Sectoral e-Business Policies in Support of SMEs

Innovative approaches, good practices and lessons to be learned
Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs
Today the biggest driver of innovation is ICT. It has opened enormous possibilities for innovation, right across society. Its impact on innovation is the primary explanation for the higher rates of growth enjoyed by the US compared to the EU over the last decade. However, the latest developments - analysed in the recently published European Competitiveness Report 2007 - show that the European Union is starting to reverse the trend: the labour productivity gap between Europe and America shrank in 2006 after widening continuously over the last 10 years, and the EU’s real Gross Domestic Product (GDP) grew by 3.0% in 2006 - the highest growth rate since the year 2000.

We do not have room for complacency, however. Analysis shows that there is still a gap in total factor productivity - the part of productivity growth generated by intangible factors such as technical progress or organisational innovation. This explains why we need policies designed to foster technological progress, innovation and the use of ICT.

This need is pressing, in particular for European SMEs, which account for 99% of all European enterprises, contributing up to 80% of all employment in many sectors, such as textiles, construction, or furniture. SMEs are the ones suffering the most from limited understanding of ICT and its potential, and from limited skills. However, SMEs hold the key to innovation, mostly due to their lean and flexible structure, and their greater willingness to accept risk. ICT holds a tremendous potential for SMEs in particular, as it enables not only technological innovation but also innovation in business models, business networking, knowledge transfer and access to international markets.

Member States and DG Enterprise and Industry alike have recognised the challenge to reinforce e-business policies for SMEs, and have established the eBSN as an e-business policy coordination platform, to exchange ideas on how to support small businesses as they learn to exploit ICT. eBSN is a “policy intelligence” initiative, which supports policy analysis and benchmarking, shapes policy trends, generates synergies among national policies, and inspires new e-business policies. As a first step, eBSN confirmed a policy shift from sponsoring and co-financing ICT investments and internet connectivity towards instruments that stimulate SMEs to explore the innovation potential of ICT and e-business.

More recently, eBSN endorsed a new policy trend, the sector-specific policy approach for e-business. In other words, supporting SMEs to develop their e-business strategy in full cooperation with their business partners, namely their suppliers, customers or knowledge providers. Emphasis is given to the productive use of ICT by an entire group of enterprises that are involved in daily business transactions, either within the same sector or between interacting sectors. SMEs do not operate in isolation: they maintain complex business links with business partners, customers and providers, often from different industrial or services sectors throughout the world.

A wide range of e-business policies at European, national and regional level increasingly reflect this shift in policy. As we need to have a clearer idea of existing e-business policies, and of their objectives and the means used to pursue them, the current study was commissioned by the Commission. I trust its findings will contribute in further developing e-business policy attitudes and will inspire new ideas to promote ICT for SMEs and other European enterprises.

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About this booklet

This booklet summarises the results of the study „Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs“. The study compares and assesses different policy approaches and their respective strengths and weaknesses. The objective is to identify elements of good practice, in particular innovative practices in policy design and implementation, and common learning points. This way, the booklet aims at promoting the adoption of good policy practices in the field of e-business in Europe.

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Benchmarking Sectoral Policy Initiatives
In Support of e-Business for SMEs
In recent years, several EU Member States, including France, Germany, Italy, Portugal and Spain have launched initiatives to promote e-business exchanges within specific sectors. A key objective of these initiatives is to strengthen the participation of small and medium-sized enterprises (SMEs) in digital supply chains of larger firms.

Large companies are increasingly streamlining and integrating their procurement processes. Smaller firms in lower tiers of the supply chain risk elimination if they cannot comply with their customers’ technical requirements - with negative effects for regional or national economies. Policy initiatives aim to counteract this digital divide, arguing that intervention will create a win-win situation for all players and positive overall effects.

Strengths of a sectoral approach

A key question for this study was whether sectoral e-business initiatives were more effective than other programmes. A simple “yes” or “no” could not do justice to the complexity of the underlying topic. Initiatives with a sectoral focus are not necessarily successful or superior to other approaches. However, study findings suggest that sector-focused approaches in e-business programmes can certainly be recommended.

The 15 case studies presented in this booklet are in many ways innovative and contain several good practice elements and lessons to be learned. Their strength derives from two main advantages:

- the deliberate involvement of stakeholders, notably the strong commitment and support from industry associations; and
- their suitability for addressing advanced e-business goals (such as data exchange models for specific value chains), where there is inevitably a trade-off between depth and scope.

A sectoral focus is nevertheless neither a guarantee nor a condition for success. The decision to focus on specific industries must derive from the objectives of the initiative. Initiatives which focus instead on the deployment of specific ICT-based processes, irrespective of the sector, have also given rise to success stories.

