words, companies must become familiar with the strategies making their higher investment in human capital ("intangible asset") appropriately effective (i.e. "tangible" in terms of improving company productive performance).

Involvement of broad range of regional agents. Formulation and implementation of the respective measures must make use of information and intelligence networks.

- Knowledge and experience regarding skills, training and development activities are much better gathered and disseminated through networks involving companies with different performance and structural characteristics. Networks provide access to information on best practices and practical experience with their implementation. They also serve as supporting and inspiring environment for the companies searching for advice on new methods and approaches. The creation and effective functioning of such networks heavily rely on an active core made of "parent" companies able to attract and involve the other, "more hesitant" participants.

- Notwithstanding the key role played by companies in improvement of regional human capital, other regional agents must be involved in corresponding efforts. These involve local and regional policy representatives, labour offices, chambers of commerce, consulting agencies, and organizations in the sphere of formal and post-formal education and training. The broad range of actors involved is necessary when the proposed and/or discussed measures are to respond to the regional bottlenecks appropriately and are to be really effective. The involvement of the respective actors must be based on their experience and active attitude, and their activities directed to specific, concrete projects.

Professional organization and implementation. The efforts directed to the improvement of regional human resources must be organized and implemented effectively.

- If the activities directed to the improvement of regional human resources are to be effective and efficient, they must be organized on professional basis. The responsible agency should serve as consulting centre for regional companies in elaboration the applications for projects financed by EU programmes, search for prospective participants in such projects and help with their implementation. It should also coordinate efforts and activities of various local and regional agents, undertaken in respect of human capital development. Another important role of such an agency regards the dissemination of best practices in skills and training (both domestic and foreign) in regional business community. Last but not least, the agency approach in the outlined fields must be principally proactive, which is particularly important when the companies tend to underestimate the benefits of investment in human capital and the role that its quality can play in improvement of company performance characteristics.

VI. ANNEX

Table 1A: Employment change, 1994-2001, contributions to overall change, NACE

	ČR	PHA	STC	JHZ	SVZ	SVV	JHV	STM	OVA
Rate of unemployment, average for 2000	*8,8*	*4,2*	*7,5*	*6,0*	*13,8*	*6,9*	*7,8*	*10,6*	*14,3*
Agriculture, forestry	-3,06	0,44	-3,22	-5,44	-2,76	-2,74	-4,85	-3,51	-2,14
Mining and quarrying	-1,21	0,29	-0,90	-0,25	-3,33	-0,48	-0,69	-0,31	-4,31
Manufacturing	-3,08	-4,94	-5,57	2,64	-2,82	-1,94	-2,11	-5,86	-4,76
Electricity, gas and water	-0,30	0,62	0,27	-0,30	-0,84	-0,86	-0,26	0,10	-1,03
Construction	0,20	0,18	1,98	-0,65	-1,32	0,56	1,27	0,28	-1,03
Retail trade, vehicle and consumer goods repairs	2,11	2,84	2,44	2,14	0,80	0,36	3,97	2,33	1,68
Hotels and restaurants	0,11	-1,69	1,06	1,08	0,13	0,01	0,07	0,54	-0,13
Transport, storage, post, telecommunications	-0,54	-0,91	-0,01	-0,29	-1,33	-0,20	-0,32	-1,25	-0,10
Banking and insurance	0,74	1,62	1,10	0,37	0,29	0,77	0,53	0,58	0,71
Business services	0,87	1,70	2,04	1,12	1,30	0,62	-0,31	0,50	0,57
Public administration, defence, social security.	0,67	-0,06	0,70	-0,99	2,44	0,33	1,39	0,60	0,85
Education	-0,20	0,20	-0,55	-0,76	-0,72	1,07	-0,73	-0,91	0,59
Health care, veterinary care and social activities	0,38	0,32	-0,50	-0,07	0,66	0,46	0,60	0,45	0,92
Other public, social and personal services	0,57	2,28	0,70	0,29	0,04	0,74	0,21	0,94	-0,62
Industries with decline in employment	-8,39	-7,6	-10,75	-8,75	-13,12	-6,22	-9,27	-11,84	-14,12
Industries with increase in employment	5,65	10,49	10,29	7,64	5,66	4,92	8,04	6,32	5,32
Change (%)	**-2,76**	**2,89**	**-0,46**	**-1,10**	**-7,45**	**-1,31**	**-1,23**	**-5,52**	**-8,79**
Change (in thousand)	*-134,3*	*17,4*	*-2,4*	*-6,3*	*-41,0*	*-9,2*	*-9,4*	*-31,8*	*-50,5*
Industrial concentration of empl. changes – total	1,39	1,83	2,07	1,81	1,61	1,06	1,87	1,98	1,86
Industrial concentration of empl. changes – decline	1,22	1,85	1,98	1,67	0,99	0,95	1,56	2,05	1,71
Industrial concentration of empl. changes – increase	0,58	1,03	0,72	0,86	0,78	0,29	1,24	0,61	0,38

