

Sector Report: No. 10-I (July 2005)

*ICT and Electronic Business in the
IT Services Industry*

Key issues and case studies

*e-business
w@tch*



European
Commission

Enterprise & Industry Directorate General

The e-Business W@tch

The European Commission, Enterprise & Industry Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union, EEA and Accession countries. Since January 2002 the *e-Business W@tch* has analysed e-business developments and impacts in manufacturing, financial and service sectors. Results are continuously being published on the Internet and can be accessed or ordered via the Europa server or directly at the *e-Business W@tch* website (www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm or www.ebusiness-watch.org).

This report is the first Sector Impact Study on electronic business in the IT services sector published by the *e-Business W@tch*. It builds on previous e-business studies in the ICT services sector from 2003 and 2004. This study focuses on specific issues which were found to be particularly relevant for the sector at stake and features case studies on how companies use ICT for conducting business in this industry.

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Acknowledgements

This report was prepared by Berlecon Research on behalf of the European Commission, Enterprise & Industry Directorate General. It is a deliverable in the context of the *e-Business W@tch*, which is implemented by a team consisting of empirica GmbH (co-ordinating partner), Berlecon Research, Databank Consulting, DIW Berlin, Lios Geal Consultants, RAMBØLL Management and Salzburg Research, based on a service contract with the European Commission.

e-Business W@tch would like to thank Mr Axel Pols, BITKOM (German Association for Information Technology, Telecommunications and New Media), and Mr Gerrit Tamm, University of St. Gallen, for reviewing the draft report and providing valuable comments and suggestions. Mr Pols and Mr Tamm are members of the *e-Business W@tch* Industry Advisory Board in 2005.

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Bonn / Brussels, 2005

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Introduction to the *e-Business W@tch*

e-Business W@tch – observatory and intermediary since late 2001

The European Commission's *e-Business W@tch* monitors the adoption, development and impact of electronic business practices in different sectors of the economy in the enlarged European Union. The background of this initiative was the eEurope 2002 Action Plan, which provided the basis for targeted actions to stimulate the use of the Internet for accelerating e-commerce, acknowledging that "*electronic commerce is already developing dynamically in inter-business trading*" and that "*it is important for SMEs not to be left behind in this process.*" The eEurope 2005 Action Plan confirmed and built further upon these objectives with Action 3.1.2 "A dynamic e-business environment", which defined the goal "*to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models*".

It is against this background that the European Commission, Enterprise & Industry Directorate General, launched the *e-Business W@tch* in late 2001. The objective of this initiative is to provide sectoral analysis based on empirical research, including representative enterprise surveys in countries of the European Union, the EEA and Accession States, with special emphasis on the implications for small and medium-sized enterprises (SMEs).

Since its launch, the *e-Business W@tch* has published more than 50 e-Business Sector Studies on 17 different sectors of the European economy, three comprehensive synthesis reports about the status of electronic business in the European Union, two statistical pocketbooks and various other resources (newsletters, special issue reports, etc). These are all available on the website at www.ebusiness-watch.org.

The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on regular representative surveys among decision-makers in European enterprises. The 2005 survey covers more than 5000 enterprises from 10 different sectors across 7 EU member states. In addition, more than 70 case studies on e-business activity in enterprises from all EU, EEA and Accession countries are carried out, to complement the statistical picture by a more detailed analysis of current e-business practices.

Survey results of the previous years have confirmed the initial assumption and rationale of the *e-Business W@tch* that the sector in which a firm operates and the size of a company, rather than its location, are the main determinants of its e-business activity. The large demand for the various publications and statistics provided by the *e-Business W@tch*, and their exploitation by other research institutions (for example, in the EITO Yearbook 2003 and in the OECD Information Technology Outlook 2004), document the demand for sectoral e-business analysis. Facilitated by positive responses and the growing interest in its analysis, the *e-Business W@tch* is increasingly developing from an observatory into a think-tank and intermediary, stimulating the debate about the economic and policy implications of e-business among stakeholders at an international level.

The wide-angle perspective: *e-Business W@tch* provides the "big picture" as a basis for further research

The mission of the *e-Business W@tch* is to present a "wide-angle" perspective on e-business developments and practices in the sectors covered. This has important implications regarding the level of detail in which various issues can be explored, both in terms of the quantitative picture (survey) and in terms of the qualitative assessment and background research.

Over the past 10 years, "*electronic business*" has increased from a very specific to a very broad topic to be studied. The OECD proposes a definition of e-business as "*automated business processes (both intra-and inter-firm) over computer mediated networks*". This definition is useful as it makes clear that

e-business is more than e-commerce (which focuses on commercial transactions between companies and their customers, be it consumers or other companies) and that e-business includes internal processes within the company as well as processes between companies. Furthermore, the OECD definition implicitly indicates that the focus and main objective of electronic business is to be found in business process automation and integration, and the impacts thereof.

This implies that the potential scope for e-business analyses has also broadened. The measurement of e-commerce transactions (the volume of goods and services traded online) can and should be complemented by studies analysing the degree to which business processes, including intra-firm processes, are electronically linked to each other and have become digitally integrated. Hence, it becomes practically impossible to cover in depth all areas and facets of e-business in one study. Thus, study scope needs to be carefully defined.

The *e-Business W@tch* Sector Studies apply a wide-angle perspective and zoom into selected aspects of electronic business only. In general, studies with a wide-angle approach allow for a wider range of issues to be covered and investigated at the same time. This, however, necessarily limits the level of detail in which each single issue is explored. This must be considered when using the Sector Studies prepared by the *e-Business W@tch*.

The role of economic analysis in the Sector Reports

In addition to the analysis of e-business developments, the *e-Business W@tch* Sector Studies also provide some background information on respective sector. Following the configuration of the sector (on the basis of NACE Rev. 1.1 classification) at the introduction of each study, this overview includes some basic industry statistics, as well as information about the latest trends and challenges concerning the specific sector. Readers should not mistake this background information, however, as the main topic of analysis. An *e-Business W@tch* "sector report" is not a piece of economic research on the sector itself, but a **study focusing on the use of ICT and e-business** in that particular sector. The introduction to the sector is neither intended to be, nor could it be a substitute for more detailed and specific industrial analysis.

The data presented in each sector's overview are mainly derived from official statistics prepared by Eurostat, but are processed and refined by DIW Berlin. The purpose is to close the many gaps that occur in the official statistics, with missing data being imputed on the basis of extrapolations and own calculations.

The **mission** of the *e-Business W@tch* is to monitor, analyse and compare the development of e-business in different sectors of the European economy – not the sectors themselves.

Its **objective** is to provide reliable results, based on commonly accepted methodologies, which are not readily available from other sources and would trigger the interest of policy-makers, researchers, and other e-business stakeholders for more in depth analyses (or statistical surveys).

The *e-Business W@tch* has adopted a "wide-angle" perspective in its **approach** and the necessary trade-offs are transparently depicted in all its deliverables.

The definition of sectors and the adequate level of aggregation

Economic sectors constitute the main level of analysis for *e-Business W@tch*. In 2005, the sample consists of ten sectors. Their configuration and definition are based on the NACE Rev. 1.1 classification of business activities.

The rather broad aggregation of different business activities into sectors in 2002-2004 made it possible to cover a broad spectrum of the economy, but also caused some challenges for the analysis of e-business developments. For instance, it was hardly possible to focus on individual sub-sectors in much detail within a single sector report. The selection and definition of sectors proposed for 2005 reflect these concerns. Six out of the ten sectors proposed are sub-sectors that were part of

(aggregated) sectors analysed in 2002-2004. The rationale for "zooming in" on former sub-sectors is that the broad picture for the whole sector is now available from previous sector studies, and that this seems to be the right time within the prospective life-cycle of the *e-Business W@tch* to focus the analysis on more specific business activities.

The 10 sectors covered in 2005 were selected on the basis of the following considerations:

- The current dynamics of electronic business in the sector and the impact of ICT and electronic business, as derived from earlier *e-Business W@tch* sector studies.
- Interest articulated by the industry in previous years on studies of this type.
- Policy relevance of the sector from the perspective of DG Enterprise & Industry.
- Roll-out strategy of 2003: New sectors (not covered in 2002/03 and/or 2003/04) have been added, as well as specific industries which have only been covered as part of a larger sector in the past

In 2005, the *e-Business W@tch* will also deliver four cross-sector studies. These Special Reports will focus on a particular e-business topic of interest across different sectors rather than on a single sector.

The 10 sectors analysed in 2005

The 10 sectors which are being monitored and studied in 2004/05 include seven manufacturing, construction and two service sectors. Four of these sectors have been covered in the previous years of implementation, while the other six were covered as well, but as part of (aggregated) sectors analysed in 2002-2004.

Exhibit: Sectors and topics covered by *e-Business W@tch* in 2005

	Sector Studies	NACE Rev. 1	Publication date(s) *	
1	Food and beverages	15	July 2005	Sep. 2005
2	Textile industry	17, 18	July 2005	---
3	Publishing and printing	22	July 2005	Sep. 2005
4	Pharmaceutical industry	24.4	July 2005	Sep. 2005
5	Machinery and equipment	29	July 2005	Sep. 2005
6	Automotive industry	34	July 2005	---
7	Aerospace	35.3	---	Sep. 2005
8	Construction	45	July 2005	Sep. 2005
9	Tourism	55, 62.1+3, 92.3+5	---	Sep. 2005
10	IT services	72	July 2005	Sep. 2005
Special Topic Reports				
A	A User's Guide to ICT Indicators: Definitions, sources, data collection		July 2005	---
B	International Outlook on E-Business Developments		July 2005	---
C	E-Business Standards and Interoperability Issues		---	Sep. 2005
D	ICT Security and Electronic Payments		---	Sep. 2005

* There will be 1 report (in 2005) on 4 of the 10 sectors, and 2 reports on the other six.

Executive Summary

Sector definition

This report analyses electronic business developments and implications in the IT services sector. The activities covered by this sector can be summarised by the slogan of several IT service providers to “plan, build and run” IT systems. “Planning” comprises mainly software and hardware consultancy services encompassed by NACE 72.1 and, partly, 72.2. “Building” consists of writing software as well as integrating existing software components (both part of 72.2). “Running” constitutes the actual operation of the IT infrastructure created and is often referred to as IT outsourcing. Related activities are typically subsumed under NACE 72.3.

ICT and E-Business Activity

Information technology (IT) and e-business services are not only the output of the IT services sector, they influence crucially the way in which this output is produced, promoted and provided. This specific way of using information and communication technologies (ICT) distinguishes IT services from the other industries analysed in the *e-Business W@tch*. This constitutes the focal point of this report’s analysis that concentrates on current developments triggered by Internet-based technologies, namely the establishment of offshore IT services in the Europe, the increased importance of open source software (OSS) and the maturing concept of software as services.

An important precondition for the establishment of offshore IT services providers – discussed in chapter 2.1 – is a modern ICT infrastructure, including Internet connections and company websites is. However, the professional use of ICT is not sufficient for success. The experiences made by the companies interviewed show that close, personal contacts to customers are a key success factor. Therefore language skills turned out to be important. Furthermore, bilateral co-operations and trade fairs can help IT services companies to establish personal relationships. Finally, it turned out that offshore IT service providers in Eastern Europe have to become more than simply low cost service providers. While low prices are essential for getting into the markets in Western Europe, they are not sufficient for sustainable competitiveness of export-oriented Eastern European IT services businesses.

Open source as discussed in section 2.2, in fact, paves the way from product-centric software supply to new business approaches that focus on services around the software. The Internet and Internet-based platforms play an essential role in the OSS development as they provide the basis for collaboration as well as an organisational infrastructure to support the development process. In addition they play a role in marketing. The case studies presented in this chapter, moreover, demonstrate that companies establishing businesses around OSS need to react quickly to emerging customer needs and have to focus on quality assurance. In achieving this, managing the open source developer community turned out to be a major challenge.

About five years after the dotcom boom, the paradigm of providing software as service has had its first reality check, leading to significant changes of Internet-based services. This also was the case for application service providers. The analyses and case studies in chapter 2.3 show that the maturing of software as service is primarily characterised by a better consideration of actual user needs and wants and by a lesser focus on technology alone. The case studies presented demonstrate that this requires extensive knowledge about the actual customer needs. They also show that customers are not necessarily satisfied by software as service in its purest form, rather convincing service offers may involve certain traditional software components.

Conclusions

The conclusions and policy implications discussed in this report are mainly based on qualitative analysis. The new statistical results of the *e-Business W@tch* Survey 2005 will be published in the forthcoming sector report (September 2005) leading to consolidated business implications and policy challenges based on qualitative as well as quantitative analysis.

The conclusions extend the case study-based analysis by revisiting the specific opportunities and risks of ICT and e-business for SMEs and by providing an outlook into likely future ICT developments in this sector. SMEs have the opportunity to use ICT and e-business tools as the basis for providing as well as using offshore IT services, for establishing businesses based on OSS or for providing software as service. The Internet may help them in all cases in their marketing by providing awareness even for companies with small budgets if the right marketing tactics are chosen. Risks for SMEs consists, for example, in neglecting the opportunities (and threats) of offshore IT services and – especially important for this technology-driven sector – in neglecting customer demands in favour of a too strong focus on technology. In addition, small businesses, especially those building on OSS, may be threatened by patentability of software.

The discussion of future e-business development in this sector, moreover, focuses on the paradigm shift that has the most direct business implications, namely on-demand computing. A second future trend providing some potential for companies in this sector is the emerging use of weblogs in marketing IT services.

Policy Implications

The policy implications discussed in this report highlight two issues: the promotion of a European offshore IT services market and potential problems for SMEs and open source developers from software patents. There are several ways for the promotion of offshore businesses in Europe: First, a “handbook” or “guide” could support SMEs in overcoming critical challenges and could diminish fears related to using offshore services. Moreover, business events on regional basis are efficient tools to establish personal relationships and thus are likely accelerate offshore businesses. However, the design of appropriate policy measures should be based on good knowledge about the actual impact of offshore IT services on EU business. In this regard, survey results by *e-Business W@tch* on this issue could provide the starting point for a more extensive quantitative and qualitative analysis.

The short discussion on software patents provides some arguments for the clear exclusion of software from patentability. Irrespective of the final result of the current political and legal dispute of this issue, there will be a need for reliable information on future OSS-related investment risks and for continuous monitoring of industry practices related to the usage of software-related patents.

Industry Background

The IT services industry itself has a substantial economic power. In 2001, there were about 445,000 IT service companies in today's EU-25, which generated a production value of more than 260 billion euros and a value added of about 140 billion euros. In addition, they employed about 2.4 million people.¹ As far as the size structure of the IT services sector is concerned, a few IT giants like IBM, Microsoft or SAP (and others, like Atos Origin or CAP Gemini) coexist with a large number of small and medium-sized enterprises.

¹ Source: Eurostat New Cronos / DIW Berlin, see section 5.2.

ICT and Electronic Business in IT Services in 2005: Main Issues and Challenges

This study explores the development and implications of ICT and electronic business in the IT services (computer-related services) sector. It builds on previous sector studies published by the *e-Business W@tch* on the ICT services industry from 2002/03 and 2003/04. The study focuses on specific issues that were found to be particularly relevant for the sector at stake. The analysis is supported by case studies on ICT and e-business activities in enterprises, resulting from expert interviews with selected companies. The conclusions summarise the main business implications for small and medium-sized firms in the sector stemming from ICT and e-business. Important drivers for their development in the next 2-3 years are presented. Finally, the study points at ICT related policy challenges.

1 Introduction

1.1 Scope of the study – sector profile and background

Sector definition

This report focuses on IT and e-business issues in the IT services sector, defined by the following business activities subsumed under NACE² 72

Exhibit 1-1: Business activities covered by this report (NACE Rev. 1.1)

NACE Rev. 1.1	Business Activity
Part of 72	Computer and related activities
72.1	Hardware consultancy
72.2	Software consultancy and supply
72.3	Data processing

IT services are part of the entire ICT sector, which has been analysed as such in many research and policy studies – including past reports by the *e-Business W@tch*. There are, in fact, many ties between IT and communication services. The provision of Internet or telecommunication network services, for example, serves as a basis for many IT service activities. As discussed in the previous sector report by *e-Business W@tch*³, however, these two ICT areas differ significantly in terms of company sizes and market structure as well as in the way services are produced. This also means that IT and e-business technologies are used in different ways. Therefore, for the purpose of this report, we will focus on the analysis of e-business key issues that are related to activities that build the core of IT services. These activities can be summarised by the slogan of several IT service providers to “plan, build and run” IT systems.

² NACE Rev. 1 is a 4-digit activity classification which was drawn up in 1990. It is a revision of the "General Industrial Classification of Economic Activities within the European Communities", known by the acronym NACE and originally published by Eurostat in 1970.

³ e-Business Sector Study on the ICT Services Sector Industry, August 2004. [Hwww.ebusiness-watch.orgH](http://www.ebusiness-watch.org/H('resources')) ('resources').

“Planning” comprises mainly software and hardware consultancy services encompassed by NACE 72.1 and, partly, 72.2. However, the border between IT-specific consultancy, analysed in this report, and management or process consultants, which do not provide IT services in the strict sense, is difficult to draw. In fact, key characteristics such as establishing personal relationships with customers, or the importance of job-specific knowledge, are similar. In addition, clients increasingly demand both technological know-how as well as management and operation expertise. Consequently, several larger IT consulting companies like Gargemini or Accenture are active in both areas or have management consulting subsidiaries like EDS with AT Kearney.

“Building” consists of writing software as well as integrating existing software components (both part of 72.2). According to their business approach, companies specialising in this field can roughly be divided into two types:

- *Manufacturers of standard software (systems):* Standard software is typically sold or delivered as a product in a one-to-many model. In this way, economies of scale can be exploited, i.e. an application is developed once, but can be sold – at relatively low costs – to many users. This business approach also poses specific challenges. Access to the mass market or the management of risks in product development are crucial issues, just like in any other product business. Due to the resources needed to cope with these challenges, and because of the presence of network effects in the use of software, several large global players, such as Microsoft, SAP or Oracle, have emerged as providers of standard software.
- *Developers and integrators of custom software solutions:* The characteristics of this approach are typical for professional service businesses. Major inputs are a basic ICT infrastructure, knowledge and labour. Compared to the production of standard software, economies of scale are of minor importance. In contrast, technical and organisational expertise, as well as the establishment of close relationships with customers, are key success factors. The low entry barriers facilitate the establishment of small and medium-sized companies in this field.

