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Information society and ICT

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Content

1. Introduction

This paper identifies the innovation potential and effects of information and communication technologies (ICT) influencing the quality and competitiveness of economic entities and the society as a whole. It also analyses problems and constraints in achieving these effects. It covers four topics – analysis of overall characteristics of the information society development, analysis of demand for ICT, analysis of supply on the ICT market, and analysis of utilization of ICT at the corporate level. The analysis is based on examination of opportunities and problems associated with three basic elements of any information system, i.e.: ICT applications (application software and its deployment in national or corporate information systems, whether of a standard of specific character), technological infrastructure of ICT (especially technical equipment, computer networks and security facilities) and ICT services (activities provided to users incl. their content, organizational, personnel and economic resources).

2. Information society

The term information society refers to widespread deployment of information and communication technologies in all types of economic and other human activities. However, this new and rapidly developing area is naturally characterised by significant inconsistency in defining the basic terms and this makes any comparison complicated. The increasing importance of the information society development is reflected in initiatives of the European Union, which created a long-term program called e-Europe. This a strategy for achieving competitiveness of the EU in relation to the USA and Asian countries. Basic cross-sectional indicators in international comparison for the EU-25 (or OECD) countries are used to initially analyze assessment of the information society development and the position held by the Czech Republic in this regard. However, the persisting limited information value and insufficient availability of indicators for individual countries or over time are among the major problems occurring in this context.

2.1 Information society and development in ICT utilisation

Development of the information society (and the information industry) is based on gradual harmonisation of information technologies, communication technologies and information content (information services). ICT industries are significantly influenced by competitiveness of individual countries – their specific character arises from the fact that while these industries as such bring economic effects, they are also a source of growth in other industries. Based on the e-Europe initiative ICT therefore became one of the basic elements of the Lisbon Strategy.

The importance of ICT industries is demonstrated by their share in GDP of the EU, which increased from the initial 4 % at the beginning of the 90's to 8 % in 2000, their share in employment (6 %) and research and development expenditure (18 %). During 1996–2000 labour productivity in ICT industries recorded the average annual increase of 9 %. Furthermore, ICT have a significant impact on increasing productivity in other industries (during 1995–2000 this influence was estimated at 40 %) (see EC, 2002).

Information and communication technologies are becoming an integral part of a wide spectrum of products and services, increasing their useful value (for example in cars, design, banking and other services). They enhance the effectiveness of state administration processes and services provided to individuals and economic entities. Moreover,

ICT provide access to information, knowledge and education to the general public and thus increase the quality of life.

2.2 Information society development in international comparison

ICT applications have spread very rapidly over the last few years and become essential for most economic and social activities. However, their heterogeneity and the cost of their operation and maintenance have increased at the same time. Table 1 presents comparison of the key application areas in individual development stages and the focus of the main monitored indicators of ICT utilisation.

Table 1: Development stages of ICT implementations and performance indices

	Implementation fields	Metrics of use
70.–80. years	Automation of product design, production planning support	Production increase
90. years	Internal integration solutions, support of increase in sales	The better quality and increase in sales
Current state	External integration support, the flexible business processes and products innovations, e-Business methods	The better quality and increase in key performance indicators
Future	e-Health e-Learning e-Security …..	The better quality and increase in key performance indicators, the complex innovations

Source: Own construction.

While development of the information society is assessed from a wide range of aspects, this text will focus mainly on the following: level and basic structure of expenditure on ICT, development of communications, extent of internet use, broadband internet use, utilisation of internet services for personal and commercial purposes, internet use in various types of enterprises, development of electronic business and comprehensive assessment of networked readiness.

Therefore, the main focus is in harmony with worldwide statistics and analysis of the development of a global information environment (especially the internet), the extent and structure of its use or the use of its services in individuals and households, as well as companies and public administration.

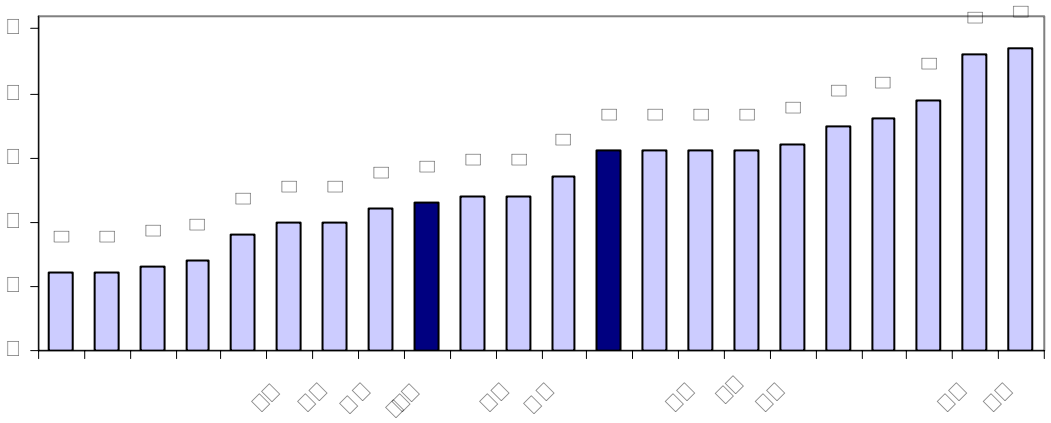
2.3 Expenditure on ICT and communications development

ICT expenditure reached a high level at the end of the 90's and culminated in 2000 in connection with investments in solving problems associated with the transition of information systems to the new millennium. Two years of significant decline followed, partially as a result of the weak economic growth achieved by developed countries. Since 2002, ICT investments have been rising (on the global scale). The EU-25 as a whole falls behind the USA and Japan in their share of ICT expenditure in GDP (6.4 % compared to 7.8 % in the USA and 8.0 % in Japan). There are significant differences between individual EU countries regarding the level of this share, as well as its structure (see figure 1).