Source: Own calculations based on data from Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000.

Table 2A: Contributions of NACE industries to overall change in employment, 1994-1Q/2001, North West

	1994	1995	1996	1997	1998	1999	2001	01/93
Agriculture and related activities	-0,09	-0,85	-0,15	-0,81	0,32	-0,35	-0,69	-2,5
Forestry, fisheries	0,02	0,11	-0,31	0,00	-0,06	-0,15	0,14	-0,3
Mining and quarrying	-0,55	-0,87	-0,78	0,43	-0,86	-0,54	-0,26	-3,33
Manufacturing	-1,09	-0,54	-0,85	-0,39	-0,07	-1,69	1,85	-2,82
Electricity, gas, water	-0,29	-0,13	-0,15	-0,49	0,47	-0,37	0,09	-0,84
Construction	-0,27	-0,13	0,78	0,04	-0,84	-0,79	-0,17	-1,32
Retail trade, vehicle and consumer goods repairs	1,54	0,74	0,06	0,60	-1,05	0,15	-1,35	0,80
Hotels and restaurants	0,35	0,20	-0,19	0,52	-0,26	-0,33	-0,19	0,13
Transport, storage, post, telecommunications	-1,24	1,07	0,09	-0,66	-0,24	0,04	-0,44	-1,33
Banking and insurance	0,04	0,35	-0,20	0,19	0,00	-0,33	0,26	0,29
Renting, real estate, business services, R&D	0,42	0,02	0,15	0,00	0,15	0,35	0,27	1,30
Public administration, defence social security	1,14	-0,31	0,11	0,97	-0,30	0,40	0,51	2,44
Education	-0,94	-0,55	0,57	-0,26	-0,28	-0,02	0,82	-0,72
Health care, veterinary care and social activities	-0,51	0,67	-0,20	-0,45	-0,64	0,48	1,44	0,66
Other public, social and personal services	-0,27	0,07	-0,13	0,51	0,82	-0,48	-0,51	0,04
Contribution of industries with declining employment	-6,27	-3,38	-2,96	-3,06	-4,60	-5,05	-3,61	-13,12
Contribution of industries with growing employment	4,60	3,23	1,76	3,26	1,76	1,42	5,38	5,67
NW – change in employment	-1,74	-0,15	-1,20	0,21	-2,84	-3,62	1,76	-7,45
ČR – change in employment	1,09	0,73	0,19	-0,71	-1,43	-2,09	-0,47	-2,76
Difference NW and Czech Republic	-2,84	-0,87	-1,39	0,92	-1,41	-1,53	2,23	-4,69
Structural change intensity	*0,87*	*0,61*	*0,48*	*0,52*	*0,54*	*0,59*	*1,02*	

Source: Own calculations based on CSO data, The Labour Market in the Czech Republic, 2000.

