



Information Society



European Commission

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>). Book concept and design supported by IBM. Cataloguing data can be found at the end of this publication. Luxembourg: Office for Official Publications of the European Communities, 2003. ISBN 92-894-5057-6 ©European Communities, 2003. Reproduction is authorised provided the source is acknowledged. Printed in Belgium. IBM and the IBM logo are trademarks of International Business Machines Corporation in the United States, other countries, or both. © Copyright IBM Corporation 2003.

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e-business, and the e-Economy in general, have become a high priority for the European Union. As part of the Lisbon strategy, the eEurope 2002 action plan has been focusing on bringing citizens, businesses and administrations on-line and creating a favourable framework for electronic communications and e-commerce. By accelerating e-business capabilities among the 19 million European small- and medium-sized enterprises (SME) that are enabled to become more innovative and competitive.

With the start of the follow-on initiative, e-Europe 2005, and the launch of a new phase of research and technological development activities under the Sixth Framework Programme, this is an opportune time to review what has been achieved and look forward to what still lies ahead.



The opinions of small- and medium-sized enterprises have changed. Today 55% of all SMEs think that e-business is just as important for them as it is for large enterprises. More than two-thirds of SMEs use the internet as a business tool. Surveys show the mid-sized enterprises have already closed the gap with large enterprises and the small- and micro-enterprises are catching up rapidly<sup>1</sup>.

Beyond connectivity, there are three conditions to be fulfilled for SMEs to reap the benefits of e-business. Firstly, they need to rethink and adapt the way the organisation works when using ICTs. Secondly, they have to be part of the evolution of clusters, from informal alliances of business partners into collaborative networks of enterprises - virtual enterprises - with highly inter-linked infrastructures and business processes. Finally, enterprises must equip both employees and management with the skills to work in a dynamic business environment.

Only by grasping these issues will enterprises begin to realise the full potential for ICT to improve productivity. Proving this, understanding the mechanism leading to productivity gains through the use of ICT, SMEs will be in an even better position to leverage new, emerging technologies with less risk.

But let me add a word of caution about what e-business will not do. It will not compensate for lack of entrepreneurship and the failure to move with market trends.

The challenges ahead are plenty: new levels of interoperability of technology and business applications will lower costs and enable businesses to switch from one collaborative network to another. Technology development in broadband access and 3G mobile communications is emerging as a further driver for new forms of doing business. New ways of creating and exploiting knowledge will continue to build the foundations for the emerging knowledge-based economy of the future.

The cases in this book are testimony to the adoption of e-business research, and to technological results being turned into reality by entrepreneurs, and how e-business is now effectively penetrating all industry sectors. I am confident you will enjoy reading the cases. Some of them are very hands-on, while others are more complex. But all of them show the entrepreneurial spirit behind the adoption of e-business in Europe. I hope they will inspire others to follow their example.

Erkki Liikanen  
European Commissioner for Enterprise and Information Society

1 - EBusiness Watch, 2002 (<http://www.e-business-watch.org/>)

Through the RTD programme for the Information Society<sup>2</sup>, the European Commission has supported a range of projects aimed at accelerating e-business technology take-up in SMEs.

2 - For details on the IST research programme please see [www.cordis.lu/ist](http://www.cordis.lu/ist)



The concept behind these projects was to transfer leading-edge technologies to industry and other end-users. Under the umbrella of the key action “New Methods of Work and Electronic Commerce”, between 1998 and 2002, more than 70 take-up projects were launched which demonstrated the relevance of e-business, eCommerce and eWork technologies for SMEs. Hundreds of SMEs throughout Europe participated in these projects, together with so-called “catalysts” – local or regional organisations that worked with them to help them adapt their business processes towards ICT use. The SMEs were able to ‘re-think’ and adapt emerging technologies to their business needs by sharing development effort and jointly achieved results between themselves. The take-up projects thus became the means to leverage the results of IST research and to contribute to the implementation of the e-Europe<sup>3</sup> initiative at local level, i.e. by supporting SMEs directly or indirectly.

The 70 million Euros invested in four years in these take-up projects<sup>4</sup> represent only a fraction of the IST Programme budget and of the total European investment in e-business. They were essential, however, in demonstrating that investment in RTD and technology transfer can be a useful instrument within the panoply of measures to help increase SMEs’ competitiveness in today’s global market places.

This book presents a sample of 22 showcases. Others are available via the European e-business Showcases on-line forum and all them complement results of national initiatives, such as those under GoDigital<sup>5</sup>. I believe that technology take-up and technology implementation activities are the key success factor to making Europe one of the world’s most competitive knowledge based economies. Since SMEs are a strong pillar of economic community, efforts must be increased to make their participation in the digital economy even stronger.

Rosalie Zobel, PhD  
Director, Directorate-General Information Society  
European Commission

3 - [http://europa.eu.int/information\\_society/eeurope/index\\_en.htm](http://europa.eu.int/information_society/eeurope/index_en.htm)

4 - The amount invested in the take up project represents the 2% of the total budget for IST programme in FP5 (3.6 bEuros).

5 - for details please see [http://europa.eu.int/information\\_society/topics/e-business/godigital/index\\_en.htm](http://europa.eu.int/information_society/topics/e-business/godigital/index_en.htm)

Western Europe is home to nineteen million enterprises which employ less than two hundred and fifty people.

This important market segment, also known as the small and medium sized enterprise (SME) sector, accounts for two thirds of all employment in the European Union.

However, the term 'SME' tends to over simplify a complex, dynamic, diverse and innovative sector. The technological pursuits of small and medium sized businesses are not dissimilar to those of large corporations.

IBM has a long and successful history of helping small and medium sized businesses achieve competitive advantage through solution technology. We remain committed to this sector.

I am therefore both delighted and proud that IBM is associated with the European Commission's e-business Showcases. I would like to convey my appreciation to the European Commission for inviting IBM to collaborate on this project.

This book provides insight into the e-business of enterprises from a diverse range of industries. It is hoped that by sharing examples of e-business adoption, this book will provide a useful reference resource for business leaders. The enterprise transformation stories featured in this book are proof that despite the hype of the dotcom phase, the original essence of e-business - that of using technology for business advantage - remains unchanged. Technology can enable businesses and institutions to change their processes and increase the value of their products - this produces productivity increases. Productivity growth is the source of Europe's welfare. Therefore, investment in information and communications technology - when aligned with business objectives - is important for the future prosperity of Europe.

This book celebrates the innovative and entrepreneurial spirit of Europe's small and medium sized enterprises. I would like to congratulate each of the businesses featured in this book on their respective successes using e-business. I wish them well in their future endeavours.

Hans Ulrich Maerki

General Manager, IBM Europe Middle East and Africa



e-business is fundamental to the way in which  
business is done today - aided, abetted,  
supported and enabled by technology. e-business  
is not just about the World Wide Web.

It involves the use of a wide range of e-business technologies (e.g. intranets, portals, mobile, content management, semantic technologies, complex systems, etc.) to enhance profitability by:

- Transforming business processes to compete in new, faster and better ways,
- Developing products and services in a better way and bringing them to the market faster,
- Changing traditional business models, for example by collaborative networking, allowing companies to enter into and exit from markets much faster and at much lower cost,
- Creating, developing and using knowledge to win more business, to change the nature of business won, and to increase efficiency and reduce risk,
- Allowing companies to serve their customers through many different channels, co-ordinated where appropriate,
- Creating new brand experiences for customers, suppliers and business partners,
- Optimising interactions with all stakeholders – customers, suppliers, business partners and staff,

e-business is about networking businesses, streamlining business processes and introducing collaborative business practices. It entails the networking of businesses big and small.

But e-business is also about creativity, innovation, and enabling people and knowledge to generate new business opportunities.

Throughout the book we refer often to small and medium-sized enterprises (SMEs) or to small and medium-sized businesses (SMBs) – the terms are synonymous. SMEs are defined as businesses that employ fewer than 250 people and are independent from other organisations<sup>6</sup>. SMEs are diverse, some are dynamic and flexible, with a great power to innovate and vast range of diversity, others traditional, based on family involvement, embedded in local business environments, and others are start-ups, fragile organisations striving for life and subsistence.

In particular readers from the future European Union member states, due to enlarge the EU in 2004, should find this book a good reference point. The economy in most of those countries is undergoing profound change, which often includes paradigm shifts in the way business is done. This book can serve as a bridge, fostering e-business development and allowing the Common Market to become reality in those countries more quickly.

The book will not elaborate on all the possible e-business benefits. Neither does it foretell the future. It simply aims to show, through convincing examples, that e-business is a successful business concept and a tool for SMEs to become more competitive.

The book is a business resource, there is no need to read it from cover to cover immediately. Keep it, dip into it regularly. Use the contact information offered and contribute to the on-line forum set-up to continue the discussion on SME e-business development. We, the authors, will be pleased to interact with you via the discussion forum.<sup>7</sup>

6 - A precise definition of the small and medium sized enterprise is given at [http://europa.eu.int/comm/enterprise/consultations/sme\\_definition/consultation2/index\\_en.htm](http://europa.eu.int/comm/enterprise/consultations/sme_definition/consultation2/index_en.htm)  
7 - On-line forum: [http://europa.eu.int/information\\_society/topics/e-business/index\\_en.htm](http://europa.eu.int/information_society/topics/e-business/index_en.htm)

As input for the book, the showcases provided a quantification of the impact of the new, innovative ICT technology on their business. This section discusses the indicators used and trends derived from their analysis.

**Return-on-investment (ROI)** is an indicator of how long it will take the company to earn back the investment. A clear focus on direct links between investment and its return is the basis for any investment decision in SMEs. It is encouraging to see how many showcases declare a ROI of less than 12 months. The average ROI of all 22 cases is 19 months (with answers ranging from 6 to 36 months).

**Increase in turnover:** Respondents were asked to quantify, as far as possible, the impact of the innovation on their revenues, either in absolute or percentage terms. Some organisations already have a good understanding of the effects of innovative technology on their revenues and/or on their cost structure. Nevertheless it would be too ambitious to derive overall conclusions from the individually reported impact on revenues. But they still stand for each case they represent!

The three remaining measures were each rated on either a three-point or a five-point scale.

**Business Collaboration** is a measure of the increase in communication between companies. The exchange of structured information is the beginning of any e-business activity. Around one quarter (23%) of the organisations said their communication with other organisations “skyrocketed”. This measure was rated on a five-point scale:

- ★ The level of communication decreased compared to before the innovation
- ★★ The level of communication was unchanged by the innovation
- ★★★ The level of communication increased slightly compared to before the innovation
- ★★★★ The level of communication increased significantly compared to before the innovation
- ★★★★★ The level of communication exploded compared to before the innovation (“sky-rocketed”)

**Effect on Skills Base:** Another challenge SMEs are facing is the skills gap. Adequate skills for leveraging e-business are not obvious and represent a vital asset in organisations. “Learning by doing” is one of the lessons learnt from the showcases, with around 50% of the organisations seeing their skill base massively improved. This measure was rated on a three-point scale:

- ★ The skill base of the company was unchanged
- ★★ The skill base of the company was improved slightly
- ★★★ The skill base of the company was improved massively

**Competitive Advantage:** Lastly, organisations rated their improved competitiveness. Over the 22 cases presented, 18 cases report that their competitiveness either increased significantly or “sky-rocketed”. This measure was rated on a five-point scale:

- ★ The company’s competitiveness decreased compared to before the innovation
- ★★ The company’s competitiveness was unchanged by the innovation
- ★★★ The company’s competitiveness was increased slightly compared to before the innovation
- ★★★★ The company’s competitiveness was increased significantly compared to before the innovation
- ★★★★★ The company’s competitiveness exploded compared to before the innovation (“sky-rocketed”)

“In conclusion, a clear correlation between improvements in competitiveness and the increase in business communication and skills gained can be observed from the cases presented.”

Twenty-two showcases are presented in the book. They are clustered into four groups that reflect key e-business themes. Between the groups, short learning papers have been included that discuss specific aspects of the e-business environment and its implications for SMEs. The topics introduced are ICT adoption within the SME environment, the concept of Business on Demand, ICT and gains in productivity, and Trust and Security.

#### VIRTUAL ENTERPRISES

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A virtual organisation is a set of business entities, which forms a stable or dynamic collaborative network in order to provide value-adding products and services. Particularly for SMEs the concept of Virtual Organisations opens the opportunity to contribute their specific strengths and integrate those with the competencies of other SMEs by forming collaborative networks exploiting the competitive advantages of a business network.

Technology innovation together with organisational and business innovation will create open and collaborative business environments where dynamic and competitive SMEs on the basis of affordable and dependable infrastructures can create value and innovations through business networking. SMEs will do business in flexible networks of interdependent enterprises that will benefit from a collaborative environment, from a sharing of resources, and from the knowledge created and exchanged within them. SMEs will become adaptive, able to react quickly to changes and to exploit rapidly new market opportunities.

The six showcases give a practical insight to concepts of virtual organisations.

Virtual product development for SMEs	Collaborative product development for commercial antenna in a virtual organisation setting - a reality for SMEs	Page 22
Designs on the future	Collaboration platform and workflow management for textiles design and production	Page 26
Made to measure	Digitisation of order management in the textiles supply chain	Page 30
Linking the supply chain	Linking Enterprise Resource Planning (ERP) solutions through XML interface	Page 34
E-effective collaboration	A working virtual enterprise for electrical products and installation	Page 38
Support for long-term collaboration	Collaboration tools for manufacturing SMEs - sharing and planning of collaborative work	Page 42



## BUSINESS PROCESSES

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An e-business exists primarily as an entity that has progressed to more productive process schedules and enhanced distribution environments. These tactical advantages improve efficiencies, lower costs, and increase market competitiveness. Traditional business processes are too sluggish and internally focused to function effectively in a virtual enterprise. True e-businesses implement self-service applications both internally and externally, leveraging technology throughout their operations environments.

e-business is not about scraping your existing business model. e-business also isn't about putting your existing processes on the Web. It's about rethinking the way you do business. It's about improving your internal and external business processes by leveraging new technologies.

The six cases presented here are examples of e-business use within SME environments.

Explain, evidence, evaluate	Case-based methodology for e-business implementation to make informed investment decisions.	Page 50
Museums gain from going interactive	Digital content management system for museums	Page 54
New approaches to production planning	Solution for technology evaluation and planning based on the Technology Calendar Method	Page 58
Getting the full picture	Data warehousing solution for the voluntary sector	Page 62
Patterns for knowledge	Knowledge management for public authorities	Page 66
New life for digital content	Digital content management system for Italian museums	Page 70

## NEW MARKETS

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New markets are being opened up by new forms of commerce, of electronic commerce. A definition would be: “any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact”. However, while accurate, such a definition hardly captures the spirit of electronic commerce, which in practice is far better viewed as one of those rare cases where changing needs and new technologies come together to revolutionise the way in which business is conducted.<sup>8</sup>

The following six cases are examples of eCommerce take-up.

An end to export headaches	Foreign trade platform for SMEs for international transactions	Page 84
Safety for Europe	Online authoring service for chemical safety data sheets	Page 88
The productivity challenge	Online tools for organising and running trade fairs	Page 92
Understanding the mobile user	A mobile platform for stock trading	Page 96
Being there	3D e-commerce platform for tourism businesses	Page 100
Vintage technology	E-commerce solution for high quality wines	Page 104

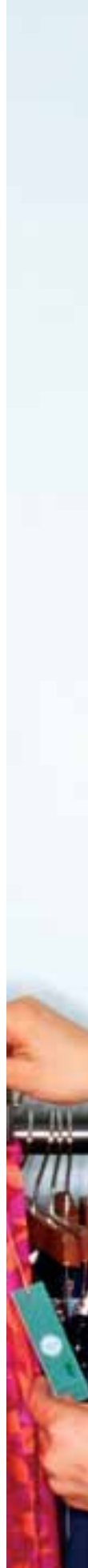
8 - Source “An introduction to electronic commerce” European Commission DG INFSO. <http://europa.eu.int/ISPO/ecommerce/answers/what.html>

## BUSINESS APPLICATIONS

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Applications are the lubricant which makes innovative and effective businesses run. The four cases presented in this section show smart business applications, ranging from platforms, tools to services.

Extreme success	The application of extreme programming techniques to innovate the way software is developed.	Page 112
Fair pay for content producers	Digital rights management system for software and pay-per-use technology	Page 116
Mobile business	Development platform for m-business applications making m-business access faster, cheaper and better	Page 120
Data exchange for niche markets	Product data exchange solution for the furniture industry - a smart way of building furniture	Page 124



A virtual organisation is a set of business entities, which forms a stable or dynamic collaborative network in order to provide value-adding products and services. Particularly for SMEs the concept of Virtual Organisations opens the opportunity to contribute their specific strengths and integrate those with the competencies of other SMEs by forming collaborative networks exploiting the competitive advantages of a business network.

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A flat antenna for DBS satellite broadcast is a new product with significant market potential. Product development was undertaken through a virtual enterprise formed by partners having complementary expertise and market backgrounds.

**BUSINESS IMPACT****ROI**

~18 months

**Expected increase in turnover**

turnover expected to reach  
€12 M for the new product  
within two years

**Business collaboration**

★★★★

**Effect on skills base**

★★★

**Competitive advantage**

★★★★

## THE CHALLENGE

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Product development is a complicated process, requiring a broad range of competencies and skills. One company which has had to face up to these issues is Space Engineering, a technology company based in Rome. Its specific expertise is within the area of satellite antenna development.

Space Engineering had a concept for a new so-called DBS antenna, which it believed could be developed and mass-produced for the commercial market. There was a problem however, its experience was in the development and sales of low-volume, high-quality on-board antennas for satellites. To develop and mass produce a product for the commercial market would require a whole different set of skills. For this it approached Precision Tools International (PTI), a consulting company specialising in new product development, especially within the telecommunications industry.

Richard Bohannon, PTI's CEO, explains the background to the DBS antenna: "The concept was to develop a flat antenna operating in the Ku band, with electrical characteristics equal to or better than those of a conventional parabolic antenna. It would have the ability to receive from several satellites simultaneously, but at a much lower cost than the parabolic device. With the current growth in digital satellite broadcasting, we could see that the prospective market was very large, running to several millions of antennas per year".

Due to market, schedule and financial constraints, PTI decided to undertake the product development through setting up a virtual enterprise (VE). "We saw this as an ideal opportunity to bring together companies with relevant expertise in mechanical design and manufacturing to make a low-cost, high-volume antenna product", says Richard Bohannon. A collaboration, known as KUBA, was established between PTI, LGJ Mekanik (Sweden) and Moulded Circuits (UK). CE Consulting, a company specialising in virtual enterprises, assisted the set-up.

**"We saw this as an ideal opportunity to bring together companies with relevant expertise"**

Richard Bohannon, CEO, Precision Tools International

## IMPLEMENTATION

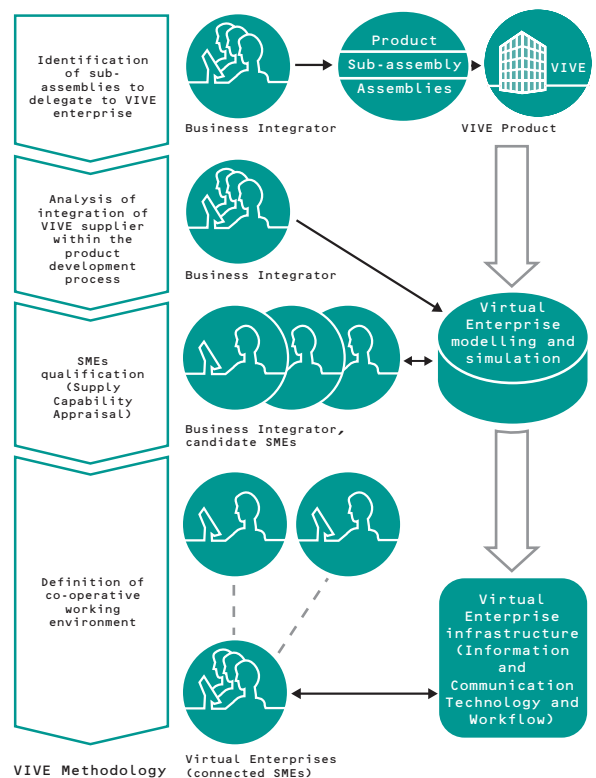
The first step in the collaboration was to make a framework cooperation agreement. This was a very important document, as it formed the basis for the entire project, and specified the goals to be achieved by each of the partners in a project called Active. Next, the partners created a technical specification for the product as well as a business plan outlining the proposed marketing strategy.

Since the VE involved five separate companies located in three countries it was necessary to assemble an ICT platform to support the cooperation and to open channels for communication between them. This enabled access to the common project documentation as well as providing a channel for all communication. It was decided that the work processes designed to accomplish this should be web-based, as this was a technology with which all the companies were familiar. With this in mind, specific software applications were developed to give all the project participants access to a user-friendly, yet comprehensive, common project website.

As all of the companies involved were SMEs, it was necessary to create a discipline in the use of the common project communication routines. This went more smoothly than anticipated, requiring no more than one day's training at each company.

Some initial problems were encountered in the creation of the KUBA virtual enterprise. Richard Bohannan explains the difficulties: "Naturally, each company had its own culture, and this had to be impinged upon for each of the partners to be able to communicate with and understand the others. Also, communication channels were not obvious, and therefore had to be cultivated. We decided each company should designate a representative to be the main interface towards the other partners in the VE. Language was also an issue to some extent".

"These problems were not correctly understood at the outset, when the VE was set up", says Mr Bohannan. "To help overcome them we prepared a VE manual, outlining exactly who should do what, and which channels were to be utilised for various types of contacts - technical, commercial, etc".





## BUSINESS BENEFITS

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A joint technical and commercial specification for the planned product was achieved. A practical transition from the “theoretical”, as designed by Space Engineering, to the “reality” as produced by KUBA is in process, and has succeeded in creating a first working prototype of the product. On the basis of the current prototype, technical modifications will be made to create a commercially-viable product. As soon as this is commercialised, a phase 2 product, with both transmission and receiving capabilities, is planned.

“The creation and use of common work areas and a web-based communications platform saved all of the companies a great deal of time and effort”, Richard Bohannon observes. “It also resulted in clear documentation which all parties shared in producing. Five SMEs have learned to work as a real VE!”

PTI attributes the success to a number of factors. The framework cooperation agreement was well-crafted and so served as a solid basis for the on-going project work. Also, a common web-based work area proved beneficial in creating open and clear communications between the partners. And a clear delineation of each partner’s role helped avoid unnecessary conflict situations. Finally, having a real business plan, which outlined both the responsibilities and, importantly, the rewards for each partner, helped the team members to remain focused.

The knowledge gained in creating this VE has already led to investigations into at least two new potential projects, where the partners see the contributions to be gained from each other. It is believed that the cooperation that has been started will lead to a long-standing business relationship between the companies involved.

### FURTHER INFORMATION

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**Project - ACTIVE**

[www.vive-ig.net/projects/active/](http://www.vive-ig.net/projects/active/)

Recognising a need to improve its responsiveness to customers demands, Color-Textil implemented a workflow management system connecting all elements of the textile production chain. The DesignNet system has reduced development time by 70% while bringing significant cost savings, as well as helping the company to tap into new markets.

**BUSINESS IMPACT****ROI**

12 months

**Expected increase in turnover**

35%

**Business collaboration**

★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★



## THE CHALLENGE

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Clothing and textiles is a conservative industry, and one which like many traditional sectors is undergoing dramatic change. Changes in distributors' structures and strong international competition have constantly depressed prices. At the same time, clients' quality demands have increased. In addition, fashion trends have become more short-lived, requiring fast reaction from the textile chain.

Color-Textil is a textiles manufacturer based in Frankenberg, Saxony, with around 145 employees. The company makes high-quality fabrics used for up-market bed linen. These are distributed to major German home textile brands and account for around 70% of turnover. Its other main business is a women's collection of fine fabrics sold to major European fashion chains, which accounts for the remaining 30%. As part of its service, Color-Textil offers textile design and colouring capabilities. The customers' designers often provide the designs for bed-linen prints, but colour schemes are adapted at the printers. For women's fashion, a proprietary print collection has been developed.

"The development of a print collection is a costly process", explains Hervé François, Color-Textil's CEO. "We have to choose the original artwork, fit it to textile printing requirements – we call that report – and separate the colours. Then we have to develop different colour schemes, engrave rotative print screens and, finally, sample and start industrial production. The artwork is usually acquired from international textile designers, while the engraving is done at a specialised external unit. All other steps are undertaken in-house".

To compete in this increasingly competitive market, the company set out to improve the speed of the turnaround of its design and colouring service while reducing costs. "When we thought about it, we saw there was plenty of scope to improve quality of customer service and minimise errors from iterative interactions between the customers, colourists and printing staff".

**"We saw there was plenty of scope  
to improve quality of customer  
service and minimise errors"**

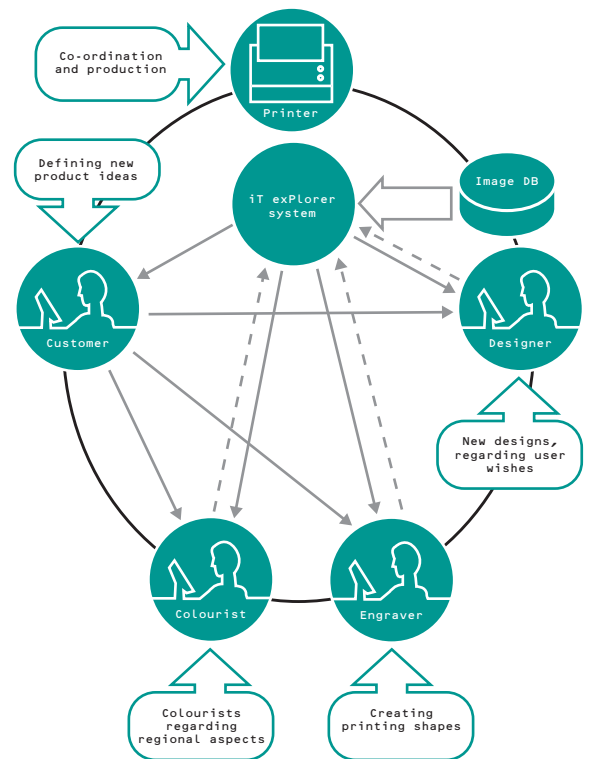
Hervé François, CEO, Color-Textil

## IMPLEMENTATION

Color-Textil saw that what was needed was to network all the image processing steps required for pre-printing, from the original artwork to the image file used for engraving. As Hervé François explains: “We presented the idea to ITV Denkendorf in Germany as part of CREATIV, an EU project to promote the use of technology within textiles SMEs. They liked the idea and set up a project group to develop the system, which was given the name DesignNet”.

The system comprises the image processing techniques used at each step (scan, colour separation, coloration) and a mail-based e-connected workflow monitoring software with standardised image/file formats, interfaces and standard input/output response sheets. Of special importance is the design database at the centre of the system, which is accessed by rapid search methods.

“We are now using the DesignNet system at Color-Web, a sister company to Color-Textil that we set up to develop and market ready-to-print textile designs. Color-Web works remotely with external textile designers at locations all over Europe”, says Mr François.



## BUSINESS BENEFITS

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Many of the objectives for the DesignNet system have already been met. It provides Color-Textil with fast, standardised monitoring of the workflow in textile design. By validating each process step online, the system facilitates customer interaction, increases transparency and reduces the error rate in the printing facility. It also allows the company to use the most modern, and therefore most cost-effective, textile printing technologies.

The results have been impressive and can be seen in four areas. Firstly, DesignNet allows the company to run the designer network more effectively. Design development time has been reduced by 70%, while cost control and expense savings have been improved by 30%. Secondly, it has allowed Color-Web to develop the designer network: more customers, more designers, more locations. On the back of this, the company has also grown its ink-jet business, leading to more customers and better links to distributors. Finally, the system has enabled existing software to be integrated in a cost-effective way.

“Design development time has been reduced by 70%, while costs have been cut by 30%.”

But the implementation was not without its hiccups. “The designers were sceptical initially”, recalls Hervé François. “They were afraid of anonymity and bureaucracy. But they were soon won over when they saw the advantages of using the system and started accessing the design database to keep track of their work”.

The designers also provided some important lessons during the specification stage. “It was difficult to make creative people describe their processes and workflow analytically”, according to Mr François, “and to make them comply with standard communication procedures. Hence, systems development took considerable time and effort”.

Color-Web attributes its success to a motivation to be a first mover and driver of innovation in this market segment. Strong textile competencies and a “real-life” textile design network enabled the company to accurately model the process flows. It is constantly rolling-out the DesignNet system to new designers and centres of textile expertise, such as the renowned Textile Printing Museum in Mulhouse, France. And a pilot project linking the distribution of ink-jet customised print is currently underway with a major German home textile retailer.



Hervé François, CEO

### FURTHER INFORMATION

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#### Project - CREATIV

[www.creativ-eu.com/Overview.htm](http://www.creativ-eu.com/Overview.htm)

As a means of improving their working practices, three Italian textiles SMEs implemented an extranet to streamline the way they managed production orders. By transferring the information flow from paper to digital documents, the solution significantly improved the efficiency of the whole order management process.

**BUSINESS IMPACT****ROI**

12 months

**Expected increase in turnover**

35%

**Business collaboration**

★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★



## THE CHALLENGE

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Europe's clothing and textiles industry faces stiff competition, often from lower cost producers in other countries. While European producers are unlikely to counter this by competing on price alone, there is an opportunity to compete on quality and innovation. EBusiness solutions can help here by making it possible to create personalised products, and to bring exciting made-to-measure products within the reach of the discerning, middle-income consumer.

Clerici Tessuto, a textile converter, Stamperia di Lipomo, a traditional textile printer, and DDP, a digital textile printer, form part of a supply chain in the Como textile district, Italy. They operate in the same business and geographical area, relying on reciprocal long-term collaborative partnerships.

The three companies recognised a need to improve both their communications and their approach to co-operative working. "When we looked into it we found many inefficiencies in our working practices", recalls Gianluca Brenna, of Stamperia di Lipomo. "Data transmission was often inaccurate due to the reliance on 'hard' support – not just paper but often pieces of fabric too. There was little standardisation in the information systems used by our three companies. And in many cases information was duplicated – entered or stored in systems that could not talk to each other - rather than being shared across the supply chain". The partners decided it was time for action.

At the production stage, developments in ink-jet technology now allow printing directly onto fabric. The companies saw that to capitalise on this they also needed to digitise other stages of the production chain. Armed with these ideas for improvement, the three partners set out to re-engineer, and more specifically to digitise, their business processes.