There are, however, close links between these two approaches. Standard software often has to be implemented and customised on-site. In addition, standard software components usually lay the foundations for the development of custom software solutions. Therefore, system integrators are typically positioned between producers of standard business software and user companies. As trusted partners of the software users, they are also able to influence the sales success of standard software producers. Therefore, co-operations between manufacturers of standard software and system integrators are widespread in the software business.

“Running” constitutes the actual operation of the IT infrastructure created and is often referred to as IT outsourcing. Related activities are typically subsumed under NACE 73.3. The business approach of companies active in this area again differs from the other IT service segments. First, the supply of IT outsourcing services is much more capital-intensive. Many outsourcing projects require significant investments at the beginning (e.g. in IT equipment like computing centres or in people), which are only recouped over time. Moreover, customer confidence in both the technical expertise and the financial stability of the service providers is of outstanding importance. This, in turn, favours large companies, like EDS, IBM, or T-Systems in this field.

Segmentation of the IT services market

The specific characteristics of the different IT services sub-segments support the establishment of various company types following different business strategies. In today's IT services landscape, both specialists, as well as diversified companies, coexist. This is also confirmed by the results of a market analysis of the German IT services market recently

published by Berlecon Research⁴, which is based on a survey of 160 companies with at least 20 employees. Of these, about two thirds turned out to be specialists – generating 50% of their revenues or more in one of the core areas of IT services. According to this study, about 40% of companies are specialised in software development and integration, about 13% are primarily active as IT consulting companies and about 11% as IT outsourcing providers.

Being specialised, however, does not mean that only services in one of these areas are offered. Many specialised software developers and IT outsourcing providers, for example, offer IT consulting as an additional service. In turn, IT consultancies (e.g. Accenture) also position themselves as IT outsourcing partners or carry out software development projects for their clients. Moreover, a significant share of IT service companies follow a mixed strategy by carrying out activities in different segments of the IT services market as well as in related sectors. Nearly one third of the companies surveyed by Berlecon Research, for example, were identified as “diversified players”. They generated more than 10% of their revenues in at least one of the core areas of IT services, but showed in none of them a revenue share larger than 50%.

A variety of IT service providers, especially in Germany, originated as IT units in large companies. They typically offer both IT services as well as related professional services such as accounting, personal or financial services. Typical examples for this company type are Bayer Business Services (see box), Vattenfall Europe Information Services or RAG Informatik, which are subsidiaries of large players in the chemical, energy or mining industries. These companies are particularly important in IT outsourcing and make up a significant share of large IT service providers. They are special in that much of their revenue, so called captive revenue, is generated from providing IT services to their owner companies.

Bayer Business Services GmbH offers a mix of IT and professional services

Bayer Business Services GmbH is a business unit of Bayer AG, a globally active player in the manufacture of chemicals and pharmaceuticals. According to the information on the company website, Bayer Business Services sees itself as a competence centre, supporting the business processes of internal and external clients through a large range of IT-based business and scientific services.

The supply spectrum covers the provision of consulting services and the development of technical solutions, as well as the operating of IT or of entire business processes in the following categories: finance and accounting, procurement, personnel, logistics, information technology, science, travel and media.

Source: www.bayerbbs.de (February 2005)

Economic background

The IT services sector is of significant importance for the prosperity and growth of the European economy. First, the IT services industry itself has a substantial economic power. In 2001, there were about 445,000 IT service companies in today's EU-25, which generated a production value of more than 260 billion euros and a value added of about 140 billion euros. In addition, they employed about 2.4 million people.⁵ It is worth mentioning that the IT services industry, as a knowledge intensive sector, plays an important role for the creation of jobs with high skill levels. Last but not least, goods and services provided by IT services

⁴ Berlecon Research (2005): “Marktanalyse IT Services 2005”, Report, January 2005.

⁵ The statistics on the economic background (Source: Eurostat New Cronos / DIW Berlin) of the IT services sector are presented in more detail in chapter 5 of this report.

companies affect the productivity and competitiveness of other industries. If properly used, they help to raise labour productivity. The deployment of IT-based solutions throughout the value chain may increase the overall efficiency and competitiveness of the user companies. Thus, innovations within the IT services sector can enhance the prosperity and growth of the entire economy.

As far as the size structure of the IT services sector is concerned, a few IT giants like Microsoft or IBM on the one hand, coexist with a large number of small and medium-sized enterprises on the other. In 2001, in fact, only about 0.2% of the IT service companies in today's EU-25 employed 250 employees or more. However, the large companies accounted for more than 40% of the value added and employed nearly 30% of the sector's workforce. In contrast, more than 93% of the IT service companies were micro enterprises, i.e. companies that employ less than 10 people. Even by the standards of service companies in general, IT service providers are particularly small. Admittedly, this number should be taken with a pinch of salt: in 2001, the dotcom boom had just passed its peak; many companies of this size disappeared in the subsequent months.

However, activities by SMEs are of outstanding importance in this sector. They account for the major share of value added and of persons employed. Moreover, they are crucial innovators and play an essential role in keeping the competition alive in this sector for the benefit of the entire economy.

In 2001, IT service companies in the large EU countries of France, Germany, Italy and the UK generated more than 70% of the value added and employed more than 70% of the sector workforce in today's EU-25. In contrast, Eastern European IT service companies had almost no importance for the sector at this time. This situation, however, is likely to change. As will be discussed in chapter 2.2 of this report, many Eastern European IT service companies are currently trying to establish offshore service offers for West European businesses. The relatively large gap in labour costs between the countries of the former EU-15 and new EU member states, together with relatively good technical and linguistic expertise, facilitates their market entry. In fact, in 2001, the labour costs per employee of IT services enterprises in countries like Poland, Czech Republic or Hungary were only about one third of those in companies in most former EU-15 countries.

1.2 Summary of previous sector studies

In the previous sector studies by the *e-Business W@tch* the IT services sector was analysed as part of ICT services, which also included telecommunications. Therefore it seems natural to take survey results published in those studies as starting point for the analysis in this report. As it is indicated in exhibit 1-2, the entire ICT services sector turned out to be a forerunner in using ICT and e-business technologies. In almost all application areas the usage ratios of the ICT sector are strongly above those of other sectors surveyed. The main reason for this intensive IT usage is that companies in this sector as providers of ICT services are already familiar with the usefulness of ICT and e-business technologies as well as with strategies for their integration.

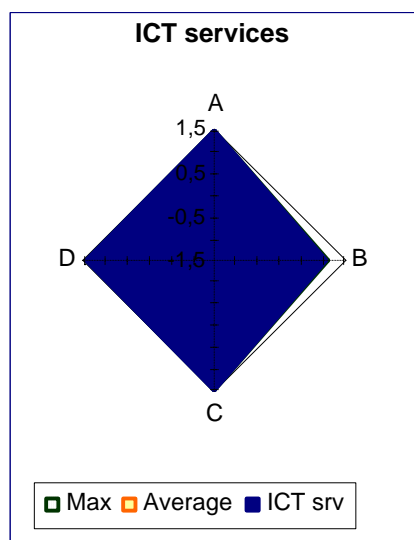
We expect a similar role for the IT services sector alone. Admittedly, the IT services sector differs from providers of telecommunication services in terms of company size, market structure and the way services are produced (see also the discussion in the previous section 1.1).⁶ This may lead to differences in the way in which IT and e-business technologies are used. There might also occur some slight differences in IT usage rates, particularly if it

⁶ See comparison between telecommunications services and computer-related services in the e-Business Sector Study on the ICT Services Sector, May 2005. www.ebusiness-watch.org ('resources').

comes to the use of IT solutions appropriate for large players like ERP systems. This, in fact, was a motivation for restricting the 2005 analysis of the *e-Business W@tch* to the IT services sector. This way clear results for a homogeneous sector can be obtained.

However, the main reason for the intensive IT usage, i.e. the familiarity with e-business technologies and with respective strategies for their deployment, is true for both ICT services sub-sectors. The high relevance of ICT and e-business in the IT services sector is also confirmed by the analysis of e-business key issues in chapter 2 of this report. Therefore, we expect that IT services companies show similar large and above-average usage ratios than observed for the entire ICT services sector. The upcoming statistical results of the *e-Business W@tch Survey 2005* will show whether these preliminary assessments are also confirmed by the data. The results will be published in the forthcoming report on e-business in the IT services sector (September 2005).

Exhibit 1-2: Scoreboard and assessment of the e-business usage in the ICT services sector 2004



Max = maximum indexed value for one of the 9 sectors
Average = mean value for 9 sectors

Categories

- A) ICT infrastructure
- B) Internal business process automation
- C) Procurement and supply chain integration
- D) Marketing and sales

Assessment: ICT services - the leading sector in using e-business

The ICT services sector is inclined to practise e-business, since the sector is not only a user, but also a key provider of IT related services. Thus the sector is very familiar with online technologies, and necessarily an early adopter in this matter. This applies to all business functions.

Employees in their every day work commonly use online tools and e-business as a strategic tool used to improve efficiency throughout the company and to enhance collaboration with the company partners.

Source: *e-Business W@tch* (2003/04)⁷

⁷ e-Business Sector Study on the ICT Services Sector, May 2003. www.ebusiness-watch.orgH ('resources').

2 Key application areas of ICT and electronic business

As discussed in section 1.2, the IT services sector can be expected to be a forerunner – similar to the entire ICT services sector in the use of e-business technologies. In fact, IT and e-business services are not only the output of the IT services sector, they influence crucially the way in which this output is produced, promoted and provided. This specific way of using ICT – which goes beyond the simple installation of some software package unrelated to a sector's main activity – distinguishes IT services from the other industries analysed in the *e-Business W@tch*. Therefore, it also constitutes the focal point of this report's analysis. We will focus on current developments in this sector that have been triggered by Internet-based technologies.

The key issues to be analysed in this chapter have been selected mainly according to two criteria. Firstly, they should reflect currently discussed developments that may even cause significant changes in the structure of the sector (for the general relevance of these issues see the discussion of industry trends and challenges in section 5-1). And secondly, the proper use of ICT should play an essential role in these developments. These criteria resulted in the following three issues:

- **The establishment of offshore IT services in Europe:** Driven by globalisation and an ever-improving Internet and telecommunications infrastructure, offshore outsourcing – the replacement of inhouse services (and possibly employees) with those of external services providers from abroad – has become a much discussed topic in this sector – and also in policy. Chapter 2.1 will discuss how ICT facilitate the provision of offshore services, how especially Eastern European companies try to become service providers for West European clients and what this means in the EU context.
- **The increasing relevance of open source businesses:** The Internet as facilitator of collaborative product development provides the foundation for worldwide open source development projects. This open source phenomenon also inspired start-ups as well as established companies to base (some of) their business on open source software and the open source community of developers. Chapter 2.2 will look at this more closely and analyse key challenges of establishing an open source-based business as well as ways to overcome them.
- **The maturing concept of software as service:** Ubiquitous and powerful data networks like the Internet are the basis for providing software as a service or “e-business on demand”, as IBM calls it. Many technology-driven application service providers (ASPs) tried to capture the opportunities of providing software as a service about five years ago, but most of them failed. Chapter 2.3 analyses the current state of these approaches and also looks at the role of information technology vs. other factors to explain the success or failure of such service providers.

The case studies and business examples as summarized in Exhibit 2-1 – together with analyses of secondary literature – build the basis for first conclusions and policy implications derived in the chapters 3 and 4 of this report. Together with the upcoming statistical results to be published in the forthcoming sector report (September 2005), they will lead to consolidated conclusions and policy challenges based on qualitative as well as quantitative analysis.

Exhibit 2-1: Case studies and business examples to be presented in this chapter

Chapter	Title and Purpose
<p>Chapter 2.1: The establishment of offshore IT services in Eastern Europe</p>	<p>Case Study: Offshore IT services by PGS Software (Poland)</p> <ul style="list-style-type: none"> • Example of a Polish start-up that wants to establish itself as a global provider of IT outsourcing and software development services • Insights into opportunities and challenges for Eastern European IT service companies <p>Case Study: Softgate – A Romanian supplier of software services for the German market</p> <ul style="list-style-type: none"> • Example of a Romanian IT services company that is experienced in developing custom software applications for the German market • Discussion of challenges and success factors for providing offshore IT services
<p>Chapter 2.2: The increasing relevance of open source businesses</p>	<p>Case Study: Open source based services by Open Cascade</p> <ul style="list-style-type: none"> • Example of a traditional software manufacturer that has become an open source company • Discussion of challenges and success factors of the open source software model, particularly in creating a developer community. <p>Case Study: Janus Software wants to establish itself as a “competitor of Oracle”</p> <ul style="list-style-type: none"> • Example of a “typical” OS company • Discussion of challenges and opportunities of open source based business models, particularly in creating a developer community • Insights into the potential of the Internet for marketing purposes of open source companies.
<p>Chapter 2.3: The maturing concept of software as a service</p>	<p>Case study: Onventis (Germany) – The provision of supply management applications on demand.</p> <ul style="list-style-type: none"> • Example of a “Procurement Service Provider” offering its solutions on demand. • Insight into challenges and success factors for ASP (application service provider) approaches by a company that succeeded in creating a stable business. <p>Business example: New cashier system by PMS (Poland)</p> <ul style="list-style-type: none"> • Example of an IT system developer and integrator that introduced a cashier system software as natural extension of its e-ticket service

2.1 The establishment of offshore IT services in Europe

Introduction: Offshore IT services increasingly discussed

One driver behind the increasing importance of offshore IT service provision is the availability of the Internet. First, the Internet and Internet-based solutions impact nearly all business processes relevant for the provision of IT services. For example, the Internet is used by IT services companies as a major channel for:

- Promotion of products and services (e.g. via the company website or by e-mail newsletters and mailings),
- Selling and delivering software, which is a major product of the sector,
- Communication with customers or partners (via the web or e-mail),
- Collaboration in the production process (e.g. when coding software) among employees and also between employees and customers, freelancers or other business partners.

In addition the Internet is often the foundation for the services provided – and therefore also an integral component of those. Some IT support services like managed firewalls or anti-virus software subscriptions, for example, include remote access or remote updates via the Internet. Also the ASP model is based on the availability of Internet connections.

Moreover, the Internet as global infrastructure facilitates the provision of IT services from distant locations. In the last decade, in fact, the worldwide availability of the Internet has improved significantly. Internet access technologies have become a commodity in many regions and broadband access can increasingly be afforded also by smaller companies. This has lowered the barriers to market entry for offshore IT service providers.

Currently the role and importance of offshore IT service provision is discussed intensively. Potential customers of these companies are lured by the cost savings but unsure about the service quality, local IT service providers have to analyse the competitive threat from offshore providers, and the public as well as policy are debating the job market implications of substituting locally produced services with those provided in other countries.

Most of the articles and reports published on this topic agree on its increasing importance. The IT consulting company IDC, for example, forecasted that “*the worldwide market for offshore will grow from nearly \$7 billion in revenues in 2003 to \$17 billion by 2008, achieving a five year compound annual growth rate (CAGR) of nearly 20%.*”⁸ According to IDC at that time offshore services in Western Europe will amount to \$3 billion or 1.8% of the total Western European IT services market.⁹

There exist various (and partly controversial) numbers that intent to describe the economic impact of offshore businesses. The IT consulting company Forrester, for example, predicts that “*Europe will lose a cumulative 1.2 million jobs to offshore locations by 2015 – with the lion’s share of the impact falling in the UK.*”¹⁰ This led to headlines like “UK IT staff to bear bunt of offshore job losses.”¹¹ The European Foundation for the Improvement of Living and

⁸ IDC (2004): “Global offshore IT services opportunity can no longer be ignored, IDC forecasts spend to reach \$17 billion by 2008”, Press Release, 18.10.2004 (www.idc.com).

⁹ IDC (2004): Impact analyses of offshore services providers on IT services spending in Western Europe, 2003-2008, Report Abstract, September 2004 ([Hwww.idc.comH](http://www.idc.com)).

¹⁰ Forrester (2004): “Two-Speed Europe: Why 1 million Jobs will move offshore”, Report abstract, 18.08. 2004 ([Hwww.forrester.comH](http://www.forrester.com)).

¹¹ ComputerWeekly.com (2004): “UK IT staff to bear bunt of offshore job losses”, Article, 19.08.2004 ([Hwww.computerweekly.comH](http://www.computerweekly.com)).

Working Conditions, in contrast, sees “*EU jobs not at risk from outsourcing of ICT services*”.¹² Based on an analysis of employment trends in the ICT and related sectors between 2000 and 2003, the Foundation did not find evidence for net job losses by offshore outsourcing of ICT and related services in the EU. However, they did find evidence for a regional shift within the EU. They further concluded that “*there is currently a lack of reliable statistical indicators for offshore outsourcing*.”¹³

In the Information Technology Outlook (ITO) 2004 the OECD concludes that “*international sourcing of IT and ICT-enabled business services has grown rapidly*” with India as important exporter and other developing countries following.¹⁴ However, the organisation admits: “*There are no reliable official data on international sourcing [...]*”.¹⁵ In discussing the consequences of this development, the OECD sees both an increase in firms’ efficiency as well as potential job losses. It concludes: “*A protectionist response should be avoided in order to take advantage of the benefits of offshoring while managing the adjustment process: compensating for adjustment costs where necessary and enabling workers to seize new employment opportunities*.”¹⁶

Altogether, the controversial statements by industry representatives, consulting companies or political organisations together with the lack of reliable statistics are likely to increase the confusion about this topic. This problem is made even more severe by the fact that strong interests and sensitive issues like jobs are involved, while the topic itself is rather complicated.