The average levels of expenditure on both elements of ICT are virtually equal in the EU-15. The new member states (data for Cyprus and Malta is not available) are characterised by higher expenditure on communication technologies compared to information technologies. This in most cases considerable difference indicates a combination of high in-

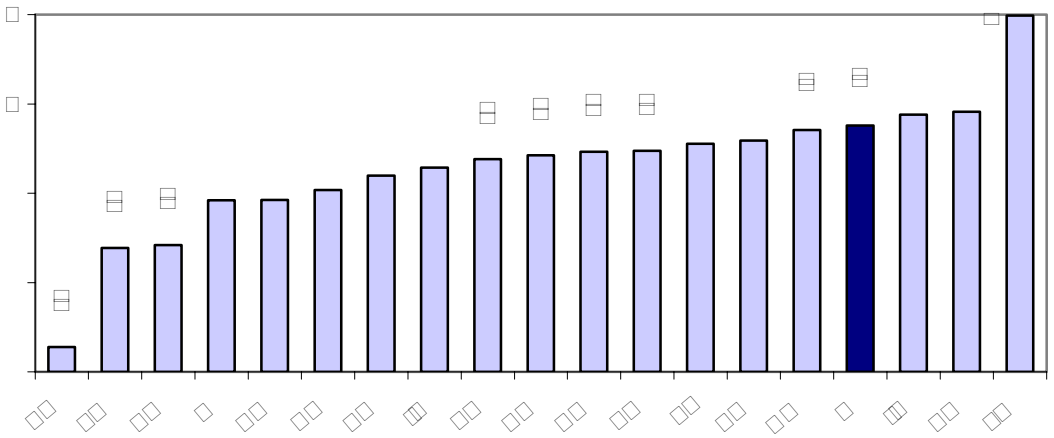
vestment in the creation and development of a modern telecommunication infrastructure and (potential) underestimation of expenditure on information products and services.

Figure 1: Share of information and communications technologies expenditure as a percentage of GDP (2004)



Source: EUROSTAT – New Cronos, Information Society Statistics, to 6.1. 2005.

Figure 2: Mobile phones per 100 inhabitants (2004)



Source: OECD – Telecommunications Database 2005, to 6.1. 2005.

The quality and development of telecommunication networks is currently one of the key factors influencing the economic level and the ability to enter into international business relationships. This includes fixed, as well as mobile communication means. The number of fixed telephone lines is gradually decreasing as they are being replaced by mobile networks. Connection to the digital ISDN network is also giving way to combinations of DSL (Digital Subscribe Line) technologies, mobile services and cable TV modems.

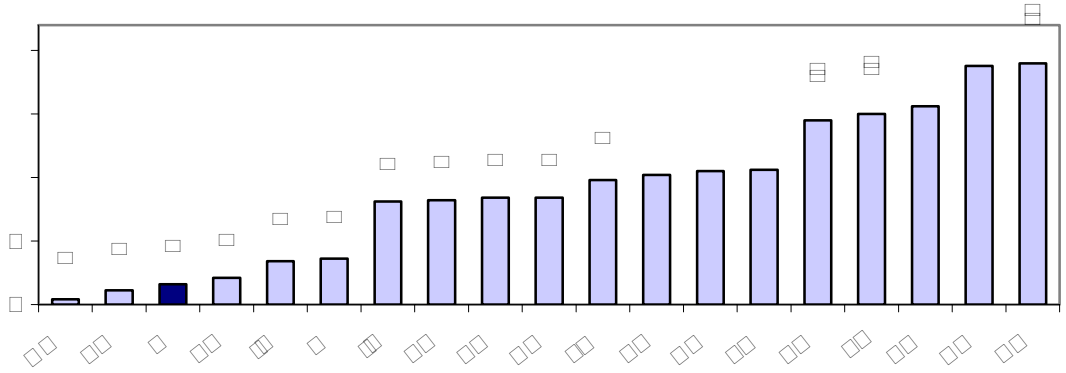
Figure 2 shows the number of mobile phones per 100 residents. Except for the specific case of Luxembourg, most developed countries are within the range from 80 to 95 mobile phones per 100 residents.

The results for the Czech Republic are very positive in this regard, as 95.2 mobile phones per 100 residents places the country among the leading EU states (unlike in the numbers of land lines). The combined year-on-year growth between 1998 and 2003 achieved in the CR is the highest in the EU (24.3 %). However, this growth is

influenced by the very low initial level of mobile phone ownership and similarly high growth was therefore recorded also in Hungary, Slovakia and Poland. The positive results in mobile phones in the Czech Republic are influenced by a range of factors (intense competition among mobile operators, a massive marketing campaign and the population's flexibility in relation to these technologies).