**"When we looked into it we found many inefficiencies in our working practices"**

Gianluca Brenna, Stamperia di Lipomo

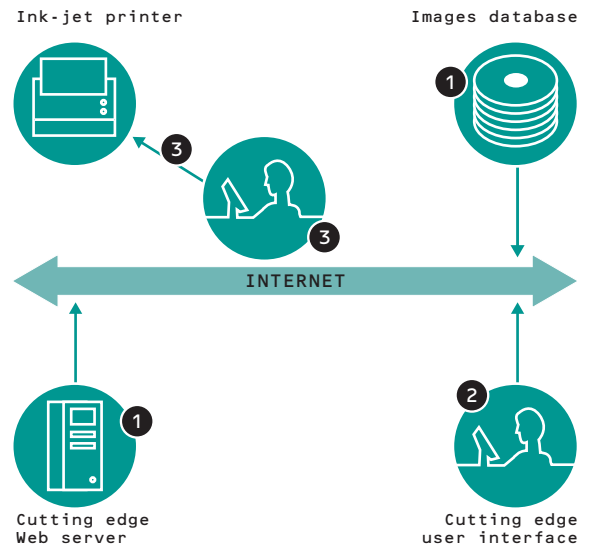
## IMPLEMENTATION

An extranet was developed which allowed the re-design of both the selling and the order management processes.

The system has three main elements. An Image Search Tool allows the sales force to search and retrieve the required images from a database of design drawings. Through customised e-business functionalities, the sales agent can insert the production order directly into the company's information system from the customer's site. The order is then managed in digital format along the whole supply chain, right through to the printing phase. The trial application featured the making of customised ties.

Gianluca Brenna explains how the partners have adapted to the new system: "Implementation of the extranet required the re-organisation of the selling process, so as to support a digital order form, as well as the internal order management processes. But the sales tool has a very user-friendly interface, and in fact reproduces the layout of the paper order form, so this helped users to quickly accept the new ways of working. The process is now fully digital, using digital information flow instead of paper".

The solution allowed the companies' existing systems ("legacy systems") to be maintained; the extranet was used primarily to integrate their main functionalities.





## BUSINESS BENEFITS

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The reduction of paper documents circulated and the quick transmission of the order within the textile supply chain improved the performance of the whole order management process. And with an overall cost-saving of around 35%, the impact on the bottom line speaks for itself. The customer experience has also been improved. Customers are offered a greater range of customised services, enhancing their satisfaction levels.

Gianluca Brenna professes himself extremely pleased with the results. "Digitising the order management processes allowed us to remove low value activities, such as order entry from paper, leading to more effective support for both back office and selling tasks. Also, by streamlining the business processes to remove redundant activities, such as duplicate order entry, we significantly reduced inaccuracies in data transmission".

"Digitising the order management processes allowed us to remove low value activities, leading to more effective support for both back office and selling tasks."

The results could be even better, if the solution is exploited to its full potential. "We can see many more possibilities for the system", says Gianluca Brenna. "For instance, we would like to extend the solution across the supply chain, so as to bring the benefits of e-business and process integration to other steps of the production chain. We're also considering introducing co-operative solutions with other firms operating in the Como textile district. This would allow companies within our local textile cluster to manage demand fluctuations better and share common services".

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**Project - CUTTING EDGE**

Three industrial partners used a web-based interface to link ERP systems along the supply chain. This cost effective supply chain management solution enabled the companies to reduce stock levels, increase cash flow and improve their quality processes.

#### BUSINESS IMPACT

ROI  
n/a

Expected increase in turnover  
n/a

Business collaboration  
★★★★★

Effect on skills base:  
★★

Competitive advantage  
★★★★



## THE CHALLENGE

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Kullen GmbH, Hahl Filaments GmbH and Record Industrial Brushes Ltd (RIB) are three companies working as partners within a supply chain producing plastics, fibres, and end products. Under increasing pressure from international competitors, the partners realised there was an urgent need to formally open up their supply chain management (SCM).

The companies wanted to decrease stock inventories, liberate cash flow, and improve SCM quality processes by finding a strategic SCM solution appropriate to the minimal investment potential of the three SMEs involved.

“Like most small businesses, the partners needed something that was going to contribute directly to the bottom line”, says Frank Werner, Product Manager at software developers LogControl GmbH. “They were looking for an SCM solution that provided a 24-hour quality management system for a critical industrial environment, that was flexible, dependable and value for money.”

To avoid additional costs, the solution also had to be modular and customisable so that it would run on top of the existing legacy systems. This was the starting point of the NETSTOCK project.

**“Like most small businesses, the partners needed something that was going to contribute directly to the bottom line”**

Frank Werner, Product Manager, LogControl GmbH

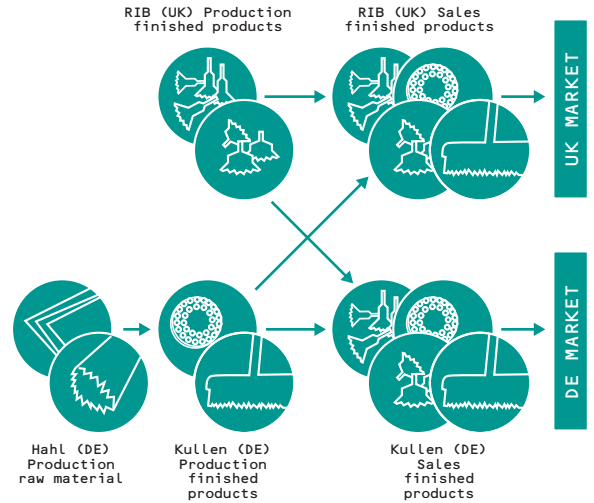
## IMPLEMENTATION

The solution LogControl came up with used an XML web interface with provisioning to link each of the major enterprise resource planning (ERP) systems used in Kullen, Hahl and RIB Ltd. LogControl developed the application and hosted it on their web server, using the application service provider (ASP) model. Based in Pforzheim, Germany, LogControl worked with the Pforzheim University of Applied Sciences to undertake a user requirements study and then completed the provisioning necessary between the systems. The actual ASP version was initially implemented with customers paying according to volume of data/intensity of use criteria.

“Once we started linking the systems together we soon found that changes were needed in each company’s business processes”, recalls Mr Werner. “For instance, several clients might order the same component and therefore complete visibility was too revealing for some of the supply chain members. So we revised the way the components were categorised.”

LogControl gave a high priority to getting the users’ buy-in for the new system. Getting the company staff themselves to verify the solution using their “own” data ensured this. This in turn led to a remodelling of the tool and an improved beta version. The ability to have an additional SCM web-based module directly interoperable with all major ERP systems means that some of the potential, previously perceived from ERP, could be unleashed. The supply chain was truly opened.

Netstock: Goods Flow



## BUSINESS BENEFITS

The introduction of virtual stock control and optimisation of service levels had significant benefits for the companies concerned. The number of updated order transactions between the three companies amounts to around 4000 new records per week. This formalised, and made more accurate, via automation what had been up until now an ad hoc interaction. Delivery dates and prices from multiple component providers can also be compared.

“One of the most noticeable impacts has been through reduced stock inventories”, notes Frank Werner. “One of the companies saw its total stock value cut by 10%. With further development of stock management, we’re now aiming to reduce that by a further 15%”. As well as overall values, levels of stock segmentation were also reduced. Such stock reductions have a direct impact on cashflow. For instance, the 10% reduction already achieved liberated cash savings of €300 000.

The integration with legacy systems was another key benefit. “The solution fitted into the partners’ existing systems seamlessly,” Werner says, “and there was no need for a complete overhaul of the IT systems so as to share data via the SCM”. Overall, the implementation produced a “light” solution to production planning that was matched to the needs of the SMEs involved.

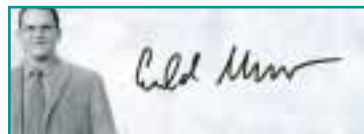
“One of the companies saw its total stock value cut by 10%”.

While bringing bottom line benefits, the progress towards a non-linear approach to supply chain management also caused some problems, however. “The increased visibility and openness required, while essential for good business practice, undermined the ability to bargain or stall”, observes Werner. “Stock might be visible but already be requisitioned for other partners, resulting in disagreements and potential ‘bullying’ business tactics. Also, the partners

found the amount of management effort necessary to implement collaborative working was much greater than they first thought”.

The general approach of an XML-based interface to interconnect ERP systems is topical and the technical solution achieved is highly effective. Nonetheless, many important issues relative to SCM - legal, standards, norms of practice - remain to be resolved before SCM systems become more widely adopted. These were not a specific focus of the trial described here.

LogControl is continuing to develop the NETSTOCK solution. In its most recent version, a “Best Offer” module allows multiple providers of components to compete openly on both delivery date and best price for the components. This solution is also being adapted to the logistics of freight transport to allow a real-time snapshot of where components are at any given time. The ASP version of the NETSTOCK solution is being commercialised and the enterprise package solution is being designed.



Ewald Mader, CEO

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#### Project - NETSTOCK

[www.eu-netstock.org](http://www.eu-netstock.org)

Three long-term partners in the industrial

sector suffered from poor communications

which strained their working relationship.

Introduction of a common ICT platform has

enabled the partners to share and plan their

activities more effectively. To the outside

world they operate as a single enterprise with

a unique business strategy.

#### BUSINESS IMPACT

##### ROI

~24 months

##### Expected increase in turnover

7%

##### Business collaboration

★★★★

##### Effect on skills base

★★

##### Competitive advantage

★★★★





## THE CHALLENGE

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The increasing pace of modern markets is forcing companies to be more flexible, innovative and responsive. One approach is to form “virtual enterprises” (VEs), very close collaborations of firms supported by opportune use of technological tools and organisational methodologies. VEs enable companies to pool resources and competencies to exploit a specific market opportunity. In so doing, they acquire the critical mass necessary to become a qualified partner of big enterprises, without losing the agility afforded by the SME’s lean structure.

The Italian firm ETA together with two industrial partners, PROGEL and CLG, produce control systems for industrial plant, mainly switch cabinets. These require a broad range of competencies in both hardware and software, from computing programming to cabling. “Our three companies had been working together for several years”, recalls Massimo Bonfatti of ETA. “We were really close and trusted each other, but sometimes had problems in communicating and synchronising our activities due to poor use of communications and planning tools. This caused delays in executing orders and, as a consequence, started to put a strain on our relationship”.

“At this stage we did not have any agreements or provision to regulate our collaboration”, Mr Bonfatti continues, “or to establish the role each enterprise was to play inside the VE. We decided the time was right to formalise the co-operation and set-up a virtual enterprise, ETA-VE”. The question was, how should such an undertaking be supported?

**“Poor communications and planning  
were straining our relationship”**

Massimo Bonfatti, ETA Srl

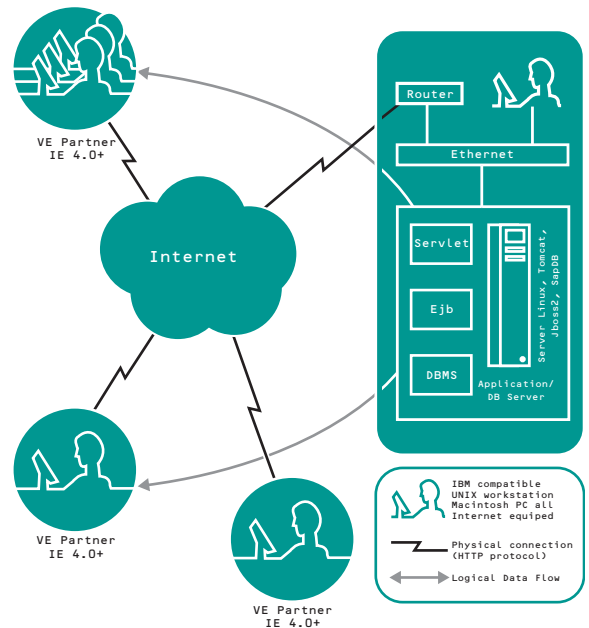
## IMPLEMENTATION

A solution was implemented as part of PROVE-SME, an EU project to help very small enterprises with high collaboration potential to form and run VEs more effectively.

The first stage was to define the needs of the ETA-VE partners. "We agreed we should have a contractual framework to govern our relationship", Mr Bonfatti explains. "We also needed a means to support communications, most of all for managing all the shared documents. Communication with remote site installations is an important part of our collaboration, requiring the exchange of information and documents between the partners in real time. We also identified a need for an efficient planning tool, to support the VE activities at network level".

To provide all these functions, an ICT platform was implemented based on four discrete software modules. The Customer Module supported the lead company - ETA - in managing its relations with suppliers, while the Planning Module supported the leader in scheduling tasks and allocating them between the partners. The Supplier Module supported all the partner companies in managing customer orders and their status. Finally, the Messenger and Workflow Manager Module handled all the communication through the VE. Many tests and personalisation of the four software modules were needed to obtain all the required functionalities.

Massimo Bonfatti says: "We found it quite difficult to find software that provided all the features we required, and that could be customised and integrated into our existing systems. The best solution seemed to be based on the internet, mainly because it allowed us to have all the information available always and everywhere, and also to share data online".





## BUSINESS BENEFITS

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Today the network has solved the problems linked with the task responsibilities: it has become a virtual enterprise, where the partners work within their individual enterprises but preserve the identity of a single company with a unique business strategy. “We continue to run our own businesses”, says Mr Bonfatti, “but to the outside world we’re one company, ETA-VE, dedicated to meeting our customers’ needs”.

The solution also solved a lot of other business problems. “The new system makes it much easier to track progress of jobs”, explains Mr Bonfatti. “That’s down to the traceability of information and better communications with the remote sites. Documents can be retrieved and problems communicated much more quickly. And the use of a common planning tool allows the ETA network as a whole to plan our activities effectively within the context of a long-term, high turnover collaboration”. Everybody who joins the partner companies is trained to use the system which, in any case, is very simple to use.

“To the outside world we’re one company, ETA-VE, dedicated to meeting our customers’ needs”.

The ICT solution used in the PROVE-SME project was jointly developed by SATA and Democenter and is now marketed as KET Extended Enterprise (Cowork Enabling Tools). KET EE supports the interactions between customers and suppliers in supply chains, virtual enterprises and geographically distributed enterprises. ETA plans to extend its use of the system to new partners, when enlarging its network, and also to occasional partners.



Massimo Bonfatti

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**Project - PROVE-SME**

[www.prove-sme.com/](http://www.prove-sme.com/)

As their co-operation became more intensive, three long-standing partners recognised a need to improve the way they shared information. The three companies now manage their common orders and coordinate their internal plans through a suite of web-based tools.

#### BUSINESS IMPACT

##### ROI

~8 months

##### Expected increase in turnover

n/a

##### Business collaboration

★★★★

##### Effect on skills base

★★

##### Competitive advantage

★★★★



## THE CHALLENGE

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Companies in all sectors face the need to collaborate more effectively to meet the ever-increasing demands of competitive markets. Laskaris SA, Technika Plastika SA and Vioral SA are three such companies based in Greece. Under the leadership of Vioral, all three SMEs have been participating for years in a supply chain, producing and assembling components for the European automotive and high-technology industries.

Stathes Xeromerites, of the University of Patras, describes how the partners faced up to the need to change: “Their cooperation is strongly dependent on their internal planning and deliveries”, he says, “and a lot of information must be exchanged for meeting delivery dates. All three companies knew that they had to improve their ways of working by introducing new, smart forms of collaboration”.

“Modern and powerful enterprise resource planning (ERP) solutions looked a promising way for the companies to synchronise workflows within the supply chain”, he continues, “but were totally affordable for these SMEs. They needed to find a simple-to-install and easy-to-use solution to facilitate their daily work, not change it. And the solution had to cover their specific requirements at an acceptable cost”.

**“All three companies knew they had to find new ways of working”**

Stathes Xeromerites, University of Patras

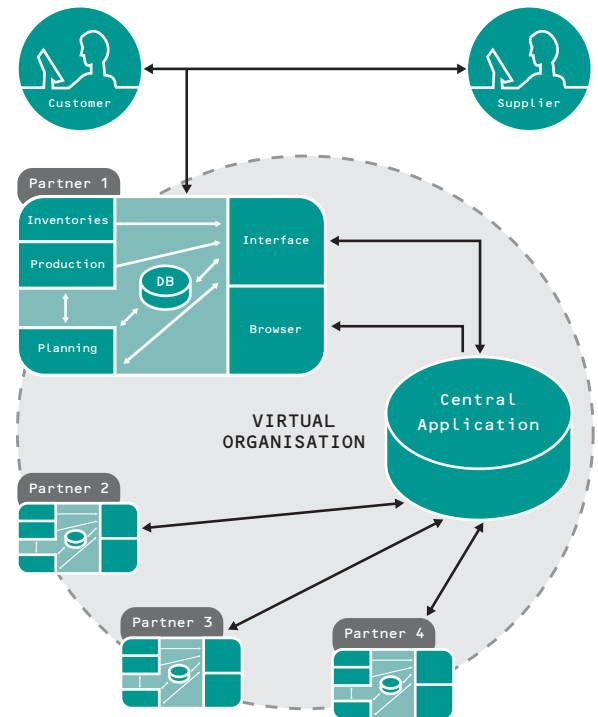
## IMPLEMENTATION

As part of the SMART-SME project co-ordinated by the University of Patras, three software tools, named SPIRIT, were developed to support the “smart” collaboration of the three companies. SPIRIT-C provides a web-based workspace for data exchange and information. SPIRIT-M provides management of the distributed work in progress and order processing, and SPIRIT-P assists the distributed planning and scheduling of their combined manufacturing operations. The project enabled the companies to specify their requirements from these tools, and select the vendor to implement them.

Based on techniques from operations research, decision theory and simulation, the planning and scheduling framework offers improved ways of allocating enterprise resources for distributed manufacturing tasks. This modern and efficient ICT solution is now in full operation at the three partner company sites, enabling them to readily share information as if they were a single enterprise.

The implementation consists of three tiers: information servers (Oracle RDBMS) for the data layer, the application’s logic (web server) for the business layer, and the client application (web browsers) for the presentation layer. All three tiers communicate through a common middleware, a messaging server on the internet or intranet.

Stathes Xeromerites is in no doubt about the success of this venture. “It’s all down to best practices”, he says. “By following these best practices, the companies were guided in the clear definition of their business objectives, through the well-documented specification of the features they needed from the solution, to a valid estimation on the return on their investment. We also supported the efficient introduction of the new technology in their day-to-day working”.



Implementation Concept

## BUSINESS BENEFITS

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By using SPIRIT software in their manufacturing environment, the companies achieved an enhanced work management and decision-making process locally, as well as improving collaboration with their cooperative partners. This resulted in a greater overall efficiency of manufacturing operations, increased productivity and improved cooperation.

“The results have been clear and quite remarkable”, notes Stathes Xeromerites. “Delivery times for the internal and external deliveries have been reduced by an average of 10%, while data for monitoring the progress of orders are now available at almost no cost. The workload assignments are improved and the re-work efforts and set-up costs are significantly reduced. We estimate that the streamlined order management process saves the network around €45 000 per year. And the total benefit for the three companies is expected to be around 135 000€ per year, after the first year of using all three SPIRIT modules”.

Much of the success in this case is down to the involvement of the SMEs’ personnel in all phases of the design, implementation and installation. Similarly, the friendliness and the simplicity of the implemented solution helped the companies’ personnel to adopt it in a very short time. “Like most SMEs, they were looking for a robust solution”, Mr Xeromerites says, “One that was based on sound technological and scientific principles, but without wanting to deal with these in their daily work”.

Perhaps the most significant outcome has been in strengthening the companies’ business relationship. Stathes Xeromerites explains: “Despite having worked together for several years, prior to the project the cooperation between the companies was not well formalised. Instead, it was more or less intuitive. This has changed and the cooperation is now more harmonised. All three partners have decided to work in a common way and with common software from now on”.

The application and enhancement of best practices for co-operating companies has proven to be a very efficient approach to get SMEs thinking about how to improve their business processes in a way that is efficient and goal-oriented. The companies are continuing to apply this approach in their future ICT implementations, both internally and with their cooperative partners.

The generic design and implementation of the SPIRIT solution, together with the simple user interface and advanced features, present many opportunities to extend its use elsewhere. For instance, external customers could use it to gain accurate information on progress of their orders and deliveries, while the SMEs themselves are considering the involvement of other companies with whom they cooperate as part of their virtual enterprise.

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**Project - SMARTSME**

<http://lms.mech.upatras.gr/Projects/SMARTSME/project/project.html>

EBusiness is often described as the SME's gateway to global business and market. This is true in principle, as the success stories presented in this book show. However, for the most part, European SMEs still find the opportunities offered by e-business technologies quite difficult to grasp. While many SMEs now have a basic web presence, available indicators suggest the majority are still reluctant to use, for example, the internet as business tool.

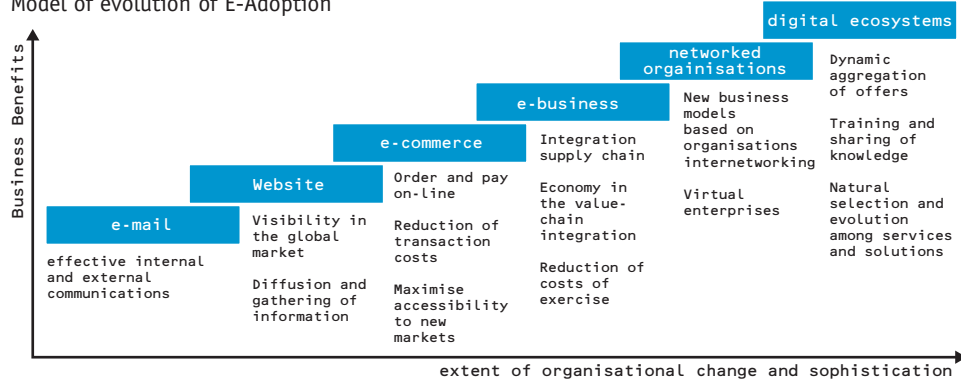
The obstacles are quite well known and have been discussed in several fora<sup>9</sup>. For instance, SMEs lack access to standardised and fully compatible ICT solutions that stay stable over time. Despite the reduction in the capital costs of ICT equipment, total costs of ownership are still seen as too high. Regulatory frameworks are quite complex and not tuned to cross-border e-business, although progress has been achieved in the framework of the eEurope 2002 initiative<sup>10</sup>. And finally, the attrition rate among "dotcom" start-ups and the tighter financial climate that has resulted, present a further disincentive for traditional SMEs.

Most importantly, many SMEs are not yet convinced of the appropriateness of e-business for their particular needs and are looking for examples that demonstrate a clear and specific added value. Before taking an investment decision they need highly specific information on the business benefits, in terms of productivity, quality of service or some other measure.

The great strength of SMEs arises from their specialisation and flexibility, which large companies find difficult to match. These characteristics will be even more important in the future, as SMEs adapt to meet the needs of rapidly changing markets. EBusiness technologies can help them to maximise the value of specialisation and flexibility, and also allow them to collaborate effectively with other SMEs and larger organisations.

The transition to e-business is a journey, not an event. In most cases this journey can be characterised in terms of progression through a number of key steps. One such model, which has received quite broad recognition, is based on the "e-adoption ladder" as shown in the figure below.

Model of evolution of E-Adoption



Adapted from Cisco led Information Age Partnership study on e-commerce in small business

At the first rung of the ladder, organisations would typically start by introducing e-mail to achieve more efficient communications both internally and externally. They would then progress through a basic "brochureware" website,

9 - eEurope: SMEs GoDigital, Brussels, 16th May 2002 and "SMEs Europe's Future" Conference report on [http://europa.eu.int/information\\_society/topics/e-business/godigital/docs/conference\\_report\\_smes.pdf](http://europa.eu.int/information_society/topics/e-business/godigital/docs/conference_report_smes.pdf)

10 - eEurope2002 final report available on [europa.eu.int/information\\_society/eeurope/news\\_library/ documents/acte\\_eEurope\\_2002\\_en.doc](http://europa.eu.int/information_society/eeurope/news_library/documents/acte_eEurope_2002_en.doc)

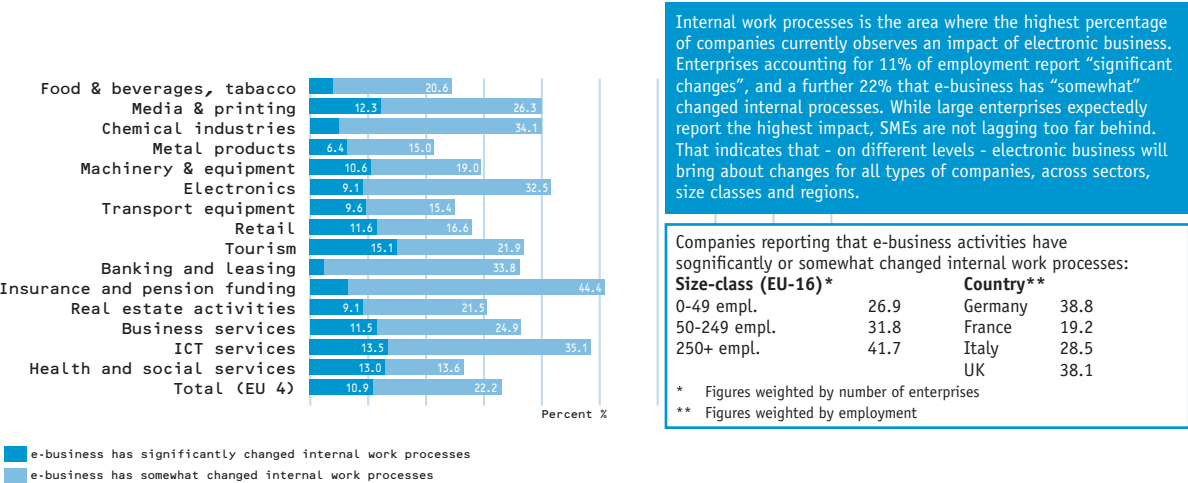
towards taking and placing at least some of their orders on-line (e-commerce), and eventually to implementing ICT throughout their internal business processes and external supply-chain (e-business). In the most advanced cases ICT is used to network the companies' systems with those of their customers, suppliers and partners to completely re-invent the business model. Eventually, in an advanced and visionary scenario, SMEs can collaborate in an evolving digital ecosystem based on fully transparent digital applications.<sup>11</sup>

At present, most SMEs are positioned between the e-mail and e-business rungs of the ladder. The challenge is to ensure that these and all the SMEs across Europe that could benefit from e-business are ready and able to progress further up the e-adoption ladder. Several studies on innovation identify that success depends strongly on how familiar are the individual SMEs belonging to a network with the technologies available against technologies needs, as well as their ability to deal with management issues involved.

Prediction of the rate of diffusion of e-business in SMEs requires to understand that the barriers to change are no longer technological: they are more and more managerial competence related. The change involves some degree of transformation of the enterprise and an understanding of how it works in an open environment together with a transformation of products and services offered.

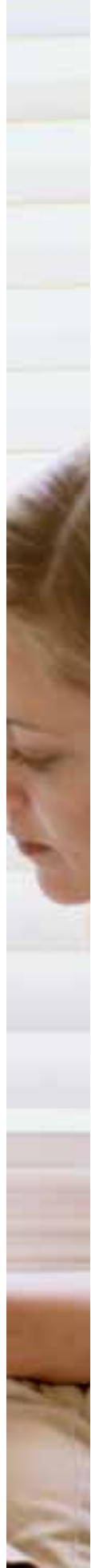
Taking a longer term perspective, to 2010 and beyond, it is clear that in the future networked economy SMEs will increasingly operate as nodes in extended networked organisations. Technology is required to facilitate this highly dynamic organisational infrastructure and to address key issues, such as supporting the production by collaborative virtual organisations, facilitating the transition of SMEs from one business environment to another, and capturing knowledge from them in order to capitalise on past, present and future innovation.

“Still, more needs to be done to stimulate the use of ICT by SMEs but the main policy challenge has changed from connecting SMEs to the internet to the effective and productive integration of ICT into business processes”<sup>12</sup>



11 - “Towards a network of digital business ecosystems fostering the local development” F. Nachira et al, European Commission DG INFSO, September 2002.  
12 - European Commission DG ENTR COM 2003 353 final.







An e-business exists primarily as an entity that has progressed to more productive process schedules and enhanced distribution environments. These tactical advantages improve efficiencies, lower costs, and increase market competitiveness. Traditional business processes are too sluggish and internally focused to function effectively in a virtual enterprise. True e-businesses implement self-service applications both internally and externally, leveraging technology throughout their operations environments.

e-business is not about scraping your existing business model. e-business also isn't about putting your existing processes on the Web. It's about rethinking the way you do business. It's about improving your internal and external business processes by leveraging new technologies.

A case-based business methodology provides

SMEs with the confidence they need to take

their first steps up the e-business ladder.

By developing solid business cases based on

company-specific requirements, the approach

enables SMEs to make more informed investment

decisions. Trials in a range of companies have

already yielded impressive results.

#### BUSINESS IMPACT

##### ROI

16 months on average

##### Expected increase in turnover

10% on average, for increased turnover

20% on average, for decreased delivery time

25% on average, for decreased product returns

##### Business collaboration

★★★★

##### Effect on skills base

★★★

##### Competitive advantage

★★★★

## THE CHALLENGE

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By now most SMEs have heard of e-business. But still too few are exploiting it to their advantage. The obstacles are well documented. They include lack of technical and management skills in SMEs, lack of appropriate e-business solutions, and the high cost of ownership of ICT equipment. For some, concerns about security and privacy, and complex regulatory frameworks for e-commerce also play a part.

One of the main barriers is that many SMEs are not yet convinced of the appropriateness of e-business for their particular circumstances. While they might be aware of the basic concepts, they don't see how to apply them to their own businesses. What they are seeking is highly specific information on which to build a business case, and so make informed and realistic investment decisions.

"To make e-business reachable, most SMEs need assurances that their investments will add real value while having a fast return on the investment and a low risk", says Luis Carneiro, of INESC Porto, a Portuguese research institute.

To address these issues, INESC has developed a methodology and supporting tools to help SMEs introduce innovative e-business solutions more efficiently.

**"SMEs need assurances that their investments will add real value while having a fast return on the investment and a low risk"**

Luis Carneiro, INESC Porto

## IMPLEMENTATION

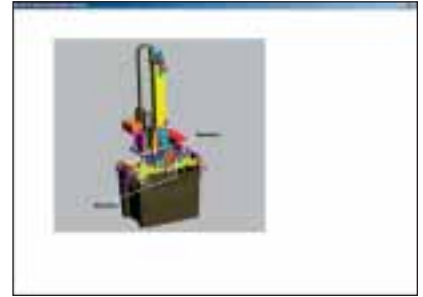
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The MEDIAT-SME methodology is based on four key principles. Firstly, it supports the systematic identification of opportunities for eliminating bottlenecks, reducing costs and delivery time, and increasing turnover. Secondly, it ensures that the selected ICT solutions actually help satisfy the organisation's business objectives. The third principle requires that any implementation decision must be based on a Return of Investment analysis. Finally, it emphasises a phased approach. The introduction of ICT systems and corresponding organisational changes should proceed in phases, starting with the analysis and selection, and going right through to implementation.