Clarification of the concept

The focus of this chapter is the discussion of chances, challenges and success factors related to the provision of IT services in Eastern Europe. Regarding the current confusion about offshore IT services, however, it seems necessary to clarify some crucial issues first:

- *Outsourcing vs. offshore IT services*: Outsourcing is a concept defining a legal issue, where specific IT services are not any more provided by internal employees but rather by external companies. Normally outsourcing relates to continuous services like operation of the computing centre, hosting applications or managing the desktop computers installed in a company. Offshore, in contrast, is a term defining a regional issue. It means that a service provider is located outside the customer’s country, often on another continent. If the service provider is located in a neighbour country, also the term “nearshore” is used.
- *Offshore IT services impact both IT outsourcing services as well as software development services*. The impact of offshore IT services is often discussed together with conventional IT outsourcing. Due to mixing these issues, it is often neglected that a major part of offshore IT services are software development and other professional services, not outsourcing services like those defined above. Software services are, for example, also the focus of the two offshore companies discussed in the following case studies.

¹² The European Foundation for the Improvement of Living and Working Conditions (2004): “Outsourcing of ICT and related services in the EU: EU jobs not at risk from outsourcing of ICT services”, Press Release, 13.12.2004 (Hwww.eurofound.eu.int).

¹³ The European Foundation for the Improvement of Living and Working Conditions (2004): “Outsourcing of ICT and related services in the EU”, Report, December 2004, pp. 23-24 (Hwww.eurofound.eu.int).

¹⁴ OECD (2004): “OECD Information Technology Outlook 2004 – Highlights”, Highlights of the report, p. 6, Organisation for Co-operation and Development (OECD), 2004 (www.oecd.org).

¹⁵ Ibid., assessments are based on exports of computer and information services and other business services according to the IMF (International Monetary Fund) balance of payment categories.

¹⁶ Ibid.

- *Not all IT services are likely to be provided from abroad.* IT service providers often have to work on the customers' premises, e.g. to provide outsourced services like management of desktop computers and software. This implies, however, that not all IT services can be provided by offshore companies, and there is a limit to how many IT jobs can migrate to countries with lower wages. IT service providers know that. According to a recent survey by Berlecon Research, for example, only about 20% of German IT services companies consider offshore businesses to be a serious competition. More concerned are those providing primarily professional IT services like software development, less concerned are those primarily active in outsourcing.¹⁷ This corresponds to the different suitability of these services for offshore provision: software development can be relocated more easily than traditional outsourcing services.
- *Offshore businesses can be foreign IT service providers as well as subsidiaries of domestic companies.* The offshore discussion often focuses on the competition by IT service providers from abroad. However, particularly large, globally active companies can set up their own subsidiaries in countries with lower wages and then allocate some part of the work to these subsidiaries.¹⁸ Such strategies explain also the following statement of Forrester: "Protectionist measures will fail, as inventive companies use stealth tactics to avoid the barriers put in their way."¹⁹

Offshore IT services produced in Europe

The traditional view on offshore IT services is that of Western European or US companies buying IT services from offshore providers in India, Russia or Eastern Europe. Looking at this topic not from a nation state perspective but from an EU perspective, gives a different view: Many offshore locations in Eastern Europe are now part of the EU, many IT service flows related to nearshore production are thus EU-internal. Thus the establishment of an IT services sector in the new members states in Eastern Europe is a two-edged sword: it constitutes competition for Western European IT service providers, but may in the long run become an important element of a European IT service sector.

Today's offshore market is dominated by Indian IT services providers. According to IDC, nearly 73% of offshore IT services are currently coming from India.²⁰ Companies in this country profit from a combination of cost advantages, high technological expertise, a well established ICT infrastructure as well as a traditional economical and cultural closeness to the UK. "In Europe", so Gartner, an IT consultancy, "the UK is the largest user of offshore services and the main target for Indian offshore outsourcing due to historical links, language benefits, the maturity of sourcing models and strict labour transfer legislation in other countries."²¹ In addition, strong relationships also exist to the USA as the largest market worldwide for IT services. According to IDC, about 70% of offshore services are currently ordered by U.S. companies.²² Altogether, the EU – with the exception of the UK – currently lags behind in provision as well as usage of offshore IT services.

¹⁷ Berlecon Research (2005): "Marktanalyse IT Services 2005", Report, January 2005.

¹⁸ Some IT service providers, like the provider of IT consulting and integration services Unilog, call this spread of projects across different subsidiaries and partners in different regions "rightsourcing".

¹⁹ Forrester (2004): "Two-Speed Europe: Why 1 million Jobs will move offshore", Report abstract, 18.08. 2004 ([Hwww.forrester.com](http://www.forrester.com)).

²⁰ IDC Deutschland (2005): "Offshore Dienstleister entwickeln sich im deutschen Markt mit beachtlicher Dynamik", Study #GY01M, Viewpoint, January 2005 ([Hwww.idc.com/germany](http://www.idc.com/germany)).

²¹ Gartner (2003): "Gartner says Offshore Outsourcing Market in Europe will grow more than 40% in 2003", Press Release, 11.04.2003 ([Hwww.gartner.com](http://www.gartner.com)).

²² IDC Deutschland (2005) – *ibid.*

But this situation is likely to change, as there are signs for an emerging competitive export-oriented IT service provider landscape in Eastern Europe. Mainly three factors are driving this development:

- First, IT services companies in Eastern Europe have cost advantages compared to competitors in most Western Europe countries or North America. As reported in chapter 1.1, in 2001 the labour costs per employee of IT services enterprises in countries like Poland, Czech Republic or Hungary were only about one third of those in companies from most former EU-15 countries. (see also the background statistics in the appendix of this report).
- Second, there exist various traditional strong ties between countries in Eastern and Western Europe, e.g. between Poland and Czech Republic with Germany or between Scandinavian countries like Sweden and Finland and Baltic countries like Estonia, Latvia and Lithuania. In this context, language skills as well as the cultural and geographical closeness to customers (especially in Western Europe) are major arguments of Eastern European offshore businesses when promoting their services. The new membership in the EU or the accession country status of the offshore locations further contribute to these strong ties.
- Third, IT services companies in Eastern European countries typically can build on a modern ICT infrastructure and show a high technological expertise. According to the results of the *e-Business W@tch* 2003/2004, there are no significant differences in the deployment of basic IT infrastructure components (Internet, e-mail, website) between IT services companies in the old EU-15 and new member states such as the Czech Republic, Estonia or Slovenia.

In general, a strong export-oriented Eastern European IT services sector could help to close the economic gap within today's EU-25. It could build the basis for the establishment of a strong IT services industry in Eastern Europe and is also likely to accelerate the adjustment of wages within the EU. Also companies in Western Europe that buy IT services can benefit from these developments: by outsourcing some IT services they can concentrate more on their core competencies, and by exploiting the cost advantages of Eastern European IT service providers they can reduce their costs. Both should increase their competitiveness.

Especially SMEs could benefit from an establishment of a European offshore market. They usually have fewer resources than large companies for setting up a worldwide network of IT service providers as well as for managing risky intercontinental projects. The cultural and geographical proximity of offshore IT service providers in Europe makes it easier for them to benefit from offshore opportunities. However, this does not imply that using such nearshore services is a guaranteed success for SMEs – they still need to acquire the knowledge for managing their new partners, for example – but it lowers the barriers.

The following two case studies will illustrate how IT services companies in Eastern Europe are approaching these opportunities and what importance the Internet on the one hand and the establishment of personal contacts on the other hand have. The case studies provide insights from two different perspectives. The Polish IT services company PGS Software has just carried out the first activities to establish an export-oriented IT services business. The Romanian offshore company Softgate, in contrast, is already experienced in this market and has carried out numerous IT projects for German companies since 1997. Altogether, the case studies demonstrate challenges and success factors for the establishment of offshore businesses in Eastern Europe.

CASE STUDY: OFFSHORE IT SERVICES BY PGS SOFTWARE (POLAND)

Abstract

PGS Software is a Polish start-up that wants to establish itself as a global provider of IT outsourcing and software development services. The company, which was founded in November 2004, has already acquired the first customers for its services. The case study of PGS shows opportunities and challenges for Eastern European IT service companies in establishing offshore businesses. It also shows that the use of the Internet to advertise its offers is necessary, but not at all sufficient, for business success.

Case Characteristics	
Location of the company	Wroclaw, Poland
Company size (no. of employees)	Small (5 employees)
Primary customers	Companies in all sectors worldwide
E-Business Focus	
Provision of offshore IT services	***
Use of the company website	**
Basic IT infrastructure	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

PGS Software – briefly PGS – is a Polish start-up providing offshore services in the field of software development and IT outsourcing. Since its focus is mainly on West European clients, it could also be described as “nearshore”. The company was founded in November 2004.

Its CEO, Pawel Gurgul, was already experienced in managing IT projects for Western European clients, when he founded the company. Since 1992 he has worked as manager in subsidiaries of German software manufacturers in Poland. In 2004 Pawel Gurgul decided to quit his job and use his experience and business contacts to establish his own offshore IT services company.

Activities

According to Mr. Gurgul, the company targets customers worldwide. However, the main target market of PGS is Germany, due to existing relationships with German companies as well as the geographical proximity. The publication of the company website was one of the first activities of PGS.

It provides insights into the specific PGS philosophy of providing offshore IT services. Not only does it promise cheap and fast delivery of a large range of services, just as the competitors do, but it points out other country-, location- and company-specific characteristics that differentiate PGS from its competitors. Mr. Gurgul explained the main competitive advantages mentioned on the website in more detail:

- **Educational background:** All employees of PGS – currently three software developers and two web designers – graduated from the Technical University of Wroclaw, which is one of the premier engineering institutions in Poland.

- **Wroclaw as an IT centre:** PGS is located in Wroclaw, which is one of the four IT centres in Poland. Mr Gurgul claims that the image of Wroclaw as an IT centre, as well as the establishment of subsidiaries from well-known companies in Wroclaw (e.g. Siemens, Volvo or Capgemini), helps to build trust.
- **Closeness to Western Europe:** A further advantage is the geographical and – even more important – cultural proximity of Poland, and particularly of Wroclaw, to Western Europe. The mentality of Polish people is, according to Mr. Gurgul, close to that of people in Western countries. In addition, the way in which IT projects are realised is similar. According to Mr. Gurgul, this is a major advantage of PGS as compared to, for example, Indian offshore businesses.
- **EU membership of Poland:** Poland's membership of the EU facilitates cross-border businesses between Poland and Western European countries. Mr. Gurgul particularly highlights the abolition of duties and complicated tax regulations as major advantages.
- **Reputation and language skills:** Thanks to his professional history, Mr. Gurgul can refer to his experience in managing IT projects for and in co-operation with Western European clients. In addition, his language skills – he speaks English and German fluently – have helped him in dealing with Western European customers. German clients, for example, often feel much more comfortable when they can explain their needs in German.

PGS stresses these factors because the company wants to become a reliable and competent partner for its customers rather than a supplier in the low-price sector. The cost advantage is mainly used to get a foot in the door of Western European customers. Quality and reliability, Gurgul claims, are ultimately the most important criteria when selecting offshore providers. He explains that *“customers that only focus on price are likely to lose money and – sometimes even more important – they are likely to lose time.”*

Setting up its technical infrastructure was not a big challenge, says Mr. Gurgul: *“PCs, an Internet connection and a coffee machine”* were the most important inputs. PCs at PGS are the same as those used in Western European countries. Obtaining DSL Internet access took him three days. More important than sophisticated IT equipment, according to Mr Gurgul, is good communication between client and offshore provider, which is mainly a matter of project management.

Mr. Gurgul points out that overall the achievement of offshore businesses requires trust, which can only be obtained by developing personal relationships. The website, while a necessary tool, is by far not sufficient to achieve this goal. Rather, the existing contacts with German companies have proven an important starting point for business. In addition, he attends various small and large trade fairs and business events in order to establish personal contact with potential clients and business partners.

Three months after foundation, PGS is already attracting clients. PGS, for example, won three web design contracts with German companies. Interestingly, two of them resulted from contacts made at a small trade fair called *“Deutsch-Polnische Kooperationsmesse”* (German-Polish co-operation fair), organised by regional Polish and German trade promotion organisations. In addition, PGS has been awarded a contract to establish and operate a quality assurance centre for a German software company in Poland. This project is actually co-financed by EU funds for the support of cross border co-operations.

As the next step for establishing PGS as a serious player in the offshore market, Mr. Gurgul is focusing on finding business partners who will take on tasks on-site in the

target countries. In this way, the marketing and sales activities of the company could be accelerated and the efficiency of offshore IT projects improved.

In the long run, Mr. Gurgul also sees some potential in new opportunities arising from the ubiquitous availability of Internet, namely in taking on the remote maintenance and support of IT networks. However, winning such contracts demands that the company is trusted by the customers and will need time, therefore, to build up the necessary reputation.

Lessons learned

The case study shows a typical example of a company trying to establish an IT offshore business in Eastern Europe. PGS – like many other IT services companies in Eastern Europe – sees its competitive advantages mainly in its technological expertise, as well as in the cultural and geographical closeness to Western Europe. In addition, the CEO Mr. Gurgul refers to its experience in carrying out IT projects for Western European clients. Though low prices are considered as necessary to facilitate the market entry, the long-run strategy is to establish the company on the basis of quality rather than price.

The provision of basic ICT and e-business tools, (e.g. PCs, Internet connection or a company website), is a necessary pre-requisite, but obviously is not a challenge for this company. A more essential challenge in this field is achieving the confidence of customers. Company websites are helpful tools for getting the attention of potential customers worldwide, but for winning customers in the offshore market the establishment of personal contacts remains crucial.

Sources and references

This case study was conducted by Berlecon Research on behalf of the *e-Business W@tch*.

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CASE STUDY: SOFTGATE – A ROMANIAN SUPPLIER OF SOFTWARE SERVICES FOR THE GERMAN MARKET

Abstract

Softgate Group SRL is a Romanian IT services company that develops custom software applications for the German market. Since its market entry in 1997, the company has grown steadily. Based on Softgate's experiences, the case study discusses challenges and success factors for providing offshore IT services. The quality of service and the reliability of the service providers are considered to be key success factors for the establishment of offshore businesses in Eastern Europe.

Case Characteristics	
Location of the company	Timisoara, Romania
Company size (no. of employees)	Small (10 permanent employees plus 4 freelancers associated with the company)
Turnover in last financial year	220,000 euro
Primary customers	IT services providers as well as medium-sized companies of various sectors in Germany
E-Business Focus	
Offshore Outsourcing	***
Company websites in the Internet	**
IT infrastructure	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

The Romanian Softgate Group SRL is a supplier of offshore software development services for the German market. The roots of the company go back to 1997. At that time, Laurentiu Sas, co-CEO of Softgate, was working in Romania as an IT freelancer, when he got a contract from a client in Germany through the recommendation of a German friend. This contract was the trigger for founding Softgate 4U SRL in 1998 (now part of the Softgate Group). Since this time, the company business has grown steadily: in 1998, Softgate 4U employed three people, served one client and had a turnover of about 25,000 euros. In 2004, ten permanent employees and four freelancers were working at the company, serving seven clients and generating a turnover of about 225,000 euros.

Since 2004, Softgate 4U has closely co-operated with ubbit, a privately owned German consulting company that helps German companies to realize IT projects in Eastern Europe. In 2005, both companies agreed to found the Softgate Group SRL – briefly Softgate – as a basis for their joint activities and as a common presence on the European market. The idea behind this strategic joint venture explains Michael Bullert – co-CEO of Softgate and CEO of ubbit – was to increase the chances of winning larger and more complex contracts.

Activities

Today, Softgate concentrates on custom software development for the German market. The company acts mostly as a subcontractor for German IT service providers. From 1998 to 2004, Softgate has realised about 25 software projects for German clients. These helped the company gain experience in different areas of software development and learn about the needs of various sectors of the industry. Reference projects by Softgate, for example, include the implementation and execution of an ERP system for a pharmacy, the realisation of an offline ordering system for a wholesaler and the development of a software tool that supports the activities of brokers.

According to Mr. Kuglis, the procedure in which offshore services are carried out is basically the same as for conventional IT projects. However, a disadvantage offshore IT service providers have, compared to competitors who are located close to the customer, is the increased difficulty of communication with the customer during the project. To create trust, it is an important element of project service businesses to keep the customer always up to date about the project's progress. To overcome these disadvantages, Softgate uses both project management and technical tools to achieve the required level of communication and collaboration with its customers.

The new potentials of ICT networks are also used to enhance trust. For example, Softgate clients can use a VPN (Virtual Private Network)-secured Internet connection to log on to project-related applications in Softgate's IT network. If they want, they can check the progress of the project day-by-day via the VPN connection.

Using this combination of management and ICT tools, Softgate can overcome the disadvantages of being located further away from the client and can also stress its quality-consciousness. *"Altogether, the business approach of Softgate relies more on quality and competence than on cheap prices,"* explains Mr. Bullert. Although a cost advantage compared to West European competitors has helped the company to get a foot in the market, he regards low prices alone as ultimately insufficient to compete with the increasing number of offshore businesses in Eastern Europe, and particularly with Asian offshore companies.

To be able to achieve this quality, Softgate needs highly qualified and motivated staff. Mr. Sas emphasises that all programmers have a university degree. Moreover, the salaries paid at Softgate are significantly above the Romanian average. This facilitates the finding and motivating of skilled IT specialists who are able to meet high demands.

The main competitive advantage of Softgate – especially if compared to Asian competitors – is the cultural and geographical closeness to Western Europe, says Mr. Bullert. Therefore, he considers Softgate's business to be nearshore rather than typical offshore work. Several factors are responsible for this closeness:

- **Language skills:** All managers at Softgate speak German fluently so that customers can explain their needs in their native language. This significantly facilitates co-operation between Softgate and its customers.
- **Traffic infrastructure:** Timisoara is well connected to all the major European countries, by both plane and train.
- **Way of thinking and working:** According to Mr. Bullert, Romanian companies follow a Western European approach in the way they carry out projects. In order to demonstrate the cultural closeness of Romania to Germany, Softgate frequently welcomes customers to Romania; almost all company clients have been at least once in Timisoara.