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Table 3A: The structure of employment according to NACE, North West, Czech Republic 1993, 1Q/2001 (v %)

	1993				2001			
	ČR	NW	KVA	UNL	CR	NW	KVA	UNL
Agriculture, forestry	7,7	5,7	5,3	5,8	4,8	3,2	3,4	3,1
Mining and quarrying	2,6	6,9	6,2	7,2	1,4	3,9	3,7	4,0
Manufacturing	29,7	26,7	26,3	26,9	27,3	25,8	29,2	24,5
Electricity, gas, water	2,0	3,6	3,9	3,4	1,8	2,9	1,9	3,4
Construction	8,7	10,2	8,9	10,7	9,2	9,6	6,8	10,7
Retail trade, vehicle and consumer goods repairs	10,5	10,4	11,1	10,2	12,9	12,1	12,0	12,2
Hotels and restaurants	3,1	2,9	3,9	2,5	3,3	3,3	5,0	2,6
Transport, storage, post, telecommunications	8,0	9,5	8,0	10,1	7,6	8,8	6,8	9,6
Banking and insurance	1,4	1,2	0,9	1,3	2,2	1,6	2,1	1,5
Renting, real estate, business services, R&D	4,5	2,8	2,7	2,8	5,5	4,4	4,1	4,5
Public administration, defence social security.	6,3	4,8	5,2	4,6	7,2	7,8	7,4	8,0
Education	6,5	6,1	5,8	6,1	6,4	5,8	6,2	5,6
Health care, veterinary care and social activities	5,8	6,2	8,3	5,4	6,3	7,4	8,2	7,1
Other public, social and personal services	3,3	3,1	3,4	2,9	4,0	3,3	3,2	3,4

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, 2000.

Table 4A: Unemployment rate, 1993-2000, regions (NUTS 2) and sub-regions (NUTS 3)

	1993	1994	1995	1996	1997	1998	1999	2000
Czech Republic	4,3	4,3	4,0	3,9	4,8	6,5	8,7	8,8
Prague	3,5	2,8	2,5	2,0	2,4	3,3	4,0	4,2
Central Bohemia	4,4	3,8	3,8	3,1	3,8	5,4	8,0	7,5
Sough-West	3,7	3,5	2,8	2,8	3,8	5,1	6,5	6,0
North West	4,7	6,1	6,2	7,4	8,4	10,3	13,3	13,8
Karlovy Vary sub-region	*4,7*	*5,1*	*4,0*	*3,4*	*4,5*	*6,8*	*8,1*	*8,4*
Ústí nad Labem sub-region	*4,6*	*6,5*	*7,1*	*9,0*	*9,9*	*11,7*	*15,4*	*16,0*
North-East	4,0	3,5	3,6	3,6	4,0	5,9	7,7	6,9
South-East	4,3	4,0	3,4	3,3	3,8	5,3	8,2	7,8
Central Moravia	4,5	4,5	4,4	4,3	4,8	6,8	9,6	10,6
Ostrava region	5,8	6,4	5,8	5,2	8,0	10,1	13,0	14,3

Source: Labour Force Sample Survey, CSO, 2001, The Labour Market in the Czech Republic, 2000

Table 5A: Structure of employed persons in the national economy according to employment status, regions, 1993, 1Q/2001 (%)

	1993				2001				
	Employees	Employers	Self-employed persons	Members of production cooperatives	Employees	Employers	Self-employed persons	Members of production cooperatives	*Intensity of change 2001/1993*
ČR	87,0	2,7	6,3	3,7	83,7	4,0	10,7	1,1	*3,3*
Prague	84,7	3,7	11,1	0,3	79,8	3,6	15,7	0,3	*4,8*
Central Bohemia	85,3	2,6	7,5	4,3	81,4	4,7	11,6	1,3	*3,8*
South-West	86,6	2,8	5,0	5,3	83,3	3,9	10,8	1,6	*3,4*
North West	91,2	2,3	4,6	1,6	86,9	3,8	8,8	0,2	*4,2*
North-East	87,7	2,6	6,2	3,1	84,3	3,8	10,0	1,2	*3,3*
South-East	83,5	2,5	6,4	7,2	83,2	4,7	9,7	1,9	*1,7*
Central Moravia	86,3	2,2	5,6	5,5	83,7	3,5	10,8	1,4	*2,9*
Ostrava region	91,7	2,8	3,9	1,5	87,8	3,6	7,7	0,3	*3,8*

Source: Own calculations based on data from Labour Force Sample Survey, CSO, 2001, The Labour Market in the Czech Republic, 2000.