To support the use of the methodology, a Building Block Library of innovative software components was developed covering requirements common to most SMEs' e-business requirements.

The methodology and supporting tools have been used in four companies: DESMA, a technology provider and manufacturer of industrial shoe machines and moulds; Lirel, a manufacturer of industrial shoe machines; SBZ, a construction materials retailer; and VisualNet, an online professional media directory.

In each of the four companies a Business Case was defined to provide requirements and validate the methodologies and software tools. The Business Cases dealt with a broad range of issues, from cooperative engineering and tele-maintenance services, to supply chain management and customer relationship management.



## BUSINESS BENEFITS

The MEDIAT-SME Methodology defines the success of the implementation of e-business solutions by the periodic evaluation of key performance indicators after the systems and services have been implemented. This allows the company to continuously improve the operation of the implemented solution.

In the trials, Desma (DE) implemented an “internet-based engineering service” operating around the clock, which allows the customer to specify their unique needs and cooperate with the design department to better design the end product. The system is integrated with the CAD and ERP systems. The miss-delivery rate has been reduced by 20% and the average lead-time per order has been reduced by 25%.

The methodology evaluates key performance indicators after the systems and services have been implemented.

Lirel (PT) implemented a tele-maintenance system that allows the supervision, diagnosis and remote maintenance of the machines sold to their customers. In addition, the system supports the management of the maintenance teams, training and cost accounting. With this system, response times and costs were reduced. Nearly 30% of the maintenance requests are now solved remotely, with high impact on the average lead-time and operating costs.

SBZ (DE) implemented a procurement and sales system that supports the negotiation via the internet and is integrated with the ERP system via XML. The benefits include a considerable reduction in transport costs due to the optimised logistic processes and increased market share due to the new services provided. Around 35% of orders are now placed through the internet and the reclamation rate has decreased by 25%.

Finally, VisualNet (ES) implemented an e-marketing and e-ordering system. This allowed the company to automate selling through direct marketing campaigns and immediately process the orders received from VisualNet subscribers. Payments are made through WorldPay. Efficiency in both the marketing-sales operations and the order processing systems has improved dramatically.

By the end of the project all four companies had acquired the competencies and tools to allow them to analyse and successfully implement other services and systems in the future. This will ensure that they continue to realise further improvements.

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#### Project - MEDIAT-SME

[www.cbt.es/mediat-sme](http://www.cbt.es/mediat-sme)

Museums are looking to open their collections to as wide an audience as possible, and at the same time raise extra revenue. An internet portal enables users to access high quality digital images online while allowing the museums to collect royalties and control how the images are used.

**BUSINESS IMPACT****ROI**

~36 months

**Expected increase in turnover**

100%

**Business collaboration**

★★★★★

**Effect on skills base**

★★★

**Competitive advantage**

★★★★



## THE CHALLENGE

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Europe's museums are custodians of vast cultural collections – paintings, sculptures, and artefacts of all kinds. Images from these collections are in increasing demand among publishers, the press and the burgeoning multimedia industry, while for the museums themselves the sale of images represents a much-needed source of extra revenue. The issue, as in other areas of intellectual property, is how to provide access to these images in a way that is fair and effective both for the user and for the copyright owner, usually the museum.

Cultural Heritage On Line (CHOL) is helping museums to exploit these opportunities. Based on the long experience of its CEO, Dominique Delouis, as a technological expert for museums, CHOL works with European museums to confer better online visibility for their collections. Digital images from European museums' rich collections are distributed for commercial use in sectors such as publishing and tourism.

For museums, setting up a cultural internet portal can be a way to get their collections better known – regionally, nationally and internationally - and thus to attract new visitors. Dominique Delouis explains: "Museums are striving to open their collections to as wide an audience as possible, helped by regional authorities and publishers. The real challenge here is to establish working relationships with cultural institutions to make them understand that use of IT to network and market their assets will help them reach these goals".

"What the museums need", he continues, "is low-cost solutions with full multimedia features. We are talking about user-friendly, attractive and highly interactive portals which are feature rich and easy to browse". To help realise these ambitions CHOL joined CHERI, an EU-funded project to improve the take-up of the latest multimedia solutions in the cultural heritage sector.

**"Use of IT to network and market their assets will help them reach these goals"**

Dominique Delouis, CEO, Cultural Heritage On-Line

## IMPLEMENTATION

CHERI was a Best Practice Action that aimed to promote the broader adoption of proven IST technologies so as to significantly improve the acquisition, management and delivery of high quality images and other rich media in the cultural sector. It set out to provide a bridge between the sources of such images - museums and/or media archives – and their transfer and scalable integration into publishers' corporate digital systems. The project adapted and integrated already developed advanced solutions based on proven technology into an open platform that could be used by content providers and publishers (and, more generally, by suppliers and consumers of digital media) to license copyrighted material.

"At CHOL, we like to make everything digital", says Dominique Delouis, "so as to gain time and efficiency. But, this requires a state-of-the-art knowledge of how best to do it. Therefore, we decided first to test the best solutions with the pioneers in the field, and to consult the best experts in digitalisation of cultural assets, in printing fine arts books etc. We've built a very sophisticated service to deliver digital assets from the producers to the professional users in sectors such as publishing and tourism".

The resulting website – [www.museum-images.com](http://www.museum-images.com) - is an internet portal for the cultural sector. The service enables users to access online high quality digital images from the collections of various European museums while fully respecting the rights of the photographer or other copyright owner.

"Smart security technology ensures that customers respect copyright restrictions"

"Cultural objects deserve to be digitalised at the highest definition", says Dominique Delouis. "We assist the museums in that and advise them on the use of all information technologies related to the image. Of course, they also wish to restrict the use which can be made of their images. With some smart security technology we are able to ensure that customers respect these restrictions".

The museums can even monitor the sale and usage of their images online on a continuous basis. This enables them to determine the level of interest among the various professional groups - book editors, the press, corporate users and so on. They have full transparency on the use of their images and the income generated.





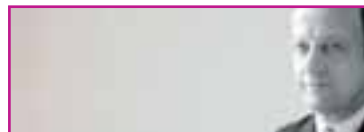
## BUSINESS BENEFITS

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The website is now fully operational and has started online sales of cultural assets from various European collections. Museums are conservative institutions and, according to Dominique Delouis, “to succeed with innovative solutions you need to be convincing”.

He pronounces himself well satisfied with the way things are going so far: “Relationships with museums are developing, we are continuing to tune our information system and the sales department is becoming effective. As a new service, we are investing considerable time and effort in making ourselves visible and known on the European scene through appearances at various events”.

The company is aiming to consolidate its supply base by adding further European museums to its list of content providers. This will, most likely, require an increase of its team within the next few years. To enhance and expand its services, CHOL also retains a strong commitment to R&D. “We’re already preparing our participation within the Sixth Framework Programme”, asserts Dominique Delouis. “We see greater use in tourism and regional museums as being the next phase of CHOL’s development”.



Dominique Delouis, President and CEO

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**Project - CHERI**

[www.cheriproject.org](http://www.cheriproject.org)

A new software solution supports technology planning and evaluation in production environments. The solution offers manufacturing companies the opportunity to continuously reduce their production costs and at the same time enlarge their knowledge base about new technologies and products.

**BUSINESS IMPACT**

**ROI**  
n/a

**Expected increase in turnover**  
n/a

**Business collaboration**  
★★★★

**Effect on skills base**  
★★

**Competitive advantage**  
★★★★

## THE CHALLENGE

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Technology planning and evaluation is a complex process, but is critical to the success of manufacturing companies. Relevant technology and product information have to be generated, administered and made available during this process. Technology planners, designers and technology experts have to work in one value chain together and exchange information. ICT solutions have much to offer such companies in terms of optimising information flows and supporting the decision-making process.

The Fraunhofer-Institute for Production Technology (IPT) focuses on supporting industrial partners in developing and improving technologies for manufacturing. One of its key tools is the Technology Calendar Method, a business planning tool often used in industry to challenge production processes, develop technology strategies and to pin-point potential cost reductions. Kühn & Weyh Software GmbH develops software to manage the production processes of business documents. Together they developed eTEMsolution™, a software solution to support technology planning and evaluation in production companies.

IPT recognised that by combining eTEMsolution™ and the Technology Calendar Method it ought to be possible to reduce production costs by 20 to 30 percent, while improving the efficiency of technology planning and evaluation.

**“eTEMsolution improves the efficiency of the technology planning process”**

Ralf Walker, Fraunhofer-Institute for Production Technology

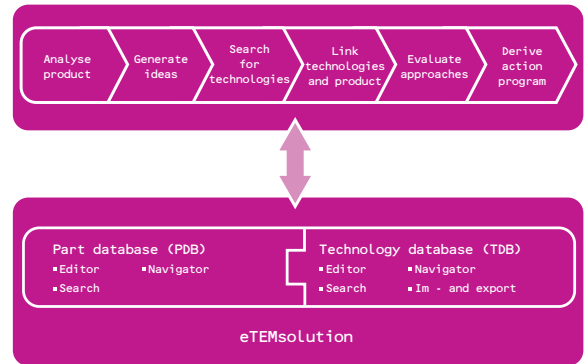
## IMPLEMENTATION

The Technology Calendar Method supports the process of technology planning and evaluation and helps to define the right production technologies. It is a field-tested method which guarantees that company-neutral technology evolutions are always reflected in company-relevant product and market developments.

eTEMsolution™ is a web-based solution that enables users to use, store, search and distribute information about technologies and components. It is a J2EE 1.3 (BEA WebLogic) server web-application. All information is stored in an Oracle database and can be exchanged via XML. The application can store textual information in different languages and is currently available with user interfaces in German, English and Czech.

The combined solution enables users to identify future and actual manufacturing technologies relevant for their products and manufacturing system, and to analyse their R&D requirements. IPT's Ralf Walker explains: "Our solution provides evaluations and decisions that are transparent and comprehensible, and improves the efficiency of the technology planning process. It identifies potential synergies between manufacturing technologies by finding similarities in product components, often leading to reduced production costs. Systematically documenting internal knowledge in this way helps to improve the efficiency and effectiveness of technology management processes".

Trial applications were implemented in three companies in the engineering industry: Driessen Speciaalwerk Holding B.V., TriboTec, and Turbocoating S.p.A. In each case intensive training in use of the new solution was provided.



## BUSINESS BENEFITS

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Information about the company-specific technologies, the new technologies that are available on the market and the products of the company helped generate many ideas on how to reduce production costs. Knowledge on this topic is now available for everyone in the trial companies. Overall, the implementation has realised cost reductions of up to 25 percent.

“One of the keys to success here was that the employees understood how the solution supported their daily business”, notes Ralf Walker. “Also, special training was provided so that the advantages of the solution for the users could be shown. The end result is extremely flexible and can be customised to the special needs of individual companies”.

“The Technology Calendar Method helps companies to continuously reduce production costs”, notes Mr Walker. “By using it they have the opportunity to enlarge their knowledge base about new technologies and products”.

“The employees understood how the solution supported their daily business”

Fraunhofer IPT is now working with a number of firms in implementing the combined Technology Calendar Method and eTEMsolution™ in their daily business. In addition, Fraunhofer IPT is setting up a network to exchange technology information. Together with Kühn & Weyh, further modules and functions of eTEMsolution™ will be developed. The results will be presented at trade fairs, in publications and on the internet.



Guenther Schuh

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#### Project - ETEMSOLUTION

[www.eTEMsolution.com](http://www.eTEMsolution.com)

A volunteer workforce needs to be managed just as efficiently as a paid one. Through more effective use of IT, Italian animal charity ENPA has been able to improve coordination of its army of volunteer workers and to get a better picture of its activities as a whole.

**BUSINESS IMPACT****ROI**

n/a

**Expected increase in turnover**

n/a

**Business collaboration**

★★★★

**Effect on skills base**

★★★

**Competitive advantage**

n/a



## THE CHALLENGE

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Non-profit organisations play an increasingly important role in today's society. Throughout Europe, hundreds of thousands of non-profit organisations are working to tackle such problems as hunger, homelessness, environmental pollution, drug abuse, and domestic violence, supplementing government activities, as well as contributing ideas for new programmes and other innovations.

Although much smaller than the private or public sectors in terms of turnover and number of employees, over recent years the "third sector" has grown rapidly. Many now see it as a major source of new jobs in the years to come, especially for young people or those re-entering the job market. For European non-profits to play their full role in this respect, they must be financially viable so as to be able to re-invest their profits according to their societal aims. To achieve this, as in industry, they must make better use of knowledge, people and technology. In other words, work smarter not harder.

One organisation facing this problem is ENPA, an Italian animal charity. It is Italy's biggest, and oldest, animal rights organisation, with about 20 000 members, 1500 active volunteers and 50 paid employees distributed in more than 130 branches.

Like many non-profit organisations, ENPA exists on a shoestring and struggles to provide high quality services on a tight budget. "Much of the work relies on volunteers, who are highly motivated but only available intermittently and frequently move on. Together with the network structure, this means they have to make the most of communication and co-operation tools," explains Francesca Borgia, of the Associazione Impresa Politecnico (AIP).

AIP is itself a non-profit association founded in 1993 by the Politecnico di Milano to enhance its relationships with both the public and private sectors. It was the lead partner in LENSIS, an EU-funded project to help non-profit organisations make better use of IT. ENPA joined the project to improve its internal processes through the use of simple, web based, specifically designed IT tools.

**"Non-profits have to make better use of knowledge, people and technology"**

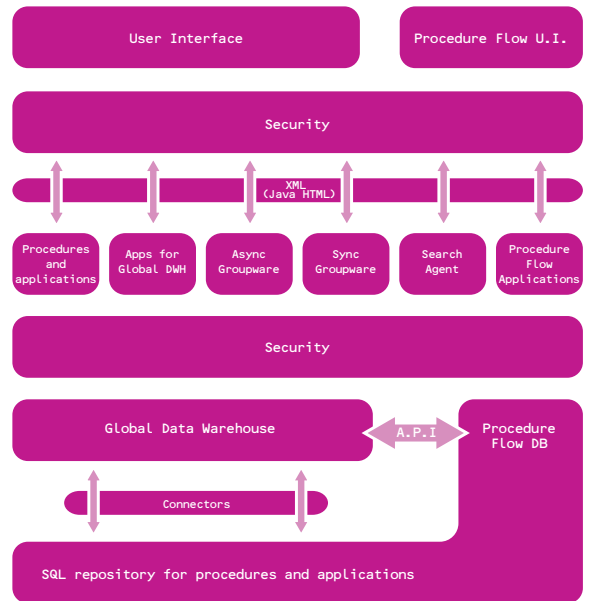
Francesca Borgia, Associazione Impresa Politecnico



## IMPLEMENTATION

An initial analysis highlighted ENPA's main problems. A large quantity of data and documents needed to be managed, many of the business processes were duplicated or inefficient, and it was proving difficult to coordinate the different branches both operationally and for fund-raising activities. To tackle these issues, a modular platform was designed and developed that enables the branches to effectively store, retrieve, share and use their knowledge and to better coordinate their activities.

The main element of the platform (the "global datawarehouse") is based on IBM Domino/Notes technology, while other functionalities were developed using Microsoft SQL Server. From the organisational point of view, usage of the new system required little modification in internal procedures. Rather it enabled ENPA to make them simpler, more efficient and, most of all, standardised across the different branches. Similarly, populating the databases helped impose common definitions and data formats and enabled redundant versions of documents to be deleted.





## BUSINESS BENEFITS

In ENPA's five branches that are already using the LENSIS system productivity has increased by about 25%. This was achieved mainly by standardising procedures, better access to information, better coordination, and reduction of wasted time and duplicated activities. Also, greater co-operation and information sharing between branches helped ENPA to increase both the quality of services and its capabilities in learning and innovation.

The integration of different tools and processes in a single solution allows a better usage of data and information, and better coordination, with evident advantages for users and reduction in overall complexity. "ENPA's experience shows that the LENSIS platform ensures a good compromise between high performance and low operating cost", says Francesca Borga. "It's specifically developed for the non-profit sector, and requires less tailoring compared to other available software".

"ENPA's experience shows a good compromise between high performance and low operating cost".

Are non-profit organisations still worried about the bottom-line? The answer is, of course, they have to be. But perhaps not quite in the same way as commercial enterprises. Francesca Borga explains: "It is difficult for non-profits like ENPA to estimate the exact ROI from investing in technology. It is true that the project improved productivity, but for the most part the effort saved is from a volunteer workforce, so without cost. Also considering that this workforce has been employed in non-market activities, it is not easy to estimate the value of the savings, since ENPA's activities don't generate economic returns, only social and environmental benefits".

In the next few months ENPA also expects to see a reduction in training time and higher income generation thanks to the usage of LENSIS to better co-ordinate and manage fund-raising activities. ENPA is now planning to extend usage of the LENSIS platform to all its branches, starting with the bigger ones.

AIP and its partners are introducing further improvements to the software, after which it will be commercialised for the non-profit market. Part of its plans include developing an "ASP version" of the platform, to be offered to medium-small non-profit organisations on a pay-per-use basis.



### FURTHER INFORMATION

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**Project - LENSIS**

[www.lensis.org](http://www.lensis.org)

Faced with an ever-increasing flow of data and the need to share information between departments, Riga City Council set out to transform its approach to managing knowledge. By modelling everyday business processes as a series of patterns, the solution has helped managers and employees to capture organisational knowledge in a more effective way.

#### BUSINESS IMPACT

##### ROI

~24 months

##### Expected increase in turnover

n/a

##### Business collaboration

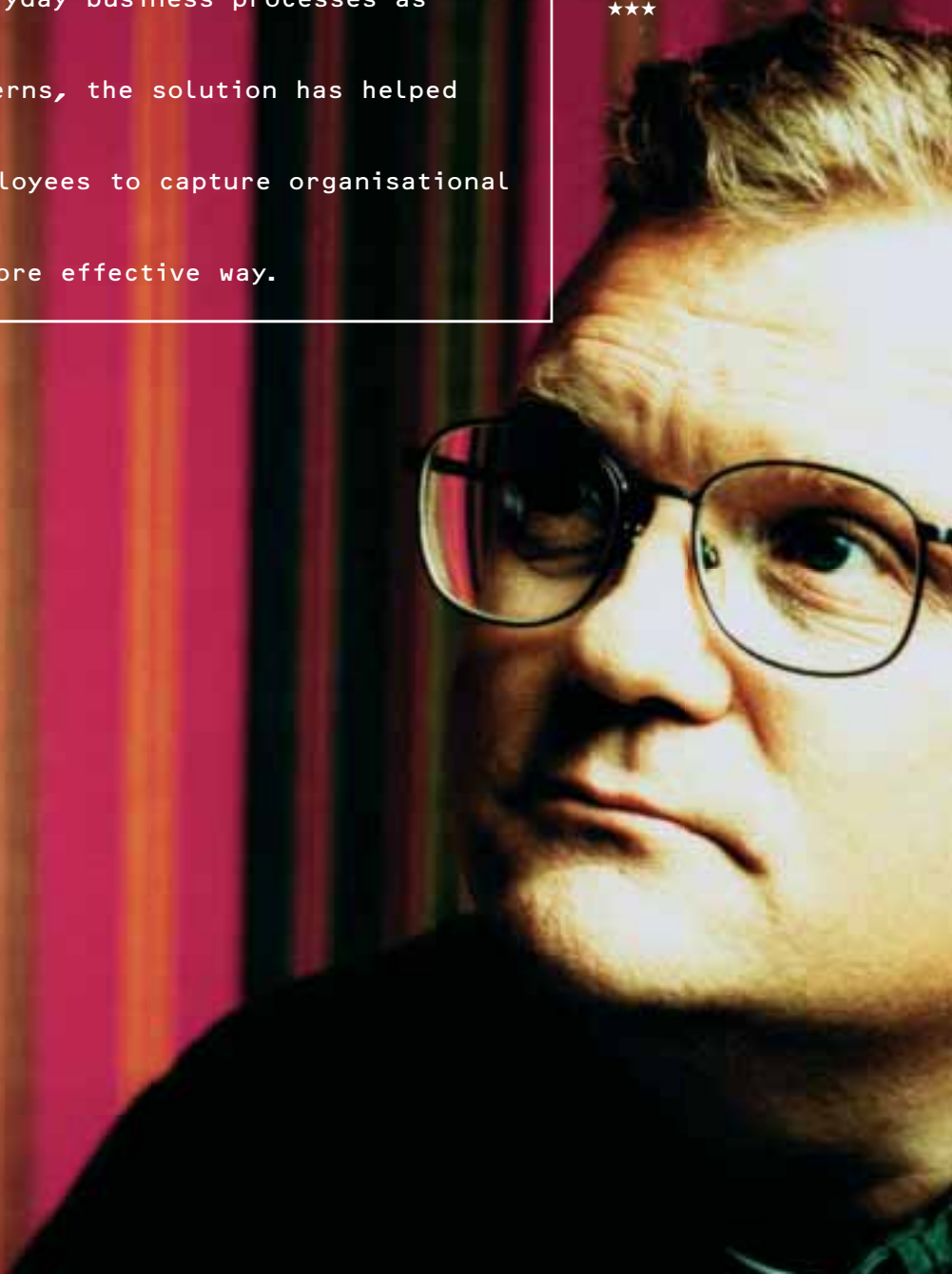
★★★

##### Effect on skills base

★★

##### Competitive advantage

★★★



## THE CHALLENGE

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Riga, capital of Latvia, has long been an important trading hub. Once a thriving Hansa city, it subsequently became a major industrial centre and port. Now, more than ten years after the overthrow of the Soviet system, the city is facing the problems of transition and the modernisation of city government. It is these concerns that are the major challenges facing the Riga City Council.

One of the key problems was the lack of an integrated information system in the administration of the city. Juris Mikelsons of Riga City Council explains: "Each office tended to develop and maintain its own database with little thought as to how it should interface with other departments. As the amount of information grew dramatically, it became obvious that better networking capabilities and integration of data were urgently needed."

To achieve this, the Council recognised that it had to transform its operations, from an approach based on segmented departmental information to one based on knowledge management across the organisation. "We needed to see the knowledge buried in our information", says Juris Mikelsons. "This involved tackling some fundamental problems, such as arriving at working definitions of data, information and knowledge, and making decisions concerning the most appropriate application." Strong support for e-solutions among the Council's senior management helped to overcome these obstacles.

**"We needed to see the knowledge in  
our information"**

Juris Mikelsons, Riga City Council

## IMPLEMENTATION

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Using trial applications developed under the HyperKnowledge project, the Council applied knowledge management solutions across three of its key operational departments: the Riga Drug Abuse Prevention Centre, the School Board of the City of Riga, and the Riga City Council Traffic Department.

The technical goal was to give access to knowledge repositories in a web representation as a means of capturing and making explicit the organisational memory. The approach chosen was based on an integration of the EKD (Enterprise Knowledge Development) method created by KTH in Sweden, and the hypermedia RETH (Requirements Engineering Through Hypertext) tool developed by Siemens AG, Austria.

EKD is an approach to participatory business modelling based on the reuse of business knowledge in the form of specific patterns. The resulting models are represented by business patterns, which bring together chunks of knowledge that describe typical problems and possible solutions to be applied in future appropriate contexts. The patterns apply natural language descriptions, EKD diagrams, and hypermedia. The project partners KTH and Siemens AG Österreich created a pattern template. Siemens' RETH provided a tool for creating, representing and exporting these patterns to the web representation.

Modelling sessions in the corresponding operational departments helped to provide an overall comprehension of the existing processes and to change them efficiently. The resulting models and the electronically maintained job descriptions, in the form of patterns, revealed many areas requiring management attention. Employees found the patterns useful in performing their jobs. Using the knowledge repository decreased the number of questions concerning these processes. The work significantly improved during the course of modelling and was made easier.



## BUSINESS BENEFITS

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The new approach has given administrators and employees the opportunity to capture organisational knowledge in a more effective way. "Representing problems in the form of patterns facilitated a better understanding of the underlying issues", says Juris Mikelsons. "The developers of these patterns were surprised that they gained a better grasp of processes they had administered for years."

The organised modelling sessions and electronic repositories in the form of patterns solved some important problems. Job rotation of staff within the Riga City Council and between the council and the universities was made much easier. Still a lot of work needs to be done, however. "The most significant issue is concerned with changing employee attitudes towards knowledge management.", says Juris Mikelsons.

"Better use of IT helped capture organisational knowledge in a more effective way"

Riga City Council gained a better appreciation of the benefits of knowledge management in the city's administration. The experience also helped trigger the e-Riga programme to apply knowledge management solutions more widely across the Council's operations. E-Riga is a high profile project with a high degree of political backing. As part of this, in 2003 the Council will implement wireless data transfer technology to provide every employee with access to the knowledge repositories.

Riga's effort also provides an important model for regional development. The administrations of smaller cities with traditionally well-developed knowledge-sharing cultures became more receptive to knowledge management solutions. A number of towns and cities in Latvia have expressed an interest, and the Livani district has already started to implement a regional development project. It should also help in making e-learning more accepted and popular.



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**Project - HYPERKNOWLEDGE**

<http://www.verbundplan.at/HyperKnowledge/>

As custodian of a vast archive of high quality images, Scala Archives is in an advantageous position as a provider of digital content.

To capitalise on this, Scala has worked with its key customers - the publishers - to better understand their needs and implemented a portal solution that makes it easier for publishers to access its archives.

**BUSINESS IMPACT****ROI**

12 months

**Expected increase in turnover**

35%

**Business collaboration**

★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★

## THE CHALLENGE

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In a world that relies increasingly on visual communication, high quality images are important for publishers. In the books sector alone, around three million images are bought each year and the growth in the art sector is running at around 10-15% per year. Magazines represent another important growth area, as publishers seek high quality visuals to fill the explosion of titles in areas such as fashion, travel, and lifestyle.

Scala Group is a media and technology company working in education, publishing, communications and e-business. Based in Florence, Italy, Scala is a world leader in the design and production of audiovisual content, drawing on its vast archives of images and related multimedia resources. At the heart of its collection is Scala Archives, a picture library founded in 1953 on the initiative of the great art historian Roberto Longhi. It is now the “official” photographic agency of numerous museums and sites in Italy and abroad. With 150,000 colour images, Scala holds one of the largest and most prestigious catalogues from the worlds of art, culture and travel available in digital form.

“Around 80% of our customers are publishers and most of them still ask for traditional transparencies rather than digital pictures”, explains Mirabelle Madignier, of Scala Archives. “But the demand for digital files is increasing rapidly, roughly doubling every year. We thought it would be useful to work directly with publishers to encourage the use of digital pictures and to better understand their needs. In particular we saw opportunities to work together to improve weaknesses in the overall workflow”.

To realise these objectives Scala joined a consortium involving all the actors in the value chain to work on best practices for this emerging market. This was the starting point of the CHERI project.

**“We saw opportunities to work with publishers to improve weaknesses in the overall workflow”**

Mirabelle Madignier, Scala Archives

## IMPLEMENTATION

After user requirements were completed, CHERI adapted and integrated advanced solutions into an open platform. The work focused both on the refinement of the digitalisation process and on the security of the system so as to enhance trust between content providers and content buyers. The high quality of digitisation was achieved through XImage software which allows on-line visualisation of the full-resolution image.

Thanks to XImage technology, the user can check online the quality of the digital image zooming up to 100% of its real size. The IMGF format allows real-time visualization for images of any size. The resulting detail is protected by electronic watermark.

New software solutions for image protection (VFZoom) and delivery were also tested.

The partners soon realised that the success of the CHERI system depended on its capacity to protect content providers against copyright infringement and to guarantee quality to content buyers. To improve its performance, the partners agreed that some operations of the value chain could eventually be outsourced whereas other activities should be kept inside the Cheri platform for both technical and commercial convenience. To avoid competition with the main historical actors, the CHERI organisation chose to set up strategic partnerships with them and enhance an expanding strategy.





## BUSINESS BENEFITS

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Based on the lessons learned through its involvement in the CHERI project, Scala Archives has been able to enhance its position in the digital market. Mirabelle Madignier explains: "The positive feedback we received from publishers regarding their future demand for digital images convinced us to digitise the remainder of our holdings at the very high resolutions needed in the publishing market – up to 1000 dpi. The process of digitalisation at these high resolutions will be complete by the end of 2004".

"Another positive result has been to reinforce the skills of our staff, both on technical and business aspects and to better focus on the requirements of our customers", she continues. "For instance, Scala strengthened its relationship with Burda, the major German magazine publisher, and more generally with the German market, which encouraged us to open a new office in Köln. And Scala Archives has achieved increasing sales in reviews and magazines, which now represent 15% of final revenues".

"Through better use of technology we have enhanced our position in the market"

For publishers, the CHERI system helps them to contain the costs of images, which represent one of the main elements of their cost base. By presenting many content providers on the same platform, together with search facilities for picture researchers, CHERI offers publishers high quality content, speed, security, and competitive prices, all through a competent brokerage service. The package includes e-commerce tools and work flow solutions and is supported by a technical hotline. For content owners, its key strength is a strong digital rights management (DRM) system to help manage the clearance process during invoicing and delivery.

The CHERI vertical portal is now well positioned in the "art & culture" segment, which is Scala's core business. This sector represents 1% of the publishing market and produces around 4000 new books each year. Once a certain level of visibility has been reached, Scala aims to position itself horizontally, by bringing other publishers and content providers into the CHERI portal. With other kinds of content and an increasing number of customers, the DRM solution will, most likely, have to be adapted further.



Alvise Passigli, CEO

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**Project - CHERI**

[www.cheriproject.org](http://www.cheriproject.org)

Ask yourself: How quickly can your business adapt to fluctuations in customer demand? How resilient is your business to competitive threats? Do your earnings improve even when your revenue declines?

The advent of the internet and the networked world has fundamentally changed the way in which businesses operate. The networked world of e-business has provided companies - regardless of their size - with new ways of collaborating with customers, suppliers and partners and other key constituents. As a result these parties have increased expectations about the value that companies can deliver - and how fast they can deliver it. The advent of the global economy and networked world has accelerated the rate of change. In fact, regardless of size or sector, there is one thing that all businesses agree on - that the rate of change is faster than ever before. Today businesses across the world face common challenges: ever increasing competition, more demanding customers, industry consolidation and faster decision cycles. Within this increasingly complex and fast paced business environment competitive advantage will go to those businesses which can sense these changes and react before their competitors. Information technology is a tool which allows businesses to do just that.