Softgate particularly targets small and medium-sized companies. This segment, Mr. Bullert thinks, shows the greatest growth potential for Eastern European offshore providers and particularly for Softgate. Medium-sized companies face a similar cost pressure to large companies, but, unlike the bigger players, they do not have the resources to establish their own subsidiaries in Eastern Europe or Asia. *“But winning medium-sized companies as customers”,* Mr Bullert adds, *“does not work primarily through low prices.”* SMEs cannot risk losing money invested in uncertain offshore projects. Therefore, a reputation as a reliable partner delivering high quality services is crucial for successfully attracting this promising target group.

As far as the future of the company is concerned, Mr. Bullert sees Softgate as being in a good position, despite the fact that the offshore market in Eastern Europe is becoming increasingly competitive. Each day, observes Mr. Bullert, new websites by Eastern European offshore providers appear. However, establishing an offshore business, Mr. Bullert is convinced, needs more than putting a website on the Internet. Without existing relationships with customers in the target market, there is nearly no chance of surviving as a start-up in this dynamic market.

Lessons learned

The case of Softgate demonstrates the chances and challenges of setting up offshore businesses in Eastern Europe. One of the major advantages of Eastern European IT services providers, compared to their Asian competitors, is the cultural and geographical proximity. As discussed in the case study, this may particularly help to attract Western European SMEs as clients.

The current cost advantage is mainly seen as a means to get into the West European market. In the long run, the company wants to compete on quality. Therefore, a reputation as a reliable partner who delivers services of high quality is important, as are highly qualified and motivated employees and the establishment of long-term relationships with clients.

A modern IT infrastructure, as shown in this case study, can help offshore companies to overcome the disadvantage of being located far from the customer. However, the case study has also shown that the establishment of offshore businesses needs more than a modern IT infrastructure and a website on the Internet. In this regard, the establishment of personal relationships within the target market is even more important than attracting customers worldwide by publishing a website on the Internet.

Sources and references

This case study was conducted by Berlecon Research on behalf of the *e-Business W@tch*.

References:

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- Interview with Andreas Kuglis, Project Manager at Softgate, 08.02.2005.
- Interview with Michael Bullert, CEO of Softgate / ubitt, 26.01 and 08.02.2005.

Website: <http://www.softgategroup.de/>

Conclusions

The case studies have shown that a modern ICT infrastructure, including Internet connections and company websites is an important precondition for setting up shop as an export-oriented IT service provider. However, the professional use of ICT is not sufficient. There are further success factors:

- **Quality assurance:** Measures that ensure the quality of the project are, admittedly, of general importance independent of the location of the IT services provider. But in contrast to many domestic IT service providers, most of today's offshore suppliers cannot build on reputation. In addition, they are often confronted with prejudices with respect to their service quality.
- **Personal contacts:** The experiences made by the companies interviewed show that close, personal contacts to customers are a key success factor. Both, PGS Software and Softgate, consider the establishment of personal and long-term relationships to (potential) customers in the target market to be a key priority. This makes language skills important, too. Especially smaller customers prefer to discuss their needs and problems in their mother language. Furthermore, bilateral co-operations and trade fairs can help IT services companies to establish personal relationships.

In addition, the list of clarifying statements presented at the beginning of this chapter should be extended by a key message from both case studies.

- *Offshore IT service providers in Eastern Europe have to become more than simply low cost providers.* Both companies discussed in the case studies are determined to provide high-quality services in the long run. While low prices are essential for getting into the markets in Western Europe, they are not sufficient for sustainable competitiveness. In the long run living standards in Eastern Europe will rise, which will force the companies to pay higher wages – mobility of skilled programmers within the EU will provide additional incentives for wage rises. In other words, Eastern European companies will increasingly be unable to compete alone on price with IT service providers in low-cost regions like Asia or South America. A strong focus on quality in combination with the geographical and cultural proximity to Western Europe and small cost advantages may help to overcome this drawback. In order to realise this, both companies are trying to attract qualified personnel rather than just cheap programmers.

Admittedly, most of the success factors for the provision of offshore IT services as discussed in the case studies and in this conclusion seem to be self-evident at the first glance. It should be clear that a website is not enough to win customers and that measures for quality assurance are of importance to win the trust of the customers. However, based on our experience in analysing this issue we feel that these simple messages are not as widely accepted as it often seems. The image of offshore providers – as discussed in the western media – is often limited to being competitors in the low-price segment. In addition, the large number of websites (by Eastern European offshore providers) that have appeared during the last month and often disappeared shortly afterwards indicates that the business challenges (importance of personal contacts etc.) have not been fully understood.

Finally, this report focussed on challenges and success factors related to the supply of offshore IT services. The forthcoming report by the *e-Business W@tch* (September 2005) will complement the analyses by presenting statistical results on the relevance of offshore IT services in different industry sectors in the EU. In addition, we intend to collect also the views of user companies and to present them as business example in the forthcoming sector report.

2.2 The increasing relevance of open source businesses

Introduction

In the last years, the public awareness of open source software (OSS) and the open source model has grown steadily, with the operating system Linux being the best-known project. In fact, during the past years the professional press was packed with news on Linux as OSS alternative to proprietary operating systems such as Windows.

Especially big and spectacular migrations projects gained a lot of attention – for example the decision of the municipality of Munich in favour of migrating to Linux and against continuing to work with Microsoft Windows.²³ In addition, the lawsuits by the US software company SCO against Linux suppliers and users generated “soap-opera like” headlines for months.²⁴ Today, according to one estimate, Linux has about 10 millions users worldwide, among them private persons, scientific and public institutions as well as companies.²⁵

Today, some OSS projects have become household names. Besides Linux, other OSS such as the database mySQL or the Internet browser Firefox (a spin-off of the Mozilla browser) have achieved significant market shares. In addition, most major IT software and services companies such as IBM, HP, Novell, Oracle, Sun or SAP are in some way or another taking into account the open source phenomenon, e.g. by making their application software available for Linux, by setting up their own open source projects, by publishing part of their source code as OSS or by integrating open source components into their own (proprietary) software. Open source software is rapidly becoming an integral part of the software and IT services industry.

For this report, OSS is of interest for three reasons. First of all it is another example of a relatively new information technology concept that gets integrated into the offerings of IT services companies. But there is more to it: as open source software is made freely available on the Internet and as this attracts programmers as well as early adopters, the software itself becomes a major marketing vehicle – also for additional (commercial) services provided on the basis of some OSS. And finally, the open source projects, which consist of many developers distributed over the whole world, make extensive use of Internet-based collaboration tools. We probably would not see the open source phenomenon in its current size without the existence of the Internet.

OSS concept(s) and commercial opportunities²⁶

Even though OSS is increasingly known to people in- and outside the IT industry, there is still confusion about the essential features of this approach as well as about its applicability for commercial purposes. Therefore, the first part of this chapter clarifies some peculiarities of the open source concept and identifies channels for its commercialisation.

Open source software is often defined as software with zero license costs, but this is wrong. While it is true that most open source software is available for free, this does not apply to all open source software. In the field of “embedded Linux” (very small Linux compilations for desktop devices or other electronics equipment), for example, programmers frequently make modified Linux versions available to single device manufacturers for a fee. In addition, not all

²³ USA Today (2003): “Microsoft loses lucrative Munich deal to rival Linux”, Article, 29.05.2003 ([Hwww.usatoday.com](http://www.usatoday.com)H).

²⁴ For a list of headlines see Computerworld.com: “SCO's Linux Fight Headlines”, Computerworld coverage at [Hwww.computerworld.com](http://www.computerworld.com)H (March 2005).

²⁵ See [Hwww.linux.de](http://www.linux.de)H (March 2005).

²⁶ For further reading see also Berlecon Research (2004): “Basisreport Linux- und Open-Source-Strategien für CIOs”, Report, March 2004 ([Hwww.berlecon.de](http://www.berlecon.de)H).

software that is available free of charge is open source software. The Adobe Acrobat Reader of Microsoft's Internet Explorer are examples of software available without license fees that are closed source.

The decisive feature of OSS is the availability of the source code, i.e. of those program commands that show how the software works. Generally spoken, if the source code is available to the users, we call it OSS, otherwise it's proprietary. Availability in this context means that the users can inspect the source code, modify it and redistribute it subject to certain conditions. Some software companies allow selected customers to inspect the source code but do not give them the right to modify or redistribute the code. Such software is not OSS in the sense of the generally accepted Open Source Definition provided by the Open Source Initiative.²⁷

In the early days of OSS development, most projects were located at universities and research institutions. Many programmers participated in OSS projects during their spare time. The full result as well as support and bug fixes were made available for free. This still applies to a large part of the open source projects. Based on these characteristics OSS is often equated with "non-commercial software". For a variety of important and visible open source projects, this characterisation is not any more correct. Strong commercial interests at least influence the development of well-known OSS projects like Linux, MySQL, JBoss, FreeBSD, Eclipse, Evolution and many others. Companies back these projects primarily by putting programmers involved in them on their payroll.

For software and IT services companies this makes sense, because there exist several ways for establishing business based on open source software:

- **Packaging** used to be the major business model for Linux distributors like RedHat or SuSE (now part of Novell). These companies compile different Linux components and often some additional proprietary components into one solution package which is then made available for a fee. RedHat, Novell and also Sun are active in this business.
- **Additional services** like **customising** or **support** include the development and integration of custom solutions based on OSS as well as services such as training, support and maintenance of OSS-based solutions. These services are part of the portfolio of almost every commercial company involved in OSS.
- **Embedding** OSS in commercial software (or hardware) increasingly gains importance. In this scenario a software company builds additional proprietary components on top of the OSS and sells both as one entity. Apple's operating system MacOS X is a well-known example. By doing so the software company can externalise some of the development costs and can concentrate their development efforts on those parts where it has a competitive advantage.
- **Versioning** is a closely related strategy. While the basic version is made available as open source software, there exists a second version with more features or more usage rights that requires payment of a license fee. Companies following this strategy are, e.g. MySQL, Sendmail or SugarCRM.

Open source software and the use of the Internet

As mentioned above, writing as well as marketing open source software involves the extensive use of the Internet and Internet-based collaboration tools to support the production as well as the marketing processes.

First of all, Internet-based platforms are the basis for the initiation and coordination of OSS projects. Most prominent example is Sourceforge.net. The OSS portal currently lists more

²⁷ [Hwww.opensource.org/docs/definition.php](http://www.opensource.org/docs/definition.php) (March 2005).

than 97 thousand OSS projects worldwide²⁸ It also supports the entire development process. Special technical tools support the registration of interested users, the joint planning and supervising of the projects, the allocation of development tasks to individual programmers, the discussion of problems among the associated developers and last but not least the publication of the programming results.

Such platforms are necessary, since open source projects typically involve programmers from many different countries, continents and time zones. Personal communication by phone or e-mail can only support the development activity but cannot be the main coordination mechanism due to the number of participants and their regional spread. In addition some elements of the development process need a supporting infrastructure to create order. This is done, e.g. by so-called CVS (concurrent version systems), which is software to manage software packages consisting of many different components that are also available in many different versions. Also the process of looking for programming errors (bugs) needs a supporting infrastructure. Bug tracking systems list all known bugs together with additional information like severity or who is currently working on fixing it. These tools – which are specialised collaboration platforms for programmers – enable the open source development process.

However, as will be seen in the case studies below, providing some initial software as well as an IT infrastructure is not enough for getting an open source project off the ground. The most important element is the establishment of an open source community for the specific project, i.e. a group of programmers willing to contribute to the project – typically on a voluntary basis without any payment. Many OSS projects failed because no one was interested in contributing to them.

Such a community is also essential for the second use of the Internet: marketing an open source-based software. Typically, viral marketing is an important strategy chosen for OSS (see the case study of Janus software). In the context of software this basically is an electronic form of “word of mouth propaganda”, which ideally works in the following way: programmers involved in projects tell their friends and colleagues about the project and point to the place on the Internet, where the software can be downloaded free of charge. The new users can test and use the software immediately and – if it is good – will recommend it further to friends, in their weblogs and in discussion forums. Technology journalists quickly will find out about the new, interesting software, will install and test it themselves and write about it. This attracts new users and also new contributors. Ideally, this snowball effect improves the software by attracting better and more programmers while at the same time increasing its popularity. The Internet and the open source characteristic of the software are integral parts of this process. Companies with commercial interests behind their open source activities can piggyback on this snowball effect. The following two case studies discuss potentials and challenges of the OS development model from two different perspectives. Whereas Open Cascade S.A. (presented in the first case study) has started as traditional software manufacturer, Janus Software (presented in the second case study) has concentrated on the provision of services around OS products from the beginning. Both companies show also different approaches in managing the developer community.

²⁸ [Hwww.sourceforge.net](http://www.sourceforge.net)H (March 2005).

CASE STUDY: OPEN SOURCE-BASED SERVICES BY OPEN CASCADE S.A. (FRANCE)

Abstract

Open Cascade S.A. is a software services company specialised in development and integration of numerical simulation software. The applications designed are based on two open source software platforms – “Open Cascade” and “Salome”. The case study demonstrates how Open Cascade S.A. has become an open source company as well as the challenges of the open source software model. It emerges that the composition of the developer community is a crucial element in determining the success of an open source based business model.

Case Characteristics	
Location of the company	Saclay, France (with branches in Lyon, France and Nizhny Novgorod (Russia))
Company size (no. of employees)	Medium-sized (100 employees)
Primary customers	Large companies of different industries all over Europe
E-Business Focus	
Provision of services based on open source software	***
Collaboration via the Internet	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objective

Open Cascade S.A. is a software services company specialising in custom application development and the integration of numerical simulation software. The company serves large industrial clients all over Europe, such as BMW (a German car manufacturer) or RINA (an Italian shipbuilder). The custom applications are based on software platforms developed within two open source (OS) projects, “Open Cascade” and “Salome”. Apart from the development and integration of customised applications, Open Cascade S.A. provides added services relating to the OS platforms like helpdesk support, training, technical assistance and consulting.

As far as this goes, the approach of the company is very similar to that of many other “open source companies” that originated from open source communities during the past few years. All these companies were trying to build a business on the new development model enabled by Internet-based collaboration.

However, Open Cascade S.A. shows some peculiarities in the way the company approached the open source idea. They can partly be explained by the company history and partly by the business requirements that the company must fulfil.

Activities

The history of Open Cascade

The history of Open Cascade S.A. goes back to the 1980s. At that time Matra Datavision, a French software company, had started to design CAD/CAM systems under the brand EUCLID. In 1993 Matra Division released a development platform called CAS.CADE (Computer Aided Software for Computer Aided Design and

Engineering) for internal purposes. In 1999 Matra Datavision changed its business model and became a software services provider using the platform CAS.CADE as basis. Moreover, it released the platform CAS.CADE as open source (now called Open CASCADE) while focusing on services around it.

In 2000, Open Cascade S.A. was founded as a subsidiary of Matra Datavision to support and further develop the platform as well as to conduct custom development projects using Open Cascade as a foundation. In 2003, Open Cascade S.A. was acquired by Principia, a French editor of finite-element solvers and provider of engineering services in the field of system simulation. However, the business focus of Open Cascade S.A. as software services provider around the open source platforms remained the same.

OS potential for software manufacturers

Michel Rochon, CEO at Open Cascade S.A., remembers the time, when its owner Matra Datavision changed the business model and published the source code of the software product as a “*dramatic period of time.*” The market was consolidating, leading to falling revenues; the resulting fierce competition drove down prices even further. In addition, costs for keeping the product up-to-date as well as for marketing soared. So the company decided to change the business model from supplying software to providing value added services around software that is offered for free. With this move, Open Cascade S.A. was able to differentiate itself from competitors.

Open Cascade S.A., in fact, differs in this regard from what is ‘typically’ considered as open source company, i.e. a start-up focusing on the distribution of OS software from the beginning. This company example demonstrates that the OS development model provides some potential for conventional software manufacturers to differentiate from competitors and thereby avoid the strong competition in commoditized markets.

OS potential for customers

Mr. Rochon sees three main ways in which clients profit from using the open source software together with the company’s services:

- **Cost savings:**²⁹ Since the open source software components are offered for free, customers have only to pay for customisation of the software. This is particularly interesting if many people are using it, as competing traditional software is typically licensed based on the number of users. The cost savings continue even with customisation of the software; the customers can use the customized software as they want.
- **Adaptability:** The use of open source components facilitates the adaptation of the solution to specific customer needs. This feature is important for clients of Open Cascade S.A, who come from different industries and therefore have different requirements.
- **Independence:** As the source code is open, customers do not depend on specific software manufacturers or solution providers, which makes the IT investment less risky. Users are free to change the provider, for example if the original partner goes bankrupt or increases fees.

Mr. Rochon regards the successful development of the company during the last few years – it has been profitable since 2002 – as evidence that the business model change was a good decision. Since 2002, the number of employees has grown significantly; currently about 100 people work at Open Cascade S.A.

²⁹ Please note that the discussion of pros and cons of OS software is under an open debate. The arguments presented here reflect the opinion of the CEO of Open Cascade S.A., Mr Rochon.

Challenges

Open developer approach versus contract based co-operation

In the first year after becoming a services company, Open Cascade S.A. applied a truly open model for further development of the Open Cascade platform. Everyone who wanted to could participate. But, according to Mr. Rochon, this approach resulted in several difficulties: It turned out that the communication process – necessary to make programmers familiar with the software and the problems approached – was extremely time consuming. *“In the worst case, programmers lost their interest after a long time of discussing the project and disappeared.”* In addition, the quality of the code delivered was often not convincing. These were both unacceptable situations in light of the critical projects Open Cascade S.A. supports on behalf of its large clients.