Not only dissemination of mobile technologies is a basis for increasing the economic performance through improved speed and quality of communication processes, but it also creates a significant potential for development of various types of mobile trading. The situation regarding the use of the **broadband internet** in the CR compared to other countries is not as positive.

Figure 3: Number of broadband users per 100 inhabitants (2004)



Source: OECD (2005c).

Figure 3 shows that the utilisation of broadband internet technologies in the CR is currently relatively limited (1.6 users per 100 residents). However, more detailed data on the development in 2004 reveal that in the third quarter the CR recorded the fourth strongest increase out of all monitored countries. It is necessary to point out that wider dissemination of these technologies is not purely a source of internet entertainment (as it generally appears) but also a prerequisite for deployment of business applications, inter-company cooperation, educational programs, management and implementation of research and other initiatives with high demands on information and especially graphics.

The deployment of these types of applications is subject to the level of ICT equipment in households, in particular the use of high-speed internet connections, which is currently influenced by the economic rather than technological factors. This is also the reason behind the current relatively low use of electronic trading applications, i.e. e-Business executing relationships between suppliers and end consumers.

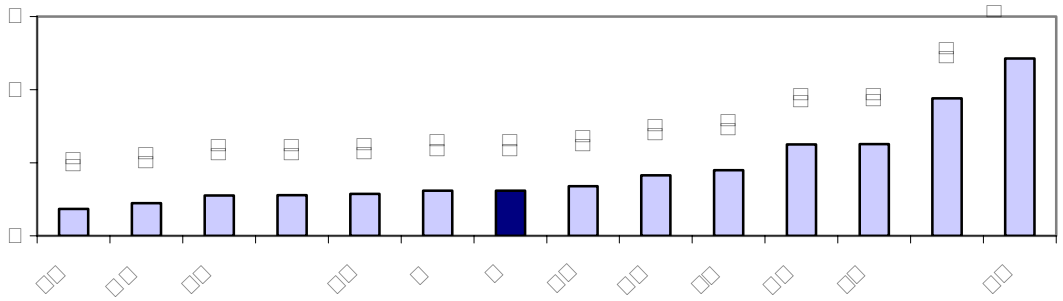
2.4 Internet infrastructure and use

Internet infrastructure and its quality are becoming an increasingly important basis for economic and other human activities, thus influencing the development of the economy and the society as a whole. The internet infrastructure is determined by the extent and number of operated computer connected to the internet (hosts) and the structure of administered domains.

The total of 233 million hosts worldwide was connected to the internet at the beginning of 2004 (compared to 30 million in 1998). There were more than 150 million generic

domains registered for various organisations (generic top level domain – gTLD), of which 100 million accounted for the .net domain and 49 million for the .com domain. The number of connected hosts per 1,000 residents in 2004 is shown in figure 4.

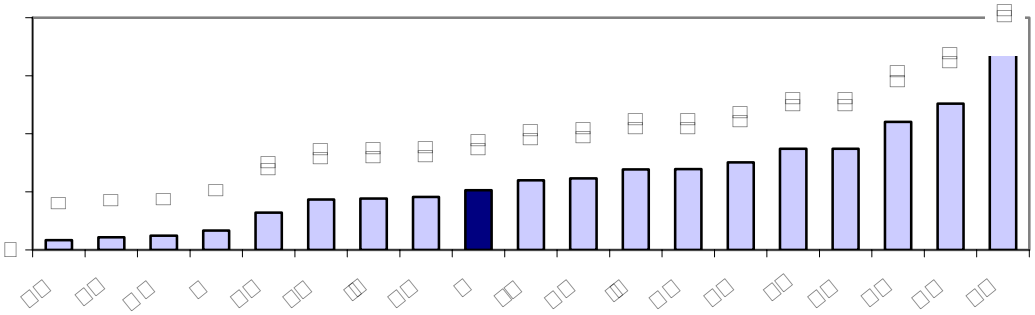
Figure 4: Internet hosts per 1000 inhabitants (2004)



Source: OECD (2005b).

Measuring **real internet use** is naturally very difficult. Numbers of internet users - individual users, as well as households - are used as the basis for these figures. The numbers of internet users in the EU countries per 100 residents in 2004 are shown in figure 5.

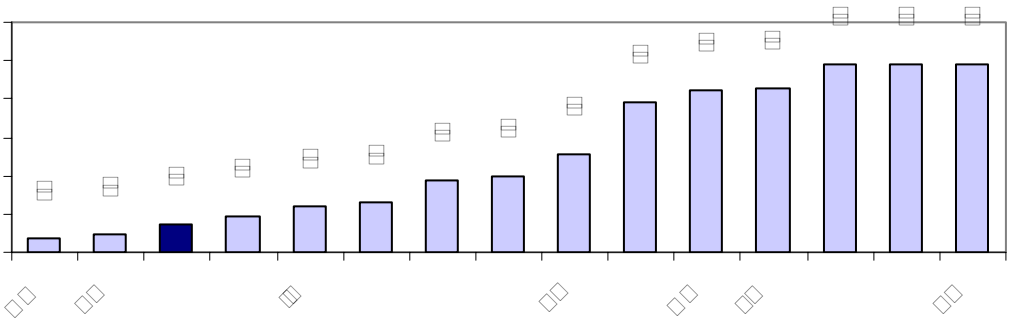
Figure 5: Number of internet users per 100 inhabitants (2004)



Source: OECD – Telecommunications Database 2005, to 6.1.2005.