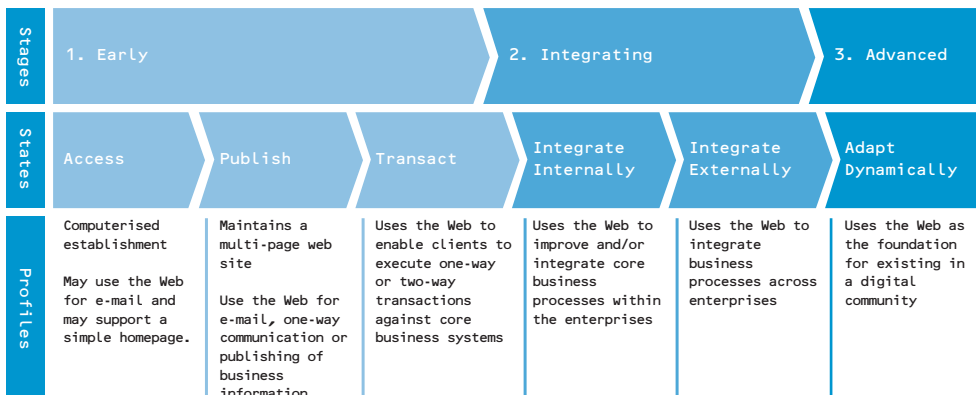
Technology remains a fundamental driver of productivity and a means of achieving competitive business advantage. Productivity is driven by both competition and innovation. These are underpinned by a variety of social, political and economic factors. Technology can enable businesses and institutions to adapt their processes to this environment and increase the value of their products - it is this which improves productivity. Many business leaders have used technology to grow their business and improve their delivery. A recent survey revealed that over half of small and medium business leaders believe that information technology is critical to help their company achieve its objectives.<sup>13</sup>

e-business is not an event, it is better described as a journey or an evolutionary process. As businesses move into more advanced stages of e-business they derive increased business value from technology. This in turn increases their ability to bring value to their suppliers, customers, employees, and other key constituents. e-business helps to reduce operational costs, whilst enabling better customer service and product flexibility through business optimisation. Many processes can be made much more effective and efficient through e-business, knowledge management and self-service.

IBM researched some six thousand five hundred companies, large and small, in seven countries. We discovered that depending on the extent to which they have adopted e-business, companies of today fall into one of three categories - Early, Integrating and Advanced.<sup>14</sup>

13 - Source: Nielsen Reel Research, 2003.

14 - Source: IBM Market Research.



#### STAGES OF E-BUSINESS ADOPTION:

The survey revealed that one out of two enterprises is in the early or access stage of e-business. In the access stage companies focus on internet access, publishing static content, and processing simple transactions. For example, e-mail replaces the postal services, simple database queries - such as checking bank account balances or flight arrival information, supersede telephone calls and standing in lines. All a business requires in order to participate in the access stage is a web browser, Internet access and a simple website.

The next stage after web-enablement is integrating – just less than half of the businesses surveyed are in the enterprise integration phase. As businesses move from the access stage to the integration stage, they begin to link their businesses internally and, eventually to external partners. Integrated enterprises apply network technology to drive any number of benefits – from new revenue sources to better delivery of services. Integrated web enabled processes allow businesses and consumers to transact over the web, for example: apply for loans, purchase goods and services, or trade stock on-line. These processes require far more than simple websites; they call for behind-the-scenes integration of internal systems and business processes. From customer relationship management to procurement - enterprises in the integration phase adapt faster to change and achieve greater levels of responsiveness.

We compared levels of e-business adoption between 2001 and 2002. We found that despite the perceived market down turn over the previous year, businesses have continued to invest in technology - thereby moving into more advanced stages of e-business. For example, results from our survey showed that between fourth quarter 2001 and fourth quarter 2002 almost 15% more businesses had moved from the early stage to the integrating stage of e-business.

However, once businesses start down the integration path, they realise very quickly that transforming a stand-alone process is a great beginning, but that the real payoff of e-business is end-to-end integration. If a supply chain does not seamlessly integrate with customer-facing systems, and if neither can interact with finance, logistics and procurement, a business will only capture a fraction of the potential benefits. Connecting all of those business processes and the systems that support them is becoming a priority for more and more businesses. Business leaders want a flow of transactions, work, ideas and opportunities of all kinds to ripple immediately through the whole enterprise - and beyond, across the extended value chain on which every business depends. So that's where we are today - on the verge of the next major phase of e- business adoption. This phase will allow a new kind of transformation or, more specifically, a new level of integration: of processes and applications inside a business; of suppliers and distributors at either end of a business; of customers outside the enterprise; of employees inside it. This is the on demand era of e-business.

An on demand business is defined as:

An enterprise whose business processes - integrated end-to-end across the company and with key partners, suppliers and customers - can respond with speed to any customer demand, market opportunity or external threat.<sup>15</sup>

Until now companies have been 'on the net.' In the on demand era businesses will become a part of the net. Using technology to become an on demand business will enable companies to see and manage their company as an integrated whole. It will enable enterprises to operate as more dynamic, more efficient organisations. As businesses evolve into on demand organisations they will demonstrate the following attributes:

- Responsive: Capable of sensing changes in the environment and responding dynamically to whatever challenge or opportunity they face.
- Variable: Able to adapt cost structures and business processes flexibly, reduce risk and drive business performance at higher levels of productivity, cost control, capital efficiency and financial predictability.
- Focused: Committed to concentrating on core competencies, not on the IT systems that support them. They use tightly integrated strategic partners to manage those tasks that are not central to their market strategy.
- Resilient: Prepared for changes and threats - be they computer viruses, earthquakes, or sudden changes in demand.

An example of an on demand organisation in action is The All England Lawn Tennis Club. This 100 person club hosts the world famous Wimbledon tennis tournament. Each year 450,000 people attend the Wimbledon Championships and almost one billion people across 165 countries view the event on television, the Web and mobile devices. Wimbledon lasts for two weeks, but behind the scenes the All England Lawn Tennis Club and its partners work all year round to ensure that infrastructure is in place to cope with one fortnight of extreme spectator demand.

During the 2002 Wimbledon championships the average duration of visits to the Wimbledon web site was two hours nine minutes. Demand for the [www.wimbledon.org](http://www.wimbledon.org) site can be as high as eight hundred thousand users during a single day during the championships. Unpredictable peaks in users – caused by varying match times, time zones, weather breaks and fans following Wimbledon from all over the world – mean that operating a resilient on demand IT infrastructure is absolutely essential.

#### THE NEXT STEPS FOR BECOMING AN E-BUSINESS<sup>15</sup>

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There are many entry points to e-business – when planning an e-business strategy it is not a case of one size fits all. To help you navigate the process of becoming an e-business we have outlined key considerations for creating a successful e-business strategy from a small- and medium business point of view. The first step for getting your company involved in e-business is ensure that you have a clear idea of where you want to go and what you want to do. Use the questions below to help you shape your e-business strategy before you begin implementing or working with an IT vendor or business partner.

##### - What role will e-business play in my company today and over time?

Take a long-term view of how you want your company to manage its e-business efforts. Consider your overall goals, and how e-business can help you achieve those milestones. In addition, carry out research and look at trends in your market and your industry as they relate to e-business. If many of your competitors are taking an aggressive e-business approach, you may need to consider how that will affect your company. Similarly, examine the e-business policies of your customers, suppliers, and business partners to see how they mesh with your goals.

##### - What resources do I need to dedicate to implement e-business?

Consider the time, money and energy necessary to get involved in e-business. Analyse your budgets to see where you will need to make financial investments. Consider up-front costs as well as ongoing costs that may be related to Web site or application hosting. You may also wish to consider the impact on staff – who will oversee your e-business projects?

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<sup>15</sup> - Source: IBM, 2003.

- What kind of return can I expect on my e-business investment?

It is important to define ways of measuring the success of your e-business investment. Which baselines you use will depend on your company's specific goals – they might relate to revenue, customer retention, costs, employee satisfaction, etc. Be sure to quantify these figures as best you can so you will be able to see the payoff of your e-business investment.

- What will the impact of e-business be on my firm?

Consider your current business processes and how getting involved in e-business will affect them. Implementing an e-business strategy may impact many areas of your company. For example, getting involved in customer relationship management will affect how your customer service, marketing, sales, and even product development operate. How will you encourage them to use these new tools? Many companies put together teams that include key members from different areas of the business to help them analyse the potential impact and encourage full buy-in across their organisations.

- What will I do in-house and what will I outsource?

Again, a careful examination of your internal resources will help you determine what you can do internally and when it is appropriate to use the services of an outside expert. For example, will you be able to design your Web site in-house or will you use an outside designer? If you use an outside designer, will this person oversee changes to your site or will you have someone within your organisation do that? You can extend that analysis to other outsourced options. For instance, who will host your Web site? Will you use an ASP service for certain e-business solutions? Will you need a VAR or systems integrator to help you install or manage any solutions? All this will have an impact on your budgets and resource allocations.

What can large enterprises teach small businesses about growing their Web presence? The answer is, plenty. If your small business doesn't have a budget the size of the latest lottery jackpot, there are simple, cost-effective enhancements you can make to improve your company's Web presence. Here are five affordable ways to get started:

- Communicate!

Good customer service is not complicated. Start by making yourself more accessible by putting your phone number where people can find it. Make it easy for them to reach out and touch your business. Your phone number should be immediately available and easy to spot on your Web site's home page - and every page on your entire Web site.

Another simple step is to respond promptly to all customer e-mail. Assign a member of your company to monitor and respond to all incoming email. If your company can't provide a dedicated resource to this task, set up an automatic e-mail response that sends an instant reply to your customer, letting them know you received their inquiry and will respond shortly.

Also get agreement from everyone in your company that all e-mails will be responded to within a certain time frame. This will hold employees accountable and ensure that any questions are handled promptly.

- Organise your site according to customers' needs, not your business.

A window treatment outlet in Europe recently wanted to grow its business by reaching new customers on the Web. They built their Web site, but after a few months had only minimal sales. After a quick review of the site, we immediately diagnosed the problem.

The site was not organised the way a customer would use it. It was organised by blind and shade manufacturer brand name. The trouble was, most people think about window treatments and ask basic questions, such as "Do I want blinds?" and "Do I want metal or wood?" and not, "Who's the manufacturer I want?"

We redesigned the home page to provide options for viewing the products on the site, by type, style and brand for the more knowledgeable customer. With the business owner now thinking like the customer, the user experience was improved and sales increased.

- It is better to do a few things well than many things not so well...

Even the biggest stores don't put their entire inventory on their Web site. So, if you are thinking about the overwhelming task of putting your entire product catalogue on line - don't. You don't have to put every product that you sell online - just the products or group of products that you think offer your business the best chance of attracting potential customers.

The question you need to ask yourself is, "What products would attract potential customers to the Web?"

- Commerce is not a luxury, it's a necessity

The Web has clearly evolved beyond the point where you can show products and then post a notice that says "call for price!" or "call to order." If this phrase is on your Web site, it may mean that potential customers are clicking off your site and going to a competitor.

Adding commerce doesn't need to be cost prohibitive. Most Internet Service Providers, ISPs, (the company that hosts your Web site) have figured out how to implement basic catalogue or commerce options for a reasonable fee. Find out who hosts your Web site and ask them how much they charge to add simple, secure commerce to the Web site. It is an additional investment, but well worth it.

#### - Remember that speed rules

Studies on how people use the Web suggest that even though connections to the Internet are getting faster, Web surfers will skip your site if they have to wait more than 15-30 seconds to download a Web page. So give your Web site a speed check. If it takes longer than 20 seconds to download you could be turning away potential customers. You might, for instance, have too many graphics on your home page. The solution would be to redesign your home page with fewer graphics.

A sluggish server could also be to blame. Talk to your ISP and ask them to help you look at your options. Some ISPs provide guarantees of service and will do a performance test to help you determine if the problem is taking place on the server. If it is, your options may include paying more to be hosted on your own server or looking for a new company that hosts fewer Web sites, but offers better performance per site. The latter would be a more cost effective option.

Once you are up and running on the web in what we call the early or access stage of e-business you may want to consider the next steps to becoming an on demand business.

#### - Embrace Integration and Interoperability

And who wouldn't want to be an on demand business like Wimbledon and unlock the value of the on demand era? However, today's computing infrastructure is not ready to support that kind of highly dynamic, responsive, integrated business environment. The past 40 years of IT evolution have left most companies with computing infrastructure that is heterogeneous, widely distributed and increasingly complex. To realise the benefits of on demand e-business, companies need to migrate to a new computing architecture one that is integrated, open, virtualised and autonomic.

To become responsive and resilient enterprises need to achieve end-to-end internal integration of their business processes. They also need to integrate their processes with partners, suppliers and end users. However, the level of integration required goes far beyond connecting disparate computing assets, such as clients and servers. Integration involves connecting core business processes and systems so that business itself can flow inside and across enterprises. Without integrated processes it becomes impossible to build systems that can instantly respond to change and operate as an on demand business.

#### - Embrace open standards

Open standards, such as Linux, provide the only way to connect and integrate disparate technology components. Open standards work across every system so that regardless of whose technology it is, or which vendor it is from - all of the pieces work together. To achieve integration with customers, partners and suppliers, open standards are the only option as they allow new technologies to be "snapped in" without complexity. Open standards reduce complexity, increase efficiency and provide a secure, reliable technology platform.



#### - Investigate the possibilities of Utility Computing

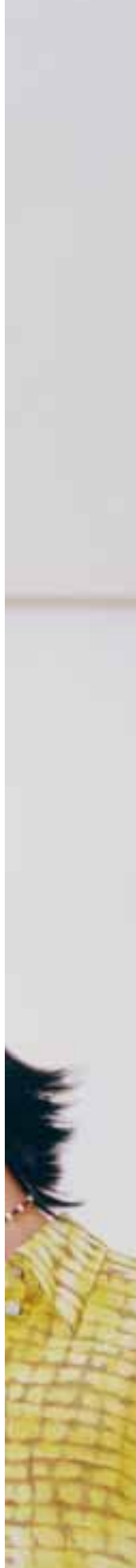
One way to realise the benefits of on demand e-business is through utility computing. Utility computing infrastructure is available to small and medium enterprises and provides a cost effective and flexible approach to IT investment. Consider for example, a finance application available on demand. Enterprises could use utility computing to access this finance application in the same way they get electricity, telecommunications or water - by the flip of a switch or the click of a mouse. When extra software or upgrades are needed, capacity can be added automatically over the Net, and the end user is billed accordingly. When a company requires less IT resource it pays less - and capital is freed up to invest in the business. Utility computing allows small and medium companies to focus on their core business – rather than managing their IT. Several software applications – designed specifically for small and medium sized businesses – are already available on a pay per use basis; these range from accounting packages to human resource software.

#### - Adopt Autonomic or Self Managing IT Infrastructure

Autonomic computing is best described through the following analogy: consider a human being's autonomic nervous system - it tells your heart how many times to beat and checks your blood's sugar and oxygen levels. It monitors your temperature and adjusts your blood flow and skin functions to keep it at a constant 36°C. But most significantly, it does all this without your conscious recognition or effort. The beauty of autonomic computing - and its biological inspiration - is that all of the complexity is hidden from the user. It is also self-protecting, in other words it assures secure information and resources through an ability to anticipate, detect, identify, and protect against attacks or technical failures. The long term goal is to design and build computing systems that are capable of running themselves, adjusting to varying circumstances, and able to most efficiently handle workloads. This in turn will ensure responsive, dynamic technology infrastructure that can adapt to any change, threat (e.g. virus) or increase in workload. Autonomic capabilities are available on hardware today. One day autonomic systems may be able to completely self-manage, self-protect, self-heal, balance workloads and upgrade software. Autonomic computing infrastructure will allow businesses to keep in step with the pace of change, without human intervention. An autonomic computing environment allows business people to focus on their core competencies rather than managing their IT.

#### - Investigate the possibilities of using virtualised IT infrastructure – for example Grid computing

Grid technology allows distributed computing resources to be shared and managed as if they were one, large, virtual computer. In other words, grids use dormant technology power by linking the unused capacities from servers or PCs to create networks with remarkable capabilities. Grid technology offers small and medium enterprises access to unlimited computational power when, how and where they need it most - on a pay per use basis. This provides significant cost benefits by allowing small and medium sized businesses the flexibility to scale up to access the amount of IT resource required, without significant up front investment.





Easytrade is a full web-based foreign trade advisor for SMEs. No matter what the level of the users expertise, the portal provides exporters with a set of easy-to-use services that enable SMEs to carry out an export operation without previous knowledge of foreign trade.

**BUSINESS IMPACT****ROI**

n/a

**Expected increase in turnover**

n/a

**Business collaboration**

★★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★



## THE CHALLENGE

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It is well-known that SMEs find it extremely difficult to start exporting. When an SME first comes across a business opportunity abroad, the cumbersome processes of foreign trade often discourage it from pursuing the work further. Either the benefits of selling abroad are lost, or if the transaction does go ahead a foreign trade expert or a specialist intermediary handles it.

To make the most of foreign trade SMEs need to invest in exporting specialists. But usually they are not sufficiently confident in achieving the necessary return from the export business to justify such an investment. The EU's Easytrade project proposed a solution to this dilemma. It set out to provide SMEs with a virtual export department, automating the processes of an import-export operation so the SME is able to export by itself. The project was led by Ibermática.

**"Easytrade enables organisations  
that have not exported before to  
easily connect to international  
buyers and intermediaries"**

Araceli Muñoz, Ibermática

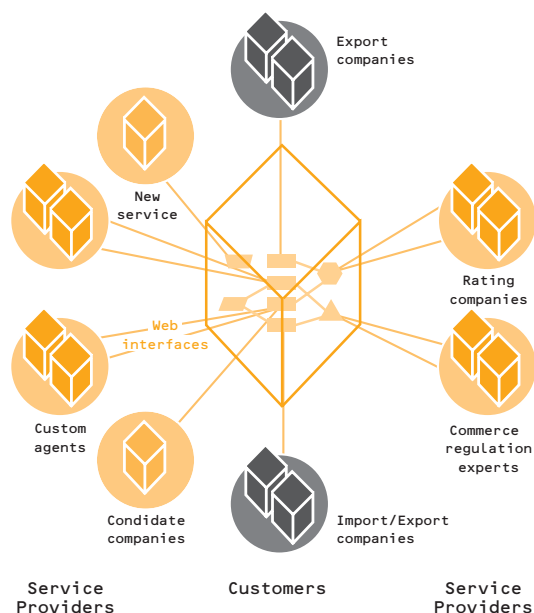
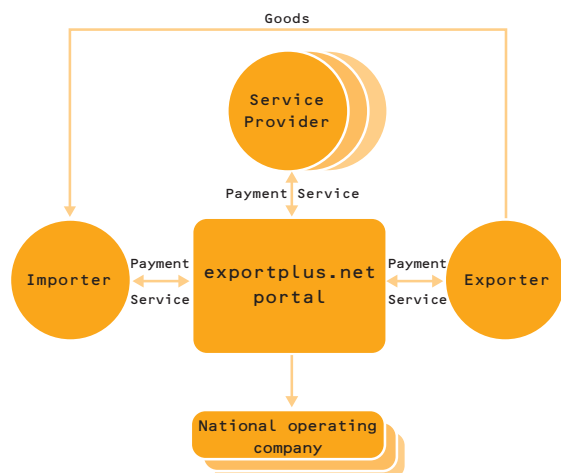
## IMPLEMENTATION

The Easytrade platform ([www.xportplus.net](http://www.xportplus.net)) is an internet portal providing SMEs with a supporting infrastructure to enable them to carry out all foreign trade related activities. Through this portal SMEs can access information, tools, cost calculations, details on providers of foreign trade services and other necessary facilities to successfully accomplish foreign trade operations. The user interacts with the system through a simple web interface.

Easytrade equips SMEs with an awareness of international business operations by explaining the mandatory requirements of international transactions and highlighting the role of the different suppliers and service providers. "Rather than establishing strong links between a limited number of companies, Easytrade enables organisations that have not exported before to connect to international buyers and foreign trade service providers", explains Araceli Muñoz of Ibermática. "It provides the step-by-step information needed to carry out an international transaction".

"Easytrade is feature-rich", he continues. "For instance, it covers a range of providers, including an outline of their services and prices. It can select the most competitive quote from appropriate services' providers and allows customers to track each stage of a transaction. And it can calculate the customs duties and taxes payable for a particular transaction."

The work involved the creation of the Easytrade platform to support the entry of European SMEs into foreign trade, together with guidelines on how to implement and exploit the Easytrade services in various markets. The platform was implemented and validated in seven European countries and within different activity sectors.



## BUSINESS BENEFITS

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The Easytrade platform offers a highly efficient and secure end-to-end supporting structure for all foreign trade-related activities, through user-friendly interfaces. Once they have identified an opportunity, the Easytrade system enables SMEs to quickly and easily find service providers and other foreign trade actors who can help and to transact with them using applications best suited for their needs. In this way, it allows SMEs to access all the information and professional advantages only usually available to large companies, thus enabling them to expand their markets at minimum cost.

“Making cross-border transactions is a complex operation”, notes Araceli Muñoz. “Easytrade simplifies the process in a number of ways. Firstly, it makes the process more transparent, by enabling SMEs to identify the relevant regulations and performing an online calculation of any costs related to a proposed transaction”.

“SMEs now have access to cheap and reliable export services”

“Another benefit is that it allows SMEs to cut the cost of accessing these services. These cost-savings arise through a better understanding of the flow of foreign trade-related operations, eliminating the need to deal with many intermediaries, and better integration of the value chain”.

The existing partners and their exploitation support networks will lead the planned expansion of the platform into other countries in Europe. Here there is scope for licensing agreements, the creation of branches and subsidiaries of existing and potential partners, strategic alliances and agreements with financial institutions and insurance companies. Main carriers, cargo, and logistic companies are being approached with a view to full deployment later on.

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#### Project - EASYTRADE

[http://easytrade.ib-ia.com/easytrade/dissemination/the\\_project\\_eng.htm](http://easytrade.ib-ia.com/easytrade/dissemination/the_project_eng.htm)

Recognising a gap in the market, a specialist software supplier has developed an online documentation system for chemical safety data sheets. The solution significantly cuts the cost of producing such information for SME manufacturers and is now available as a hosted service on a pay-per-use basis.

#### BUSINESS IMPACT

##### ROI

6 months

Expected increase in turnover  
n/a

##### Business collaboration

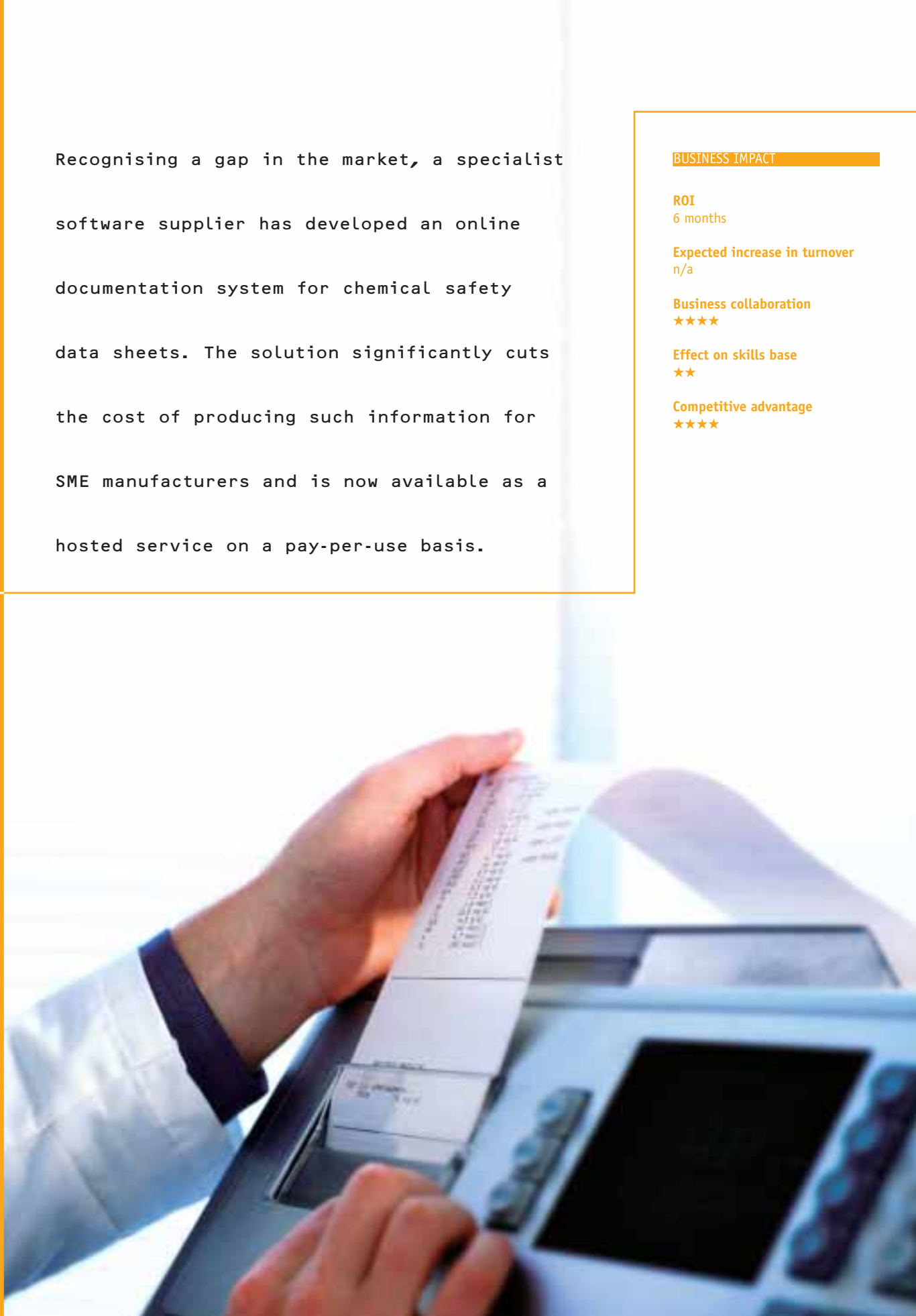
★★★★

##### Effect on skills base

★★

##### Competitive advantage

★★★★





## THE CHALLENGE

Health, safety and environmental (HSE) information is essential for understanding the risks to human health and the environment from the use of potentially hazardous chemicals. Demand for such data in industry is increasing as firms seek to comply with regulatory requirements and ensure the best possible health and safety conditions.

The responsibility for providing this HSE data falls to the manufacturers, mainly within the chemical industry. Under European legislation, many thousands of chemical substances are covered. Large companies can easily generate this information, but for small and medium-sized producers it is more of a problem. Often they cannot afford a specialised, in-house HSE department with a deep understanding of the frequently changing national and international legislation.

Tor Østesen, Managing Director of HSE Global AS, based in Norway, appreciates the problem only too well. “Generating safety data sheets is a real problem for small producers”, he says. “What they need is a service that enables them to quickly and easily create high quality safety data sheets with a minimum of fuss”.

HSE Global is an experienced player in delivering HSE software systems and related services for the chemical industry. The company has over 250 customers in Europe and has distributors in the UK and France.

“Current documentation processes are mainly manual with resulting high cost and low quality”, explains Tor Østesen. “No players are currently offering a fully automated, online documentation solution”. HSE Global set out to change this.

**“Current documentation processes  
are mainly manual”**

Tor Østesen, Managing Director, HSE Global AS

## IMPLEMENTATION

Together with the Danish Toxicology Centre (DTC) and Safeware Quasar Ltd (SQL), HSE Global has developed an on-line authoring service for Safety Data Sheets suited to the needs of SME producers. The development was undertaken under the EU project SDSWEB, which included feedback from trial customers in Denmark, Germany and Poland, as well as intranet customers in France.

The service is based on Microsoft Active Server Pages and Oracle database technology and is accessed by a standard web browser. This means that the customer does not need to install any special propriety software. Branded under HSE Global's Safe range of products, the service includes knowledge-based expert modules from DTC and SQL.

It is currently being launched to the European market as a hosted service under the application service provider (ASP) model. The server is hosted by Basefarm, a professional hosting centre in Oslo, Norway, with high speed internet connections throughout Europe. Since the volumes of data transferred are relatively low, the service also operates perfectly well over low speed lines.



## BUSINESS BENEFITS

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European SME chemical suppliers are now offered a hosted service based on the ASP principle reducing the complexity of authoring a high quality Safety Data Sheet. Manufacturers are able to produce such information more quickly and at reduced cost.

Due to the distributed nature of the ASP model, customers are able to leverage knowledge and expertise from across the company. For instance, they can draw on specialists in different subsidiaries or countries to author and quality check the safety data sheets according to local legislation and language.

The hosted model makes the service cost-effective to operate: users have no software administration and no need for internal support from the IT department. And they always have access to the latest version of the application. Some users have concerns, however.

“Sometimes customers are still suspicious about external hosting”, notes Tor Østesen. “They need to be convinced that their data is secure. We give security a high priority. It is taken care of through firewalls, encryption and security built into Oracle”.

“The hosted model makes the service highly cost-effective”

HSE Global expects the service to be one of its main revenue generators in the coming years. It is continuing to work with DTC and SQL to enhance the service and will possibly develop new knowledge-based expert modules. In the meantime, the main focus is on marketing and sales of the service through partners and direct sales across Europe.



Tor Østesen, Managing Director

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Project - SDSWEB

Faced with a need to improve productivity and get closer to its customers, Fundación Semana Verde de Galicia has created a suite of web-based tools for organising and managing commercial trade fairs. By standardising business processes and improving relationship marketing, the solution helps trade fair organisers keep in tune with changes in market requirements.

**BUSINESS IMPACT****ROI**

12-18 months

**Expected increase in turnover**

5-8%

**Business collaboration:**

★★★★

**Effect on skills base:**

★★★

**Competitive advantage:**

★★★★

## THE CHALLENGE

Fundación Semana Verde de Galicia (FSVG) is an exhibitions organiser located in North West Spain. The company has a 25 year track-record and each year manages some 15 exhibitions and trade fairs. These events attract around 300 000 visitors together with more than 2000 exhibitors, from industries as diverse as agrifood, farm machinery, sports & tourism, environmental services, and information & communications technologies.

The trade fairs and exhibitions business is traditionally a globalised industry. However, market actors still rely on quite conventional management practices. At present, new market entrants are squeezing the trade fairs market, while changes in demand among exhibitors and visitors are further increasing competitive pressures. Many of these changes derive from new trade relationships, such as unified markets, better telecommunications, and greater use of the internet.