Consequently, when initiating a new open source project called Salome in 2001, Open Cascade S.A. chose a different, more controlled community approach. The company started the project together with eight other companies as partners in an R&D consortium. All participating companies agreed to contracts in which the content of the project, the contributions by each single partner and a time frame for fulfilling the tasks are stipulated. If a company wants to join the consortium, it must first go through an application procedure. The decision about its participation is made by the core group of partners. Finally, the rights and obligations of the new partner are stipulated in a contract.

Despite the rather strict conditions for participation, the developer community has continuously grown and consists of about 20 companies today, among them well-known companies like the European aerospace company EADS. Michel Rochon concludes that, *“basing the open source development on contracts was an essential factor for the success of the project”*.

Achieving the trust of the clients

Marketing open source software, however, is still a challenge, according to Mr. Rochon. Even though the image of open source software has significantly improved during recent years, many open source projects still encounter prejudices regarding the suitability of open source software for critical applications. Often companies still tend to prefer conventional software products, the CEO observes, mainly because of doubts about accountability in case of bugs or other problems.

Therefore, Open Cascade S.A. makes a strong commitment to product quality and also offers a 24 hours-a-day service to customers. Mr. Rochon considers this to be crucial for a successful business model based on open source software, and notes that this in turn requires a fully-functioning open source community for the specific project.

Lessons learned

Open source projects are a new form of collaborative software development made possible by the Internet and Internet-based collaboration platforms. Several software companies have tried to benefit from this new combination of technology and development model. As this case study shows, the model may indeed offer an alternative through which software companies can differentiate themselves from their competitors. The example of Open Cascade S.A. shows that a successful strategy shift from a software manufacturer to a services provider around open source products is possible.

However, the case study also clearly demonstrates that the success of such a model is not dependent on technical issues like well-designed collaboration platforms or other types of IT equipment. Rather, setting up and managing the community process, i.e.

the specific open source community supporting a single project, is the key challenge. Open Cascade S.A. has tackled this challenge in one of its projects by organising the community in a conventional, "old economy" way. The collaboration is based on similar contracts as the co-operation of companies in "offline" R&D projects. In this way, the company combines the advantages of open source with those of conventional R&D collaboration models.

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This case study was conducted by Berlecon Research on behalf of the *e-Business W@tch*.

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CASE STUDY: JANUS SOFTWARE WANTS TO ESTABLISH ITSELF AS "COMPETITOR OF ORACLE"

Abstract

Janus Software was founded in 1999 as a company offering services based on open source software. Today, the company's main activity centres on the open source database Firebird. Due to the increasing popularity of Firebird as an alternative to Oracle databases, the company business has grown significantly during the last two years. The case study illustrates some of the challenges and opportunities of open source based business models. It also shows how open source companies use the Internet in combination with their product for marketing purposes.

Case Characteristics	
Location of the company	Wassenaar, Netherlands
Company size	5 persons (employees and freelancers)
Primary customers	Companies
E-Business Focus	
Provision of services based on open source software	***
Collaboration via the Internet	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objective

Janus Software was founded by Paul Ruizendaal in 1999. From the beginning, the company wanted to provide services based on open source (OS) software products. First, the company acquired Phoenix – a project-oriented RAD (Rapid Application Development) tool from a bankrupt company, intending to make it open source. However, Janus Software could not obtain the rights for a library that was an integral part of the software. Next, the company moved to the open source project Firebird,

which aims at developing a database for enterprise-level applications. The Firebird project got started after software company Borland decided to open source its "Interbase" database product in 2000. Today, according to Paul Ruizendaal, the company is mainly focusing on Firebird and Firebird-based solutions.

Recently, Firebird could further extend its popularity. "And with Firebird soaring", says Paul Ruizendaal, "the company's business is growing fast." The Janus team has increased from two to five persons within only a few months. Today, Janus Software serves about 1,000 customers. Services mainly consist of ready-to-use distributions of the Firebird project's source code, of easy-to-use developer applications and of integrating Firebird with open source based solutions, notably the ERP-package Compiere. In addition, the company offers support and consulting services related to Firebird.

Activities

Firebird versus Oracle

According to Paul Ruizendaal, the Firebird differs from competitors particularly in an emulation-mode nicknamed Fyracle, that lets Firebird behave like an Oracle database and thus – at least for simpler requirements – enables users to substitute their commercial Oracle database with the (cheaper) open source Firebird while keeping all settings.

Many companies are looking for a way to reduce their software licence costs. Firebird is an alternative for some, at least for smaller applications that do not need the full capabilities of Oracle. According to Mr. Ruizendaal, even middle-sized companies with up to 600 employees had contacted Janus Software with the intention to run various small applications on Firebird. He also refers to a small US-based software company, which wanted to produce demo CDs in order to present applications running on Oracle. However, basing the Demo CDs on Oracle would have meant paying additional licence fees. So they asked Janus Software to consult them about the integration of Firebird.

Challenges

Managing the OS developer community

The focus of Janus Software as service provider around open source software also poses several challenges. For example, Janus has to align the needs of the customers with the interests of the developer community. Clients, for example, demand good documentation, whereas programmers typically consider writing documentation a chore. Therefore, it often becomes the task of Janus Software to provide a user-friendly documentation set. The same applies to software usability. "*Developers typically have fun solving a problem, but have a warped view of whether the application is easy to use or not,*" says Mr. Ruizendaal. In order to meet client requirements, Janus Software must spend time convincing the developers to add additional features that make the software easier to use. Sometimes this also involves paying developers to create specific features.

Like most other open source projects, Firebird uses the Sourceforge platform on the Internet to coordinate the software development. The platform offers tools for managing and integrating the contributions of many developers, for managing the code in a CVS (concurrent versioning system) tree, for bug reporting as well as for community support. Currently, almost 100,000 open source projects are registered on Sourceforge, the platform and its means of operating are well known to almost all open source programmers.

Next to volunteer contributions by the developer community, the Firebird project is funded largely by the contributions of three companies. They also fund a foundation that accepts user contributions and channels them into the developer pool. As those

participating in the community have quite divergent reasons for doing so, a lot of effort is required to keep the community together and to focus on the development roadmap. *"We deal with it by investing a lot of time in communicating with the developers and the other two companies,"* explains Mr. Ruizendaal.

This, however, according to Mr. Ruizendaal, is the "raison d'être" of Janus Software: to bring the needs of the customers into alignment with the interests of the developer community, even if it is sometimes a hard job. *"Dealing with the highly skilled and very creative programmers is always a sensitive job, independent of whether they are employed in a company or associated to an OSS developer community. After all, if it was not for these individuals, there would not be a product in the first place."* It is this work that creates value added for customers and allows Janus Software to charge for its services.

In addition, Janus Software strongly benefits from collaboration with the OSS community. Compared to the development of proprietary software, participation in an OSS projects speeds up development and is cheaper. Development is a major cost item in traditional, proprietary software. *"We do not have to reinvent the wheel all the time, and the development load can be more easily be shared among multiple parties. In open source, we stand on each others' shoulders, whereas in proprietary, they stand on each others' toes."*

Running businesses at low margins

Mr. Ruizendaal points out one further challenge of his company's business model: Since the source code is published, any skilled IT services company can do integration jobs or use it as a foundation for commercial packages, e.g. by combining different software components into an easily usable package of software. While this benefits customers with more independence from software manufacturers or services providers, it leads to strong competition on the part of software service providers, as there are no barriers to entry. As a consequence, this is a very much commoditized business with rather low margins. The only possibilities to avoid this strong competition would be to combine the open source software with proprietary software components or to specialise on knowledge-intensive areas with high barriers to entry, for example specific, difficult to understand industries. Traditional open source software companies often have difficulties doing either one of these.

Moreover, low margins also result in limited funds for expanding the business. *"It makes it hard to buy professional marketing in an economically sensible way. Sales and marketing is another big ticket cost item in a traditional software company."* The way out of this dilemma for Janus Software is "guerrilla marketing". This includes a large range of activities aimed at achieving "exposure" and "endorsement". Exposure, for example, can be enhanced by writing articles for online and paper publications or by presentations on conferences. Endorsement can be achieved, for example, through mentions of Janus' products and services by renowned experts. Carrying out guerrilla marketing strategies, however, requires a very good reputation as well as good relationships within the respective community.

The Internet is an integral part of many guerrilla marketing tactics. Many resources – e.g. weblogs, discussion forums, whitepaper sites and search engines – can provide exposure. For open source software, this tactic works especially well, since the software itself can be downloaded and used for free. Ideally, early adopters read about the software, download it with a click and write a rave review. Once a tipping point is reached, the wider public also becomes aware of it. (This viral marketing mechanism explains to some extent the success of the web browser Firefox).

Despite all the guerrilla marketing, concludes Mr. Ruizendaal, success in the open source business not does come over night. *"As a small company in this field, we have*

to grow with the margin. Staying power, as well as high quality of software and services, are key success factors in this business”

Lessons learned

The case study demonstrates the potential, as well as the challenges, of business models based on open source software. While open source companies need to understand the open source software itself and need to be familiar with the collaboration tools, this typically doesn't pose a problem. More challenging for companies making a living from open source based services is to align the needs of the software users with the interests of the developer community. This requires time, considerable patience and sometimes even paying developers.

Since profit margins are low in this line of business and therefore marketing funds are limited, Janus Software makes use of guerrilla marketing tactics to get exposure and endorsement. Open source software is very well suited to guerrilla marketing as these marketing tactics, the Internet and the software itself can be combined into a powerful guerrilla marketing feedback loop.

Sources and references

This case study was conducted by Berlecon Research on behalf of the *e-Business W@tch*.

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- Interview with Paul Ruizendaal, Founder and CEO of Janus Software, 27.01.2005.
- Website: www.janus-software.com

Conclusion

The analyses and case studies presented in this chapter demonstrated how IT services companies try to build businesses based on open source software. Open source, in fact, paves the way from product-centric software supply to new business approaches that focus on services around the software. In this way, small companies like Janus Software get access to a software segment that is increasingly dominated by large players. Moreover, established software companies like Open Cascade S.A. can side-step the strong competition stemming from an ongoing consolidation in the traditional software market. Finally, IT users can benefit from this development. OSS enhances the adoptability of software products for the specific needs of companies and thus supports their efficient use. Furthermore, OSS-using companies gain some independence from software manufacturers while in many cases also benefiting from cost savings.

The Internet and Internet-based platforms play an essential role in the OSS development as they provide the basis for collaboration and an organisational infrastructure to support the development process. In addition they play a role in marketing.

The case studies have further demonstrated that quality assurance and the ability to react promptly to emerging customer needs are of outstanding importance. Managing the developer community turned out to be a key challenge of OSS businesses. In this regard, the case studies have shown that the widespread perception of OSS communities as groups of altruistic programmers working in their leisure for free does not hold anymore, at least if large and professional OSS projects are considered. The two companies have chosen different approaches for the organisation of the community. Whereas Janus Software spends much time in communication and sometimes pays programmers for specific tasks, Open Cascade organises the community contract-based – similar to conventional R&D consortia. This indicates that a unique best practice to overcome this challenge does not exist.

2.3 The maturing concept of software as (a) service

Introduction

Ubiquitous and powerful data networks like the Internet are the basis for providing software as a service. The basic idea behind this new paradigm is the following: Traditionally, software is packaged, licensed to users and then installed individually on the computer(s) of the software users. Such a traditional software business has many similarities with any other product business.

However, installing software on many computers is a tedious and sometimes complicated task, especially if it comes to installing frequent patches or updates. In addition, software usage might vary over time, so that a fixed number of licenses is not necessarily optimal. Similar arguments can be made for hardware. Providing software (and hardware usage) as a service promises to solve these problems: The software is running on a central server at the service provider, and the software users access it via the Internet. The same can be done for hardware, e.g. computing power, which can be made available by so-called “on-demand” service providers. In both cases, companies are less involved in setting up IT solutions and can focus on their core activities. At the same time they only pay for the actual usage of software and hardware.

A necessary requirement for such services is a powerful broadband connection between service provider and service user. Therefore the idea of software as a service began to flourish during the dotcom boom, when such connections started to become a reality also for smaller companies. Many different forms of service providers emerged, often subsumed under the general term xSP, where SP stands for service provider and x denotes the many different variants. Especially, the ASP (application service provider) concept – based on the central provision of software applications via the Web – promised a revolutionary change in the way software is supplied.

The hype surrounding ASPs was accompanied by a quickly growing number of companies becoming active in these fields. In Germany alone, in 2001 almost 80 ASPs³⁰ existed. But today – only four years later, the term “ASP” is hard to find in press articles or on conference programs. Companies labelling itself as ASPs disappeared nearly completely from the market. However, it would be false to interpret this development as evidence for failure of the on-demand idea.

This chapter will show, how the concept and the services provided have evolved over time. The case study in the final part presents a company that has successfully established itself as ASP in the field of e-procurement. The discussion of this approach will provide insights into how key challenges can be overcome.

Early on-demand computing

Application service providing (ASP) is an on-demand concept for traditional software applications covering a range from office applications via e-mail to special purpose enterprise applications like CRM. All these applications are used directly by human beings – this does not need to be the case for all variants of on-demand computing.

The basic idea of the ASP concept can be summarized as follows: Software can be rented as “all-inclusive-offer” via the Internet. The core of any ASP is a standardized software, which is centrally hosted by the ASP. Applications follow the one-to-many model, meaning that all users share the same software application. This distinguishes ASP from application hosting,

³⁰ Berlecon Research (2001): “ASP: Das IT-Konzept der Zukunft – Der deutsche Markt und seine Herausforderungen”, Report, January 2001.

where each customer has his own software installation running on a dedicated server. The latter is very important for hosting of enterprise software like ERP systems.

The shared use of software solutions provides various opportunities for both customers and suppliers of software. Potential advantages for software users are the following:

- **Cost savings:** These come from two effects. First, due to the shared use of software solutions also costs for implementation and maintenance are shared. The software only needs to be installed and maintained once at the premises of the service provider. And second, the software using companies only pay for their actual use of the software, which avoids the over-licensing frequently occurring with traditional software.
- **Lower investment risks:** The investment risks are mostly borne by the ASP. He has to develop and implement the software, whereas companies only pay for the actual usage. The remaining "investment risk" is only the lock-in resulting from getting used to a software.
- **Focus on core activities:** Since standard IT-related tasks like maintenance are conducted by the ASP, companies can focus on their core competencies. This benefits especially small companies, where some employees have to take on IT-related tasks in addition to their normal work.
- **Flexibility:** Companies may use the ASP solution according to their current needs. E.g. a special design application might normally be used by only one employee, except in peak times, where five employees need to use it. Traditional software licensing requires five licenses to be bought, whereas a flexible ASP contract fits the needs of the user company much better.
- **Performance and security:** The central hosting of the solution and the high demands on security and reliability on ASP solution make it very likely that a software installation at an ASP outperforms traditional local installations in terms of performance, reliability and security.

There are mainly two advantages that make the ASP model attractive for service providers:

- **High growth potential:** The one-to-many design of the solution makes the exploitation of scale effects possible. The main cost factor is the development of the solution, whereas variable costs (e.g. for provision and maintenance of the solution) are relatively low. The profit margin, therefore, increases with each additional customer.
- **Continuous revenue stream:** Providing IT solutions as continuous service can provide software manufacturers with a more stable revenue stream than conventional software licensing. This makes a software provider less dependent on short-term economic developments or the success of sales agents to close last-minute deals in each quarter. In addition, getting frequent contact to customers can help service providers to better identify current needs and problems.

In light of these benefits the questions arise, why companies should still buy licensed software and why software suppliers still stick to the conventional model. In fact, during the dotcom boom many IT consulting companies expected a strong market growth of ASP services. In 2001, for example, Aberdeen forecasted a growth of the worldwide ASP revenues to \$16.1 billion in 2005, assuming a compound annual growth rate of about 52%³¹.

However, realising the ASP model involves several challenges that have often been underestimated by the early ASPs.

³¹ Aberdeen (2001): "Worldwide ASP spending: Forecast and Analysis 2001-2005", Report, July 2001 ([Hwww.the-infoshop.com](http://www.the-infoshop.com)H).

- **Finding a trade-off between standardisation and customisation:** Serving multiple clients with a single solution is a major challenge for ASPs. On the one hand, the IT solution has to assure that each client's data are separately processed in a protected area. Moreover, clients have different requirements on functionalities of IT solutions. These demands favour solutions enabling a high degree of customisation. On the other hand, a high degree of standardisation is needed in order to generate economies of scale. Creating a solution that provides a satisfactory trade-off is relatively easy for simple and highly standardised consumer applications such as e-mail (e.g. at Yahoo or GMX). But it becomes more difficult for complex and company-specific demands of enterprises. Therefore many of the early ASPs concentrated on the hosting of standardised solutions. These, however, were not so much of interest for enterprises where at that time the most broadband connections could be found.
- **Dealing with fears related to “loss of control” and “security issues”:** A further problem – often underestimated by early ASPs – was the reluctance of companies to hand over critical data to third parties. In 2001, Berlecon Research surveyed in a representative survey 649 IT managers of German companies (with more than 100 employees) about their usage of ASP. When asked for reasons for not using ASP, the “feared loss of control” and “security issues” turned out to be the strongest arguments against ASP.³² The reluctance of companies to use this new technology, which is a rather normal behaviour when new technology becomes available, was particularly pronounced in the ASP market because many of the ASPs at that time were young start-ups with an uncertain future.
- **Outperforming local installations:** Most of the early ASPs focused on the technical realisation of the ASP concept. But, from today's perspective, this was not enough to outperform local installations. First, in many application areas companies need solutions that are specifically customised to their needs. For this reason, for example, suppliers of ERP software often sell their software via system integrators that can adapt it to specific needs. Moreover, as far as standard software applications are concerned there are also other IT concepts that allow for a flexible deployment without giving control away. Suppliers of statistics software like SAS or SPSS, for example, already offer software to rent for local installation. Here the user obtains the right to use the software for a limited time. Therefore, a crucial challenge for the establishment of successful ASP services is to find and support applications that outperform local installations in terms of functionality and costs.