The Czech Republic (with 4.5 % households with broadband internet) is among the last countries in the EU, falling even behind Poland (8.3 %) and Hungary (5.8 %). This undesirable position caused by the current pricing policy in the CR and a lack of preparedness in the population will subsequently mean a relatively slow growth of more demanding e-Business applications and other applications based on these technologies.

Figure 6: Commercial use of the internet as a percentage of adults (2004)



Source: EUROSTAT (2005b).

The internet infrastructure offers a range **of services and applications** and the level of their utilisation nowadays influences the performance of individuals, as well as entire organisations. These services include especially electronic mail, internet telephony, business activity oriented information services provided by www applications, communication between residents or enterprises and the state administration, etc. For example, the e-mail service was used in the CR in 2004 on average by 27 % of the adult population. Rapid increase can therefore be reasonably expected in this regard.

Searching for information on products and services offered is clearly the most frequently used business oriented internet service for residents (see figure 6). This service is widely used by the adult population especially in Scandinavian countries and Germany. In addition, the internet banking services are also in high demand in these countries.

Table 2 documents significant differences between the CR and other developed countries in various forms of internet use. This is not due to a lack of business applications on the Czech market, but mainly due to the prevailing doubts in the population regarding the security of these applications, insufficient qualification of the general public and the previously presented differences in the presence of high-quality broadband connection mainly in households.

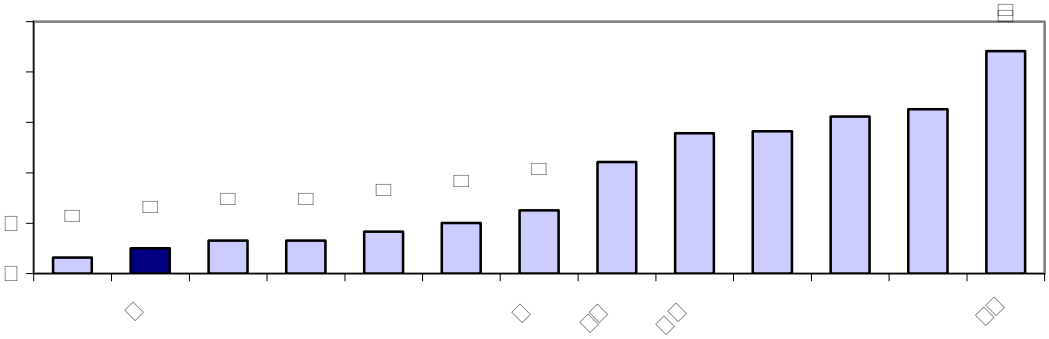
Table 2: The use of internet as a percentage of adults (2004)

	Products information	Purchases/ orders	Banking services
Czech Republic	17.3	5.2	4.9
Finland	58.8	26.0	50.3
Germany	52.2	31.9	26.4
Poland	14.7	3.8	4.0
Austria	35.7	13.4	18.3
Sweden	59.3	26.6	40.3
Great Britain	49.2	30.5	22.4

Source: EUROSTAT (2005b).

Internet job searching is among highly sought-after services in many EU countries. The use of this service is documented in figure 7. Although the use of this service in the CR is currently at a very low level, common practice suggests that a rapid increase in the use of this service can be expected owing to the high quality of www servers in this area.

Figure 7: The use of internet in the job seeking as a percentage of adults (2004)



Source: EUROSTAT (2005b).

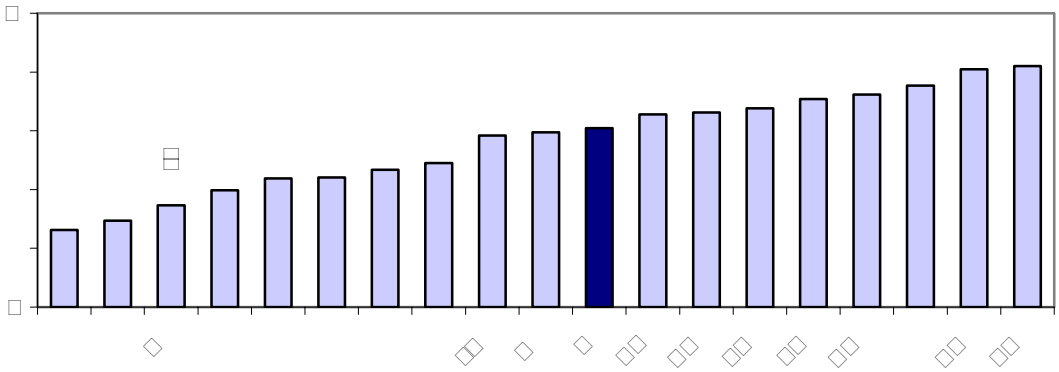
The use of the internet and internet services at the corporate level takes various forms – from the basic types of services (electronic mail and use of a range of information sources) to e-business applications (electronic shop, electronic supply, etc.). While the

level of readiness in Czech companies is relatively high, the main problem lies in the insufficient readiness on the consumer site.