“The trade fairs market is very turbulent at the moment”, notes Fernanda Liborio, External Relations Manager at FSVG. “Companies are looking to improve their capacity to provide services to a demanding customer base, in other words their competitiveness. But at the same time they need to modernise their business cycle and improve their productivity”.

FSVG recognised it was not immune from the changes sweeping the industry, and as part of its business strategy set out to produce a breakthrough in the way the internet was used within the trade fairs market. “We could see new possibilities for European firms to become exhibitors at trade fairs, thereby increasing our market share”, notes Ms Liborio. “At the same time, new technologies offered opportunities to develop a new set of web-based productivity tools to revolutionise the way in which fairs were organised, marketed and run”.

**“Technology offered us new opportunities to increase our market share”**

Fernanda Liborio, External Relations Manager,  
Fundación Semana Verde de Galicia

## IMPLEMENTATION

To achieve these objectives, FSVG set about creating a system called FAIRWIS, an integrated web-based software solution to support management of the entire business cycle of planning, organising and running trade fairs.

Fernanda Liborio says, “Our requirements analysis showed the system architecture needed to combine powerful mechanisms to manage highly dynamic databases, since the marketing and the set-up of a fair is done within a very short period of time”. The structure also had to be very flexible, enabling the FSVG team to customise the system to the different types of fair managed during the year. Another key requirement, both for fair managers as well as for exhibitors and visitors, was for the solution to allow the user to dynamically visualise the make-up of an exhibition hall.

At the heart of the system is FAIRWIS Core, which generates and manages an online website supporting all of the main functionalities needed in organising and running a trade fair. This includes modular components for identification/registration of exhibitors and visitors, booking of stands and services, online publication, navigation and search, recording visitors’ arrival, meeting scheduler and an internal messaging system.

FAIRWIS Core is supported by three additional modules. The 3D Engine dynamically provides data-based 3D visualisation to support the business cycle. The User Profile Engine allows the creation of user models from data collected during user interaction to support the set up of marketing strategies. And the Data Analysis Engine supports decision-making processes through a set of business intelligence tools.

The system currently exists as an advanced prototype, which is undergoing extensive field testing.



## BUSINESS BENEFITS

Full implementation of the FAIRWIS system is expected to directly impact FSVG's business in a number of ways. "It should allow us to standardise the business processes used for all our events", explains Ms Liborio, "resulting in significant savings in time, increased productivity and reduced costs. The efficiency of our marketing and relational activities should also be improved. And as a result we will be able to help our SME exhibitors to compete better with large firms in the digital age".

With FAIRWIS, FSVG is able to create fast-moving, cost-effective business communities that collaborate online through automated, streamlined business processes. And by putting the organiser in closer touch with market shifts, the system will help trade fairs organisers adapt more quickly to new scenarios, so safeguarding their competitiveness in the long term.

"We expect to realise significant savings in time, increase productivity and reduce costs"

Fernanda Liborio puts the success of the system down to two factors. "Firstly, we went to great lengths to get the right mix of horizontal and vertical expertise. The project team comprised experts from the exhibitions industry who knew the practical issues involved, together with an array of business management experts and software developers who were oriented by results. Secondly, the organisation of an early trial of the proposed solution allowed the concept to be validated 'in the field'. This empowered the entire team to focus on optimisation to ensure the solution met our requirements in every way".

Further developments are centred in two areas. A thorough trial of the system is being undertaken under real-world conditions (running actual fairs), which will allow the capabilities to be finalised, leading to its adoption as a fully operational management tool. And a marketing strategy is being devised, to commercialise the system for other trade fair organisers within the EU marketplace.



Jose Maril Sánchez

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#### Project - FAIRWIS

[www.fairwis.net](http://www.fairwis.net)

Stocknet, a pioneer of online share trading, has developed a mobile application for share dealing on 2.5G mobile phones. Through a clear definition of customers requirements and a strong focus on early adopters, the company has been able to fine-tune the application for the mass market.

**BUSINESS IMPACT**

**ROI**  
~ 12 months

**Expected increase in turnover**  
n/a

**Business collaboration**  
★★★

**Effect on skills base**  
★★★

**Competitive advantage**  
★★★★





## THE CHALLENGE

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Stock markets move at breakneck speed and investors need constant updating about the movements of their portfolios. Up-to-the-second information can mean the difference between profit and loss. For such information-critical users, mobile technologies have much to offer, enabling them to track the financial markets wherever they are, at whatever hour of the day or night.

Stocknet is Norway's largest stockbroker handling 9% of all trades on the Oslo Stock Exchange. In Denmark, Stocknet has a market share of 2.5% on the Copenhagen Stock Exchange and the company has recently launched operations in Germany and Sweden too. Stocknet is one of the new breed of brokers – all its trades are originated on either the fixed or mobile internet. The company has had an online presence since its start up and in 1999 became the first broker in the world to offer stock trading via WAP.

To maintain its position as a pioneer of online trading, Stocknet set out to bring the promised convenience of the mobile internet to its customers. "For us the payoff was clear", recalls Erlend Bruvik, Stocknet's CEO. "Allowing our best customers to trade while on-the-move would encourage them to trade more and would also set Stocknet apart from the competition. But the technical challenge was formidable. Experience to date showed that consumers had rejected almost all mobile applications and services because they were too slow and cumbersome to use".

**"Allowing our best customers to  
trade while on-the-move will  
encourage them to trade more and  
set us apart from the competition"**

Erlend Bruvik, CEO, Stocknet

## IMPLEMENTATION

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Stocknet identified five factors that would be critical to realising a mobile application suitable for use by its clients. Firstly, the content had to be compelling: the trading information available on the mobile platform although concise, must be rich in information. A second factor was fast access: Stocknet's customers demand rapid response to their information and trade requests. The mobile system must be easy to set-up and use, and the interface must be intuitive. Accuracy was also a key requirement: the information on the terminal must be updated in real-time with streaming technology to be useful to the active trader on-the-move. Finally, the cost of trading online must not be a barrier to trading – in other words, the tariffs must be low (or free) and easy to understand.

The solution was developed jointly by Stocknet, SchlumbergerSema and Mobile Economy. Stocknet applied its successful online trading expertise to the mobile interface and to the provision of compelling content. SchlumbergerSema provided system integration expertise that contributed to the fast access and ease of use of the system. And Mobile Economy developed a software platform which allowed Stocknet's customers to be offered free air access.

## BUSINESS BENEFITS

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The application developed in the project has proven to be of great value to online investors. "Always-updated stock quotes and trading capability on a mobile phone is new and a valuable add-on to traditional PC-based systems", notes Erlend Bruvik. "We expect to see a long-term increase in customer loyalty, particularly with the high-end-customers. The new mobile application again sets Stocknet apart from the competition. With it, our customers have the ability to swiftly and conveniently manage their stock portfolio anywhere at anytime".

A key factor in the success of the project was a focus beyond the technical issues described above. Erlend Bruvik explains: "We decided early on it would be important to identify critical customers who had the capacity and the interest to trade on a mobile platform – specifically, a mobile phone with next generation data capability (GPRS or "2.5G"). An online survey was designed to identify the target participants in the initial trials. This allowed us to focus our energy on early adopters and to refine the system and methods of introduction for mass-market release".

"We expect to see a long-term increase in customer loyalty, particularly with the high-end-customers".

As new generation phones become available, Stocknet expects its customers to make widespread use of mobile trading. "Currently, 1% of our customers use the WAP based system", explains Mr Bruvik. "Our estimates indicate that this will increase to 25% with the new GPRS mobile trading application". A radical change indeed.

Stocknet is already planning further improvements to the system. The second-generation mobile-trader application will include facilities for improved charting, trading on overseas markets, and news. An alert system will also be integrated to allow the definition of certain events that will cause the phone to alert the user.



Erlend Bruvik, CEO

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**Project - FREEG**

[www.free-g.org](http://www.free-g.org)

A dedicated web portal based on advanced 3D simulations offers an innovative approach to destination marketing. By enabling complementary businesses to market themselves side-by-side online, this collaborative approach helps maximise the returns from e-business for tourism-based SMEs.

#### BUSINESS IMPACT

ROI  
n/a

Expected increase in turnover  
n/a

Business collaboration  
★★★★★

Effect on skills base  
★★

Competitive advantage  
★★★★

## THE CHALLENGE

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Tourism is a natural application area for e-commerce and multimedia technologies. The tourist booking process is information-laden, requiring multiple choices about when to go, where to stay, and what to see when you get there. Increasingly, prospective visitors expect not only for hotels, restaurants, visitor attractions etc to have a website, but for such sites to offer a true visual experience and, of course, the ability to book online.

Metaspace has a reputation as an innovation leader in the emerging e-commerce market in tourism with its dedicated solution for destination marketing. Based in Germany, it has competences and experiences in designing a 3D web-based city simulation application. The company is a spin-off from the Virtual Destination Project, an EU project that aimed to increase understanding of success factors for e-business in tourism and best business practices in implementing it.

Metaspace's main product is a unique 3D e-commerce platform for destination marketing, called VDA. Guido Woska of Metaspace explains: "Our platform allows tourism businesses to present collective 3D web presentations that give a true picture of the destination itself, rather than just individual businesses. For example, people can see which restaurant is near a particular hotel or visitor attraction. It also serves as an integrating and organising platform for the local tourism network, a crucial factor for successful take up of e-commerce".

**"Tourism businesses need to look to collective approaches to marketing"**

Guido Woska, Metaspace

## IMPLEMENTATION

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The project resulted in innovative concepts for destination marketing that target focused groups of visitors with dedicated web portals. Three trial destinations, Davos, Rothenburg and Wetzlar, were modelled in VRML (Virtual Reality Modelling Language) according to the different business needs. The virtual destinations are accessed via the VRML viewer, a plug-in for standard web browsers, which allows the visitor to access the 3D city simulation directly over the internet.

Prior to the 3D city modelling, marketing requirements were collected either from the local tourism office or city development units. Seminars and individual meetings were held to promote the ideas and benefits to the local businesses.

Guido Woska describes some of the technical challenges: “Most people still don’t have the internet bandwidth necessary to view high resolution 3D web pages comfortably. To get around this we developed techniques for smart segmentation of 3D models into a size suitable for today’s bandwidth. We also integrated 3D models with existing 2D destination pages and booking engines as a means to increase visibility and publicity”.

The innovative way of organising and doing business around a 3D portal required new ways of thinking and doing business for many tourism businesses. To help them come to terms with this Metaspace utilised a variety of training activities for tourism marketing services, which were also developed under the project.



## BUSINESS BENEFITS

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Three highly respected pilot destinations now use the VDA 3D destination marketing platform for special events and for focused tourist groups. Use of virtual destination marketing techniques is expected to increase the direct marketing and sales for the destinations involved significantly. For Metaspace, which specialises in 3D destination marketing, revenues are expected to reach 700,000€ for the first year.

“This experience shows that innovative destination marketing has much to offer the tourism sector”, enthuses Guido Woska. “Online destination marketing helps tourism SMEs get noticed. But to make the most of this, tourist authorities need to develop specialist skills and to build collaborative networks between their local tourism businesses. Naturally, this takes time, so they should get started sooner rather than later”.

“Online destination marketing helps tourism SMEs get noticed”

Metaspace has recently formed an alliance to combine best-of-breed competences for virtual destination marketing. The alliance comprises: Fachhochschule Freiburg which provides advanced graphical user interface design; the Swiss Institute for Tourism which specialises in tourism marketing, and CeTIM, an institute specialising in virtual organisations and networked collaboration. Collaboration is also being sought with the telecom companies for further application of VDA as a spearhead application for broadband mobile applications and UMTS.

Many towns and cities could use 3D destination marketing as a way to help small tourism-based businesses enter the world of e-business. Support from the local or government tourism office will be essential, however, as these have the networking power and resources to build the necessary critical mass.

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#### Project - VDA

<http://www.unibw-muenchen.de/campus/LRT14/Ordner/VDA/>

Recognising an opportunity to move closer to its most loyal and discerning customers, a producer of high-quality wines set up an online shop which allows wine connoisseurs to order direct. By putting it in touch with final consumers for the first time, the e-shop enables the producer to be more responsive to its customers' tastes and preferences.

**BUSINESS IMPACT****ROI**

n/a

**Expected increase in turnover**

n/a

**Business collaboration**

★★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★





## THE CHALLENGE

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Small wine producers are highly dependent on high-volume dealers for their business. This is particularly true for international trade. The producers sell their wine to a dealer who in turn sells it on to the final consumer. Although this is a suitable supply chain in most cases, not all consumers are happy with the approach. Those at the higher end of the market, the wine connoisseurs, expect a closer relationship with the producer, including the ability to choose from a wider range of wines and to source them more quickly.

One such supplier is Finca Allende, a small producer of high quality wines located in Spain's La Rioja region. "Wine connoisseurs are a very important part of the market", says Miguel Angel de Gregorio, Finca's CEO. "They spend more per head than other customers and have a substantial influence on trends overall. It's vital that we understand their tastes and requirements".

Recognising a need to get closer to these most important and discerning customers, the company set out to exploit new ways of doing business.

**"It's vital that we understand our customers' tastes and requirements"**

Miguel Angel de Gregorio, CEO, Finca Allende

## IMPLEMENTATION

Working together with a handful of highly qualified European companies through the project Virtual Winery, Finca Allende set up an e-shop from which it was able to deal direct with its most demanding consumers. The site enables Finca to inform its customers about the availability of new wines (new brands, new vintages, etc) more quickly and to keep in closer contact with them.

The e-shop is based on Microsoft's Active Server Pages (ASP) technology and includes a 3D model, using technologies like VRML and MPEG-4, which allows potential customers to take a virtual of Finca's wine cellar.

This new way of selling has had a major impact on the organisation. "Like most small wineries, we are not computer experts", notes Mr de Gregorio. "And while we had to think about the final consumer's requirements and tastes, we had no direct contact with them. We sold to middlemen not to final consumers. So the introduction of e-technology required some fundamental changes for us. For instance, we had to improve our computer skills and change our attitudes to become more consumer-oriented".



## BUSINESS BENEFITS

The e-shop now accounts for around 5% of Finca Allende's international sales, and trade in its high-end brands has increased by about 6%. The company is in closer contact with its most connoisseur customers, who are a constant source of new ideas and suggestions for improving both the quality of the wines and the ways to send them. Direct contact with final consumers provides Finca, as the producer, with invaluable information about their tastes and preferences, thus helping it to meet their needs better.

Finca was particularly concerned about the relationship with its dealers and worked hard to explain the new developments to them. "We stressed that we did not want to compete with them, nor to eliminate them from the supply chain", recalls Mr de Gregorio. "On the contrary, we were looking to work together with the dealers to find new ways to satisfy consumers".

The company also found that the new e-shop opened many other doors. As Mr de Gregorio observes, "Once we started improving our computer skills we soon discovered other ways in which our business processes could be improved by use of suitable telematic tools". Computer applications are now used on a day-to-day basis and have been applied to improve internal processes like stock management and accounting. Overall, e-commerce has been demonstrated as being of great benefit for the business.

"We were looking to work together with the dealers to find new ways to satisfy consumers"

Further improvements to the e-shop are now being considered, mainly in the legal, fiscal and marketing areas. "The international wine trade is highly complex. There are many regulations to be adhered to and, unfortunately, these regulations still differ from one country to another", says de Gregorio, "even inside the EU. And prices for final consumers are essentially country-dependent. We are now looking to refine the processes in the e-shop to take more careful account of these requirements".

The technical solution could be easily adapted by other wineries and, indeed, great advantages (mainly related to logistic costs) could arise if a network of high-quality wine producers could be set up. Finca is currently working together with the main association of wine producers in the La Rioja region to realise this objective.

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**Project - VIRTUALWINERY**

The impact of information and communication technologies (ICT) on productivity growth during the nineties has been assessed in a number of empirical studies. For the United States, it is commonly understood that the production of ICT goods strongly contributed to the acceleration in productivity growth over this period. In particular, the service sectors were among the main beneficiaries of increased investments in ICT, leading to faster growth in either labour and total factor productivity.

In the case of Europe, there is some evidence that ICT investments have contributed to faster productivity, though in most cases to a lesser extent than in the United States. Moreover, European countries do not appear to have exploited the productivity enhancing potentials at the same rate as the US. In practice, the accelerated growth of labour productivity in ICT-producing industries and intensive ICT-using industries was offset by a substantial slowdown in European labour productivity growth.

One of the main arguments used to explain these different patterns has been an earlier, faster and more widespread adoption of ICT in US businesses and households, together with a higher propensity among consumers to use the Internet for e-commerce and e-business.

The comparison between the US and Europe hides a very differentiated picture within the EU. While Europe as a whole seems to have been slow in its transition towards the digital economy, some of the smaller European economies, such as Ireland, Finland and Sweden, witnessed a more rapid uptake in ICT and the Internet. In these countries, the increase in ICT investment, in particular over the second half of the 1990s, was accompanied by a remarkable growth in employment performance over the same period.<sup>17</sup>

On the one hand, these European countries have taken advantage through niche ICT-producers witnessing a more rapid diffusion of ICT goods and services throughout their economies. This has enabled them to exploit some of the new digital growth opportunities and so adapt their economies to the e-business environment. In addition, policymakers in these countries appear to have been more supportive in rapidly liberalising their national telecommunications markets and identifying a clear strategy in support of SMEs.

17 - Muteis IST 2000-2011 Project « ICT clusters in European cities during the 1990s. Development Patterns and Policy Lessons Edited by A. van der Meer, W. van Winden, P. Woets - 2003. »

It is well known that 99% of EU enterprises are SMEs. Each year these SMEs generate a large proportion of the Union's GDP and create a significant number of new jobs for European citizens. As the European Information Technology Observatory<sup>18</sup> has noted, Europe will only become a centre of e-business if European SMEs are fully committed to capturing the benefits offered by ICT to improve their competitiveness on the global market. SMEs stand to benefit from the lowering of entry barriers as a consequence of ICT investment, and hence can use e-business as a gateway to global markets.

Being more followers than leaders of the change process, SMEs need support from public institutions and other "catalysers" to accelerate their ICT investments. By addressing these needs Europe can advance further on the road to becoming the most competitive and dynamic knowledge-based economy by 2010, as set out by the EU leaders at the Lisbon Summit in March 2000.<sup>19</sup>

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18 - European Information Technology Observatory <http://www.eito.org>

19 - Lisbon Strategy, see [http://europa.eu.int/comm/lisbon\\_strategy/index\\_en.html](http://europa.eu.int/comm/lisbon_strategy/index_en.html)



Applications are the lubricant which makes innovative and effective businesses run. The four cases presented in this section show smart business applications, ranging from platforms, tools to services.

Faced with ever faster development cycles and ever more complicated code, the Bulgarian software developer Nemetschek turned to a new methodology known as Extreme Programming. The approach has helped the company make software projects faster and cheaper, while improving quality and responsiveness to customers needs.

**BUSINESS IMPACT****ROI**

n/a

**Expected increase in turnover**

n/a

**Business collaboration**

★★★★

**Effect on skills base**

★★

**Competitive advantage**

★★★★



## THE CHALLENGE

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Being competitive in the software development market is not easy these days. If you want to keep your clients satisfied, you have to constantly increase your service quality, which means one thing – produce software faster but keep the quality high. This can no longer be achieved by the normal development practices, so new practices have to be created. Lighter, development-oriented processes should be implemented and adopted to replace the old ones in the time-to-market contest. This was the main goal of the EXPERT project.

The EXPERT trial focused on Nemetschek Bulgaria, a software development company formed four years ago. George Brashnarov of Nemetschek explains the company's situation: "Like many software companies, we are aiming for long-term relationships with our clients around the world and to continually improve our services. To achieve this we looked to a methodology known as Extreme Programming. This is a relatively new approach that aims to make software projects faster, cheaper and flawless".

**"We are aiming for long-term  
relationships with our clients  
and to continually improve our  
services"**

George Brashnarov, Nemetschek Bulgaria

## IMPLEMENTATION

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Extreme Programming (XP) is a deliberate and disciplined approach to software development that has already been proven in a number of large-scale software projects. XP is successful because it stresses customer satisfaction. The methodology is designed to deliver the software that customers want when it is needed. It empowers developers to confidently respond to changing customer requirements, even late in the development lifecycle. And this methodology also emphasizes team work. Managers, customers, and developers are all part of a team dedicated to delivering quality software.

Extreme Programming is based on four key values: communication, simplicity, feedback, and courage. XP programmers communicate with their customers and fellow programmers. They keep their design simple and clean. They get feedback by testing their software starting on day one. They deliver the system to the customers as early as possible and implement changes as suggested. With this foundation, XP programmers are able to courageously respond to changing requirements and technology.

"XP is like a jigsaw puzzle", says George Brashnarov. "There are many small pieces which individually make no sense, and only when one stands back can one see the full picture. This is a significant departure from traditional software development methods and ushers in a new approach in the way we program".

Nemetschek implemented the XP methodology on a real customer project. Historical information from older projects was used to compare the development speed and the defect level. Throughout the project different criteria such as time, size and quality measures were collected. The data gathered was afterwards compared with the historical data to evaluate the effectiveness of the approach. The time estimation overhead and some XP practices were identified as weak points if applied as originally planned, so necessary corrections were introduced to the approach to improve it.

"We found XP to be very agile", says George Brashnarov, "but it has a weakness in the time estimation process. To overcome this, we combined it with another technique, the Personal Software Process (PSP), and specifically the PROBE method for time estimation".

## BUSINESS BENEFITS

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Applying the new approach brought the company many benefits, both direct and indirect. The developers are happy to have a new way of producing software quickly and without the usual problems typically encountered with the older methods. Customers are happy to be involved in the process, to have the results fed back in small intervals and to actively help produce the product they want. Overall, Nemetschek believes the adoption of XP has helped it compete more effectively in the software development market.

It was not all plain sailing, however, as George Brashnarov explains: “One difficulty in applying the XP approach was to make the customer participate actively in the project. We decided to set up regular meetings to help get the customer more involved in the development process. These proved to increase his confidence in the project’s success. We also found that the improved communication significantly reduced the need for requirements changes in the product during the later stages of development. And the improved estimation and the small release steps ensured the development schedule stayed on track”.

“The adoption of XP has helped us to compete more effectively in the software market”.

Another difficulty in applying the approach was to make developers work in the new, more disciplined ways. “For most developers, XP principles like writing test code first and working in pairs came as a bit of a shock”, observes Mr Brashnarov. “We tracked their work closely during the initial stage of the project to make sure they adopted the necessary disciplines”.

For Nemetschek, the results obtained during the project showed that the selected approach is vital and led to increased productivity in software development. Other software developers could also adopt it to allow them to increase the quality of their services.

Some weak points of the approach remain unresolved for now, like the overhead needed for the PROBE estimation effort to be correctly applied or the availability of the customer on-site. Gaining practical experience and automating the estimation and tracking activities could help address these shortcomings.



George Brashnarov, CEO

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#### Project - EXPERT

<http://www.esi.es/en/Projects/Expert/expertproject.html>

CodeMeter, a new secure protection system, allows cost-effective digital rights management for software and other digital content. The solution can be used by multiple vendors for multiple products and for pay-per-use licensing schemes.

#### BUSINESS IMPACT

##### ROI

~24 months

**Expected increase in turnover**  
+25% in 2003, +100% in 2004

**Business collaboration**  
★★★★

**Effect on skills base**  
★★

**Competitive advantage**  
★★★★★



## THE CHALLENGE

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With more and more content available in digital form, the illegal copying and use of software and other digital information is an increasing problem. The situation is exacerbated by the rapid growth of the internet and peer-to-peer networks, and by the growing popularity of digital consumer devices of all types. This is not just a matter for publishers and artists but for society as a whole: piracy leads to losses in tax revenue and jobs, and ultimately limits the benefits arising from the new digital economy.

The traditional approach to copyright protection has been to use “dongles”, small hardware devices which connect to the PC. However, these can be cumbersome to install and protect only one product from one vendor. A typical user will require multiple dongles, which is inconvenient. What is needed is an effective worldwide standard to protect and measure use of digital content or software; one that is fair for producers and users alike.

WIBU-Systems AG set out to solve this problem. Based in Germany and with offices in USA and China, WIBU specialises in solutions for digital rights management (DRM).

“We looked at the market and saw an opening for new types of DRM solutions”, says Oliver Winzenried, WIBU’s Chief Executive Officer. “Such a system should enable pay-per-use and new license models, store usage credits for many different products and vendors as well as store users’ private data, all with one device”. He continues: “Until now, DRM systems have failed because they have either been expensive or inconvenient, or both. Next generation systems should be suitable for low-cost consumer applications as well as for expensive B2B products”.

**“We looked at the market and saw an opening for new types of DRM solutions”**

Oliver Winzenried, CEO, WIBU-Systems AG

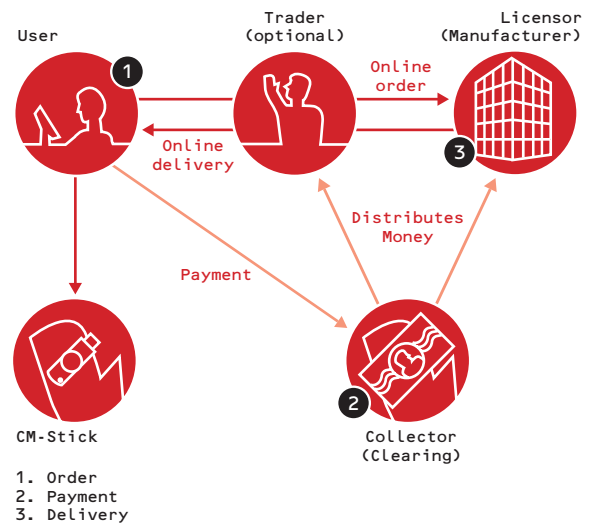
## IMPLEMENTATION

Under the EU project PAIDFAIR, WIBU developed a pay-per-use technology called CodeMeter. Using this system, the user buys usage credits online which are stored in his CodeMeter dongle. He is then able to use his credits offline. "Using software in this way has many advantages for both content providers and users", explains Oliver Winzenried. "It makes the costs manageable and lowers the barrier to use new products. It also avoids the risk of investments being wasted on technology that soon becomes obsolescent, and allows suppliers to easily increase their target market".

CodeMeter is a new, patented technology which is currently being brought to market. The protection is based on strong authentication and encryption in a small hardware device and a security controller. A large memory enables it to store license keys and credits from many vendors. The system protects stored usage credits and secret data as well as offering a "backup" against hardware failure.

The PAIDFAIR trial focused on the introduction of a real-time accounting system to protect and measure usage of intellectual property across a wide range of scenarios, such as music distribution, digital broadcasting, and e-payments. A web-based, fully automatic communication between all e-business partners was realised, including automated offers, orders, licensing and payment transactions.

Within the PAIDFAIR project, this technology has been adopted to meet the requirements of various applications. The system includes other technologies developed within the project: smartcard technology for payment and enabling of usage credits, biometrical schemes for enabling, certified time stamps for secure activation and expiration dates, and legal requirements for electronic sales transactions in different countries. It has been specified in various demonstration applications realised by the PAIDFAIR partners.



## BUSINESS BENEFITS

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Users' requirements were considered throughout the design stage and have been carefully implemented. This was essential to gain a high acceptance for future use. The most important advantage is the ability to use one system for many applications. CodeMeter supports mobile and offline use, buy anywhere and anytime, and secure use in the home and in businesses.

The development was not all plain sailing, however. "It proved more difficult than expected for us to adopt CodeMeter to the various new technical and legal requirements", observes Oliver Winzenried. "On the other hand, this strengthens the technology's competitive advantage as the basis for a market-oriented product".

"CodeMeter technology supports many applications"

The trial also provided valuable insights into negotiations between user and licensor via optional trades. According to Mr Winzenried: "CodeMeter guarantees trust and confidence for anonymous transactions. And its use realises a flexible price management mechanism between user, trader and licensor".

The concept has received an enthusiastic reception from publishers and end-users alike, and there is wide interest from outside the software protection market. WIBU expects both the customer base and sales revenues to rise significantly over the next few years.

"Our next step is to bring the solution to other platforms, such as Macintosh, Unix, handheld systems, computer play consoles, and mobile phones", enthuses Oliver Winzenried. "We're also aiming to use CodeMeter technology to enhance security, for example by integrating additional functions into security hardware. A further step will be to show more demonstration systems and to find customers in additional application areas". To realise these ambitions, WIBU plans to cooperate with other organisations and projects in the field of DRM to develop solutions based on PAIDFAIR worldwide and to establish the technology as a de-facto standard.



Oliver Winzenried, CEO

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**Project - PAIDFAIR**

[www.paidfair.com](http://www.paidfair.com)



A mobile business solution provides a platform for developing cutting-edge m-business applications. New mobile applications developed using these tools are currently being trialled to introduce mobile working practices into the daily work of doctors and service engineers.