The study also found challenges to the sectoral approach, in particular the typically cross-sectoral characteristics of value chains. Most SMEs trade with different sectors. ”Sectoral” projects therefore need to operate in two layers, with intra-sectoral nodes and cross-sector nodes. The harmonisation of data exchange models across sectors will probably be one of the key ICT-related issues in the future.
The essence of „e-business“ is the substitution of paper-based processes with automated or semi-automated digital processes. European support should continue to help SMEs develop this capability, which is crucial for participating in global supply chains. There is a role here for policy, as well as for business advisors, SME support networks, chambers of commerce and trade associations.

3. Focus on harmonising data exchanges - within and between sectors

Positive attitudes towards cooperation among SMEs should be encouraged. Cooperation in networks, at regional level or industry-specific, should be promoted. It is important, however, that these networks are coordinated and moderated by experienced, unbiased and ICT-neutral advisors. A good benchmark for manufacturing sectors in this respect is the tourism industry, where the joint marketing of whole regions has long become a commonplace.

4. Enhance knowledge sharing and cooperation

The complexity of more advanced e-business goals (e.g. value-chain projects) requires longer programmes with higher funding. To retain flexibility and adaptability to new developments, a modular approach is recommended (e.g. implementation in 2-3 phases). Several initiatives analysed in this study reported that the two-phase approach they used offered significant advantages.

Specific recommendations for future initiatives

It is recommended that sectoral programmes should continue, taking into account the cross-sectoral dimension, if necessary. In addition, the following specific points should be taken into account when planning e-business policies:

1. Recognise the importance of general management skills

The next generation of policy initiatives should focus more on the effective and efficient use of ICT and e-business among SMEs. Consideration should be given to enhancing non-technical ICT-related skills such as organisational planning and process management. Planning and decision-making on e-business strategies in SMEs is first and foremost the responsibility of the management, not of the IT department, even where one exists.

2. Ensure ease of participation – but demand documentation of results

Programmes should take great care to avoid complex administrative requirements which can discourage SMEs from participating - or even from applying. However, where SMEs benefit from a grant, they should share their experiences, documenting their projects, and including information on the challenges they faced and an assessment of the outcomes.

3. Focus on harmonising data exchanges - within and between sectors

The most suitable target sectors

Another question for this study was to assess which industries would be most susceptible to sectoral e-business support programmes, i.e. where those would be most effective. Many of the existing policies focus on manufacturing sectors, and in particular on the textile and automotive industries.

This is no coincidence. e-Business has great potential in manufacturing sectors with deep and well-structured supply chains, in particular if there is still substantial scope for ICT adoption (e.g. in the textile industry). Moreover, the use of standards for data exchange (such as electronic catalogues and transaction standards) is generally less advanced in manufacturing sectors than in, for instance, retail.

Specific recommendations for future initiatives

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6. Consider cross-border and European dimensions

All initiatives analysed in this study – with the possible exception of eSLOG (which has cross-border elements) – have a regional or national focus. However, as most of them deal with the use of internationally accepted standards for data exchange, the effects will not be restricted to exchanges within national markets. If a single e-business market is to be successfully developed, it is important to identify and address the issues that will make it possible.
A trend is evident towards larger initiatives that are more selective in their approach, but that pursue a replication of activities in different regions or sectors, based on a single chosen approach. These initiatives function at micro level, but under an umbrella of central coordination that aims at achieving replicable outputs and outcomes. Another emerging characteristic of these initiatives is increased responsibility of the participating organisations.

The innovative quality of policies targeting SMEs can be judged in terms of many different characteristics: the adopted approach, the targets, the promoted technologies, and the processes.

A sectoral approach shifts the policy focus away from strengthening individual participants and towards improvement of the competitive positioning at a higher community level - a geographical area, or industry sectors or sub-sectors. This inevitably raises issues of competitiveness among players. To overcome companies’ resistance, and to establish common systems among competitors, policy measures need to define new ways of approaching and involving beneficiaries. These innovative policy approaches are highlighted in this section. Innovation in technology and processes will be addressed in the subsequent sections.

A common feature of some of the policies analysed is the goal of establishing a „community of interest” among SMEs, able to work together, to communicate, and to spread new working practices to other players along the value chain, whether they are in the same industry or not.

Another good practice is leveraging the driving force of leading companies. This approach was taken, e.g. in DDTA and eSLOG. The rationale is that leading players in a sector or a region may act as catalysts in their value chain, facilitating the inclusion of other actors. Moreover, large players can more easily contribute to the technological developments and definition of standards that are of general interest for the industry.

Starting with pilot actions is another interesting approach. This is aimed at testing and tuning the policy mechanism so as to smooth the implementation on a larger scale, and to reduce the risks - as the DDTA and ALFA initiatives have demonstrated.
To reinforce this concept, the CANARIE initiative established a mechanism for royalty-based contributions: contract terms specify a repayment obligation based on sales. Another mechanism is displayed in the CITAX initiative, which required all participating companies to identify representative personnel, and to ensure their availability for the project. And another example comes from the B2B Pilot project, in which proposals were selected according to their impact on the sector, the expected outcome, and the potential to connect different sectors and overseas markets.