The following case study on Onventis presents a company that has succeeded in establishing an ASP business. It demonstrates the crucial challenges and success factors of on-demand-models in the software industry today.

³² Berlecon Research (2001): “ASP 2001: Was wollen die Nutzer?”, Report, October 2001.

CASE STUDY: ONVENTIS (GERMANY) – THE PROVISION OF SUPPLY MANAGEMENT APPLICATIONS ON DEMAND

Onventis is a German supplier of software solutions in the field of e-procurement and Supplier Relationship Management (SRM). The company provides its solutions “on-demand” and offensively promotes its positioning as a “Procurement Services Provider”. Unlike many other application service providers (ASPs) that emerged in the late 90’s and disappeared a short time afterwards, Onventis succeeded in establishing a stable business. The case study discusses success factors in the Onventis approach as well as related challenges.

Case Characteristics	
Location of the company	Stuttgart, Germany
Company size (no. of employees)	Small company (38 employees)
Primary customers	Large and medium-sized enterprises in Germany
E-Business Focus	
Internet-based services (ASP)	***
IT infrastructure	**
E-procurement	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objective

The Onventis GmbH is a manufacturer and supplier of e-procurement and Supplier Relationship Management (SRM) software. Its various solutions support the internal organisation and automation of procurement processes as well as collaboration and communication with suppliers. The company was founded in 2000 and was an ASP (application service provider) from the beginning.

Application service provision at that time was a new model for software use, made possible by the increasing availability of broadband connections. Instead of licensing software to enterprises for local installation, in this new IT concept the ASP runs the software at his premises and makes it available via the Web to software users. In contrast to traditional outsourcing models, ASP software follows a one-to-many design: There is one installation that can be used by many companies and users at the same time; each works with his own protected set of data.

Unlike many other ASPs that emerged in 1999 and 2000 and disappeared only shortly afterwards, Onventis has grown steadily. Today, the company employs 38 people. More than 1,300 organisations are using the Onventis solutions. From 2004 to 2005, the company business has grown by about 20%. Customers of Onventis are mainly large and medium-sized companies from various industries, e.g. telecommunications, energy, consumer packaged goods, plant engineering and construction.

Activities

Key success factors

Around the year 2000, many software companies tried to jump onto the ASP bandwagon. The new IT concept sounded plausible, it promised to provide IT users with cost savings and increased flexibility and, therefore, looked like a good foundation on which to build a business. Despite these promises, many ASPs folded quickly.

Onventis CEO, Mr. Raimund Schlotmann, refers to three major factors which explain how Onventis has survived:

- **Onventis' technology** that allows for individual and independent provision of applications on-demand, the
- **Application-driven ASP approach** with focus on the exploitation of synergy effects by the shared use of applications and, finally, the rather
- **Conservative business approach** as compared to many ASP start-ups in 1999 and 2000.

Ability to serve different clients individually and independently

In general, Mr. Schlotmann considers the Onventis approach a further extension of the original ASP idea. According to him, most ASP offers in the late 90s focused on the central hosting of standard software applications and their provision via the Internet. In this way, companies would have the opportunity to save money on the implementation and support of the software. This approach, however, was not sufficient to outperform internally installed software solutions. Since the processes to be supported are company-specific, solutions for their support need to be individually adjusted to the needs of the companies. Consequently, the technology behind the applications provided must be able to serve different clients individually and independently.

Setting up such one-to-many solutions turned out to be a larger challenge than many ASPs thought in the beginning. Most traditional software applications were not prepared for these demands. Reprogramming them turned out to be rather expensive, as did the emulation of the one-to-many model by simply setting up a single, identical server for each client. These problems made the ASP business model less viable than necessary for long-term success.

Ability to exploit synergy effects

The economies of scale from ASP or "on-demand" models result primarily from the synergy effects of shared application use. The field of supplier relationship management (SRM), on which Onventis focuses, provides several scenarios for such synergies. Suppliers, for example, once connected to Onventis, can easily trade with all associated buyers. In addition, functionalities and services related to these suppliers (e.g. catalogue data or information about the supplier qualification) can be provided to all buying organisations. Onventis tried to find and exploit as many of such synergy effects as possible. However, Mr. Schlotmann notes, synergies differ from application area to application area. Their exploitation requires specific expertise in the processes to be supported. Therefore, he emphasises: "*Onventis has experts for SRM, not for ASP*".

Conservative business approach

Finally, Onventis has followed a rather conservative business approach. On the one hand, business planning was based on cautious assumptions about the adoption of new technologies. Onventis has primarily concentrated on companies with a strong focus on the reduction of process costs. These can benefit most from on-demand applications. In 2000 or 2001, these were primarily large enterprises in the process industries (e.g. chemicals, food processing), characterised by complex procurement processes and a large number of buying events. Even though ASP solutions are also able to provide significant advantages to medium-sized companies, the adaptation of new concepts by this group needed more time than had often been expected. Therefore, Onventis only slowly established offerings for this group.

In addition, Onventis had always stuck to the core concept – the design of integrated IT solutions supporting the supply management and their provision on-demand. This

helped to create a clear company profile as a serious and stable supplier of “SRM solutions on demand”.

Challenges and ways to overcome them

Despite the interest in the “on-demand” concept, a change of paradigms needs time. Companies in Germany in particular, where Onventis is based, behave rather conservatively when it comes to the adoption of innovative concepts, as Mr. Schlotmann knows. A major barrier to the adoption of on-demand services is a fear of “loss of control”, because application and data are outside the immediate control of the IT departments. Accelerating the transition to on-demand computing and diminishing fears related to ASP concepts is therefore a major challenge for the company.

In order to facilitate the paradigm change, Onventis does not offer ASP-based solutions as a dogma, points out marketing manager Ms. Doppler. Customers, for example, may also install the Onventis solution internally. Actually, several clients initially intended to implement the solution internally after using it for some time as ASP solution. This, however, had never happened. Finally, the marketing and sales activities by Onventis target CEOs and procurement managers – and not primarily IT managers. “*This strategy*”, concludes Ms Doppler, “*also coincides with the Onventis’ philosophy to provide management support rather than to sell IT projects.*”

Lessons learned

This case study has shown some of the opportunities and challenges of building a viable business on the new IT concept of ASP or on-demand computing. Reflecting on why this company has survived the end of the ASP boom in 2001 and many others did not, leads to two conclusions:

Firstly, while the idea of ASP is convincing in theory, it is more difficult to realize in practice than originally thought. The main challenge is to find application areas where the synergy effects of ASP outperform local installations and then realize them technically in a way that maximizes this advantage. While Onventis identified the field of supply management as suitable, many now defunct ASPs from the late 90s concentrated on the technical hosting of standard software, where the advantage was less clear.

Secondly, IT service offers must not be built on some potential technical advantage alone (“We’re an ASP.”). Rather, they must provide the specific process support companies need (“We support the supply processes with an ASP solution.”). Onventis has focused on one specific application area, which allowed the company to better understand the real problems of its customers.

This does not mean that innovative technologies are without importance for such companies. On the contrary, Onventis considers its technology as an important contributor to business success. The value of new technologies is mainly determined by their ability to meet actual user needs. This is also reflected by the strategy of Onventis – as well as by many other successful IT services companies today – to sell solutions to the top management or heads of business lines rather than to IT departments.

Sources and references

This case study was conducted by Berlecon Research on behalf of the *e-Business W@tch*.

References:

- Interview with Mr. Raimund Schlotmann, CEO of Onventis, and Mrs. Susanne Doppler, Marketing Manager at Onventis, 21.02.2005.
- Website: www.onventis.de

While there are many arguments in favour of on-demand provision, some companies still prefer software. This is also shown in the following business example of Polish e-ticket service PMP. However, both the Onventis case and the business example of PMS support the same message: It is more important for IT service companies to satisfy these needs than to focus on a specific technology.

Business example:

New cashier system by PMS

PMP Systemy Komputerowe was founded in 1991. From the start, the company has been active as IT system developer and integrator supporting clients in various activities related to e-business such as Internet shopping systems, B2B e-markets. In addition, the company operates eBilet, an Internet-based reservation and e-ticketing system for theatres.

eBilet (www.ebilet.pl) was launched in 2001 and has established itself as the most popular e-ticketing portal in Poland with a market share of about 90% according to PMP. In 2004, ca. 35 thousand tickets were sold over the platform generating a revenue of about 0.5 million euros. In order to ensure a sufficiently large supply of tickets, PMP co-operates with more than 50 cultural institutions in Poland.

Even though the eBilet service is the largest in Poland, the viability of a business strategy appeared to be questionable. Though the e-ticket services opened a new and valuable sales channel for many theatres, the resulting income that PMP earned as "sales agent" was not sufficient. In addition the business model was risky, since relationships with cultural institutions were rather loose. Therefore, PMP decided to develop a further product aiming to increase the company income as well as immunise PMP against unfavourable developments in the rapidly changing world of e-business. As a result of these considerations, the eBilet Cashier System was introduced in the second half of 2003.

The eBilet Cashier System is a software solution that supports the entire process of ticket sales in theatres, including reservations, configuration of seats and prices, cancellations as well as invoicing and accounting. Moreover, it integrates the in-house sales systems of the theatres with the eBilet portal by PMP. Currently, the eBilet Cashier Systems works in 7 theatres in Warsaw, Cracow, Poznan and Kielce. Customers mainly profit by a better control over the sales process and cost savings due to more efficient sales processes.

PMP considers the introduction of the eBilet Cashier System as natural extension of its e-ticket service that yields the following two main advantages:

- *Stabilisation of the Business model: By combining both products, the business model can be stabilised. The new system helps in establishing closer relationships with theatres, which are now customers and not only suppliers. This ensures a continuous supply of tickets for the portal and at the same time opens a new revenue source.*
- *Additional revenues in the future: Though prices for the implementation of the system were kept rather low (due to the poor financial situations of many cultural institutions in Poland), the company expects additional revenues from development and maintenance services to be carried out in the future.*

Source: Case study "Ticket sales management system for theatres" conducted by Adam Turowiec on behalf of e-Business W@tch, January 2005.

Conclusions

About five years after the dotcom boom the paradigm of providing software as service has had its first reality check, leading to significant changes of Internet-based services. The business example on PMP indicates that even some providers of B2C e-commerce sites increasingly tend to support the entire sales process of suppliers. Thus, the support of actual business processes and actual needs of customers has become more important than the realisation of new technical paradigms.

This also applies to application service providers. Many early ASPs failed despite the potential of this concept. Their services offered were very much technology-driven and did neither address company specific requirements sufficiently nor offer a compelling advantage compared to local installations. In fact, there is a trade-off between the necessary degree of standardisation in order to exploit economies of scale and the customisation of the solution in order to meet process-specific needs of the users.

The case study has shown one possibility to overcome this challenge, namely the exploitation of synergies. Users can enjoy cost savings from the one-to-many-design of the software solution. Moreover, by collaborating via the Internet synergies arise that could not be exploited in case of a local installation. A supplier, for example, once connected to the platform, can be made available to all connected buyers.

Interestingly, the supplier of “On-demand CRM solutions” Salesforce.com – probably the most successful ASP so far – seems to pursue a similar strategy. First of all Salesforce.com is often used by companies with different offices. By using this Internet-based application, all relevant employees can access their relevant customer data from everywhere, whether they are in the headquarters in a satellite office or even in a hotel. This is an additional compelling advantage compared to locally-installed applications. In addition Salesforce.com enables customisation. According to the director of product marketing Adam Gross: “*On demand doesn't have to be limited to CRM that comes out of the box, or even CRM at all*”.³³ Based on the customisation platform CustomForce, customers of Salesforce.com may build or adjust advanced applications for shared use such as tracing of orders, project management or recruitment systems. The Salesforce client Time Warner Cable, for example, uses the customisation platform for construction management of cable orders placed by hotels.³⁴

Summarising, the maturing of software as service is primarily characterised by a better consideration of actual user needs and wants and by a lesser focus on technology alone. The case study presented in this chapter and also the strategy of SalesForce.com show that this requires extensive knowledge about the actual customer needs and the applications to be supported. They also show that an outcome satisfying customers often is not software as service in its purest form, but may involve certain traditional software components.

³³ Line56(2005): “Siebel versus Salesforce.com”, Article, 04.03.2005 ([Hwww.line56.com](http://www.line56.com)H).

³⁴ Line56 (ibid.) and Computerwoche (2005): “Salesforce.com bietet mehr Anpassungsmöglichkeiten”, Article, 11.03.2005 ([Hwww.computerwoche.de](http://www.computerwoche.de)H).

3 Conclusions and business implications

This chapter extends the case study-based analysis by revisiting the specific opportunities and risks of ICT and e-business for SMEs (section 3.1) in this sector and by providing an outlook into likely future ICT developments that are of importance for this sector (3.2).

Please note that this first sector report on e-business issues in the IT services sector is mainly based on qualitative analysis. The conclusions and business implications discussed in this chapter as well as the policy implications in chapter 4 of this report should therefore be considered as preliminary. New statistical results from the *e-Business W@tch* Survey 2005 will complete the analysis. They will be published in the forthcoming sector report (September 2005) leading to consolidated conclusions and policy challenges based on qualitative as well as quantitative analysis (i.e. taking into account the insight from both the case studies and the statistical picture).

3.1 Opportunities and risks for SMEs

SMEs have an outstanding importance for this sector. First, almost all companies in this sector are SMEs. These account for nearly 60% of the production value and employ more than two thirds of the sector workforce in today's EU-25 (2001 numbers).³⁵ Finally, they are major drivers for innovation in the sector, so also for many of the developments discussed in this report.

However, large players, although they account only for a marginal share of companies, are dominating in central business segments such as software production or IT outsourcing. The currently ongoing consolidation process in the IT sector will most likely strengthen the position of large companies in many areas. Nevertheless, new opportunities provided by Internet and e-business tools – such as discussed in chapter 2 of this report – also offer many opportunities for SMEs to differentiate from large software and IT service suppliers, survive and keep the market competitive.

Exhibit 3-1: E-business opportunities and risks for SMEs in the IT services sector

Opportunities	Risks
<ul style="list-style-type: none"> • Provision and usage of offshore IT services: SMEs may benefit from offshore IT services as both providers and users. • Establishing businesses based on open source software (OSS): Based on OSS, SMEs may find an alternative access to the software market and avoid direct competition with large players. • Provide software as service: Offering software as service in a one-to-many model is also an opportunity for SMEs. • Use guerrilla marketing: SMEs familiar with the opportunities of Internet marketing tactics can gain high awareness with small budgets. 	<ul style="list-style-type: none"> • Missing the offshore opportunities: In this case SMEs could fall behind their large competitors that have global partner networks in place. • Software patents may inhibit the OSS development model: Patent protection of software components is often incompatible with the OSS development model. • Too much technology focus and not enough business focus: IT service providers that only build on technical expertise risk to fail.

³⁵ Source: Eurostat New Cronos / DIW Berlin ; for industry statistics in detail see section 5.2.

Offshore IT services

SMEs in this sector may benefit from the establishment of a European offshore IT services market both as providers and users. As analysed in chapter 2.1, Eastern European IT service providers – typically SMEs – are well positioned for exporting IT services. By establishing as offshore (better: nearshore) IT service providers for West European clients, they may be able to gain sufficient size and expertise to export their services also beyond Western Europe.

While these companies may evolve into serious competitors to West European IT service providers, particularly small and medium-sized IT services companies of the former EU-15 countries could also benefit. In contrast to large players, they usually do not have a global company network or the resources to start their own activities offshore, especially not in “real” offshore areas like India. The cultural and geographical closeness to Eastern Europe facilitates the co-operation with export-oriented IT service providers there. This enables SMEs to integrate offshore services into their own service offerings in order to withstand the enduring price pressure in the IT services market and helps them to improve their competitive position compared to large players in the sector.

However, if these opportunities are missed, the gap between small and large IT service providers may grow. Large providers making use of low-cost suppliers in neighbour regions or distant countries will be able to offer better value for money than small companies, in the worst case driving the latter out of business.

Open source software

The analysis and case studies in chapter 2.2 have demonstrated the opportunities of the open source development as an alternative way of software development and supply. It is likely to lower the barriers to entry for the software market, which in many sub-segments is dominated by large players. By building businesses based on OSS, SMEs have a chance to establish themselves as competitors of large and established players in this field, as drawing on the open source community helps them to create software as fast as and with at least the same quality as large providers of proprietary software. This also offers an opportunity for differentiation and thus helps to avoid the ongoing consolidation process in the traditional software market.

However, there is some evidence that the increasing use of patents on software inhibits open source development. Software patents are often not compatible with the open source development model, e.g. if patent licenses involve the payment of royalties or require registration and are not transferable. There also exists the threat, however large, that conventional software companies may use software patents as strategic weapons against open source projects. Avoiding patent infringement, however, is rather difficult for individuals and small companies, as software solutions usually build on a large number of sub-programmes and basic ideas used in similar solutions. Doing research about potential patent infringement therefore is extremely lengthy and costly.

A way to avoid patent infringements is to build up a patent pool in order to achieve negotiation power for so-called cross-licensing. The logic of such activities is simple: In order to use a patent right of player B, player A offers some of his own patents for usage. However, the sampling of large number of patents is difficult, particularly for the usually small OS businesses. It needs time and money to be spent on patent filing, prosecution, maintenance, litigation and licensing. The collaboration of numerous OS projects in a joint organisation that acts as patent pool could possibly be a way out of this dilemma. Such an organisation would support single development communities in the patenting process. In addition, the organisation itself could act as counterpart in patent negotiations with large conventional software manufacturers. So far, however, such considerations of open source patent pools are only hypothetical.

Therefore the currently ongoing controversial discussion about patent rules for software and software-related inventions in the EU deserves attention. The currently discussed directive on computer-implemented inventions³⁶ proposed by the European Commission plays a key role in these discussions and will be discussed in more detail in chapter 4.