#### BUSINESS IMPACT

##### ROI

Less than one year

##### Expected increase in turnover

n/a

##### Business collaboration

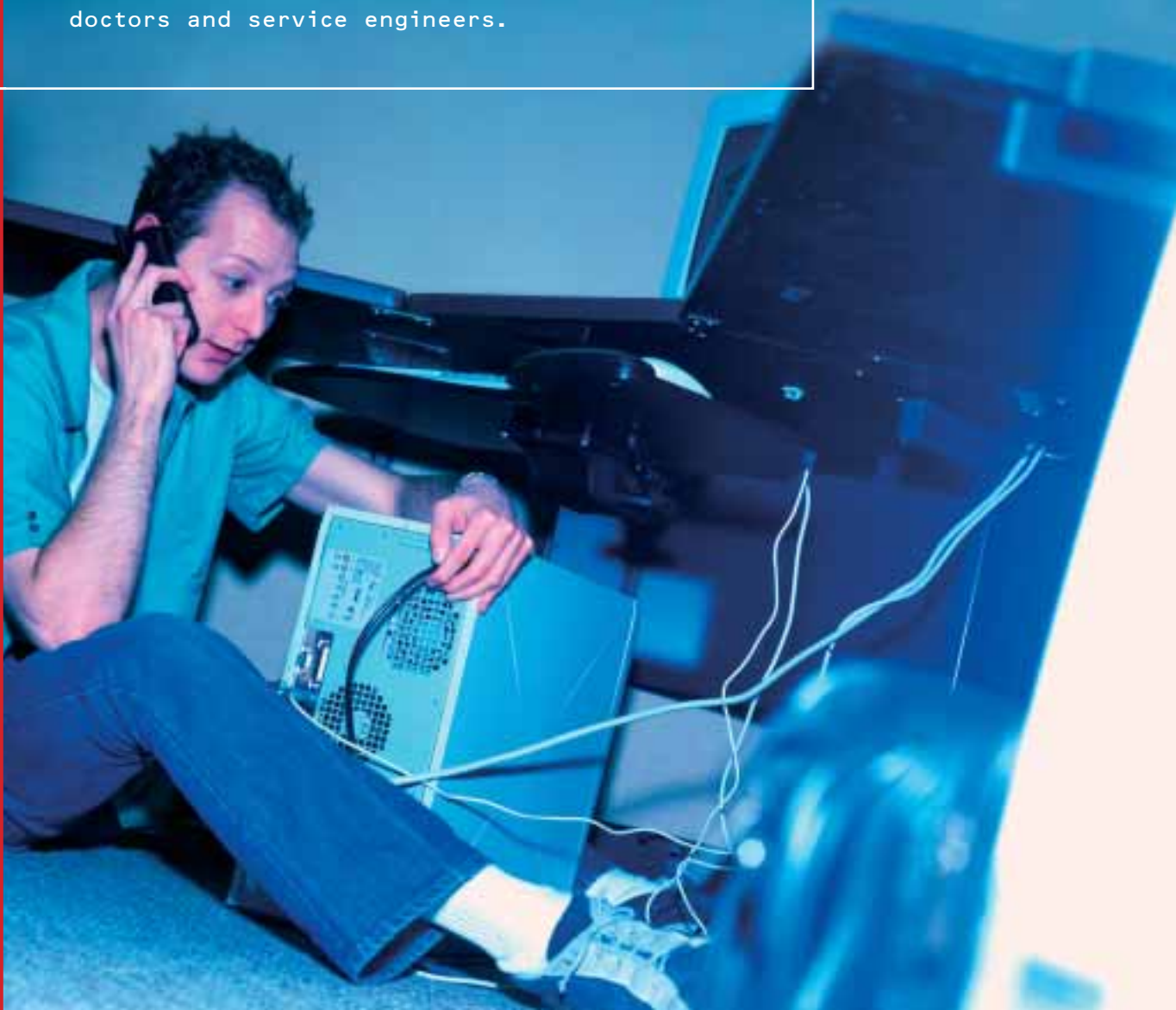
★★★★

##### Effect on skills base

★★★

##### Competitive advantage

★★★★





## THE CHALLENGE

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Mobile working looks set to be the “next big thing”. For many groups of professionals, from retailing to healthcare, the growth of mobile networks opens up opportunities for new ways of working. With the rollout of 2.5G (GPRS) and now 3G (UMTS) networks, the physical infrastructure is already in place. What we need now are the tools to build robust, user-friendly mobile applications – and the confidence to use them.

One company that is pioneering the way for mobile solutions is Celesta mBusiness Oy, a software company based in Finland. With its Celesta brand the company offers a mobile business (m-Business) platform as the basis for developing cutting-edge m-business applications.

“Typically the initial business challenges that our customers face are to improve the productivity of their field personnel, to give them access to corporate information, and to be in constant contact with them anywhere and anytime”, says Celesta’s Tanja Sauvola. “And to find a robust and scalable mobile solution”, she adds.

Expected business improvements vary depending on the customers’ field of business. The most common expectations are improved productivity, faster response times, better quality of service, reduced paperwork in the office, boosted accuracy and, of course, shorter billing cycles.

To help improve take-up of these mobile applications, Celesta is participating in a series of trials to develop and test mobile business solutions for the daily work of physicians and service engineers. The trials will organise and rationalise the work of the engineers and medical experts so that they can serve their patients and end-customers even better. They are part of Promodas (Professional Mobile Data Service), an EU project to pilot current mobile workforce (mWorkforce) solutions operating in the GSM network in 2.5/3G networks.

**“Customers are looking to improve the productivity of their field personnel”**

Tanja Sauvola, Celesta mBusiness Oy

## IMPLEMENTATION

CELESTA mBusiness platform enables extremely rapid development, wireless deployment as well as very cost-effective operation of customised and intelligent m-business applications on smartphones, PDAs and wireless servers. The platform consists of client and server products and design tools.

CELESTA Smart Forms 2 is the application framework for running m-business applications on any of the supported mobile platforms (devices running on Symbian OS Series 60 and Series 80, Pocket PC 2002 Phone Edition and Java-enabled smartphones). The easy-to-use and intuitive user interface guarantees maximised productivity and minimised errors. Data communications costs can be accurately estimated and controlled. The result: mobile professionals can do their jobs efficiently without being online all the time – only during data transfer and synchronisation.

CELESTA mBusiness Gateway is the server-side application framework for Celesta mBusiness applications. It offers all the required remote management tools. Applications can be distributed and installed over the air without any user intervention. It can be integrated to the company's legacy system, such as SAP R3, Remedy AR, Maximo, etc. Communication between the legacy system/CELESTA mBusiness Gateway and the CELESTA Smart Forms 2 client is implemented in the wireless network (GSM/GPRS) via SMS messages and data calls.

To complete the package, CELESTA mBuilder is an easy-to-use, graphical rapid application development environment for building intelligent and efficient end-to-end mBusiness solutions.

New mobile applications developed using these tools are being tested in maintenance and medical situations on three sites in Belgium, Finland, and France. The service engineers' application is being integrated into the host system of Elyo, a French multinational telecommunications company, and the healthcare application into Oulu University Hospital, Finland.



## BUSINESS BENEFITS

Celesta's customers typically report productivity increases of between 5 - 20%. The number of billable hours is increased and dispatching is streamlined. Field personnel have 2-3 hours more time for customer service and billing cycles are cut by half. Quality of information is also improved as there is no more double data entries and less paperwork in the office.

At the trial implementations the benefits are already clear for all to see. With the new mobile solution the radiologists, neurosurgeons and neurologists at the Oulu University Hospital receive medical images and other patient information directly to their wireless devices. The 2.5/3G mobile technology thus enables efficient remote consultations. This, in turn, speeds up and improves patient care and ensures the availability of the best possible expertise - regardless of time or place.

"Although the mobile solution is only used by a limited group of healthcare professionals at present, in the future it will become suitable for almost all physicians", predicts Jarmo Reponen, of Oulu University Hospital.

"Mobile working will become the norm for almost all physicians"

Jarmo Reponen, Oulu University Hospital

Mobile working is being well received in industry, too.

"The mobile solution helps our engineers to organise their service calls and customer service more effectively", states Gilles Dandel, Project Manager at Elyo SA. "Communication between the engineers and the service centre is improved and much quicker. Thanks to Elyo's solution our customers can create new work orders from their web interface.

The solution is used by service engineers to receive urgent work orders and send back job reports. This allows our customers to follow the progress of the work almost in real time".



Sakari Vaara, CEO

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#### Project - PROMODAS

[www.promodas.com](http://www.promodas.com)

Recognising the limitations of standard models for product data exchange, furniture manufacturer 20-20 SPI set out to customise the models for its industry. The availability of standardised solutions brings benefits for both end-users and software vendors.

#### BUSINESS IMPACT

##### ROI

24 months

##### Expected increase in turnover

+5% in 2004

##### Business collaboration

★★★★

##### Effect on skills base

★★

##### Competitive advantage

★★★



## THE CHALLENGE

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European furniture manufacturers are renowned around the world for the quality of their work. While it has traditionally been a craft-based industry, nowadays the sector is highly sophisticated relying on an increasing array of IT-based systems in areas such as design, production and sales.

As in other manufacturing industries, the companies involved need to be able to readily exchange product data with others in the production chain. For instance, it is required to exchange product data catalogues between furniture manufacturers and retailers, architects and interior designers. And retailers and interior designers need to carry out furnishing projects using their own software licences and to send such projects back to the manufacturer with the support of a neutral data specification.

20-20 SPI is a French software developer specialising in data solutions for the furniture and wood-working industries. It provides CAD, ERP and web sales systems, offering a global data solution that meets professional needs from the design office all the way up to production management and sales accounting.

The company became aware that one of its clients needed a CAD system that would allow the transfer of data to decoration systems. "The problem was the inability to exchange data at different stages of the product lifecycle", says Thierry Racinais, SPI's CEO. "Classic neutral format did not cover the key data required. And to the extent it was possible data were full of errors".

To solve the problem, SPI decided to join on-going efforts to customise standard models for data exchange to suit the particular circumstances of the furniture industry.

**"We were unable to exchange data  
at different stages of the product  
lifecycle"**

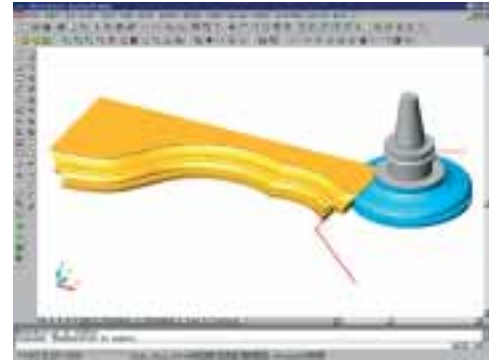
Thierry Racinais, CEO, 20-20 SP

## IMPLEMENTATION

As part of the EU's COFURN project, a thematic network called FunStep was created linking key organisations to promote the use and implementation of standards for data exchange and electronic commerce in the furniture industry. The network brought together manufacturers, retailers, suppliers, designers, industrial federations, software vendors, R&D centres and universities, not just from Europe but worldwide. Its aim was to develop and continuously update a sector-specific data model for the furniture industry based on the efforts of relevant international initiatives and bodies.

"The standardisation activities revolve around technologies such as STEP-EXPRESS, XML, and EDI together with modelling techniques", explains Thierry Racinais. "A series of working groups were created to concentrate on different areas such as parametrics, geometry, visual representation, e-commerce, manufacturing, ERP systems, etc. These helped support the natural evolution of the model over time so as to ensure it reflected the latest technological developments".

A working solution for product data representation and exchange in the furniture industry has been developed, which will be submitted to ISO as a draft standard (application protocol). Under the auspices of CEN, the European standards body, work is continuing to agree a common position for the sector in Europe, to be presented in ISO as a basis for an ISO Application Protocol, ISO/ITA (Industry Technical Agreement) or similar standardisation document. A CEN Workshop has been set up to produce deliverables such as introductory and guidance material, technical specifications and other documents required to reach the Working Draft Status of the standard within ISO.



## BUSINESS BENEFITS

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The availability of a standardised approach for product data representation and exchange allows software vendors to focus on improving their own solutions, reducing the workload in developing “bridges” to other applications. Effective integration between different types of software applications (CAD, CAM, MRP II, ERP, etc.) can be readily achieved.

“Adoption of the COFURN solution in our software makes life much easier for us”, says Thierry Racinais. “We expect to reduce the resources applied to information exchange for non-proprietary solutions by between 25% and 50%. And the error rate in the provider-customer information exchange can be reduced by between 50% and 80%”.

“The error rate in information exchange is reduced dramatically”.

The solution is the result of a fruitful cooperation between all actors in the furniture industry. “SPI was one of several trial implementations which allowed quick industrial validation of the benefits and areas for potential improvements”, Mr Racinais observes. Exchange of knowledge with other related initiatives and STEP experts enriched the data model and helped accelerate the process toward an international standard for the furniture industries.

One problem area was the extreme slowness of the standardisation process and the high level of expertise required of the people involved. “If you get involved in standards don’t expect instant results”, cautions Mr Racinais. “But the results are worth it”, he adds.

SPI intends to further exploit the COFURN results by fully implementing the data interchange functionality across its range of software applications. “Since the standard is open, it will enable B2B e-commerce over the internet, opening new opportunities for us to reach companies that do not currently use our software”, says Thierry Racinais. Exploitation agreements are being negotiated with other software vendors active in the furniture market so as to be able to exchange information inside the software companies in the FunStep Interest Group.



Thierry Racinais, CEO

### FURTHER INFORMATION

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#### Project - COFURN

[www.funstep.org/funStep.htm](http://www.funstep.org/funStep.htm)

Should small and medium sized organisations (SME) be concerned about information security? First let's define what we mean by information security. The International standard<sup>21</sup> for information security, ISO 17799 describes the scope of information security as follows:

- Information can exist in many forms. It can be printed or written on paper, stored electronically, transmitted by post or using electronic means, shown on films, or spoken in conversation.
- Whichever form the information takes, or means by which it is shared or stored, it should always be appropriately protected.

This applies to both large and small organisations. The difference is, for a small organisation it is likely there will be fewer sources of information being accessed by fewer people. But the need to protect valuable information remains, whether we are talking about a company with ten people or a thousand people. However when talking to Small and Medium enterprises the questions often asked are:

- Do I really hold information of any value to others?
- Am I really a target for security incidents?
- Do I have the resources required to protect my information?
- Does a small or medium sized business really have something to be concerned about? Do they really hold valuable information?

20 - By Nick Coleman, Head of Security Services, IBM  
21 - International Standardisation Organisation <http://www.iso.org>



Regardless of the size of the company, there is always valueable information to be protected. Imagine a small business losing their entire customer database in a virus attack? How much would that cost the business? There are many other scenarios where information is being recognised as valuable:

- Lawyers and accountants for example are increasingly recognising the implications of electronic communication, in terms of the value of the information they are transmitting.
- Small retailers for example holding customer information electronically; names and addresses, credit card details, or even more personal information such as medical records, increasingly understand the need to protect that information.

Accepting that there is information of value in SMEs, to what level do we need to be concerned about protecting that information?

#### HOW REAL IS THE THREAT FOR AN SME?

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- Looking first at the US, some 90% of US organisation suffered a security breach over the last 12 months<sup>22</sup>. And over 33% of organisations surveyed had fewer than 1000 employees.
- Security breaches are not only restricted to large organisations, but pose a threat to smaller companies as well.

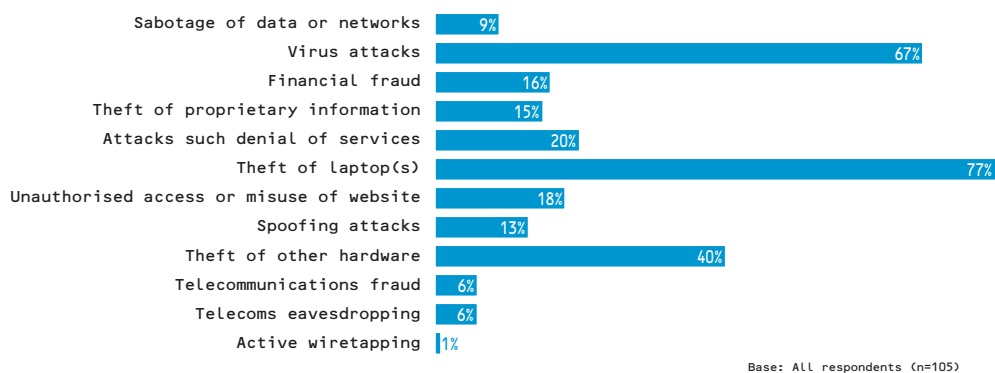
### BUT HOW DOES THE EUROPEAN PERSPECTIVE COMPARE TO THE US PICTURE?

To start to answer this, during 2002 the UK National Hi Tech Crime Unit<sup>23</sup> (NHTCU) commissioned some new research in this area. Taking the same categories that the Computer Security Institute (CSI)/Federal Bureau of Investigation's (FBI) had used in their survey; the NHTCU conducted a survey of 105 UK based companies.

52% of respondents in this survey had less than 500 employees, and the results were quite staggering, indicating a significant threat to UK based companies.

Over 3000 incidents had been experienced during the previous 12 months, although virus incidents accounted for a significant majority of this activity, the range of incidents was far greater than just this category.

As can be seen from the table below:



What are people experiencing:

- 3% of respondents say they have not experienced any computer enabled crime
- Laptop thefts and virus attacks are significant for all organisations
- 67% of organisations have experience of virus attacks in the last 12 months
- 77% of organisations have experienced laptop thefts in the last 12 months.

23 - See <http://www.nhtcu.org/>

## WHAT ARE THE IMPLICATIONS OF THIS DATA?

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Organisations both large and small are increasingly aware that with only 3% of organisations not experiencing any incidents, everyone needs to be seriously thinking about information security.

At the same time we need to recognise the differences between large and small organisations. Smaller organisations need advice which takes into account their specific environment which is less complex than a large corporate environment.

We also have to recognise that smaller organisations do not have the same access to resources that large organisations do to tackle the issues raised here.

The following checklist of ten key considerations regarding information security has been developed. SMEs might consider for either when reviewing or planning security in their organisation.

They are in no particular order and do not attempt to prescribe specific solutions. It is a list which an organisation can quickly scan through to ensure that have considered the essentials for information security.

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## TOP 10 SECURITY AND PRIVACY CONSIDERATIONS FOR THE SMALL TO MEDIUM SIZED ORGANISATION

### 1. A security policy

Security policy is a great way to capture what you want to achieve, and express the management intentions. It can also ensure that key elements such as: storing commercially sensitive data and managing access to customer information are all controlled.

Employees, customers, and even suppliers may feel re-assured by the fact that there is a clear policy, and that it is being followed.

Increasingly auditors are asking companies if they have such a policy, when conducting their annual audits. Creating a security policy is important, but maintaining it and enforcing it are equally necessary or else people do not take it seriously.

### 2. An e-mail and Internet policy

This may be included in number 1. However increasing connectivity to email and the internet have made this a key issue in organisations.

Sending emails and accessing the internet is now part of the daily life of many employees. This medium, and others, used for sharing and receiving information should be in line with companies business conduct guidelines.

Just like other aspects of security policy, not having a policy is the same as having a policy where everything is possible.

### 3. Understanding information assets

Building an effective security policy, requires you to have an understanding of what your information assets are and what risks exist.

Knowing which ones are the most important, as well as working out how you are going to protect them is a key stage to look at

### 4. Know your regulatory requirements

When drawing up your security policy understanding what your obligations are with regard to regulation is essential e.g. privacy laws in the European Union and local laws.

#### 5. Build and maintain secure interfaces

As companies increasingly connect their resources externally, it is important to focus on building suitable secure interfaces, such as firewalls, DMZ's and detection systems

#### 6. Build and maintain access control and authentication measures

Controlling access to systems both in terms of the network and also the buildings which surround them is an important aspect to protecting your organisation.

Therefore implementing access control (identity management) mechanisms – both for physical and network access and authentication at the appropriate levels is important.

#### 7. Implement anti-virus protection for internal systems

Virus incidents still cause significant effect, which can be minimised if the organisation has an effective architecture for anti-virus protection. Companies should consider anti-virus protection, on their different internal systems. This might include mail gateways, and web screeners.

#### 8. Be prepared to respond to an incident

With the number of attacks on the increase from hackers and viruses, it is important to know how to respond quickly and effectively.

Document a plan, review it regularly and keep it current. The plan should ideally include upper management, IT staff, and the PR department at a minimum.

#### 9. Maintain your security

Implementing security measures is important, but if you do not maintain them they are often not going to be effective.

So make sure you patch your systems and keep them patched. And ensure you have an effective process for identifying and installing patches.

#### 10. Have a business continuity plan

Identify the systems and processes that are critical to allow you to conduct your business and how soon you need them to be available. Define a plan and practice it if possible. An offsite secure data backup is recommended.

We hope you have enjoyed reading the showcases and have picked up some useful tips on how to make e-business work in your own organisation. Below we summarise what we feel are some of the key messages.

**Drivers for a successful e-business integration are:**

- Collaboration – use technology to share information.
- Cost-savings – find ways to improve productivity and contribute to the bottom line.
- New approaches to benefit from technology – you don't necessarily have to own the technology to use it.
- Cost of e-business integration – look for solutions that are affordable and cost-effective.
- Adaptability– make sure the technology is 'future-proof' and can grow with the business. This means solutions that are modular, scalable and flexible.
- Interfaces with legacy systems – you don't have to throw out all your existing systems and start from scratch. Look for solutions that interface with what you have already.
- User involvement – involve the users (in-house personnel, suppliers or customers) fully in the system development so as to get their buy-in and learn from their experience.

**Working benefits for the organisation in their use of e-business can be many and varied.**

**They include:**

- Automation and digitisation of paper processes
- Common access to shared data
- Reducing stock inventories
- Improving interface with back-office processes and production technologies
- Integration with legacy systems

**Customer aspects and market benefits derived by using e-business:**

- Enabling companies to keep in closer contact with customers and to understand them better

Having gained valuable experience, many of the showcase businesses aim to exploit their innovations further, e.g. by further technological development, through licensing, joint venture or alliances, or by extending the use within the company, supply chain or cluster. We wish them well as they continue their journey into e-business.

Their experiences can serve as advice for other businesses that would like to invest in e-business but perhaps are hesitant about taking the first steps. For their benefit, the authors of the showcases and the editors have taken this 'lessons learnt' into an on-line forum for the European e-business Showcases to discuss, validate and develop further the experience gained. Please visit the forum<sup>24</sup> to participate in the discussion.

Participation in Virtual Enterprises is on the rise, not only in large enterprises but in small and medium enterprises as well. This paper briefly illustrates some of the business model and application requirements and consequences for enterprises joining Virtual Enterprises.

One of the trends in the global market is the increasing cooperation among enterprises, even to the extent that joint responsibilities exist for the entire product or service life cycle, as if the organisations were operating within one enterprise. This trend is visible within SMEs as well as large enterprises, and is related to business drivers including the need for cost reduction, flexibility, customisation, and the desire to focus on core competencies. To cope with these business drivers, companies increasingly choose to adopt the e-business business model. This could take the form of anything from a rather stable alliance between partners, as in a supply chain, to a more transitory cooperation as in a virtual enterprise.

The aim of this paper is to illustrate the consequences for companies that want to participate in virtual enterprises. It is based on the experiences of the IST projects Globemen (IST-1999-60002) and Whales (IST-1999-12538)<sup>26</sup>.

#### VIRTUAL ENTERPRISES

Figure 1 shows the basic concepts of Enterprise Networks and Virtual Enterprises. A Virtual Enterprise (VE) can be characterised as an inter-enterprise business cooperation where individual enterprises join core competencies in order to establish a value chain that is configured exactly to meet a specific customer demand. When the customer demand has been fulfilled, the Virtual Enterprise is decommissioned. The Virtual Enterprise is therefore highly agile compared to conventional, rigid supply chains. A Virtual Enterprise can be considered as a means to achieve economy-of-scale advantages for companies that specialise in certain competencies, as it provides them with the opportunity to exploit their expertise in several consortia. Many SMEs do in fact specialise in one particular competency. Though the VE is made up by different professionals and competencies from various partners, it operates as one, unified, and synchronised enterprise, hence its virtual nature. Accordingly, the business processes are not carried out by a single enterprise, but every enterprise is a node in the VE that adds some value to the chain.

Virtual Enterprises are 'set up' starting from Enterprise Networks. These networks are made up of numerous individual enterprises that jointly are available to exploit business opportunities through setting up virtual enterprises. The main purpose of a network is to prepare VEs. It establishes mutual agreements among its members on issues such as common standards, business processes, procedures, intellectual property rights, cooperation agreements, and ICT, so that these time-

25 - By Arian Zwegers Baan, azwegers@baan.com, Roel van den Berg Baan, rvdberg@baan.nl, Richard Stevens Gruppo Formula, Richard.Stevens@formula.it, Herbert Wubben 7B1 ICT Solutions, hwubben@7b1.com

26 - Please refer to <http://globemen.vtt.fi> and <http://whales.gformula.com>



consuming preparations can be significantly shortened when a customer request arrives, and a VE is put in place. The network should be seen as a portfolio of core competencies and as a breeding environment from which different VEs can be established in order to satisfy different customer demands. This competence portfolio is dynamic in the sense that competencies can join or leave the network.

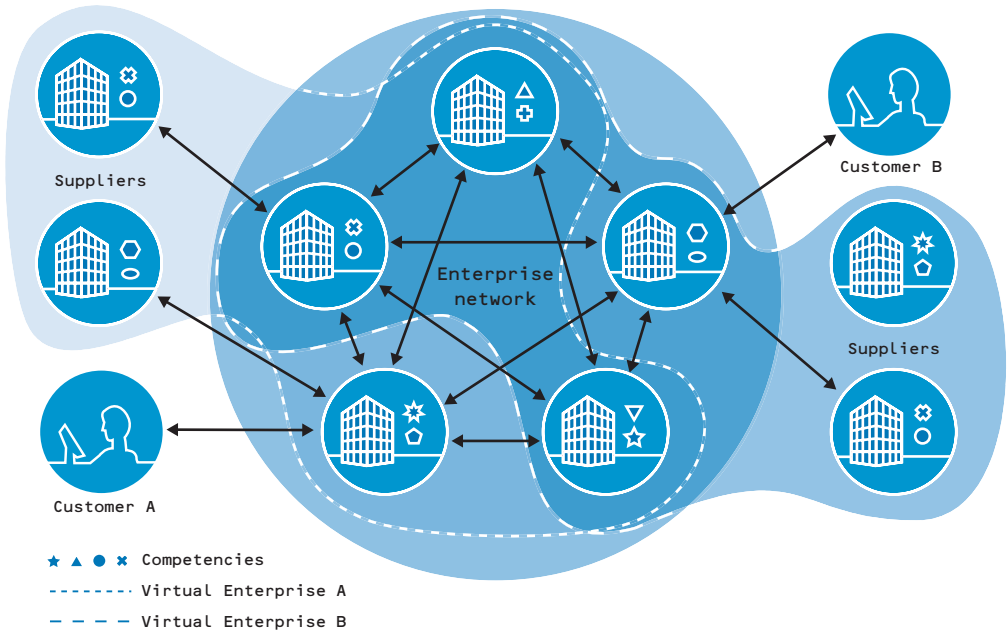


Figure 1 – Enterprise Network and Virtual Enterprises

One should clearly distinguish an Enterprise Network and a Virtual Enterprise. In a network, there is no notion of a specific product, project or contract. On the other hand, the VE is set up with a specific purpose in mind, i.e. a specific contract specifies the delivery of a specific product or service to a known customer. Compared to a virtual enterprise, a network can be perceived as a relatively long-term cooperation since it typically sets up multiple VEs.

## PARTICIPATION IN VIRTUAL ENTERPRISES

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Before an enterprise can adopt the e-business business model and be involved in a VE, it faces a number of challenges. A number of prerequisites have been identified that have to be solved before enterprises can truly act as virtual enterprises. The applications, business processes, and organisational structures need to be in place so that a group of enterprises can jointly pursue business opportunities. Although these issues are quite interrelated and should be dealt with in a holistic way, this paper separately discusses “organisational aspects” and “applications and technology”.

### Organisational aspects

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Several organisational issues play important roles in preparing and setting up virtual enterprises. Amongst others, enterprises have to establish proper relationships with partners, establish procedures to minimise the dependence on trust-based relationships among partners, and deal with contract management issues.

Unlike closed, enterprise-centric supply chain planning situations, where constraints are known and resources can be controlled, successful VE initiatives strongly depend upon the ability to develop collaborative relationships. So-called ‘channel masters’ control the enterprise networks in which they participate. Enterprises operating as channel masters can either force their partners into collaborative business processes and squeeze profitability from trading partners, or develop win/win processes. In successful VEs, channel masters act as benevolent dictators, with a focus on the efficiency of the entire VE, and establish proper relationships among the partners in order to be beneficial to all. This often requires new business models, and new economic models, for example sharing profit margins rather than cost margins. It also requires a different mindset within companies that have to be convinced that sharing profits is part of a business model that proves more viable in the long run.

A prerequisite to establishing collaborative relationships among partners in an Enterprise Network is minimising the need for trust-based relationships. Given the dynamism inherent in the VE, participants in VEs know that today’s partner may be tomorrow’s competitor. More than in traditional relationships, the ability to protect Intellectual Property and safeguard the single organisation’s privacy during and after the VE collaboration is a priority for all organisations involved in VEs. Today, trust has little to do with normal business relationships whereas confidence does. Trust implies faith that a business partner will perform as agreed. Confidence on the other hand is a conviction that a business partner will perform as expected due to procedures or constraints, which have pre-emptively been put into place. Carefully planned legal arrangements and acceptable data access and security policies and ICT tools when prearranged and present at the outset can speed up inter-enterprise processes and decrease transaction costs. Trustworthiness is a third concept and is a measurement

of the track record or performance that any individual organisation may have had in previous VE relationships. Enterprises that want to establish themselves as trustworthy partners should maintain a high level of functional and alliance competence. This last type of competence is specifically related to a corporate-wide spirit and skill set for effective co-operation across the boundaries of the enterprise. Many structures and procedures, e.g. budgeting and reward routines, still hinder a 'network-centric' attitude in most enterprises.

An Enterprise Network needs to react quickly to new business opportunities and needs to prepare standard agreements and contracts for possible opportunities. Enterprises may be involved in various (relatively short-term) VEs at the same time. Their relationships with other enterprises may frequently change. Therefore, they need to reorganise their contract management procedures. Their collection of contractual documents and templates may not be appropriate for VE relationships. Specific contracts with a stronger focus on intellectual property protection and valuation are required. One of the roles of the Enterprise Network is to prepare contractual templates.

#### Applications and technology

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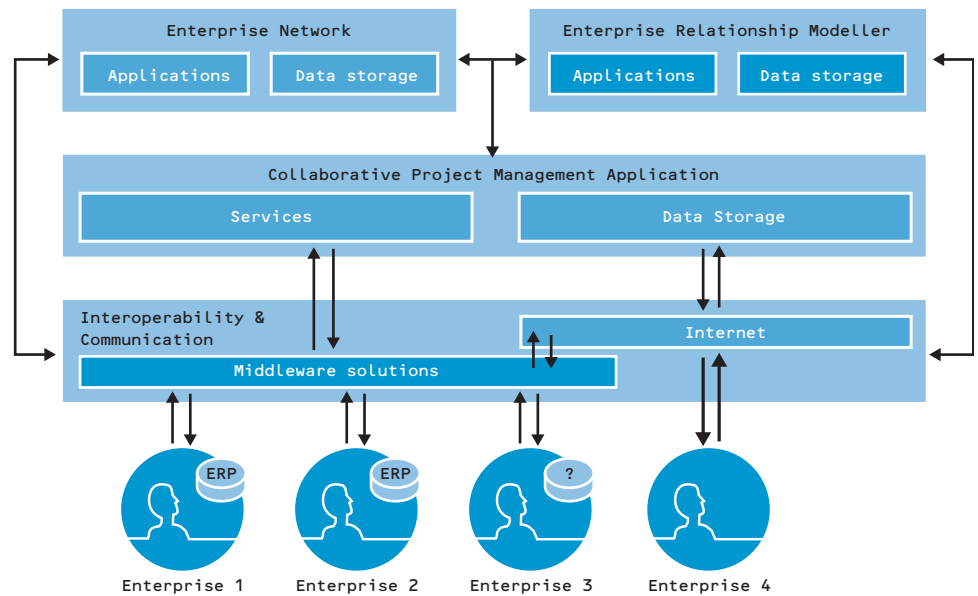
In addition to organisational consequences, participation in VEs will most likely have consequences for the applications being used in the enterprises. New applications such as collaborative project management applications might be used within the VE. Participation in a VE will change the role of an enterprise's local systems, especially its ERP systems. It must also be mentioned that enterprise applications need to be interoperable from one organisation to another.