Table 6A: Size and number of industrial companies with 100 and more employees, 2000

		Ústí nad Labem		Karlovy Vary	
		Number of employees	**Number of entities**	**Number of employees**	**Number of entities**
C,D,E	**Industry**	**436**	**159**	**334**	**89**
C	**Mining and quarrying**	**2748**	**5**	**1678**	**4**
D	**Manufacturing industry**	**331**	**147**	**274**	**80**
DA	Food and tobacco industry	305	18	216	10
DB	Textile and clothing industry	342	14	215	12
DC+DD	Leather and woodworking industry	119	5		
DE	Paper and polygraphic industry, publishing	332	9		
DF+DG	Coking, oil refining, chemistry and pharmaceuticals	813	10	328	3
DH	Rubber and plastic industry	163	3	199	3
DI	Glass, ceramics, construction materials	439	14	398	14
DJ	Production of metal and metalwork	268	28	270	10
DK	Production of machinery	276	17	285	5
DL	Production of electrical and optical devices	238	17	266	7
DM	Production of means of transport	427	6	321	5
DN	Manufacturing industry – other	207	6	283	6
E	**Electricity, gas and water**	**977**	**7**	**218**	**5**

Source: Bulletin of the Ústí nad Labem sub-region, 4th quarter, CSO, 2001, own calculations. Average number of employees per one company.

Table 7A: Degree of concentration and difference of the manufacturing industry, value added and employment, 1999

		ČR	PHA	STC	BUD	PLZ	KVA	UNL	LIB	KVH	PAR	JIH	BRN	OLO	ZLI	OVA
Concentration	VA	27,5	33,7	39,2	30,3	31,5	32,8	34,7	36,2	28,9	30,1	31,3	30,9	32,7	33,4	39,2
	EMPL	26,8	29,1	30,6	28,4	28,7	30,7	28,6	32,7	29,9	30,2	29,6	30,4	31,9	28,3	40,2
Concentration *	VA	51,1	66,7	73,4	59,9	69,5	64,1	66,1	67,5	55,4	58,1	62,4	61,6	68,1	62,0	67,1
	EMPL	47,9	54,3	60,4	52,1	56,0	57,2	56,7	62,8	56,6	59,6	55,0	56,4	64,9	53,8	69,0
Difference	VA		21,3	23,1	10,7	12,1	14,6	22,1	27,4	15,1	13,4	15,0	13,2	15,7	23,9	30,0
	EMPL		14,8	15,2	8,6	7,9	16,1	11,0	22,0	14,5	13,4	9,7	9,1	12,6	14,3	30,1

Source: Own calculations based on data of Ministry of Industry and Trade, Panorama of the Czech Industry, 2001. Concentration* = proportion of five largest industries in value added and employment.

Table 8A: Industry structure of value added and employment (%), value added productivity (CR=100), manufacturing, Czech Republic, Karlovy Vary and Ústí nad Labem sub-regions, 1999