Distribution of web servers, regardless of whether they are users' own www servers or whether they are provided through web hosting, is an especially important factor in assessing the expected development of e-business applications. Scandinavian countries are once again ahead of all other countries with over 70 % equipped firms with more than 10 employees. The Czech Republic achieved a result equal to the EU average - 61 % (see figure 8).

The use of internet services at the industry level is relatively balanced. The banking and insurance industries traditionally hold the strongest position in this regard, which is in correspondence with their usual extent of clientele. On the other hand, these services are used less in retail and production industries. Excluding retail (82.4 %), the Czech Republic records the internet use in more than 90 % firms with 10 or more employees in all industries.

Figure 8: Companies with own websites (%, 2004)



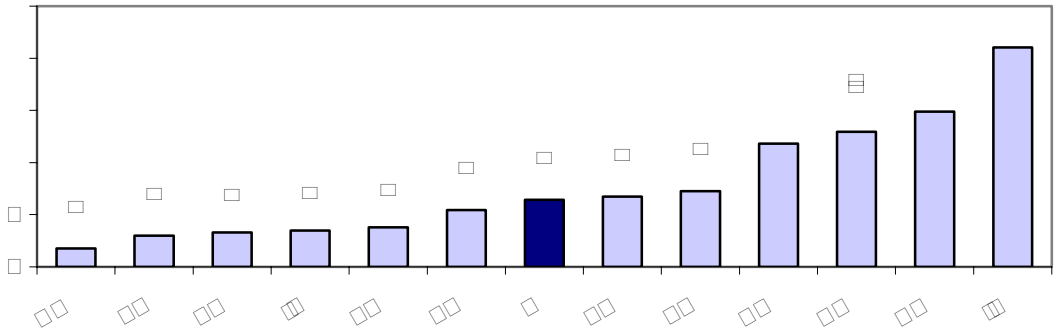
Source: EUROSTAT (2005b).

The level of electronic business is an essential factor for competitiveness of most companies. These applications are currently a necessity rather than an advantage. They include solutions for corporate business applications in relation to end consumers (B2C – Business-to-Consumer), and especially electronically executed business relations between two economic entities (B2B – Business-to-Business).

The share of electronic transactions in the overall turnover of companies in most European countries is rising. The share of internet sales in the overall turnover of companies ranges in individual countries between 0.4 and 13 %. Common problems associated with internet sales not only in the CR include unsuitability of certain products for this type of sales (for example food, clothing, etc.), logistic problems and consequent delayed delivery of goods, and consumer doubts regarding the security of business operations. On the other hand, positive aspects include not only the availability of information and opportunity to compare a range of offers, but also generally lower prices provided by internet shops compared to conventional shops.

Figure 9 documents the share of electronic trade in the overall turnover of companies in selected European countries. The figure shows the relatively good position held by the Czech Republic and especially the potential for further rapid growth in these applications arising from the technological infrastructure development.

Figure 9: Share of e-business in the total companies revenues (%, 2004)



Source: EUROSTAT (2005b).

Significant differences in internet purchases and sales between individual industries are clearly noticeable. The construction industry records a relatively low share of internet sales in most countries (however, this is due to the generally lower dissemination of ICT in this industry).

2.5 Networked readiness

Dissemination and use of information and communication technologies is conditional on a range of mutually interconnected qualitative and quantitative prerequisites, which range from the institutional and technical infrastructure to the input and output of innovation activities. The Networked Readiness Index applies a comprehensive approach to assessing positions of countries in the development of information and communication technologies. The index is determined and published with the aim to highlight the complexity and diversity of factors influencing the development of ICT in individual countries and thus support qualified decision making at the macro and microeconomic level in the dissemination and use of ICT, including implementation of effective supporting policies. The Networked Readiness Index sees information and communication technologies as a key factor in development of countries as they facilitate fast and effective communication at all levels and simultaneously create an infrastructure for commercial transactions and competent and effective public services. Government policies and development concepts support an increase in the ICT penetration and reduction of digital division; customs barriers are being eliminated and competition strengthens and this stimulates private investment in ICT.

The Networked Readiness Index is published in the annual publication of the World Economic Forum dedicated to information technologies (Global Information Technology Report). The index is defined as the level of preparedness of a country or a region for participating in or deriving benefits from the development of information and communication technologies. The index is based on a combination of soft and hard data obtained from a wider spectrum of sources (including the WEF annual publication on competitiveness), and includes three basic pillars (components) or networked readiness – an environment for development of information and communication technologies, networked readiness of the three key groups of entities (individuals, companies and the government) and the actual utilisation of ICT by these entities.

The structure of the index is based on three premises; firstly on differentiation between three groups of entities concerned in the development and use of ICT, secondly on the importance of the general macroeconomic and regulatory framework, in which individ-

ual types of entities play their specific roles, and finally on the relationship between the level or utilisation (and consequently also effects) of ICT in individual types of entities and the level of their readiness for using ICT and their ability to attain related effects of this utilisation. In 2004, the index summarised the networked readiness in 104 countries. The total of 51 variables is monitored and divided into nine sub-indexes. Aggregate values are expressed as non weighted averages and results for individual countries are compared against the overall assessment of their competitiveness and the achieved level of economic development (in GDP per capita). The regional aspect of the networked readiness index is also differentiated according to groups of countries.