Providing software as service

The provision of one-to-many services via the Internet is an interesting business approach, particularly for SMEs. The entry barriers are relatively low compared to other IT services segments such as software production and IT outsourcing. From a software engineering point of view web-based services can often be produced at lower costs than conventional software, since fewer peculiarities of operating systems have to be taken into account. Also they can be changed and extended easily, which makes them well suited for trying out new service offers. Traditional software can possibly be developed later, when a demand for the functionality has been proven.

During the dotcom boom, in fact, many start-ups tried to establish businesses as ASPs. However, only few of them have survived. The analyses and business examples in chapter 2.3 demonstrated that setting up Internet based services needs more than just a business idea, a modern ICT infrastructure and good technical knowledge. Transforming the ASP idea from theory to practice turned out more difficult than expected. It requires a detailed understanding of where economies of scale are really relevant and make ASP solutions superior to locally installed software. Focusing on specific application areas and gaining a deep understanding of the relevant business processes can help to find such application areas. In addition, sufficient technical expertise is needed to create software that truly supports the one-to-many model.

3.2 Outlook on future developments

It has been pointed out in the beginning of chapter 2 that the IT services sector differs in its IT and e-business tool usage from other sectors. In IT services companies, IT is not just a parallel infrastructure to improve non IT-related procurement, production and sales processes. Rather, information technology is tightly integrated into production and delivery of output, especially by supporting or even enabling new ways of organisation, production or delivery. Chapter 2 has discussed three of these impacts, offshore IT service production, open source software and software as service. All three are ongoing developments. They are therefore also likely to impact the way IT services are produced and provided in the future.

While all of them could be discussed with respect to their future development, we will focus here on the paradigm shift that has the most direct business implications, namely on-demand computing. The second future trend to be analysed is the emerging use of “weblogs”³⁷ in marketing IT services. This is an example of guerrilla marketing enabled by new IT solutions.

On demand computing and other network-based services

Based on the experience from early ASPs, the idea of providing software as a service has been refined during recent years. Different marketing slogans like “on-demand computing”, “utility computing” or “adaptive enterprise” all describe the same idea: a combination of hardware and software offered as a service and paid for based on usage.

³⁶ See http://europa.eu.int/comm/internal_market/en/indprop/comp/H (March 2005).

³⁷ Definition by Wikipedia (www.wikipedia.org): “A weblog, web log or simply a blog, is a web application which contains periodic time-stamped posts on a common webpage.” (May 2005); See also the paragraphs on weblogs in this section.

In addition to the inclusion of hardware there do exist some more differences to the early ASP model: First of all not all on-demand offers are really provided via the Internet. These new offers are not as dogmatic as early ASP offers about the technology chosen, rather they emphasise the business case. Often software and hardware are still installed at the premises of the customer. However, installation and maintenance is done by the service provider, and the customer also has the advantage of usage-based pricing. As the technology advances and so-called "virtualisation" (a separation of logical and physical units) becomes better, more and more service components can be provided via the Internet.

A second difference is that these new service offers focus less on the applications directly used by human beings. Typical on-demand offers are for storage or computing power. These are integrated into the IT infrastructure and not directly visible and relevant for the user. However, the business case for such on-demand offers is stronger than for end user applications, and service providers have learned in the recent years that a convincing business case is more important for a successful service offer than the expert use of new technological paradigms alone.

The business case is particularly convincing for hardware. Companies often have an over-dimensioned hardware infrastructure. Only in peak-periods or for the fulfilment of specific tasks all available capacity is needed. This holds, for example, for processors and so-called blade computers, for which it is often cheaper to buy the hardware in advance than install and integrate it when it is needed.

The idea of hardware suppliers like IBM, Sun or HP is to offer these capacities on-demand. Such an offer for example appeals to R&D labs in the automotive or aerospace industry, where huge capacities are needed temporarily for simulations. Also IT services companies themselves – particularly providers of Internet-based services – are potential customers of such offers. They might use it for both enhancing the server capacity in peak times and for financing the IT infrastructure necessary to provide Internet services.³⁸

Another example for future network-based services are RFID (radio frequency ID) network services. RFID tags (so-called transponders) together with a unique identification code enable value added services such as the tracking and tracing of products along the supply chain. The basic model is simple: Products get an RFID tag affixed, on which a unique product code is stored. On the way along the supply chain RFID readers are installed that transmit the codes of the products passing by to a central network information service. The information service stores and processes all relevant information related to the product, which is linked to the identification code.

On the basis of such an infrastructure, value added services can be offered. B2B trading networks are well-positioned as providers of information network services, since they already support the collaboration of business partners along the supply chain. Global eXchange Services (GXS), for example, as one of the largest integration hubs worldwide, already plans to provide RFID based information services.³⁹

However, there are still some crucial issues to be solved before such a model can be realised in its entirety. First, establishing a RFID based information service is a standardisation issue, since business partners have to agree about the product code as well as the specification of technical components like tags. Moreover, the development of the RFID technology itself is still in the beginning. For tracking and tracing of products on item level, for example, current tag prices are generally considered as being too high. In addition,

³⁸ Computerwoche (2003): "Wie gut sind Capacity-on-Demand-Angebote", Article, 13.02.2003 ([Hwww.computerwoche.de/H](http://www.computerwoche.de/H)).

³⁹ GXS / VeriSign (2004): "Global exchange Services and VeriSign announce partnership to enhance GXS trading grid with electronic product codes", Press Release, 30.11.2004.

the development of RFID middleware is challenging since a huge amount of data has to be filtered, processed and filed.

The use of company weblogs for marketing

Marketing to customers and establishing as well as cultivating relationships with them are important activities in the IT services sector – just like in any other services business. A frequent contact with the customers, knowledge about their needs and establishing a good reputation are major success factors for the provision of professional (IT) services. However, most of the typically small and medium-sized companies active in this sector do not have the resources to carry out extensive marketing campaigns. By means of clever use of the Internet and basic e-business tools – as discussed in the case study of Janus Software – they can compensate this lack of funds. So-called weblogs, a currently much hyped web application, have some potential to assist companies in their marketing efforts.

Weblogs are still quite unknown, for most Internet users they are only web-based diaries. However, early weblogs show some potential for marketing and PR. They may evolve into an important channel for publishing as well as for discussing specific issues on the Internet. First, the number of weblogs is strongly increasing. Specific search engines in this field such as PubSub (www.pubsub.com) or Technorati (www.technorati.com) currently follow several million weblogs worldwide. There already exist many weblogs by experts in certain areas – IT executives, journalists, even politicians⁴⁰ – which have become an additional voice in the formation of public opinion. This makes weblogs also of interest for marketing and PR managers to identify new trends and opinions or to influence them.

From a technical perspective, weblogs are “light” versions of content management systems (CMS). They have limited layout opportunities, but are easy to use and show all standard CMS features such as rule based allocation of rights for publishing, editing, or the possibility to comment on contents. Moreover, weblogs have very sophisticated features for syndicating content (i.e. making it available to other websites). Various XML (extensible markup language) based standards facilitate the mutual citing of and commenting on articles published in weblogs. This makes it easy to initiate and follow discussions that run across many weblogs on the Internet.

The following business example demonstrates the manifold opportunities of weblogs to support marketing and CRM activities. The use of weblogs by CRM specialist Wice is a good example for the exploitation of this e-business tool in order to

- make customers as well as opinion makers aware of the company offer,
- prove the expertise in the business field supported,
- identify trends and to
- optimise search engine marketing.

⁴⁰ See, for example, weblog by Margot Wallström (Commissioner for Institutional Relations and Communication at the European Commission), [Hhttp://europa.eu.int/comm/commission_barroso/wallstrom/weblog/index.htm](http://europa.eu.int/comm/commission_barroso/wallstrom/weblog/index.htm) (March 2005).

Business example

The use of weblogs by CRM specialist Wice

The Wice GmbH focuses on developing and licensing customer relationship management (CRM) solutions. The German company employs eight people and serves about 60 clients. According to Marketing Manager Mr. Schmidt, the use of weblogs as a marketing tool was for Wice – being a supplier of a web-based CRM software – self-evident. In March 2004, Wice started to use weblogs as an integral part of the marketing concept, mainly in two ways:

Publication of its own company weblog: *In March 2004, Wice opened its own weblog at the URL <http://crm.blogg.de>. Nearly every day, the company publishes short articles on CRM-relevant issues here. By doing so, explains Mr. Schmidt, Wice can show its expertise and, thus, prove to be a real authority in the field of customer relationship management.*

Analysing and commenting on other weblogs: *Mr. Schmidt also visits other weblogs in order to analyse current discussions about topics relevant to the company and to identify trends. In addition, he often writes comments on articles published there. From the mutual commenting on and citing of articles, Mr. Schmidt says, a social network evolves that helps to establish new business contacts.*

The main cost factor for marketing via weblogs is the time needed for writing and commenting on articles. Mr. Schmidt estimates that he spends about one hour a day on this activity. Nevertheless, total marketing costs were kept under control by combining the weblog activities with conventional marketing instruments. The monthly newsletter at Wice, for example, summarises highlights of articles published on the company weblog and provides a direct link to them.

After nearly one year of “blogging”, Mr. Schmidt can report remarkable effects:

Increasing number of requests: *Since the publication of the company weblog, the number of inquiries from potential customers has increased by about one third. In addition, the use of the demo version provided on the website has increased significantly, too.*

Optimised positioning on search engines: *The mutual citing of and commenting on articles – accelerated by the frequent visits after comments by Mr. Schmidt on other weblogs – resulted in many links to the company weblog. In this way, the position of the Wice weblog on search engines was improved. Mr. Schmidt proudly reports: “If someone searches for German sites dealing with “CRM” via Google, CRM.Blogg.de will appear on the first page and thus, Wice is placed there as the first CRM company – even before the IT giant Microsoft.”*

Business contacts: *As a result of its weblog activities, Mr. Schmidt has made many new business contacts. This includes potential customers as well as journalists and consultants.*

Mr. Schmidt regards using his own personal editorial style for the articles as a key success factor. “Nobody wants to read a press release in a blog. Articles in this media should be more personal, for example by integrating anecdotes from the daily company business. In this way, the company gets a personal image on the Internet.”

Mr. Schmidt is convinced that the popularity of company weblogs will increase further. This expectation is based, last but not least, on the increasing number of inquiries from clients of Wice that ask for consulting services to build up their own company weblog.

Sources: *Interview with Mr. Hans-Jörg Schmidt, Marketing Manager at the Wice GmbH, 18.01.2005; Weblog: <http://crm.blogg.de>; Website: www.wice.de.*

4 Policy implications

This chapter highlights two issues arising from the previous analysis, which we consider currently to be the most policy-relevant issues: the establishment of a European offshore IT services market and potential problems for SMEs and open source developers from software patents. This does not imply that other issues discussed in this report are not important for the IT services sector, but for many of these issues – such as the need for business and process know-how (see chapter 2.3) – the enterprises themselves have to address these challenges, not policy.

Please note that both issues discussed in this chapter are still under an open debate. The assessments in the paragraphs below are mainly based on the research of secondary literature and the information we gained from the case studies on these issues. In order to derive final conclusions additional research is needed. Actually we consider the need for reliable empirical data and empirically well-founded assessments (which are out of the scope of this report) as a main policy challenge. The upcoming statistical results by the *e-Business W@tch* that will be presented in the forthcoming sector report (September 2005) can be used as a starting point for consolidated policy implications.

Promotion of European offshore businesses

The current situation of the offshore market in Europe has been discussed in chapter 2.1. The overall consequences caused by the offshore development are still subject to an open debate with many controversial statements circulating. On the one hand, current reports by various IT consulting companies indicate that companies in the EU – with the exception of the UK – are lagging behind in making use of offshore IT services.

Some may see this as positive – after all it seems to suggest that fewer IT jobs are moving to low-wage countries. However, it is also argued that not making use of the benefits from an international division of labour in the IT services sector may in the long run worsen the relative competitiveness of European IT services enterprises. In contrast, to raise their competitiveness, US companies are actively using the offshore opportunities provided by India and other countries.

The analysis and case studies in this report have shown that there seems to be a chance for the establishment of an export-oriented IT services market in Eastern Europe. Due to cultural and geographical proximity it is easier for Western European companies – even for SMEs – to use the “nearshore” service offers from these companies than those from real offshore service providers located in distant countries. A combination of the services offered in Eastern Europe – especially in the new member states as well as in the candidate countries – with their own services may increase the competitiveness of Western European IT service providers while at the same time support the development of an internationally competitive IT services sector in Eastern Europe. From a European point of view this should strengthen the European IT services sector.

Policy could help in promoting such a development. However, the design of appropriate policy measures should be based on good knowledge about the actual impact of offshore IT services on EU business, knowledge of which is currently missing. Indeed, in the words of the European Foundation for the Improvement of Living and Working Conditions, “*there is currently a lack of reliable statistical indicators for offshore outsourcing*”⁴¹, which would certainly help to clarify issues like:

⁴¹ The European Foundation for the Improvement of Living and Working Conditions (2004): “Outsourcing of ICT and related services in the EU”, Report, December 2004, pp. 23-24 ([Hwww.eurofound.eu.int](http://www.eurofound.eu.int)H).

- **The extent of offshore outsourcing in the EU:** To what extent are offshore services used and offered in single EU countries? What is the position of European offshore providers as compared to global competitors? How do offshore opportunities effect trade balances between user and provider countries?
- **The impacts of offshore outsourcing:** How do offshore opportunities influence the economic development, e.g. in terms of productivity, innovation and employment in the entire EU as well as in single member states?

Better data would help to conduct a more qualified discussion of this issue and would support the identification of needs for policy action. Survey results by *e-Business W@tch* on this issue could provide the starting point for a more extensive quantitative and qualitative analysis.

A lack of knowledge about this issue is also a major obstacle for the realisation of offshore opportunities. Admittedly, there are a number of reports by IT consulting companies, which discuss challenges and success factors in using offshore IT service providers. However, these reports are mostly directed to large companies, and not targeted to small and medium-sized companies. A “handbook” or “guide” could support SMEs in overcoming critical challenges and could diminish fears related to using offshore services. Crucial questions to be discussed include the following issues:

- Criteria for the selection of offshore IT service providers,
- Business and technical requirements,
- Normal, best and unfair practices related to offshore outsourcing,
- Evaluation of investment risks,
- Policy support and contacts.

Finally, the business examples presented in chapter 2.1 have demonstrated that personal contacts are of outstanding importance for the successful establishment of offshore business relationships. Moreover, in case of PGS Software, small trade fairs on a regional level turned out as efficient tools to establish new relationships. As such activities are typically initiated and implemented on the level of member states or regions, there would probably not be a direct role for the European Union in setting up such events. However, the EU could support such activities in a similar fashion as it supported SME partnerships in EU regions bordering the new EU member states during 2001 to 2003.⁴²

Software patents

Chapter 3.1 discussed risks for the OSS development model from patentability of software. First of all, software patents – even if one found them to be beneficial in general – are typically not compatible with the open source development model. Some open source licenses even require that components, for which patent-related license fees are demanded, must be removed and exchanged. This can become quite difficult if open source software spreads further and these components are buried deep into the IT infrastructure of many companies.

But software patents put a strong burden on small software companies in general, no matter whether they are engaged in open source software development or follow a strictly proprietary model. One reason is that large companies often cross-license their patents. Company A can use company B’s intellectual property without having to pay license fees and vice versa. Small companies typically do not have enough intellectual property to put on the table, which means that they have to pay for patent licenses. In this way software patents

⁴² See [Hhttp://europa.eu.int/comm/enlargement/borderregionsH](http://europa.eu.int/comm/enlargement/borderregionsH) (March 2005).

can be come a tax on being small. In addition the research for patents is a complicated and expensive task, which is made even more difficult by the ambiguous wording and fuzzy descriptions in many software-related patents. This makes a patent research expensive without providing reliable results. Small companies often cannot bear these high costs and the ambiguousness.

These problems – reflecting the critics by the patent opponents in a still open debate – suggest that software patents do more harm than benefit to SMEs in the IT services sector, therefore software itself should be clearly excluded from patentability. This holds also for the directive on computer-implemented inventions proposed by the European Commission and currently in the legislative process⁴³: While it is out of the scope of this report to provide a legal and economic assessment of this directive, the short problems discussed above suggest that it should exclude the patentability of software as clear as possible. While it is also the aim of the proposed directive, to exclude patentability of software as such, according to many critics, this goal has not been achieved in the current (March 2005) version of the directive.⁴⁴ Nevertheless, despite these criticisms there are also SMEs that support the current directive.⁴⁵

Irrespective of the final result of the political and legal dispute, there will be a need for:

- **Reliable information on future OSS-related investment risks:** The controversial discussion of the patentability of software has increased confusion particularly among users of OSS software. Therefore, reliable (and understandable) information will be needed helping to evaluate future OSS related investment risks.
- **Continuous monitoring of industry practices related to the usage of software-related patents:** An independent assessment of ongoing practices related to the usage of patents and the impact of such activities on the European software market would be a helpful basis for future political action. In fact, evaluating all those impacts in advance that have been triggered, e.g. by patent law changes seems not to be possible due to the sheer complexity of this issue. A continuous monitoring of patent practices on the European software market as well as an independent assessment of actual impacts on innovation and competitiveness would provide a factual underpinning of the current discussion on software patents.

⁴³ See [Hhttp://europa.eu.int/comm/internal_market/en/indprop/comp/H](http://europa.eu.int/comm/internal_market/en/indprop/comp/H) (March 2005).

⁴⁴ See [Hhttp://www.nosoftwarepatents.org](http://www.nosoftwarepatents.org)H (March 2005).

⁴⁵ See, for example, EICTA (2005): "Europe's high-tech SMEs speak out in favour of the proposed CII Patents Directive", Press Release, European Information & Communications Technology Industry Association (EICTA), April 19, 2005 (www.eicta.org).