Collaborative project management applications are particularly suitable for managing VEs, especially in VEs formed to deliver one-of-a-kind products and services. In these types of contracts, enterprises participate in complex projects with substantial durations and resource usages. These projects are split into many concurrent activities, deliverables, and milestones. They take place in a distributed environment within a temporary, product-driven, inter-enterprise structure (the Virtual Enterprise) and usually with geographically distributed sites (plants, construction sites, and so on). Due to these characteristics, collaborating enterprises need reliable and updated project plans with a shared model of project activities and requirements. They need to monitor the project through on-line access to activity progress, with real-time notification of events and 'alert' conditions, and impact evaluation for deviations, based on changes in downstream activities. Among other things, this will enable enterprises to diminish risks, since unexpected events or deviations from the plan are reduced because of clear visibility between all activities. In addition, it allows enterprises to be more adaptive and efficient, responding faster to change requests from customers. It allows the potential competencies of partners to be exploited more efficiently, and accelerates and controls the flow of information during the project life cycle.

Figure 2 shows a simplified representation of a collaborative project management application in a VE. The Enterprise Network part in Figure 2 stores partner competences, general agreements, and so on. The Enterprise Relationship Modeller models all organisations and their relationships in one or more projects. The Collaborative Project Management Application itself offers a number of services such as project scheduling, progress tracking, document sharing, and so on. Individual enterprises of a VE and their local applications are shown at the bottom of Figure 2.

Typically, a main contractor or VE (Business) Integrator owns a collaborative project management application, defines a project with it, and gives access to information about that project to all members of the VE. Members should be able to define relations with and give access to their partners (subcontractors), who do the same with their partners, and so on. Partners should be able to link their internal project management applications (e.g. ERP systems) to a collaborative project management application or use an Internet browser to supply/access project information. Prototypes of collaborative project management applications were developed in the IST projects that were previously mentioned.

Figure 2 – Project management application in a Virtual Enterprise



The current role of ERP systems will change in a VE environment. Current ERP systems act as the back-office transaction processing systems that focus on enterprise optimisation in a domain, which is usually restricted to manufacturing and distribution. In a VE, the role of ERP systems will be to provide the information in such a way that inter-enterprise business processes can be executed and a particular company can participate in a virtual enterprise. That information needs to be supplied to e.g. other organisations' collaborative project management applications.

The issue of interoperability of enterprise applications is also of great importance. One of the requirements of VE participants is to have numerous local solutions that better suit their unique local organisational conditions. Every enterprise, although willing to cooperate and interoperate with others in order to fulfil the common goals of the VE, insists on:

- maintaining its rights to local choices and solutions (e.g. local models, mechanisms, and proprietary enterprise applications),
- protecting its proprietary information, which includes part of its information that it will not share,
- providing access rights to a part of its information only to those other enterprises that either it can trust or it is obliged to provide information by contract.

This causes a tension between the obvious needs for cooperation among organisations (which would call for adoption of some common standards), and the suitability of certain proprietary solutions that can more readily meet local conditions. This tension is an important factor in interoperability. In other words, even if all Enterprise Network members agree on certain standards, incompatible systems will continue to exist because of other organisational constraints – either by choice or due to legacy implications. Dealing with the issue of interoperability is a large part of the work yet to be done in this area.

## CONCLUSIONS

Today's market is beginning to provide executives with the rationale to become involved in Virtual Enterprises. Changing business climates and trends including globalisation, deregulation, technological innovation, dynamic capital and information flows, declining demographics of workforces and talent shortages lead us to expect a natural evolution of the business environment. Progression from a business world that has only recently begun to embrace the possibilities of the Internet to a world where Virtual Enterprises are the norm is quickly becoming evident.

Figure 3 – The road to the Virtual Enterprise

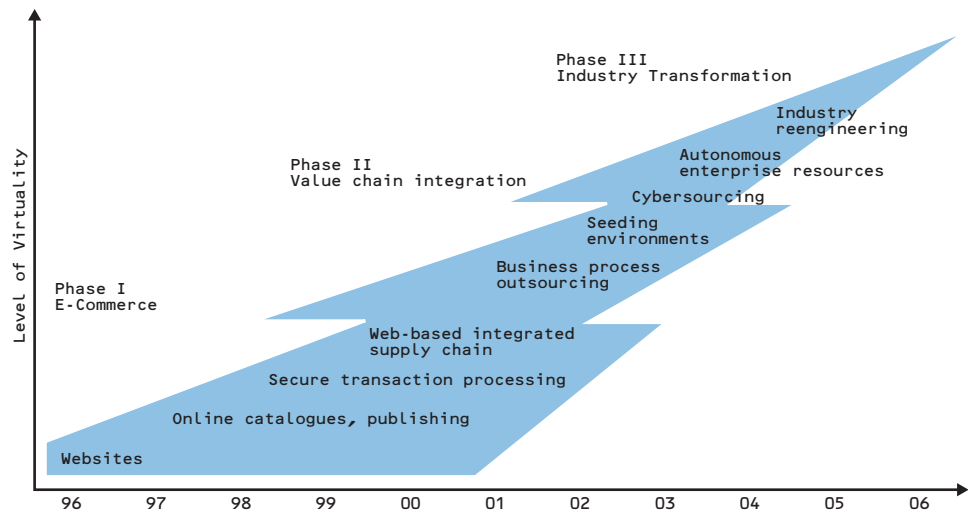


Figure 3 shows the road to Virtual Enterprises. We have already moved from simple eCommerce through value chain integration, and are on our way to a truly transformed industry. Company Websites were early enablers in the way that web-based breeding environments facilitating uptake of the VE are emerging today. The future will see steps forward in technologies to make the process of supplying goods and services more efficient. Web-based tools and procedures will become available to allocate, optimise and manage the resources in any given organisation by actors from outside that organisation. Web-based mediators, standardisation and middleware will be commonly available to ensure that the applications in the single organisations are interoperable and meet organisational privacy requirements.

e-business can help companies to provide customised products and services with higher quality, quicker, at a lower cost, closer to the source of the opportunity. This is a chore that will require radical changes in the organisational setting as well as the applications and technologies to which we are currently accustomed and is best suited to the virtual organisation.

e-business and e-Commerce revolutions have had a clear high impact on organisations' productivity and those countries and regions who have invested more in information communication technologies have been able to rise their productivity. A leading role has so far been taken by USA but European Member States, traditionally lagging behind, are positively reacting and shortening the difference. The several initiatives at European, national and local level aimed at supporting ICT investments in SMEs have made possible a substantial increase in productivity.

Key findings:

- Sweden depose US to take first place
- Northern Europe, North America and Australia claim top nine spots
- Hong Kong and South Korea make significant advances
- Economic difficulties inhibit, but by no means cripple, Internet development

"E-transformation has become the silent revolution," says Daniel Franklin, Editorial Director of the Economist Intelligence Unit. "The frenzy of the dotcom years has gone, but the quiet work of harnessing the Internet to drive efficiencies in both business and government has, if anything, intensified. The Internet offers solutions to the twin priorities in these harsher economic times: saving costs and reaching customers."

The e-readiness rankings provide an established benchmark for countries to compare and assess their e-business environments. "E-readiness", or the extent to which a market is conducive to Internet-based opportunities, takes into account a wide range of factors, from the quality of IT infrastructure to the ambition of government initiatives and the degree to which the Internet is creating real commercial efficiencies. Covering the world's largest economies, the rankings suggest areas in which government policy and funds can be focused.



## 2003 E-READINESS SCORES

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There is a good deal of consistency between the 2003 rankings and those released last year. No country has moved more than five places up or down, and regions that stood out before particularly Western Europe and North America remain dominant. Judging by scores alone, there appears to be a high degree of uniformity among top-rated countries: only 0.47 points (out of a possible 10) separates 1st place from 10th. The US fell from 1st to 3rd place despite a 0.02 rise in its score.

But the stories of individual countries are compelling. Sweden has deposed the US for the top slot by wholeheartedly embracing the Internet society and revolutionising the way that business, including government business, is done. Hong Kong and South Korea have moved up four and five places, respectively, as the effects of state-of-the-art infrastructure and ambitious government plans come to fruition. And governments in nearly all countries have made significant investments over the past year, introduced bold new policies and expanded the reach of the Internet. Among the main conclusions suggested by this year's rankings let us browse the most relevant ones.

With the downturn in the world economy and the evaporation of venture capital challengers some European countries have been able to increase ICT investments in e-business gaining ground.

Sweden is now the front-runner, and Denmark (2nd place), Finland (6th) and Norway (7th) have each advanced significantly over last year's rankings. What sets Scandinavia apart is the extent to which the Internet has pervaded the marketplace and reshaped business transactions, and the eagerness with which citizens have incorporated Internet technology into their daily routines. In a phrase, Scandinavians wholeheartedly embrace the information society.

In contrast to their northern neighbours, Southern Europeans regard the Internet sceptically, and are reluctant to move business online. Among the region's stragglers are Italy (21st), Portugal (22nd), Spain (23rd) and Greece (26th).

## REGIONAL CHAMPIONS

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Western economies continue to dominate the top slots in our ranking. They have the right conditions for e-business: healthy macroeconomic, political and regulatory environments; highly developed IT infrastructure; and a large pool of regular and relatively wealthy Internet users. But every region has pockets of promise. In Asia-Pacific, Australia (9th) is ahead in a competitive field, thanks partly to early and intensive telecoms deregulation. South Korea (16th) is making the largest strides, spurred by an ambitious government and heavy infrastructure spending. In the Middle East, Israel (25th) holds the lead by leveraging an entrepreneurial culture and an abundance of IT experts. And in Eastern Europe, the Czech Republic (27th), Hungary (29th) and Poland (30th) are expanding broadband coverage and promoting competition among Internet service providers, to good effect.

## SMALL COUNTRIES HAVE AN EDGE

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Economic might influences, but does not determine, e-readiness. The world's largest economies the US, Germany and Japan have taken 3rd, 13th and 24th place, respectively, in our rankings. They are outstripped by smaller, nimbler economies, such as Sweden (1st), Hong Kong (10th) and Singapore (12th), which are better able to implement nation-wide infrastructure projects. The city-state of Singapore, for example, is the first country in the world to have nation-wide broadband coverage.

## ECONOMIC DOWNTURN AFFECTS E-READINESS

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Most countries have improved their scores since last year, thanks to continued rollout of broadband services, uptake of mobile telephony, and a spate of Internet-related legislation and government programmes. Where there has been a slight reduction in score, economic and political turmoil are to blame, dampening business prospects across the board, not just e-business. Canada and Mexico, for example, are intimately tied to the US economy, and have suffered the effects of reduced trade and investment. Regional economic woes have had an impact on Brazil, Chile and Venezuela. In some European countries, too, business conditions have deteriorated compared with last year.

But no country is a back-peddaller. Even in tough economic times, governments are pushing through IT infrastructure projects; programmes to bring the Internet to schools, post offices and other public venues; and legislation to encourage e-business and safeguard its participants. They are reducing connection charges by liberalising local telecoms markets, subsidising public access and encouraging price competition. And they are putting government services online at a fast clip.

# ECONOMIST INTELLIGENCE UNIT E-READINESS RANKINGS, 2003<sup>27</sup>

2003 e-readiness, ranking (of 60)	2002 ranking	Country	2003 e-readiness score (of 10)	2002 score
1	4 (tie)	Sweden	8.67	8.32
2	7	Denmark	8.45	8.29
3 (tie)	2	Netherlands	8.43	8.40
3 (tie)	1	US	8.43	8.41
3 (tie)	3	UK	8.43	8.38
6	10	Finland	8.38	8.18
7	11(tie)	Norway	8.28	8.17
8	4 (tie)	Switzerland	8.26	8.32
9	6	Australia	8.25	8.30
10 (tie)	9	Canada	8.20	8.23
10 (tie)	14	Hong Kong	8.20	8.13
12	11(tie)	Singapore	8.18	8.17
13	8	Germany	8.15	8.25
14	13	Austria	8.09	8.14
15	15	Ireland	7.81	8.02
16	21	South Korea	7.80	7.11
17 (tie)	16	Belgium	7.78	7.77
17 (tie)	18	New Zealand	7.78	7.67
19	17	France	7.76	7.70
20	20	Taiwan	7.43	7.26
21	19	Italy	7.37	7.32
22	24	Portugal	7.18	7.02
23	22	Spain	7.12	7.07
24	25	Japan	7.07	6.86
25	26	Israel	6.96	6.79
26	23	Greece	6.83	7.03
27	27	Czech Republic	6.52	6.45
28	28	Chile	6.33	6.36
29	29	Hungary	6.23	6.05
30	31	Poland	5.57	5.52

Further statistics on ICT can be found in the following web sites:

[www.oecd.org](http://www.oecd.org) 'Measuring the Information Economy, ICT Sector Data and Metadata'

[www.eito.org](http://www.eito.org) 'European Information Technology Observatory 2003'

[www.e-business-watch.org](http://www.e-business-watch.org) 'The European e-business W@tch'

[www.unece.org](http://www.unece.org) 'United Nations Economic Commission for Europe'

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**PETER FATELNIG**

Working at the European Commission for more than 5 years on the Information Society gives a thorough understanding how to better develop the capabilities of European companies.

Technological innovation will be the fuel for the enterprise of tomorrow. It will enable growth and force constant evolution in business processes.

But for staying competitive, businesses need also the right mix in skills, the knowledge-assets of the future and access to financing to leverage innovative technology best.

Peter has a background in communication engineering and worked several years in the consulting business before joining the European Commission.

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**ENRICA CHIOZZA**

Enrica joined the European Commission and the e-business Unit in February 2000. Since then she has followed research and development projects aimed at boosting information communication technologies in small organisations.

Currently, she is working on the vision of 'Digital Ecosystem(s) for Small Organisations' – a framework to maintain the competitiveness of SMEs at local and worldwide level through information society technologies.

Before joining the European Commission she worked for more than nine years as research and development project manager for a Spanish private research institute specialised in knowledge-based engineering.

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<http://www.cordis.lu/ist>

## JONATHAN SAGE

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Jonathan has been based in Brussels for the last three years, formerly with PwC Consulting before the merger with IBM last year.

His interests are in knowledge management and innovation, particularly applied to Small and Medium Enterprises.

Currently he is leading the eLIVE project for the European Commission, which focuses on making European SMEs more competitive by applying eLearning and Knowledge Management processes in a pan-European network.

Jonathan has a background in languages as well as business. He spent six years working in trade promotion (mainly supporting SMEs) in Vienna.

## CONTACT

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#### The European e-business Showcase Forum

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[europa.eu.int/information\\_society/eeurope/index\\_en.htm](http://europa.eu.int/information_society/eeurope/index_en.htm)

Together with the book, an on-line forum has been created to allow the exchange of views and ideas. It links up the readers with the authors of the individual showcases, with the editors and others who like to contribute. Please visit the forum.

#### e-business research through the IST Programme 2003-2006

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[www.cordis.lu/ist/](http://www.cordis.lu/ist/)

The European Commission's 6th Framework Programme supports, through its Information Society Technologies Priority, the development of new, innovative e-business technologies and developments.

#### eEurope 2005: An Information Society for All

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[europa.eu.int/information\\_society/eeurope/index\\_en.htm](http://europa.eu.int/information_society/eeurope/index_en.htm)

eEurope 2005, a initiative of the European Commission, aims to stimulate secure services, applications and content based on a widely available broadband infrastructure.

#### The European Information Technology Observatory

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[www.eito.org](http://www.eito.org)

The EITO is a broad and unique European initiative. It publishes the established yearbook for the information and communications technology (ICT) industry in Europe. Up-to-date and valid information plays an increasingly important role in business.

### The European e-business Watch

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[www.e-business-watch.org](http://www.e-business-watch.org)

As European enterprises are 'going digital', the paths they choose for adoption vary by country, by industry sector and by company size. What are the specific opportunities, what are the challenges? What are the rewards and what the risks? And what is the impact of the implementation of electronic business on various manufacturing and service sectors? It is the goal of the e-business W@tch to provide this kind of information.

### The Directorate General Enterprise web pages on Small and Medium Enterprises

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[europa.eu.int/comm/enterprise/entrepreneurship/](http://europa.eu.int/comm/enterprise/entrepreneurship/)

The site brings together issues of SME and entrepreneurship important to Europe. It aims at interested SMEs, entrepreneurs and policy makers, and covers the Community activities, business support measures, finance and social aspects.

### eChallenges

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[www.eChallenges.org](http://www.eChallenges.org)

eChallenges is the European platform for research and application of e-business, eGovernment and eWork. Through annual conferences the platform gathers more than 500 professionals from research, solution providers, users and policy markers to share the latest knowledge and business trends.

“Has the European Commission supported with public money the development of competitive products and solutions?”

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No, merely the European Commission has co-funded with the consortium members the up-take of new, unproven, risky technologies and business processes. Research results, meaning new knowledge and new technologies not yet proven in practice, contain risks in it. The European Commission has supported the trial and dissemination of competitive products and solutions.

The European Commission supports SMEs to overcome those risks and lower the barrier for others to follow and become early adopters embracing e-business technologies for their own benefit. The cases presented show that opportunities can win over risks - when managed properly.

“It looks as if some take-up projects have developed rival IT systems and solutions - and this in a market where many solutions are available?”

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The objective of the take-up projects was not the development of new technologies but the application of existing and emerging ones enabling business processes enhancement.

It is true that for some technology areas, for example ERP systems, a multitude of proven solutions are available on the market.

But looking at the showcase “Linking the supply chain” - the issue was not to redevelop core ERP capabilities, rather than how to overcome effectively the interoperability issue between existing ERP systems for SMEs.

Also, in many cases the take-up went far beyond the adoption of new technologies, it included the modification of business processes, exploring the legal consequences and included the business relationship management aspects, this making the cases real practical showcases.



#### “Why didn’t my company benefit from this support?”

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This is a hard question! We would wish that many more companies could have benefited from the open call for proposal through which the limited amount of co-funding available was invested. But the initiative was a trailblazer, paving the way for national and regional initiatives to follow. We also expect that other companies, not involved in the projects, could benefit from these experiences.

#### “How could my SME get more information or participate?”

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Depending on the level of interest, SMEs might consider contacting regional business support organisations, e.g. chamber of commerce to learn more about national or local initiatives. Innovative, robust research oriented SMEs might consider a participation in the research activities bundled under the 6th Framework Programme for Information Society Technologies<sup>28</sup>.

You are also invited to visit the on-line forum on [europa.eu.int/information\\_society/eeurope/index\\_en.htm](http://europa.eu.int/information_society/eeurope/index_en.htm) It has been created to allow the exchange of views and ideas on e-business and SMEs. It links up the readers with the authors of the individual showcases, with the editors and others who like to contribute.

<b>3D</b>	three-dimensional
<b>3G</b>	the third generation of digital mobile phone networks – see UMTS
<b>ADSL</b>	asymmetric digital subscriber loop – a technology for obtaining a broadband connection over existing copper telephone lines - <a href="http://www.dslforum.org/">www.dslforum.org/</a>
<b>ASP</b>	application service provider – a computing model where software applications are accessed on a pay-per-use basis from a remote host. For example, <a href="http://www.aspstreet.com/">http://www.aspstreet.com/</a> is platform for application service provider offering services.
<b>ASP</b>	Active Server Pages – a proprietary Microsoft technology for accessing database content through a web browser - <a href="http://www.asp.net/">www.asp.net/</a>
<b>bandwidth</b>	the data transmission capacity of a network or internet connection
<b>broadband</b>	a high bandwidth internet connection
<b>CAD / CAM</b>	computer-aided design / computer-aided manufacture
<b>CEN</b>	Comité Européen de Normalisation (European Committee for Standardisation) ( <a href="http://www.cenorm.be">www.cenorm.be</a> )
<b>client</b>	the user side of a networked software application
<b>co-operative enterprise</b>	collaborative working between enterprises facilitated by technology
<b>CRM</b>	customer relationship management – use of IT to manage information in sales and marketing processes - <a href="http://www.crm-forum.com/">www.crm-forum.com/</a>
<b>data warehouse</b>	a very large-scale data repository
<b>digitisation</b>	the conversion of analogue information (text, pictures, graphics etc) into digital form
<b>DRM</b>	digital rights management – control of the legal rights to use and reproduce copyrighted material
<b>e-business</b>	electronic business – use of networked IT systems in all areas of business processes
<b>e-commerce</b>	electronic commerce – use of IT to sell over the internet or other networks
<b>EDI</b>	electronic data interchange – a means for exchanging electronic information over private networks
<b>encryption</b>	the encoding of data to ensure secure transmission over computer networks
<b>ERP</b>	enterprise resource planning – use of IT to manage information about operational processes, especially in a manufacturing context
<b>EU</b>	European Union – <a href="http://europa.eu.int">http://europa.eu.int</a>
<b>extreme programming</b>	an innovative approach to software development that aims to improve the productivity of the development process
<b>firewall</b>	a system to protect a computer network from outside attack
<b>FP6</b>	Sixth Framework Programme for Research and Technological Development ( <a href="http://www.cordis.lu/fp6/">www.cordis.lu/fp6/</a> )
<b>GPRS</b>	General Packet Radio Service – the “2.5G” mobile phone network - <a href="http://www.gsmworld.com/technology/gprs/index.shtml">www.gsmworld.com/technology/gprs/index.shtml</a>
<b>GRID</b>	a distributed computing model where easy access to large geographical computing and data management resources is provided to large mission oriented communities. For a list of GRID projects see <a href="http://www.escience-grid.org.uk/docs/briefing/nigridp.htm">www.escience-grid.org.uk/docs/briefing/nigridp.htm</a>
<b>GSM</b>	Global System Mobile – the first generation digital mobile network - <a href="http://www.gsmworld.com/gsm europe/index.shtml">www.gsmworld.com/gsm europe/index.shtml</a>
<b>HSE</b>	health, safety and environment
<b>HTML</b>	Hypertext Mark-up Language – a software language used to write web pages - <a href="http://www.w3.org/">www.w3.org/</a>
<b>ICT</b>	information and communication technology

<b>interoperable</b>	ability for IT systems with different functionality to work together
<b>IPR</b>	intellectual property rights
<b>ISO</b>	International Standards Organisation ( <a href="http://www.iso.org">www.iso.org</a> )
<b>IST</b>	information society technologies
<b>IST</b>	Information Society Technologies Programme – part of the EU’s Fifth Framework Programme for RTD - <a href="http://www.cordis.lu/ist">www.cordis.lu/ist</a>
<b>IT</b>	information technology
<b>KM</b>	knowledge management – the capture, application and reuse of knowledge to drive business and organisational change. See <a href="http://www.knowledgeboard.com">www.knowledgeboard.com</a>
<b>legacy systems</b>	pre-existing IT systems
<b>middleware</b>	a software layer that enables other software applications to talk to each other
<b>MPEG</b>	Motion Picture Expert Group – standards for audio-visual media, e.g. MPEG-4 - <a href="http://www.m4if.org/">www.m4if.org/</a>
<b>Open Standards</b>	a software attribute meaning that an application is interoperable with others. WebSphere is an example of an open standards based application that has been developed by commercial development methods.
<b>Open Source</b>	a method for software development in which developers freely contribute to a piece of software and publish their work in the public domain. Linux is an example of an open standards based application that has been developed by open source methods - <a href="http://www.opensource.org/docs/definition.php">www.opensource.org/docs/definition.php</a>
<b>PDA</b>	personal digital assistant
<b>portal</b>	a web-based repository of information held in back-end databases
<b>ROI</b>	return on investment – a means of measuring payback on investment
<b>RTD</b>	research and technological development
<b>SCM</b>	supply chain management – use of IT to manage information flow between enterprises within a supply chain
<b>server</b>	the host side of a networked software application
<b>SME</b>	small and medium-sized enterprise - <a href="http://europa.eu.int/comm/enterprise/entrepreneurship/index.htm">europa.eu.int/comm/enterprise/entrepreneurship/index.htm</a>
<b>SMS</b>	simple messaging service – the first generation of messaging for mobile devices
<b>SQL</b>	Structured Query Language – a software language for searching and managing databases
<b>STEP</b>	a series of international standards for exchange of product data
<b>UMTS</b>	Universal Mobile Telecommunications System – the third generation of high bandwidth mobile networks (“3G”) - <a href="http://www.umts-forum.org/">http://www.umts-forum.org/</a>
<b>URL</b>	universal resource locator – an address on the world wide web
<b>VO / VE</b>	Virtual organisation / virtual enterprise - a network of organisations that share resources, skills and technological infrastructure to achieve a mission/goal
<b>VRML</b>	Virtual Reality Modelling Language – a software language for building virtual reality, 3D environments
<b>web browser</b>	a software application for browsing information on the world wide web (e.g. Explorer, Opera, Safari, etc.)
<b>XML</b>	Extensible Mark-Up Language – a software language to interconnect business systems based on web technology - <a href="http://www.w3.org">http://www.w3.org</a>

The IST Programme co-funded between 1999 and 2002 a group of 63 take-up project in the area of e-business. They represent an overall total cost of 102 Million Euro, of which the European Commission co-funded 63 Million Euro<sup>29</sup>.

This table list the 63 projects and their participants.

3DINCTRAP IST-1999-56412	ALAN DAVID ROGERS ANDROME NV ANIMANTE BALEARES SL PETER LANG WAVECREST SYSTEMS LIMITED ALTA INDUSTRIES SRL CEC - CONCURRENT ENGINEERING CONSULTING COTECO S.R.L. EUROSOLARE SPA IMT S.R.L. INGENJORSFIRMAN LGJ MEKANIK MOULDED CIRCUITS LIMITED PRECISION TOOLS INTERNATIONAL KB SOCIETA ELETTRONICA PER L'AUTOMAZIONE SPACE ENGINEERING S.P.A. STC COLENO ENGINEERING S.R.L. ULSTEIN ITALIA S.R.L. - SOCIETA UNIPERSONALE ASOCIACION PARA LA PROMOCION DE LAS CAMARA DOS SOLICITADORES COLEGIO DE REGISTRADORES CONSEJO GENERAL DE LOS ILLUSTRES GREFFE DU TRIBUNAL DE COMMERCE DE PARIS LAW UNIVERSITY OF LITHUANIA STATE LAND CADASTRE AND REGISTER TOOLS BANKING SOLUTIONS, S.L. UNIVERSIDAD DE ZARAGOZA AGENCE NATIONALE POUR LE ANJOU SERRURERIE APPLIED LOGIC LABORATORY C.N.A. SERVIZI MODENA SOCIETA COOPERATIVA DEMOCENTER - CENTRO SERVIZI PER MAGYAR TUDOMANYOS AKADEMIA MEDICA SRL MT-SYSTEM LTD. PROBITO S.R.L. RI.MOS S.R.L. GEMPLUS S.A. GIE - GROUPEMENT DES CARTES BANCAIRES SAGEM SA SITA INFORMATION NETWORKING COMPUTING SOCIETA PER I SERVIZI BANCARI - SSB S.P.A. AKTSIASELTS EESTI POST ASSOCIATION DES OPERATEURS POSTAUX BULGARIAN POSTS EAD CESKA POSTA, S.P. COMPANIA NATIONALA POSTA ROMANA S.A. DEPARTMENT OF POSTAL SERVICES FEDERAL STATE UNITARY ENTERPRISE HUNGARIAN POST OFFICE LTD. IPC TECHNOLOGY SC MALTAPOST PLC POCZTA POLSKA POSTA SLOVENIJE, D.O.O. STATE ENTERPRISE "LIETUVOS PASTAS" UKRAINIAN STATE ENTERPRISE OF POSTS ARCHIMEDIA A.E FEDERACION EMPRESARIAL CATALANA DEL FUNDACIO CATALANA PER A LA RECERCA INCUBATOR OF NEW ENTERPRISES AT CHANIA INLECOM LIMITED INSTITUT AGRICOLA CATALA DE SANT ISIDRE POULIADIS ASSOCIATES CORP RESEARCH CENTER OF THE ATHENS UNIVERSITY SOCIETATEA OMERCIALA PENTRU CERCETARE, THE LIVERPOOL CHAMBER OF COMMERCE AND TRADERS ASSOCIATION OF THESSALONIKI - CULTURAL HERITAGE ON LINE EUROPE ONLINE NETWORKS S.A. FUNDACION ROBOTIKER GIUNTI INDUSTRIE GRAFICHE - SOCIETA PER GIUNTI INTERACTIVE LABS S.R.L. GIUNTI MULTIMEDIA SRL HEWLETT PACKARD CENTRE DE COMPETENCES HUBERT BURDA MEDIA HOLDING GMBH & CO. MINISTERO PER I BENI E LE ATTIVITA	UK B E UK UK I I I I S UK S I I I I I I E E E F LT LT E E F F HU I I HU I HU I I I F F F NL I EE B BG CZ RO CY RU HU B MT PL SI LT UA GR E E GR UK GR F L E I I F D I	OMEGA CUBE S.R.L. SCALA GROUP S.P.A. SPACE S.P.A. UNIVERSITE PIERRE ET MARIE CURIE 20 - 20 SPI ASOCIACION DE INVESTIGACION Y C.L.A.C. - CENTRO LEGNO ARREDO CANTU S.R.L. CENTRE TECHNIQUE DU BOIS ET DE DATAFORM GESELLSCHAFT FUER DEMOCENTER - CENTRO SERVIZI PER FIRA INTERNATIONAL LIMITED FURNISHING INDUSTRY ASSOCIATION OF GOETEBORG UNIVERSITY LINIAL DESARROLLO DE SOFTWARE PARA ORGA DATA TEAM AG SCHWEIZERISCHE HOCHSCHULE FUER DIE TECHNO-HARD, S.A. UEA COMMUNICATIONS ASBL UNINNOVA - ISTITUTO DE DESENVOLVIMENTO UNIVERSITE HENRI POINCARÉ NANCY 1 UNIVERSITY OF CHEMICAL TECHNOLOGY AND UNIVERSITY OF WEST HUNGARY CENTRE TECHNIQUE DES INDUSTRIES DE COLOR-TEXTIL VEREDLUNG GMBH COLOR-WEB GMBH DEUTSCHE INSTITUTE FUER TEXTIL- UND GOETZ MODE GMBH & CO KG INSTITUT FRANCAIS DU TEXTILE ET DE NYC RED LONDON LIMITED CORPORATION ASSOCIAZIONE IMPRESA POLITECNICO BETA 80 S.P.A. SOFTWARE E SISTEMI CLERICI TESSUTO SPA DDP EMPHASIS SYSTEMS AE SOCIETE TRIGA SOPHIS SYSTEMS N.V. STAMPERIE DI LIPOMO COMHAIRLE NA EILEAN SIAR COMUNIDAD AUTONOMA DE CANARIAS CONSEJO HONDUREÑO DE CIENCIA Y ENAIIP SARDEGNA - ENTE ACLI ISTRUZIONE FEDERACION CANARIA DE ISLAS HIIUMA MAVALITSUS INSTITUTO TECNOLÓGICO DE CANARIAS, S.A. INTERNATIONAL SCIENTIFIC COUNCIL FOR NETWORK OF THE INSULAR CHAMBERS OF REGION OF THE NORTH AEGEAN REGION OF THE SOUTH AEGEAN SECRETARIA REGIONAL DE EDUCACAO UNIVERSITY OF THE AEGEAN INFOCAMERE - SOCIETA CONSORTILE DI UNIONE ITALIANA DELLE CAMERE DI AGRICULTURAL-FLORICULTURAL AND FARM EXODUS SA. ACADEMIA DE INALTE STUDII COMERCIALE SI ALTRO DISTRIBUTION SRL GL2006 EUROPE LTD HERMES PHARMA SRL RELAD INTERNATIONAL SRL SINEURA S.P.A. TC SISTEMA S.P.A. AGENCY FOR SMALL AND MEDIUM-SIZED BGCATALOG LTD. COMERCIANDO GLOBAL S.L. COVENTRY AND WARWICKSHIRE CHAMBER OF DEMOCENTER - CENTRO SERVIZI PER E. ERHARDT Y CIA, S.A. FINANCE ET SERVICES EXPORT - F.S.E. HANDELSKAMMERET IBERMATICA S.A. PARTNERSHIP SOURCING THE NATIONAL COMPUTING CENTRE VIRTECH LTD.	I I I F F E I F D I UK AUS S E D I CH E B P F BG HU F D D D F F UK I I I I GR F B I UK E HN I E EE E F GR GR GR P GR I I GR GR RO GR RO UK RO RO I I BG BG E UK I E F UK I E F UK UK BG
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29 - For project details see <http://www.cordis.lu/ist/projects/projects.htm>