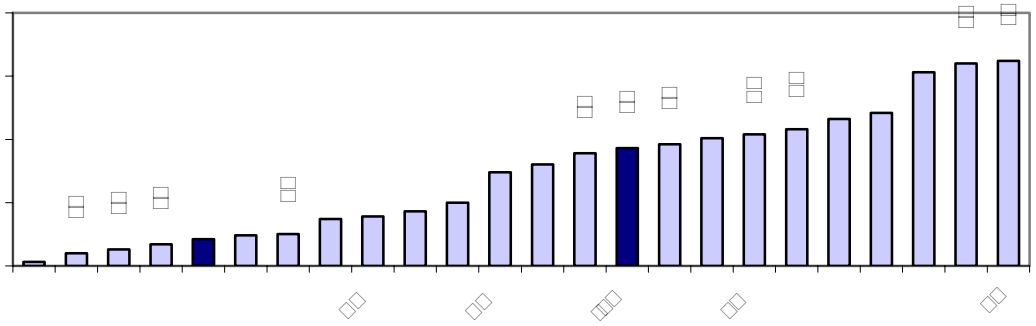
The environment component assesses the support provided by the country for the development and utilisation of ICT from three individual aspects – the market environment (availability of human resources and corporate services for the development of knowledge-based economy, quality of the institutional environment, external openness and overall macro-performance), the political/regulatory environment (quality and impact of policies, laws and regulation on the ICT development and utilisation) and the infrastructure environment (availability and quality of infrastructure for access to ICT).

The readiness component measures preparedness of the key players for making use of the potential of ICT. This ability reflects a combination of many factors including individual skills vital for ICT utilisation (level of literacy, type and location of internet access, degree of individual connectivity), availability of and access to ICT for companies (ICT utilisation efforts and investment in employees' ICT skills) and the use of ICT in services and processes implemented in the public sector (creation of policies, internal decision-making processes, online availability).

The ICT utilisation component again assesses its level according to the three key entities. When the availability of data describing a specific impact of ICT on these entities is limited, changes in behaviour or lifestyle and other economic and non-economic benefits of ICT utilisation are monitored. Internet use for various types of activities and availability of telephone lines are among the major indicators monitored in individuals. In the case of companies, attention is paid to ICT interconnection between individual companies and between companies and their customers, ICT use for corporate activities and the extent of online transactions. The success of ICT support and the availability and use of online public services are assessed in the governmental sector.

The best results in the overall assessment of networked readiness (see figure 10) in the EU-25 were achieved by the three Scandinavian countries. The group of new member states lags behind the EU-15 average (0.18 compared to 0.93) quite significantly. Estonia holds the best position out of the new member states. Assessment of the three basic networked readiness indexes in the EU-25 is the best on average in the use of ICT, followed by the environment for ICT, and the readiness for ICT comes last, significantly lagging behind the previous two indicators. While the environment for ICT in the new member states receives the worst assessment (mainly due to the negative assessment of the institutional quality characteristics), the EU-15 achieves the best results in this aspect. The poorer results in the readiness compared to the use of ICT in the EU-25 suggest insufficient skills and capacity for adjusting to the future demands in this area. While the government's readiness for ICT and the level of ICT use in the governmental sector are the weakest points of the EU-25 in the individual sub-indexes, the use of ICT at the individual and corporate levels receives the best assessment.

Figure 10: Network readiness index (2004)



Source: WEF (2004).

The Czech Republic's position in the EU-25 is not very positive; the average results place the country in the 19th place. Similarly to the EU-25, the CR achieved the worst results in the use of and readiness for ICT in the governmental sector and in the standard of the market environment. On the other hand, the best results were achieved in the ICT used by individuals and companies. With the exception of the ICT use in companies, the CR lags behind the EU-25 average in all monitored indicators and the assessment in four of these indicators even falls short of the EU-10 average.

3. Demand for ICT

The analysis of development in the demand on the ICT market studies the situation in the Czech Republic in greater detail, including the context of demand in Central and Eastern European countries. The demand for ICT in this region has experienced some positive changes in the last few years and these changes can be used as the basis for expectations for the future development over the next approximately five years. Materials produced by the analytical company IDC, which can be currently considered the most up-to-date and comprehensive data, are used as the basis for assessing the demand.

3.1 General status of demand for ICT

Over the last few years, ICT expenditures in the CR and other new member states have been rising very dynamically and the year-on-year growth in 2004 reached 21 %. This positive development was influenced especially by the following factors:

The current economic growth and the high level of direct investment reflect in investments in production of information technology components (computers and communication and controlling elements). This growth is linked with the development in financial services and various insurance services and in electronic and mobile services in banking. Liberalisation and privatisation of telecommunications stimulate especially projects focused on the development of services provided by telecommunication operators, including services supporting the expansion of mobile business.

The small and medium size enterprise sector is experiencing a significant growth in expenditure on ICT. Projects of this segment represent the main item in the demand for infrastructure and software.

Investment in technical facilities in the CR and other Central European countries has increased significantly (the total increase by 25 % compared to 2003, the sales of per-

sonal computers have increased by 29 %). The prevailing focus of expenditures on hardware and infrastructure is due to the specifics of the period in question, which was characterised by high demands on upgrade of the existing infrastructure or creation of a completely new technological infrastructure in newly established companies and branches of multinational companies.