Manufacturing industry		Value added structure (%)			Employment structure (%)			Productivity Czech Republic=100		*UNL-KVA*
		ČR	KVA	UNL	ČR	KVA	UNL	KVA	UNL	
15	Food and drinks	13,3	19,2	9,0	11,8	10,2	12,3	146,0	77,5	*-68,5*
17	Textile industry	3,9	6,3	4,1	5,5	7,7	6,6	100,4	105,0	*4,6*
18	Clothing industry	2,0	3,0	1,0	4,4	6,1	3,1	95,4	81,9	*-13,5*
19	Leather industry	0,8	0,3	0,2	1,7	0,8	0,8	83,2	74,6	*-8,6*
20	Woodworking industry	2,7	2,2	1,5	4,2	4,5	3,6	63,1	76,6	*13,5*
21	Production of pulp, paper and paper-board	2,1	0,9	6,8	1,7	1,2	3,7	51,3	174,5	*123,2*
22	Publishing, printing and re-production	3,1	1,5	1,9	2,6	1,7	1,8	62,1	105,6	*43,5*
23/4	Coking and oil refining, chemical industry	7,5	8,1	24,0	3,9	3,2	11,6	118,6	131,0	*12,4*
25	Rubber and plastics industry	5,0	3,0	2,3	4,1	3,4	2,9	63,7	77,5	*13,8*
26	Glass, ceramics, porcelain, construction materials	8,7	17,0	16,8	6,4	20,1	10,0	54,5	148,5	*94,1*
27	Production of metals incl. metallurgy	5,8	2,5	5,3	6,4	1,9	3,9	128,1	184,2	*56,2*
28	Production of metal structures and metalwork	9,6	13,5	9,4	11,0	11,7	13,0	115,3	99,5	*-15,8*
29	Production of machinery	10,5	5,8	6,2	12,2	7,1	9,6	83,5	89,8	*6,4*
30	Production of office machinery and computers	0,2	0,1	0,4	0,2	0,1	0,7	105,3	76,7	*-28,6*
31	Production of electric machinery and devices	6,2	3,5	4,5	6,4	4,9	5,9	63,2	94,9	*31,7*
32	Production of radio, TV and communication devices	1,7	0,7	0,4	2,0	1,5	0,5	46,7	112,3	*65,6*
33	Medical equipment, instrumentation, optics	2,2	2,2	2,0	2,2	1,5	2,3	129,1	108,1	*-21,0*
34	Production of ???, motor vehicles	9,0	3,2	1,0	5,3	4,0	1,5	42,5	48,0	*5,6*
35	Production of other transport machinery	1,4	1,0	1,4	2,0	0,8	1,7	153,9	135,4	*-18,5*
36	Furniture and other manufacturing industry	3,9	6,0	1,1	5,5	7,5	3,6	98,4	53,1	*-45,3*
37	Waste manufacturing	0,3	0,1	0,5	0,5	0,2	0,7	63,4	133,0	*69,6*
D	**Manufacturing industry**	100,0	100,0	100,0	100,0	100,0	100,0	**87,5**	**120,3**	*32,8*

Source: Own calculations based on Ministry of Industry and Trade data, Panorama of the Czech Industry, 2001.

Table 9A : Companies providing continuing vocational education and training by number of employees (%), Czech Republic and regions, 1999

	All	10-19	20-49	50-249	250-499	500-999	1000+
Czech Republic	67,0	56,3	67,3	83,8	95,6	95,5	98,3
Prague	68,8	50,3	64,1	90,9	95,6	80,5	100,0
Central Bohemia	65,1	54,7	64,2	81,3	95,9	100,0	100,0
South-West	66,9	56,9	69,9	77,9	96,7	87,9	100,0
North West	65,0	57,9	60,5	82,7	93,5	100,0	100,0
North-East	65,1	55,9	63,0	86,4	97,2	100,0	97,7
South-East	66,1	56,5	66,7	80,4	97,6	100,0	100,0
Central Moravia	70,3	54,0	79,5	86,9	98,2	100,0	90,9
Ostrava	71,3	65,9	69,2	80,6	88,2	100,0	100,0

Source: Own calculations based on CSO data, CVTS, 2001.