5 Background information on the sector

5.1 Industry trends and challenges

During the past decade, the economic environment of IT services providers has been a roller coaster. The good economic environment during the 1990s, the (alleged) year-2000-problem, and the Internet and e-business boom generated extraordinarily high growth rates for this sector. This all ended suddenly in 2001, when a rapid downturn started that lasted until 2003. Current reports, however, indicate that the IT services market is gaining strength again. According to a recently published study by EITO (European Information Technology Observatory)⁴⁶, for example, significant growth in the ICT markets can be expected for the next few years, driven by an increase in demand in all IT segments. Referring to these results, the EITO chair Bruno Lamborghini concludes: “*The ICT markets have definitely emerged from the tunnel of the deep crises of 2001-2003*”. Various current surveys of business expectations by IT services providers, e.g. by the German IT industry association BITKOM⁴⁷, confirm this optimistic picture. However, one will need to wait until early next year to ascertain, whether or not these expectations have indeed materialised.

Despite this optimism, the current business climate in the IT services sector is rather rough, especially if compared to the years before the crisis. Companies in this sector are confronted by many challenges. Based on their role within industry discussions, we believe that the continuing price pressure, increasingly demanding customers and a changing industry structure constitute current key challenges for this sector.

Continuing price pressure and increasingly demanding customers

Even though the expectations of IT service providers about future revenues and order volumes are improving, price expectations are not. According to a recent survey by Berlecon Research⁴⁸, only about 5% of the German IT service providers expect price raises for IT services to be feasible in 2005. In contrast, about 74% expect prices to remain stable and 21% expect them to fall even further. The price pressure seems to be particularly strong in the low skill segment, i.e. for IT services with low requirements on the skills and experience of those providing them. In addition, the consulting company Meta Group expects declining prices in the traditional software market (production of standard software) of up to 35% by 2008 and another 15% by 2010.⁴⁹

IT service providers face a challenge, therefore, either to find new ways of avoiding the competitive pressure on prices, or to deal with it by lowering costs. New developments in the field of IT and e-business may help to overcome these challenges. The integration of open source components or the outsourcing of development tasks to offshore providers, for example, are frequently discussed strategies for focussing on core competencies and lowering costs. The potential of these strategies have been analysed in detail in chapter 2 of this report.

Increasingly demanding customers typically refer back to their experiences with IT projects carried out during the dotcom boom in 1999 and 2000. In these years, many promises by IT

⁴⁶ EITO (2005): Entering the digital scenario: new perspectives and opportunities for the European Information and Communications Technology (ICT) industry. Press release, 01.03.2005 ([Hwww.eito.com](http://www.eito.com)).

⁴⁷ BITKOM (2004): “BITKOM-Branche kommt in Schwung”, Press release, 30.11.2004 ([Hwww.bitkom.org](http://www.bitkom.org)).

⁴⁸ Berlecon Research (2005): “Marktanalyse IT Services 2005”, Report, January 2005.

⁴⁹ Meta Group (2004): “Major Technology Industry Shift Drives Software Costs Down and Spurs Sizable Market Consolidation by 2008, According to Meta Group”, Press Release, 21.12.2004 (www.metagroup.com).

service providers – concerning the length of the projects or the quality of the solutions provided – were not kept. In addition, IT solutions were often technology-driven and insufficient attention was given to integrating these new technologies into the company workflows. Consequently, many e-business projects carried out in this period failed and damaged relationships between customers and providers of IT services. The attempt to regain the trust of the customers will rely on the following, increasingly important, issues:

- **Quality assurance:** In order to regain customer confidence, appropriate quality-assurance and quality-control measures are necessary to ensure that IT projects are carried out to a high standard and within the time-frame agreed upon. While there are established best practices in this field, many IT projects nevertheless suffer from bad quality, budget overdrifts or late delivery. Internet and e-business technologies have a role to play in improving this situation. Internet-based collaboration solutions particularly offer potential in this area, as they allow better integration of the customer into the project and the project's information flow
- **Pricing models:** During the dotcom boom, many IT projects were priced on a person-days-plus-expenditures basis, providing no incentives for IT services companies to finish projects on time and on budget. In such cases, in particular, the customer bore the full risk of running over budget. This problem is not new. More customer-friendly pricing models have been discussed intensively within the industry for quite a long time. However, establishing pricing models that are customer-friendly as well as simple is a challenge in itself. Purely success-related pricing models, for example, often turn out to be too complex since they require the definition of the criteria for success and their control. Simple fixed-price models are, therefore, more widespread. They are simple and limit the risks of both parties: customers know the total costs beforehand, and IT service providers can control the resources expended and so ensure that they stay within the budget limits. However, sophisticated planning and managing of IT projects becomes a key issue.
- **Process support:** Many companies have learned from early e-business projects that the technology must support processes, and not vice versa, in order to make an IT-investment a success. Consequently, they increasingly require organisational and management consulting services that support the integration of IT solutions into company workflows. Moreover, expertise about industry-specific requirements and company-specific operations is crucial in the selection of project partners today. Therefore, the acquisition of process-specific expertise is a key priority on the agenda of IT service providers.

Changing industry structure

Dealing with a constantly changing industry structure is a key challenge for companies in the IT services sector. In fact, the daily IT press is packed with news about the appearance of new players as well as about merger and acquisition (M&A) activities among established IT services companies. Recently, consolidation processes in the software industry have driven the M&A dynamics. Prominent examples of this development are the hostile takeover of PeopleSoft by Oracle (both active in the ERP area), or the acquisition of storage management software maker Veritas by Symantec, a producer of security software, in 2004. They led to headlines like "*In the flat enterprise software market the message is clear: It's time to hunt or to be hunted*"⁵⁰ or "*Consolidation in the Software Industry – Big in 2004 and more expected in 2005*".⁵¹

⁵⁰ As "Takeaway" of an article in TechRepublic (2004): "Survival of software's fittest", Article, 16.08.2004 ([Hwww.techrepublic.com](http://www.techrepublic.com)H).

⁵¹ AnalystViews: "Consolidation in the Software Industry – Big in 2004 and more expected in 2005", Newsletter: The Weekly Report, 18.01.2005 (www.analystviews.com).

Current changes in the industry structure are caused by specific characteristics of this sector, as well as by current economic and technological developments. First, entry barriers in most segments of IT services are relatively low. Setting up shop in software development and consulting requires only labour, knowledge and a basic ICT infrastructure as major inputs. Therefore, only limited resources are needed for establishing an IT services business. In addition, most of the outputs in the IT services sector can be supplied, delivered and even used over the Internet. This makes it technically feasible for companies in this sector – independent of their size or origin – to offer their services to a worldwide audience. Altogether, these factors provide an explanation for the high share of SMEs in this sector. Moreover, they facilitate the establishment of offshore businesses in this sector as has been discussed in chapter 2.

Finally, there are numerous economic and technological trends likely to accelerate the appearance of new players or M&A activities in this sector. A major force behind these dynamics is the rough economic environment characterised by enduring price pressure and higher demands from customers, as discussed in the paragraphs above. In this regard, mergers and acquisitions may help to improve the efficiency of internal processes or to acquire the expertise necessary to meet growing customer needs. They may also help companies to enter niche markets in order to avoid price competition in mass markets. The consulting company RFG (Robert Francis Group), for example, estimates that companies in ‘niches with growth potential are especially attractive’ as candidates for acquisition.⁵²

In addition, we believe that the following specific developments in the IT and e-business area (discussed in detail in chapter 2 of this report) have a significant impact on the changing landscape in the IT services sector:

- **Increasing importance of the open source model:** The open source development model is currently evolving from a niche model into an accepted element of the IT services sector. Pure open source companies building on the open source model give away the core software for free but grow a business around this functional core, for example by offering services, enhanced versions or customisation. Due to this strategy areas like operating systems, in which open source software has gained significant importance, tend to become commoditized and characterized by stronger competition. This constitutes a big challenge for companies producing software in the conventional way; even large and established software companies are affected. Large companies like SAP, IBM, Apple or Novell have therefore integrated open source software into their own products to decrease costs and to be able to concentrate their resources on those areas where they can differentiate themselves more easily from competitors.
- **Evolution of IT offshore businesses:** Due to low requirements for market entry and due to the potential of the Internet as a medium for marketing and sales and as a basis for collaboration solutions, the IT services sector is predisposed towards an extensive international division of labour. Within the sector, this effect is known by the name of offshore services for Western companies, or “nearshore” since the service providers are located in Eastern Europe. On the one hand, this development gives IT service providers in the Eastern European new member states the chance to establish international businesses and to position themselves as serious suppliers on the world market. On the other hand, the higher relevance of offshore IT services is likely to further increase the competition and price pressure already characterising established IT markets. Therefore, the development of strategies designed to integrate offshore IT services into their own service offerings is on the agenda of many IT services providers today.

⁵² RFG (2005): “Acquisitions Abound!”, Abstract of the report, published at bitpipe, 10.01.2005 ([Hwww.bitpipe.comH](http://www.bitpipe.com)).

- **On-demand software services maturing:** The idea of providing software as a service is not entirely new. It was a central idea of many ASPs (application services providers) that appeared in the years 1999 and 2000, but disappeared shortly afterwards. In the form of “on-demand” service provision, this idea is currently coming back. Particularly large IT companies like IBM, Sun or Hewlett Packard are promoting this idea under different brand names.⁵³ In addition, several start-up ASPs, such as Salesforce.com, a provider of Customer Relationship Management (CRM) via the Internet, seem to have found their place in the market and are growing.

To summarise, due to the specific characteristics of the IT services sector, a changing industry structure is the rule rather than the exception. Price pressure, increasingly demanding customers and ongoing developments enabled by ICT and e-business technologies, are important forces behind further consolidations. The IT-induced new developments have the potential to change the conventional forms of IT services provision and software production significantly. Chapter 2 has analysed these issues in detail and has identified challenges and success factors for IT service providers active in these fields.

⁵³ See, for example, CIO (2004): “IBM eröffnet erstes On-Demand-Center in Germany”, Article, 14.10.2004 ([Hwww.cio.de](http://www.cio.de)) or information on IBM's website: [Hhttp://www-306.ibm.com/e-business/ondemand/us/index.shtml](http://www-306.ibm.com/e-business/ondemand/us/index.shtml) (March 2005).

5.2 Industry statistics

This chapter gives an overview of the size and structure of the IT services industry, using key economic indicators from the New Cronos database of Eurostat. New Cronos is structured in nine parts ("themes"). Most of the data used in this chapter are derived from theme 4, "Industry, trade, and services", and here from the collection sbs (structural business statistics). All statistics presented were prepared by DIW Berlin, which obtained the most recent data available from Eurostat in December 2004. Gaps in the official statistics resulting from missing data for individual countries or the respective year in the time-series of a country were imputed, based on economic calculations and estimates by DIW. The most recent official statistics available for industry-wide macro-economic indicators are those for 2002 at best. For the new EU Member States, the most recent national accounts usually date back to 2001.

There are some discrepancies in the total figures shown in Exhibits 5-1, 5-2 and 5-3. These discrepancies appear because the size class distribution, figures on production and those on employment are each derived from different source in New Cronos, i.e. there are discrepancies in the official databases provided by Eurostat. As there are many missing values in the New Cronos databases for various countries, *e-Business W@tch* filled these gaps by using an estimation procedure that assumes structural permanence from one year to another. This procedure was used both for the estimates of the size class distribution and for the production and employment tables. Consequently, the estimation procedure extrapolated the inconsistencies from the original New Cronos tables.

Size and structure of the industry (EU-25)

The background statistics presented in this chapter are related to activities that build the core of IT services referred to as IT services industry. This includes hardware consultancy (NACE 72.1), software consultancy and supply (NACE 72.2) as well as data processing (NACE 72.3). As indicated by Exhibit 5-1, the IT services industry has a substantial economic power. In 2001, there were about 445,000 IT service companies in today's EU-25, which employed nearly 2.4 million persons and generated a value added of about 140 billion euros.

As far as the size structure of the IT services sector is concerned, a few large players on the one hand coexist with a large number of small and medium-sized enterprises on the other (see Exhibit 5-1). In 2001, in fact, only about 0.2% of the IT services companies in today's EU-25 employed 250 employees or more. However, the large companies accounted for more than 40% of the value added and employed nearly 30% of the sector's workforce. In contrast, more than 93% of the IT service companies were micro enterprises, i.e. companies that employ fewer than 10 people. Admittedly, this number should be taken with a pinch of salt: in 2001, the dotcom boom had just passed its peak; many companies of this size disappeared in the subsequent months.

Exhibit 5-1: Structure in the IT services sector in the EU-25 (2001)

	Total (EU-25)	1-9 empl.	10-49 empl.	50-249 empl.	250+ empl.
		in % of total EU-25			
No. of enterprises	445,218	93.1	5.6	1.1	0.2
Value added at factor cost	139,951	20.6	17.3	20.1	41.9
No. of persons employed	2,386,200	31.0	21.2	19.5	28.3

Source: Eurostat New Cronos / DIW Berlin

Production value (EU-25)

In 2001, IT service companies in the large EU countries France, Germany, Italy and the UK generated more than 70% of the production value and value added in today's EU-25. In contrast, IT services companies of the new EU member states had almost no importance for the sector at this time. This situation, however, is likely to change. As discussed in this report (see, for example, chapter 2.1), many Eastern European IT service companies are currently trying to establish offshore service offers for West European businesses. A success of their efforts might change the European landscape of the IT services sector.

Exhibit 5-2: Production value and value added in the IT services sector in EU-25 countries (2001)

		Production Value		Value Added	
		Million €	% of EU-25	Million €	% of EU-25
BE	Belgium	7,411	2.8	2,937	2.1
CZ	Czech Republic	1,424	0.5	684	0.5
DK	Denmark	5,200	2.0	2,697	1.9
DE	Germany	51,825	19.8	29,425	21.0
EE	Estonia	84	0.0	40	0.0
ES	Spain	10,928	4.2	6,166	4.4
FR	France	36,704	14.0	18,574	13.3
IE	Ireland	5,303	2.0	2,378	1.7
IT	Italy	30,782	11.8	14,148	10.1
CY	Cyprus	75	0.0	51	0.0
LV	Latvia	120	0.0	73	0.1
LT	Lithuania	96	0.0	42	0.0
LU	Luxembourg	566	0.2	280	0.2
HU	Hungary	1,154	0.4	555	0.4
MT	Malta	52	0.0	35	0.0
NL	Netherlands	14,902	5.7	8,118	5.8
AT	Austria	4,118	1.6	2,167	1.5
PL	Poland	2,463	0.9	1,623	1.2
PT	Portugal	1,186	0.5	600	0.4
SI	Slovenia	335	0.1	148	0.1
SK	Slovak Republic	372	0.1	179	0.1
FI	Finland	3,705	1.4	1,834	1.3
SE	Sweden	13,613	5.2	6,026	4.3
UK	United Kingdom	69,379	26.5	41,263	29.5
EU-24*		261,799	100	140,041	100

*EU-24 = EU-25 without Greece

Source: Eurostat New Cronos / DIW Berlin

Employment, productivity and labour cost (EU-25)

In 2001, IT service companies of France, Germany, Italy and the UK also employed more than 70% of the sector workforce in today's EU-25 (see Exhibit 5-3), whereas the employment share by IT services companies in most new EU member states was only marginal. Moreover, IT services companies of several Eastern European countries also lagged strongly behind the EU average in terms of productivity. However, it has to be kept in mind that the data displayed here reflect the situation of 2001. In that time, the technical infrastructure (e.g. Internet access) in Eastern Europe was far less developed than it is the

case today. Survey results by *e-Business W@tch (2003/2004)* as well as the analysis and case studies in this report show that this situation has strongly improved in recent years.

Remarkable is also the relatively large gap in labour costs between the countries of the former EU-15 and many new EU member states. In fact, in 2001, the labour costs per employee of IT services enterprises in countries like Poland, Czech Republic or Hungary were only about one third of those in companies in most former EU-15 countries. However, the low labour costs together with relatively good technical and linguistic expertise provide IT services companies in these countries with the opportunity to offer offshore services (see chapter 2.1). A successful establishment of Eastern European offshore providers could, in turn, accelerate the adjustment of wages within the EU.

Exhibit 5-3: Employment, productivity and labour cost in the IT services sector in EU-25 countries (2001)⁵⁴

		Employment	Productivity	Labour Cost
		No. of persons employed	€ per person employed	€ per person employed
BE	Belgium	49,446	59,396	58,426
CZ	Czech Republic	43,031	15,896	14,071
DK	Denmark	45,984	58,640	56,477
DE	Germany	379,175	77,601	61,594
EE	Estonia	2,804	14,337	11,098
ES	Spain	165,489	37,261	32,415
FR	France	335,532	55,356	53,052
IE	Ireland	22,260	106,806	51,095
IT	Italy	340,373	41,565	35,009
CY	Cyprus	1,269	40,347	29,544
LV	Latvia	4,534	15,990	7,788
LT	Lithuania	4,070	10,393	5,117
LU	Luxembourg	4,804	58,368	51,518
HU	Hungary	42,237	13,150	9,858
MT	Malta	1,168	29,623	15,333
NL	Netherlands	138,257	58,719	47,738
AT	Austria	38,759	55,915	48,683
PL	Poland	•	•	17,508
PT	Portugal	17,297	34,659	28,524
SI	Slovenia	•	•	21,679
SK	Slovak Republic	11,616	15,367	9,623
FI	Finland	37,505	48,895	46,561
SE	Sweden	121,323	49,671	54,616
UK	United Kingdom	576,733	71,545	55,164
	Others	40,434	50,739	0,0
EU-24*		2,424,100	57,770	48,586

*EU24 = EU-25 without Greece.

Source: Eurostat New Cronos / DIW Berlin

⁵⁴ The discrepancies in the total figures compared to Exhibits 5-1 and 5-2 appear because the production and employment statistics is derived from a different source in New Cronos than the size class distribution, i.e. there are discrepancies in the official databases provided by Eurostat. As there are many missing values in the New Cronos databases for various countries, *e-Business W@tch* filled these gaps by using an estimation procedure that assumes structural permanence from one year to another. This procedure was used both for the estimates of the size class distribution and for the production and employment tables. Consequently, the estimation procedure extrapolated the inconsistencies from the original New Cronos tables.

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