3.2 Demand for applications and application software

The share of application software in Central and Eastern European countries remains relatively low compared to Western Europe (around 15 % of the total expenditure). The demand in this segment comprised mainly ERP corporate systems (Enterprise Resource Planning) and other types of applications were present to a limited extent only (electronic business, mobile business, applications for corporate content management, applications and tools for optimisation or reengineering of corporate processes and others). Nonetheless, we can conclude that the Business Intelligence applications and the related data storage, data markets, tools for transformation and cleaning data and tools for extraction of data increased in the CR in 2004 by 22 % compared to 2003.

3.3 Demand for services

In 2004, the sales of ICT services in the new EU member states recorded a year-on-year growth by 16.2 %. This is owing to the continuously increasing customer interest in outsourcing, not only at the level of information system development (as it was the case in the past), but also in information system operation or implementation of total outsourcing, i.e. a complete supplier solution of the ICT development and operation. Outsourcing of implementation services has retained its top share (51 %). However, the share of operational outsourcing in these services is very small (7 %), despite the significant growth recorded in this area (21 %). This situation is due to a certain lack of user faith in safety of the operation and reliability of supplier firms in operating services.

3.4 Expected development in demand for ICT up to 2009

The Czech Republic (together with other Central European countries) can expect that following the dynamic development of the basic infrastructure the demand will focus on comprehensive software solutions and applications with a significant impact on the development of corporate processes and the standard of company management. These application categories typically include comprehensive corporate applications (ERP II), customer relations management applications (CRM), e-Business, Business Intelligence and mobile business systems) and other so-called applications with added value. We can also expect higher demand for comprehensive infrastructure solutions, especially in ICT security and ICT management systems.

Generally, the year-on-year growth of ICT markets in Central and Eastern European countries is expected to be around 14 % during 2004–2009. The fastest growth can be reasonably expected in mobile services including development of mobile business (approx. 28 %). The market with ICT services is expected to grow by 16.9 % during the same period and the annual sales in these countries at the end of this period will be around USD 13 billion.

4. Supply on the ICT market

The analysis of supply on the ICT market draws from information sources describing especially the spectrum of this supply on the Czech information market. The overview of products and services offered by 172 major ICT companies in 2004 was used for these purposes.

4.1 Supply of ICT services

Services represent the largest segment in the ICT market supply and this also corresponds with the demand trends described above. The current supply of ICT services is characterised by a relatively wide spectrum and comprehensiveness. Table 3 shows the distribution of individual service types among 172 major companies in 2004.

Table 3: Services offered by the best ICT suppliers (2004)

	Number	% in the total of suppliers
Systems integration	105	61.1
Implementations	120	69.8
Outsourcing	98	57.0
Operation services	41	23.8
Support and maintenance	131	76.2
Service	118	68.6
Consultancy	127	73.8
Training	113	65.7
Internet providers	9	5.2
ASP	50	29.1
Data processing	44	25.6
Network design	52	30.2

Source: Fat'un (2005), own calculations.

The structure of services provided has undergone some significant positive changes over the last few years, including especially the following:

- Support and maintenance (76 %) and advice or consultancy (74 %) are the most frequent services offered by Czech ICT firms,
- Implementation services hold a very strong position (70 %). This segment includes implementation of standard application packages and development services, which overall also corresponds with software supply,
- The supply of system integration services on the Czech market is currently extensive. In 2004, 105 of the 172 monitored firms, i.e. 61 %, provided these services. However, individual firms have different understanding of this service and their system integration services range from comprehensive information system solutions to solutions of individual integration tasks at the technological level. This may lead to certain distortion of the supply data,
- Similarly to system integration, the supply of outsourcing services is very strong (57 %). However, the concept of outsourcing is also important in this regard as it can range from outsourcing of development to total outsourcing,
- A surprising growth occurred in the supply of ASP services (Application Service Provider). The growth in 2004 was 29 % compared to approx. 10 % in the previous years. This is due to relatively recent introduction of this service on the market and its very limited supply.

4.2 Supply of ICT applications, software

Application software (i.e. standard or custom-developed software) is clearly the most widespread type of supply, corresponding also with the demand trends. This also means that:

- Corporate application suppliers (currently mainly suppliers of ERP or comprehensive ERP II systems) account for the largest share (approx. 50 %). The data on ERP or other systems on offer clearly show that standard application packages (mySAP Business Suite, Oracle e-Business Suite, Axapta, Navision and others), i.e. mainly foreign application systems, prevail in this group,
- The relatively large share of providers of custom-developed software (44 %) documents the increasing demand for this type of services,
- However, producers of their own basic software represent a negligible fraction.

5. ICT at the corporate level

Development of informatics at the corporate level is always conditional on priorities, current needs and organisational, financial and qualification resources of companies. The assessment of selected aspects of the ICT use at the corporate level pays special attention to ICT in small and medium size enterprises (SME).

5.1 Problems in development and use of ICT at the corporate level

Maximising the effects or effective use of ICT in a particular company and achieving the required support for the company's competitiveness is the basic objective pursued by managements when investing in these technologies. However, the actual outcome is subject to many factors whose character and weight differs greatly from case to case. Rather than being of a technological character, these factors depend mainly on the corporate culture, standard of human resources, and in general on the entire corporate IT management system.