Table 10A: Companies providing training according to NACE and size (%), 1999

		All	10-49	50-249	250 +	PZI
E 40-41	Production and distribution of electricity, gas and water	89,7	79,7	96,5	100,0	7,7
D 34-35	Production of means of transport	87,9	64,9	97,8	100,0	5,6
J 65-66	Finance, insurance	86,1	79,4	93,4	100,0	13,7
I 64	Posts and telecommunications	82,2	78,6	93,3	100,0	11,9
C 10-14	Mineral exploitation and processing	79,5	68,8	88,4	100,0	0,5
D 23-26	Coking, oil, chemistry, rubber, plastics, glass, porcelain	78,7	68,4	93,1	98,5	12,5
J 67	Lending and insurance	77,9	75,6	100,0	-	1,4
G 50	Sales and maintenance of motor vehicles, sales of fuels	77,0	73,8	91,7	90,0	1,6
D 29-33	Machinery and equipment, electric and optical devices	76,5	70,2	81,8	98,3	5,0
K-O 70-74,90-93	Business services, property, renting, other services	73,6	70,6	85,6	90,3	8,0
D 27-28	Production if metals and metalwork	72,9	60,7	96,1	97,6	3,6
I 60-63	Transport	69,8	63,3	87,2	97,6	0,3
D 15-16	Production of food and tobacco	69,7	59,5	76,5	100,0	6,4
F 45	Construction	67,0	61,4	86,9	98,2	1,0
D 21-22	Paper and polygraphic industry	63,7	55,1	84,4	94,7	3,3
G 51	Wholesale except motor vehicles	60,6	58,1	76,6	85,4	8,0
D 17-19	Textile , clothing and leather industry	59,3	44,2	74,4	92,9	1,2
G 52	Retail, consumer goods repairs	57,2	54,6	72,8	94,8	6,2
D 20,36-37	Woodworking industry, other manufacturing, waste management	50,9	42,1	70,3	81,0	1,2
H 55	Catering and accommodation	45,9	39,7	77,2	100,0	1,0

Source: Own calculations based on CSO data, CVTS, 2001, PZI in the Czech Republic, CNB 2000, pp 33 – 35. "PZI" = proportion of the industry in direct foreign investment as at 31 December 1999.

Table 11A: Number of paid hours of CVET per one participant, 1999

	10-19	20-49	50-249	250-499	500-999	1000+	All
ČR	29	25	24	30	34	21	25
Prague	35	23	27	79	28	22	28
Central Bohemia	22	18	24	32	26	15	23
South-West	31	24	26	12	88	19	36
North West	21	23	26	21	15	17	21
North-East	28	25	24	18	18	24	22
South-East	27	19	23	20	25	22	22
Central Moravia	32	29	18	13	20	21	20
Ostrava	42	43	26	20	15	22	23

Source: CSO, CVTS, 2001.

Table 12A: Structure of employed persons in the national economy according to ISCO, 1993, 1Q/2001 (in %)