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	CONSEJO SUPERIOR DE INVESTIGACIONES	E	IST-1999-20521	CETIM - CENTER FOR TECHNOLOGY AND	D
	DFN-CERT : ZENTRUM FUER SICHERE	D		INTRACOM S.A. HELLENIC	GR
	GROUPEMENT D'INTERET PUBLIC RESEAU	F		SIEMENS SCHWEIZ AG	CH
EISPP IST-2001-35200	ISTITUTO NAZIONALE DI FISICA NUCLEARE	I	HYPERKNOWLEDGEKUNGLIGA TEKNISKA HOEGSKOLAN		S
	M&I/STELVIO B.V.	NL	IST-2000-28401	RIGAS DOMES FINANSU DEPARTAMENTS	LV
	NAUKOWA I AKADEMICKA SIEC	PL		SIEMENS AKTIENGESSELLSCHAFT OESTERREICH	A
	PRESECURE CONSULTING GMBH	D	INFRANET	VERBUNDPLAN GMBH	A
ELBA IST-2001-36530	THE JNT ASSOCIATION	UK	IST-1999-20836	CALON ASSOCIATES LIMITED	UK
	UNI-C, DANMARKS EDB-CENTER FOR	DK		COMPAGNIE INDUSTRIELLE D'APPLICATION	F
	ALCATEL CIT	F		FORSCHUNGSZENTRUM INFORMATIK AN DER	D
	BRITISH TELECOMMUNICATIONS PLC	UK		GRUBER UND PARTNER TECHNOLOGIE- UND	D
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	I. NET S.P.A.	I		NETLON APS	DK
	SIEMENS AKTIENGESSELLSCHAFT	D	INTELISHOE	TLON GMBH - THE INFRANET COMPANY	D
	UNIVERSITAT POLITECNICA DE CATALUNYA	E	IST-1999-20949	ANTONIO LOPEZ, S.A.	E
ETEMSOLUTION IST-2000-28315	C.T. MOTION LTD.	ISR		BIMEO VIZSGALO ES KUTATO-FEJLESZTO	HU
	HERVE CONSULTANTS SAS	F		BSC, POSLOVNO PODPORNII CENTER, D.O.O.,	SI
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	ISTITUTO CENTRALE PER IL CATALOGO E LA	I
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EBUSINESS SHOWCASE TEAM

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The team of the European Commission involved in the take-up project initiative comprised of the following people, we thank them for their support throughout the preparation of the e-business Showcases.

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1ST EBUSINESS SHOWCASES ACROSS EUROPE - THE MAP PRESENTS THE PARTICIPATING SME'S



## List of participating SME's per country.

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 NETIMAGE SARL, TRADEX, IST-1999-21031  
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 NYC, CREATIV, IST-1999-20534  
 ORANGE FRANCE, PROMODAS, IST-2001-36025  
 ROUTE DES HAUTES TECHNOLOGIES ET MEDITERRANEE TECHNOLOGIES, PRELUDE, IST-2001-32321  
 SAGEM SA, C-TRAVEL, IST-1999-21014  
 SOCIETE TRIGA, CUTTING EDGE, IST-1999-21145  
 UNIVERSITE DE TOULOUSE-LE-MIRAIL, ELBA, IST-2001-36530  
 UNIVERSITE HENRI POINCARÉ NANCY 1, COFURN, IST-2000-25183  
 UNIVERSITE PIERRE ET MARIE CURIE, CHERI, IST-2000-28044  
 VILLE DE GRENOBLE, ELBA, IST-2001-36530

**Germany**

AKZENT-HOTEL-SCHRANNE MEINOLD MANFRED, VDA, IST-1999-20937  
 ARTEC GESELLSCHAFT FUER COMPUTERUNTERSTUETZTE DARSTELLUNGSTECHNIK MBH, VDA, IST-1999-20937  
 ASKNET AG, PAIDFAIR, IST-2000-29616  
 BURGHOTEL, RELAIS DU SILENCE, VDA, IST-1999-20937  
 CAS SOFTWARE AG, JEWEL, IST-1999-20506  
 CETIM - CENTER FOR TECHNOLOGY AND INNOVATION MANAGEMENT GMBH, GENESIS, IST-1999-20521  
 CETIM - CENTER FOR TECHNOLOGY AND INNOVATION MANAGEMENT GMBH, VDA, IST-1999-20937  
 COLOR-TEXTIL VEREDLUNG GMBH, CREATIV, IST-1999-20534  
 COLOR-WEB GMBH, CREATIV, IST-1999-20534  
 CONNETMEDIA AG, OCTANE, IST-1999-20553  
 DATAFORM GESELLSCHAFT FUER DATENVERWALTUNG DES MOEBELHANDELS MBH, COFURN, IST-2000-25183  
 DEUTSCHE INSTITUTE FUER TEXTIL- UND FASERFORSCHUNG STUTTGART, CREATIV, IST-1999-20534  
 DEUTSCHE WELLE, SMARTCAST, IST-2000-26261  
 DFN-CERT : ZENTRUM FUER SICHERE NETZDIENSTE GMBH, ECSIRT.NET, IST-2001-37558  
 DIEBOLD BUSINESS SOLUTIONS GMBH, PROTELEUSES, IST-1999-20852  
 DRAHTSEILWERK GMBH, SMART SME, IST-1999-20744  
 DRESOER BANK AG, SMART\_USB, IST-1999-20323  
 ECHTZEIT GESELLSCHAFT FUR MEDIALES GESTALTEN MBH, VDA, IST-1999-20937  
 EUROBUSINESS S.A. BRANCH BONN, JEWEL, IST-1999-20506  
 EUROPEAN RESEARCH AND PROJECT OFFICE GMBH, PROTELEUSES, IST-1999-20852  
 EXPERTISE INFORMATION SYSTEMS GMBH, VIDEOCOM, IST-1999-20971

FACHHOCHSCHULE PFORZHEIM - HOCHSCHULE FUER GESTALTUNG, TECHNIK UND WIRTSCHAFT, NETSTOCK, IST-1999-20773  
 FAKTUM SOFTWAREENTWICKLUNG GMBH, SMART\_USB, IST-1999-20323  
 FORSCHUNGS- UND ANWENDUNGSVERBUND VERKEHRSSYSTEMTECHNIK BERLIN, PRELUDE, IST-2001-32321  
 FORSCHUNGSZENTRUM INFORMATIK AN DER UNIVERSITAET KARLSRUHE, INFRANET, IST-1999-20836  
 FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V., ETEMSOLUTION, IST-2000-28315  
 FREIHEIT.COM TECHNOLOGIEBERATUNG GMBH, EXPERT, IST-2001-34488  
 GMD - FORSCHUNGSZENTRUM INFORMATIONSTECHNIK GMBH, FAIRWIS, IST-1999-12641  
 GOETZ MODE GMBH & CO KG, CREATIV, IST-1999-20534  
 GRUBER UND PARTNER TECHNOLOGIE- UND MARKETINGBERATER, INFRANET, IST-1999-20836  
 H. ROSEN ENGINEERING GMBH, ISPDM, IST-1999-21112  
 HAHN FILAMENTS GMBH AND CO, NETSTOCK, IST-1999-20773  
 HOSCHAR AG, PAIDFAIR, IST-2000-29616  
 HOTEL EISENHUT - GEORG PIRNER, VDA, IST-1999-20937  
 HOTEL GOLDENER HIRSCH WILHELM SCHUECHNER OHG, VDA, IST-1999-20937  
 HOTEL MEISTERTRUNK, VDA, IST-1999-20937  
 HOTEL ROTER HAHN MARGARETE GALLUS, VDA, IST-1999-20937  
 HUBERT BURDA MEDIA HOLDING GMBH & CO. KOMMANDITGESELLSCHAFT, CHERI, IST-2000-28044  
 HYPERWAVE AG, TEAMWORK, IST-2000-28162  
 INFINEON TECHNOLOGIES AG, SMART\_USB, IST-1999-20323  
 INSTITUT FUER ANGEWANDTE SYSTEMTECHNIK BREMEN GMBH, EXPERT, IST-2001-34488  
 JOSEF LEISMANN AKTIENGESellschaft, PROTELEUSES, IST-1999-20852  
 KLOCKNER DESMA SCHUMASCHINEN GMBH, MEDIAT-SME, IST-1999-11570  
 KUEHN & WEYH SOFTWARE GMBH, ETEMSOLUTION, IST-2000-28315  
 KULLEN GMBH AND CO, NETSTOCK, IST-1999-20773  
 LOGCONTROL GMBH, NETSTOCK, IST-1999-20773  
 MARK IV INDUSTRIES GESELLSCHAFT MIT BESCHRAENKTER HAFTUNG, ELBA, IST-2001-36530  
 MEGATEL INFORMATIONS- UND KOMMUNIKATIONSSYSTEME GMBH, EXPERT, IST-2001-34488  
 MITTERMEIER RESTAURANT UND HOTEL, VDA, IST-1999-20937  
 NATIVE INSTRUMENTS SOFTWARE SYNTHESIS GMBH, PAIDFAIR, IST-2000-29616  
 NTS - NACHRICHTENTECHNISCHE SYSTEMENTWICKLUNGS GMBH, VIDEOCOM, IST-1999-20971  
 OAS DATIC SOFTWARE GMBH, IWOP, IST-1999-21148  
 OAS O.A. SCHWIMMBECK GMBH, IWOP, IST-1999-21148  
 ORGA DATA TEAM AG, COFURN, IST-2000-25183  
 PFISTER SYSTEMTECHNIK GMBH, SALESMAN, IST-1999-20134  
 PIXELPARK AG, FAIRWIS, IST-1999-12641  
 PONTON CONSULTING GMBH, OCTANE, IST-1999-20553  
 PONTON SOFTWARE GMBH & CO. KG, OCTANE, IST-1999-20553  
 PRESECURE CONSULTING GMBH, ECSIRT.NET, IST-2001-37558  
 PRODUTEC INGENIEURGESELLSCHAFT MBH, SABARECO, IST-1999-20488  
 PTV PLANUNG TRANSPORT VERKEHR AG, NETSTOCK, IST-1999-20773  
 RADIO BREMEN, SMARTCAST, IST-2000-26261  
 ROMANTIK-HOTEL MARKUSTURM, VDA, IST-1999-20937  
 ROTHENBURG TOURISMUS SERVICE, VDA, IST-1999-20937  
 RUDOLF SELDIS (GMBH & CO.) KG, SMART SME, IST-1999-20744  
 RUHR-UNIVERSITAET BOCHUM, RELAX, IST-1999-20827  
 SCHROEDER BAUZENTRUM GMBH & CO. KG, MEDIAT-SME, IST-1999-11570  
 SIEMENS AKTIENGESellschaft, EISPP, IST-2001-35200  
 SPHINX ELEKTRONIK GMBH, SMART\_USB, IST-1999-20323  
 SUEDEWESTSAECHSISCHES TUMORZENTRUM E.V., VIDEOCOM, IST-1999-20971  
 TLOH GMBH - THE INFRANET COMPANY, INFRANET, IST-1999-20836  
 TOP INTERNATIONAL HOTEL GOLDENESS FASS, VDA, IST-1999-20937  
 UNIQUE INFORMATIONSLOGISTIK GMBH, SABARECO, IST-1999-20488  
 UNIVERSITAET STUTTGART, JEWEL, IST-1999-20506  
 VASSILIOU GMBH, JEWEL, IST-1999-20506  
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 WADRA GMBH, SMART SME, IST-1999-20744  
 WIBU-SYSTEMS AKTIENGESellschaft, PAIDFAIR, IST-2000-29616  
 XTRAMIND SERVICES GMBH, PROTELEUSES, IST-1999-20852  
 YELLOWMAP AG, ELBA, IST-2001-36530

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AGRICULTURAL-FLORICULTURAL AND FARM ENTERPRISES KOSTELENOS SA., E-FLORA, IST-1999-21058  
 ALIKI KEFALOGIANNI LAW OFFICE, VIRTUAL WINERY, IST-1999-12665  
 ARCHIMEDIA A.E, CEBOS, IST-2000-29585  
 ATLANTIS CONSULTING SA, SMART2EAM, IST-2000-29325  
 DISABILITY NOW, LENSIS, IST-2000-26039  
 EMPHASIS SYSTEMS AE, CUTTING EDGE, IST-1999-21145  
 EUROBUSINESS S.A. ATHENS, JEWEL, IST-1999-20506  
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 I.T. SOLUTIONS S.A., LENSIS, IST-2000-26039  
 INCUBATOR OF NEW ENTERPRISES AT CHANIA, CEBOS, IST-2000-29585  
 INTRACOM S.A. HELLENIC TELECOMMUNICATIONS AND ELECTRONICS INDUSTRY, GENESIS, IST-1999-20521

LASKARIS, SMART SME, IST-1999-20744  
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 NATIONAL BANK OF GREECE S.A., FREE-G, IST-2001-36052  
 NETSMART S.A., THINK, IST-1999-21179  
 NETWORK OF THE INSULAR CHAMBERS OF COMMERCE AND INDUSTRY OF THE EUROPEAN UNION, DIAS.NET, IST-2001-35077  
 NEW EMPHASIS - ART AND MOTION,- INFORMATICS AND COMMUNICATION LTD., JEWEL, IST-1999-20506  
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 REGION OF THE NORTH AEGEAN, DIAS.NET, IST-2001-35077  
 RESEARCH CENTER OF THE ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS, CEBOS, IST-2000-29585  
 RODOS AIR, Know IT, IST-1999-56403  
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 UNIVERSITY OF THE AEGEAN, DIAS.NET, IST-2001-35077  
 VIORAL S.A. ALLUMINIUM-ZINC HIGH PRESSURE DIE CASTING, SMART SME, IST-1999-20744  
 VIRGO LTD., LENSIS, IST-2000-26039

#### Honduras

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#### Hungary

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 DELOITTE & TOUCHE HUNGARY LTD., MEDIA-ISF, IST-2000-29651  
 HUNGARIAN POST OFFICE LTD., CAPERS, IST-1999-20733  
 INNOVATEX TEXTILE ENGINEERING AND TESTING INSTITUTE CO., TELEMARA, IST-2000-28404  
 KANIZSANETT RUHAZATI KFT., TELEMARA, IST-2000-28404  
 MAGYAR TUDOMANYOS AKADEMIA SZAMITASTECHNIKAI ES AUTOMATIZALASI KUTATO INTEZET, BIDMED, IST-2000-28618  
 MAGYAR TUDOMANYOS AKADEMIA SZAMITASTECHNIKAI ES AUTOMATIZALASI KUTATO INTEZET, TEAMWORK, IST-2000-28162  
 MEMOLUX SZERVEZO FEJLESZTO ES SZOLGALO KFT., MEDIA-ISF, IST-2000-29651  
 MT-SYSTEM LTD., BIDMED, IST-2000-28618  
 PEMUE MUANYAGIPARI RESZVENYTARSASAG, INTELISHOE, IST-1999-20949  
 UNIVERSITY OF WEST HUNGARY, COFURN, IST-2000-25183

#### Ireland

DUBLIN INSTITUTE OF TECHNOLOGY, SMART-UP, IST-2001-34184  
 INTERNATIONAL SOFTWARE CONSULTING NETWORK LTD, MEDIA-ISF, IST-2000-29651  
 LINKIT 2000 IRELAND LIMITED. TRADING AS TECNET - THE TECHNOLOGY NETWORK, TEAMWORK, IST-2000-28162  
 MID WEST REGIONAL AUTHORITY, PRELUDE, IST-2001-32321  
 THE PROVOST FELLOWS AND SCHOLARS OF THE COLLEGE OF THE HOLY AND UNDIVIDED TRINITY OF QUEEN , SECURE, IST-2001-32486  
 TOLOGAR LIMITED, ELBA, IST-2001-36530

#### Israel

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 CELLCOM ISRAEL LTD., FREE-G, IST-2001-36052  
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 MOBILE ECONOMY LTD, FREE-G, IST-2001-36052  
 SHIRON SATELLITE COMMUNICATIONS (1996) LTD, SABARECO, IST-1999-20488

#### Italy

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 ASSOCIAZIONE EUROPEA PER L'AMBIENTE - TECNOPOWER - RICERCA SCIENTIFICA INFORMATICA, VISION, IST-1999-20529  
 ASSOCIAZIONE IMPRESA POLITECNICO, CUTTING EDGE, IST-1999-21145  
 BETA 80 S.P.A. SOFTWARE E SISTEMI, CUTTING EDGE, IST-1999-21145  
 C.F. SRL, KBEMOULD, IST-1999-20645  
 C.G.S. DI COLUCCIA MICHELE & C. S.A.S., INTELISHOE, IST-1999-20949  
 C.I.A.C. - CENTRO LEGNO ARREDO CANTU S.R.L., COFURN, IST-2000-25183  
 C.N.A. SERVIZI MODENA SOCIETA COOPERATIVA A RESPONSABILITA LIMITATA, BIDMED, IST-2000-28618  
 CEC - CONCURRENT ENGINEERING CONSULTING S.R.L., ACTIVE, IST-2000-26002  
 CERFREL - CONSORZIO PER LA FORMAZIONE E LA RICERCA IN INGEGNERIA DELL'INFORMAZIONE, OCTANE, IST-1999-20553  
 CENTRICA S.R.L., TRADEX, IST-1999-21031  
 CLERICI TESSUTO SPA, CUTTING EDGE, IST-1999-21145  
 CLG IMPIANTI SRL, PROVE-SME, IST-1999-20276  
 CLUSIT - ASSOCIAZIONE ITALIANA PER LA SICUREZZA INFORMATICA, EISPP, IST-2001-35200

CONSORZIO PISA RICERCHE, TRADEX, IST-1999-21031  
 COTECO S.R.L., ACTIVE, IST-2000-26002  
 COXA, PROVE-SME, IST-1999-20276  
 CYBION S.R.L., SMART2EAM, IST-2000-29325  
 DDP, CUTTING EDGE, IST-1999-21145  
 DEMOCENTER - CENTRO SERVIZI PER L'INNOVAZIONE SOCIETA CONSORTILE A RESPONSABILITA LIMITATA, BIDMED, IST-2000-28618  
 EFFEDUE CONSULTING SRL, THINK, IST-1999-21179  
 ENAIP SARDEGNA - ENTE ACLI ISTRUZIONE PROFESSIONALE, DIAS.NET, IST-2001-35077  
 ENGINEERING - INGEGNERIA INFORMATICA - S.P.A., TRADEX, IST-1999-21031  
 ENTE NAZIONALE PER LA PROTEZIONE DEGLI ANIMALI, LENSIS, IST-2000-26039  
 ETA SRL, PROVE-SME, IST-1999-20276  
 EUROPEAN COMMISSION - JOINT RESEARCH CENTRE, VIDEOCOM, IST-1999-20971  
 EUROSOLARE SPA, ACTIVE, IST-2000-26002  
 GIUNTI INDUSTRIE GRAFICHE - SOCIETA PER AZIONI, CHERI, IST-2000-28044  
 GIUNTI INTERACTIVE LABS S.R.L., CHERI, IST-2000-28044  
 GIUNTI MULTIMEDIA SRL, CHERI, IST-2000-28044  
 I. NET S.P.A., EISPP, IST-2001-35200  
 I.R.E.R. - ISTITUTO REGIONALE DI RICERCA AZIENDA CON PERSONALITA GIURIDICA, PRELUDE, IST-2001-32321  
 IMT S.R.L., ACTIVE, IST-2000-26002  
 INFOCAMERE - SOCIETA CONSORTILE DI INFORMATICA DELLE CAMERE DI COMMERCIO ITALIANE PER AZIONI, DIGISEC, IST-1999-20981  
 INNOVA S.P.A., SMART2EAM, IST-2000-29325  
 ISTITUTO CENTRALE PER IL CATALOGO E LA DOCUMENTAZIONE, TRADEX, IST-1999-21031  
 ISTITUTO NAZIONALE DI FISICA NUCLEARE (INFN), ECSIRT.NET, IST-2001-37558  
 LUISS LIBERA UNIVERSITA INTERNAZIONALE DEGLI STUDI SOCIALI GUIDO CARLI, FAIRSNET, IST-2001-34290  
 LUISS LIBERA UNIVERSITA INTERNAZIONALE DEGLI STUDI SOCIALI GUIDO CARLI, FAIRWIS, IST-1999-12641  
 MEDICA SRL, BIDMED, IST-2000-28618  
 MINISTERO PER I BENI E LE ATTIVITA CULTURALI - SOPRINTENDENZA ARCHEOLOGICA DI FIRENZE, CHERI, IST-2000-28044  
 NUOVA CAM SRL, PROVE-SME, IST-1999-20276  
 OMAR S.P.A., FAIRWIS, IST-1999-12641  
 OMEGA CUBE S.R.L., CHERI, IST-2000-28044  
 OMR DI REGGIANI MARCO E C. SNC, PROVE-SME, IST-1999-20276  
 PROBIO S.R.L., BIDMED, IST-2000-28618  
 PROGEL DI MIGLIORI CLAUDIO SNC, PROVE-SME, IST-1999-20276  
 RI.MOS S.R.L., BIDMED, IST-2000-28618  
 S. MARIA SRL, INTELISHOE, IST-1999-20949  
 SCALA GROUP S.P.A., CHERI, IST-2000-28044  
 SIGMA SOCIETA ITALIANA GESTIONE SISTEMA MULTI ACCESSO PER AZIONI, SMART-UP, IST-2001-34184  
 SINEURA S.P.A., E-PHARM UP, IST-2000-29419  
 SOCIETA ELETTRONICA PER L'AUTOMAZIONE SPA, ACTIVE, IST-2000-26002  
 SOCIETA PER I SERVIZI BANCARI - SSB S.P.A., C-TRAVEL, IST-1999-21014  
 SPACE ENGINEERING S.P.A., ACTIVE, IST-2000-26002  
 SPACE S.P.A., CHERI, IST-2000-28044  
 STAMPERIE DI LIPOMO, CUTTING EDGE, IST-1999-21145  
 STC COLENCO ENGINEERING S.R.L., ACTIVE, IST-2000-26002  
 TC SISTEMA S.P.A., E-PHARM UP, IST-2000-29419  
 TECNICA DUEBI S.N.C. DI BALLANTI ANGELO & C., KBEMOULD, IST-1999-20645  
 TURBOCOATING S.P.A., ETEMSOLUTION, IST-2000-28315  
 ULSTEIN ITALIA S.R.L. - SOCIETA UNIPERSONALE, ACTIVE, IST-2000-26002  
 UNIONE ITALIANA DELLE CAMERE DI COMMERCIO, INDUSTRIA, ARTIGIANATO E AGRICOLTURA, DIGISEC, IST-1999-20981  
 UNIVERSITA DEGLI STUDI DI BARI, FAIRSNET, IST-2001-34290  
 UNIVERSITA DEGLI STUDI DI FIRENZE, TRADEX, IST-1999-21031  
 UNIVERSITA DEGLI STUDI DI PERUGIA, KBEMOULD, IST-1999-20645

#### Japan

DIGITAL ARCHIVE JAPAN ALLIANCE, TRADEX, IST-1999-21031

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RIGAS DOMES FINANSU DEPARTAMENTS, HYPERKNOWLEDGE, IST-2000-28401

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LAW UNIVERSITY OF LITHUANIA, AEQUITAS, IST-2000-29569  
 STATE ENTERPRISE "LIETUVOS PASTAS", CAPERS, IST-1999-20733  
 STATE LAND CADASTRE AND REGISTER ENTERPRISE, AEQUITAS, IST-2000-29569

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EUROPE ONLINE NETWORKS S.A., CHERI, IST-2000-28044  
 KNOWLEDGE TECHNOLOGIES INTERNATIONAL (LUXEMBOURG) SA, KBEMOULD, IST-1999-20645

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MALTAPOST PLC, CAPERS, IST-1999-20733

#### Netherlands

DRIESSEN SPECIAALWERK HOLDING B.V., ETEMSOLUTION, IST-2000-28315  
 EUROPEAN JOURNALISM CENTRE, MEDIA-ISF, IST-2000-29651  
 HITECHNOLOGIES INDUSTRIAL AUTOMATION B.V., INFRANET, IST-1999-20836  
 LOST BOYS INTERACTIVE B.V., SMARTCAST, IST-2000-26261  
 M&I/STELVIO B.V., ECSIRT.NET, IST-2001-37558  
 PNO BEHEER B.V., SMART2EAM, IST-2000-29325  
 SCM MICROSYSTEMS NEDERLAND B.V., PAIDFAIR, IST-2000-29616  
 SITA INFORMATION NETWORKING COMPUTING N.V., C-TRAVEL, IST-1999-21014

#### Norway

A/S TIMMS RERBANE, SMART SME, IST-1999-20744  
 CYBERLAB. ORG AS, RELAX, IST-1999-20827  
 FILMWEB AS, FREE-G, IST-2001-36052  
 MOXY TRUCK AS, SALESMAN, IST-1999-20134  
 NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET NTNU, RELAX, IST-1999-20827  
 POSC CAESAR SERVICES AS, ISPPM, IST-1999-21112  
 PREDIKTOR AS, RELAX, IST-1999-20827  
 STOCKNET - ASTON SECURITIES ASA, FREE-G, IST-2001-36052

#### Poland

AGENCJA ROZWOJU MIASTA S.A. (MUNICIPAL DEVELOPMENT AGENCY CO.), VISION, IST-1999-20529  
 NAUKOWA I AKADEMICKA SIEC KOMPUTEROWA, ECSIRT.NET, IST-2001-37558  
 PO CZTA POLSKA, CAPERS, IST-1999-20733  
 VOIVODESHIP BOARD OF THE SILEZIA VOIVODESHIP, PRELUDE, IST-2001-32321  
 WYŻSZA SZKOŁA PRZEDSIĘBIORCZOŚCI I ZARZĄDZANIA IM. LEONA KOZMIŃSKIEGO, ENLARGE, IST-2000-29381

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CAMARA DOS SOLICITADORES, AEQUITAS, IST-2000-29569  
 CENTRO TECNOLÓGICO DAS INDÚSTRIAS TEXTIL E DO VESTUÁRIO DE PORTUGAL -CITEV, TELEMARA, IST-2000-28404  
 COMPANHIA PORTUGUESA DE TEXTÉIS, LDA, SMART SME, IST-1999-20744  
 CONSULGAL CONSULTORES DE ENGENHARIA E GESTÃO, SABARECO, IST-1999-20488  
 EMPRESA INDUSTRIAL SAMPEDRO, LDA, SMART SME, IST-1999-20744  
 FORDESI - FORMACAO, DESENVOLVIMENTO E INVESTIGACAO, S.A., SABARECO, IST-1999-20488  
 INESC PORTO - INSTITUTO DE ENGENHARIA DE SISTEMAS E COMPUTADORES DO PORTO, MEDIAT-SME, IST-1999-11570  
 IPF - INDUSTRIA PRODUTORA DE FIOS, S.A., SMART SME, IST-1999-20744  
 JOBARROS - INDUSTRIA DE MALHAS, LDA, TELEMARA, IST-2000-28404  
 LIMA & REZENDE, LIMITADA, MEDIAT-SME, IST-1999-11570  
 MACROFARMA EXPORT IMPORT, LDA, OCTANE, IST-1999-20553  
 PERUMA TEXTEIS - IMPORTACAO E EXPORTACAO DE ARTIGOS TEXTÉIS, LDA, SMART SME, IST-1999-20744  
 PRINTINOVA - PROJECTOS EM TECNOLOGIA E INOVACAO, LDA., SMART2EAM, IST-2000-29325  
 S.I.C.I. DI BRAGA - RESIEDADA DE INVESTIMENTOS COMERCIAIS E INDUSTRIAIS, S.A., TELEMARA, IST-2000-28404  
 SECRETARIA REGIONAL DE EDUCACAO, DIAS.NET, IST-2001-35077  
 TELEMANTENCAO - ASSISTENCIA REMOTA A COMPUTADORES, SA, THINK, IST-1999-21179  
 UNINOVA - INSTITUTO DE DESENVOLVIMENTO DE NOVAS TECNOLOGIAS, COFURN, IST-2000-25183

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 INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE IN INFORMATICA - ICI BUCURESTI RA, ENLARGE, IST-2000-29381  
 INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU TEXTILE SI PIELARIE- INCDDP - BUCURESTI RA - , INTELISHOE, IST-1999-20949  
 FILIALA BUCURESTI INSTITUTUL DE CERCETARI PIELARIE - INCALTAMINTE  
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