Until recently, infrastructure solutions, in particular projects in system infrastructure, ICT security and system management, have been a priority. From the point of view of the objectives of ICT use projects of this type are mainly security-oriented but do not produce any significant competitive advantages. However, they create necessary conditions and environment for development of other, new applications, such as the above mentioned electronic and mobile business applications, SCM and others, which will bring these effects.

5.2 ICT in small and medium size enterprises

With regard to corporate ICT, attention is paid to information systems for small and medium size enterprises. Smaller enterprises tend to have simple and clear organisational structures allowing direct management and supervision and therefore also lower cost of company management and operation. This is exactly where the potential of SME collides and acts in synergy with the potential of ICT. The focus is especially on basic ERP corporate solutions owing to the specific situation of these enterprises. Information systems at this level are smaller compared to those of large organisations and as such do not require as strong infrastructures. On the other hand, the level of availability of standard integrated applications was insufficient.

ERP solutions are not the only option available to customers from the SME segment when deciding about the manner of securing their information systems. Suitability and adjustment of ICT products are not the only requirements in the ERP category for SME. Implementation of these products in the conditions of SME is inevitably associated with changes and the implementation methodology including the approach of the supplier's consultants must be adjusted. This is because smaller enterprises are characterised by many specifics compared to their larger counterparts. These include especially the requirement for lower prices, shorter implementation periods and increased pressure on deriving benefits from the solutions. The fact that the implementation periods have been reduced significantly over the last ten years is a positive factor for SME.

Smaller enterprises often lack specialised ICT know-how and the time specialists can dedicate to ERP projects tends to be limited. Nonetheless, managerial function centralised in the hands of one or few managers allows flexible response to the rapidly changing conditions of the market environment.

6. Conclusion

Development of the information society in the Czech Republic is characterised by significant differences in individual areas of the information society. The Czech Republic ranks as the seventh country in Europe according to the overall extent of ICT investment. However, the second side of the coin is the problematic structure of these expenditures as the best part of this investment is intended for telecommunications. This situation is demonstrated in the position of the CR with regard to development of mobile networks and number of mobile phones per capita, where the CR holds the fourth place in Europe in the absolute numbers and the first place in the growth rate. On the other hand, the number of broadband internet users places the CR among the last countries in the EU-25. Searching for information on products and services offered is clearly the most frequently used business oriented internet service for residents. While approximately 80 % of the adult population in Scandinavian countries and Germany makes use of this service, the same figure for the Czech Republic is just under 18 % and this places the country among the last countries in Europe. Internet banking is another example of an extensively used service in this area. The position of the CR is once again highly undesirable. Similarly to the previous example, great differences between the CR and other EU states occur in communication with the public administration (5 % only in the CR compared to 45 % in Finland). In contrast, corporate internet use in the CR is considerably more widespread and the number of connections and users' own web pages place the country in the first half of the EU-25 countries. Information services as special goods or as a value added to the basic products in Czech companies and state institutions are gradually becoming a part of business, including international activities. The share of ICT products in the overall trade in the Czech Republic accounts for 13 %, which is a figure at the average EU level.

From the perspective of the level and structure of the demand on the ICT market the Czech Republic is experiencing a significant year-on-year growth but the current absolute volume remains below the EU standard. What's more, the demand for products of the ICT infrastructure, i.e. technical equipment, networks and basic software, is currently the strongest. On the other hand, the demand for applications (with the exception of standard corporate systems) and especially services is significantly lower than in other EU states. This is associated with the problem of the structure, priorities and especially effective use of resources invested in ICT. The demand for applications that bring a new quality into information systems at various organisational levels, such as electronic and mobile business projects or comprehensive analytical tasks, is lower than in other EU countries. However, as the market has gradually become saturated with the basic products, significant changes in investment priorities can be expected despite this relatively adverse structure of the demand and this development could take place within the next few years. The demand for ICT is expected to grow by approximately 14 % over the next few years and the demand for services should growth at the highest rate.

Very dynamic development can be observed in the supply on the ICT market as most foreign leading companies are present on the Czech market and offer the full range of technologies, application software and associated services. Czech companies are under a very strong competitive pressure, which simultaneously brings about their rapid development. This development is reflected in increasingly intense penetration of advanced foreign markets, including the USA by Czech ICT companies. The supply of applications and infrastructure products is associated with an extensive offer of mainly imple-

mentation services of varying quality. The latest studies carried out in the Czech Republic have shown their increasing standard.

According to the latest information and experience, the Czech Republic is experiencing some specific problems at the corporate level and all of these problems typically have a common cause – the standard of management of information technology and information services and understanding and the concept of the role of information technology in management of companies or organisations. This brings about situations when for example fast and appropriate use of the potential of new ICT applications is not implemented comprehensively and partial solutions with a low level of mutual integration tend to be applied instead. Information services in the commercial sphere are only now gradually seen as a special commodity or as a value added to the basic products. Especially the spectrum of deployed and operated applications must be in line with this development. The volume of information services remains insignificant compared to developed countries. Over the last few years, infrastructure solutions, in particular projects in system infrastructure, ICT security and system management, have been a priority. As the extent and complexity of corporate information systems increases, it is crucial to understand the determination of information directors to minimise any risks associated with system failures or attacks and operational errors.

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