	White collars, high skills						White collars, Low skills				Blue collars, high skills				Blue collars, low skills				*Change intensity*	*Degree of difference*
	Legislators, senior officials and managers		Scientists and professionals		Technicians, medical personnel and teachers and associated		Low administrative workers, clerks		Service workers and shop and market sales workers		Skilled agricultural forestry workers (and associated disciplines)		Craft and related trades workers		Plant and machine operators and assemblers		Elementary occupations			
	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001	*93/01*	*2001*
ČR	4,4	6,3	9,2	10,8	18,0	19,1	7,4	8,0	10,6	12,3	2,6	1,9	22,9	19,9	13,2	12,8	10,2	7,9	*1,89*	
PHA	5,6	7,7	18,1	22,1	25,4	26,4	10,0	10,0	11,2	11,7	0,3	0,4	14,7	12,3	6,8	4,0	7,3	4,8	*2,29*	*18,29*
CB	4,4	6,8	6,7	8,9	16,3	16,1	7,2	9,1	11,4	12,5	3,0	2,2	23,9	21,5	13,5	13,2	12,0	8,9	*1,88*	*4,23*
SW	4,3	6,3	7,5	7,6	18,5	19,9	7,4	5,9	10,3	12,3	3,8	2,8	21,8	19,8	13,7	15,9	10,2	8,4	*1,74*	*5,10*
NW	4,4	6,0	5,5	7,4	17,7	17,9	8,5	7,9	11,4	12,8	1,7	0,9	25,1	21,4	12,8	14,1	11,8	10,3	*3,25*	*4,90*
KVA	*3,5*	*6,7*	*7,2*	*8,2*	*15,9*	*17,4*	*9,1*	*9,1*	*12,5*	*13,1*	*1,5*	*0,7*	*25,9*	*20,3*	*12,1*	*15,0*	*10,7*	*8,5*	*1,74*	*4,25*
UNL	*4,7*	*5,7*	*4,8*	*7,1*	*18,3*	*18,2*	*8,3*	*7,5*	*10,9*	*12,6*	*1,8*	*1,0*	*24,7*	*21,8*	*13,1*	*13,8*	*12,2*	*11,1*	*2,12*	*5,53*
NE	5,1	6,1	7,5	9,2	16,9	16,6	6,8	8,1	10,7	11,3	3,2	2,3	25,3	21,8	13,4	14,7	10,0	8,8	*1,98*	*4,25*
SE	4,3	5,5	9,6	10,4	17,8	18,0	6,9	8,8	9,8	12,7	3,8	3,0	24,1	20,9	13,0	12,9	9,4	6,8	*2,08*	*2,50*
CM	3,9	5,9	9,4	8,0	15,7	19,2	6,8	6,9	9,6	12,3	2,8	2,3	23,4	20,8	16,5	14,6	10,4	8,8	*2,33*	*3,77*
OVA	3,1	6,0	8,5	11,2	15,3	18,8	6,0	6,4	11,1	13,0	2,0	1,2	24,7	21,2	16,4	13,7	11,3	7,4	*3,02*	*2,57*

Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, CSO 2000. The difference from 100% includes the group of the military.

Table 13A: Structure of employees according to skills categories, 1Q/2001 (in %)

	ČR	±	KVA	±	UNL	±	PHA	CB	BUD	PLZ	LIB	KVH	PAR	JIH	BRN	OLO	ZLI	OVA
WCHC	36,2	*+4,6*	32,4	*+5,7*	31,0	*+3,2*	56,2	31,8	32,8	34,9	27,7	33,5	33,9	28,4	36,5	34,5	31,5	36,0
WCLC	20,3	*+2,2*	22,2	*+0,6*	20,1	*+0,9*	21,7	21,6	18,9	17,6	20,5	17,9	20,2	20,4	22,0	18,8	19,7	19,5
BCHC	21,9	*-3,7*	21,0	*-6,4*	22,8	*-3,7*	12,8	23,8	24,3	20,7	26,3	25,4	20,6	24,8	23,5	23,7	22,4	22,4
BCLC	20,7	*-2,7*	23,5	*+0,7*	24,8	*-0,4*	8,7	22,1	22,8	25,9	24,6	21,8	24,4	25,2	17,2	21,1	25,7	21,0
WC	56,4	*+6,8*	54,6	*+6,3*	51,1	*+4,1*	77,8	53,4	51,7	52,5	48,3	51,4	54,1	48,8	58,5	53,3	51,2	55,5
BC	42,6	*-6,4*	44,5	*-5,7*	47,6	*-4,1*	21,5	45,9	47,1	46,6	50,9	47,2	45,0	50,0	40,6	44,8	48,1	43,4
HC	58,0	*+0,9*	53,4	*-0,7*	53,8	*-0,4*	68,9	55,6	57,1	55,6	54,0	58,9	54,5	53,2	60,0	58,2	54,0	58,3
LC	41,0	*-0,5*	45,7	*+1,4*	44,9	*+0,5*	30,4	43,7	41,7	43,5	45,1	39,7	44,6	45,6	39,1	39,9	45,3	40,5

Note.: The difference from 100% includes the group of the military. Changes from 1993 in percentage points (±). OECD classification, Science, Technology and Industry. Scoreboard of Indicators, 1997, p 56. Source: Own calculations based on Labour Force Sample Survey, CSO 2001, The Labour Market in the Czech Republic, CSO 2000.