On the other hand, policy makers have – more often than in the past – proposed these policies as long-term initiatives that are likely to continue and becoming self-sustaining once the funded phase reaches its end. It can be argued that the sectoral focus facilitates the more general coordination of e-business measures with industrial policies.

In longer-term or even open-ended initiatives, a modular structure of the programme allows flexibility. The modular concept can be applied in a sequential or synchronous way: programmes can be implemented in various subsequent phases, or they can offer different types of services in parallel. Both approaches facilitate the adaptation to new requirements.

These two initiatives also highlighted the combination of top-down and bottom-up approaches, with central management controlling regional or local deployment. This practice is particularly valuable whenever measures are to be applied to the same sector but in areas or districts with strongly distinct local features. Central coordination increases the efficiency of the action, avoids duplication of efforts, facilitates collaboration with international stakeholders (e.g. in standardisation), and increases the possibility of replicating the initiative. At the same time, bottom-up regional implementation ensures close links with target beneficiaries and the provision of services tailored to customers’ needs. Although this concept may appear obvious, it has not always been applied properly in the past.

In most of the policies, a high degree of commitment was required from participating organisations, through mechanisms such as stricter selection criteria. It is increasingly a matter of general practice that candidates have not only to meet selection criteria in terms of passive selection, but also to respond to invitations to present their own plans and projects.

Good practice examples in selecting committed participants are the CANARIE, Logistics Metrics, DDTA and PROZEUS initiatives. In these cases, once candidate companies had passed the first selection, they were asked to prepare a business plan covering their participation in the project, and these business plans were then evaluated by external experts. This led to the weeding out of many projects, but at the same time ensured reliability and sustainability over time of the projects included.

In the Digital Netherlands initiative (see p. 49) successfully uses a kind of “cafeteria model”, which, broadly speaking, could be equated with a modular programme. Instead of a monolithic construction, services are offered as a broad suite of stand-alone programmes, permitting participants to select those that best fit their needs.

The Digital SME programme in Portugal (see p. 57) was split into two phases, each with specific objectives and activities. During the first phase, sector-specific support networks were established for reaching a large group of firms; in the second phase, projects specific to firms were supported at three levels of e-business sophistication.
Gaining from networking – involvement of stakeholders and links with other initiatives

Case studies confirm the important role of local networks for promoting policies and disseminating results. Sectoral focus facilitates the involvement of stakeholders at several levels. This is likely to have an important impact on the results if measures are applied on a larger scale.

Relying on existing networks for service delivery and promotion is commonly recognised as a good-practice element in the design and implementation of e-business policies. Previous analyses also pointed out that public/private partnerships are an efficient and effective way to implement policies.

The possibility of gain from networking was a component of many of the policies analysed here. The sectoral focus is a facilitator in this respect, as it “naturally” drives the involvement of stakeholders and experts with sectoral background and reputation. It also makes it easier to involve industry associations and chambers of commerce in the promotion and dissemination phase. These organisations often play an important role as intermediaries, for example in resolving conflicts of interest or removing concerns about competition.

Good practice examples

The ALFA initiative in France successfully leveraged “regional leadership”: implementation has benefited from the active involvement of local/regional promoters who are well connected with regional business networks and have good contacts with CEOs or owners of the targeted SMEs. These local “ambassadors” managed the regional implementation of ALFA projects.

Other relevant players were ICT providers, many of whom had sector or cross-sector specific know-how and expertise and could significantly contribute to the development of the technological solutions.

In some cases, the initiatives analysed were aimed at involving all the key players along the value chain addressed, including suppliers, customers and different kinds of service providers.

The CITAX initiative in Ireland (see p. 41), an industry-led initiative in the construction industry, aims at standardising exchange practices among all players in construction projects - architects, designers, manufacturers and suppliers of building materials, as well as IT providers. This is a recognition of the need for a sector-wide approach, as individual firms are limited in their ability to innovate without co-operation from the “construction community”.

In Slovenia, the eSLOG initiative (see p. 61) aimed at specifying document standards for B2B e-commerce in Slovenia, with special consideration of SME needs. This required a long consensus-building process among many private- and public-sector stakeholders. To achieve consensus, the consultations sometimes lasted several months; however, once targets were agreed upon, their execution was simple and fast.
Another interesting feature of the sectoral policies is that they succeeded, probably more often than non-sector-specific ones, in cooperating at an international level, especially in the field of standardisation. They also generated results at a more general level - for example in establishing and maintaining links with external partners and shareholders, including regulatory, standards, legal, safety and environmental authorities.

Several initiatives demonstrate how to successfully involve and network with research organisations. It is widely recognised that the knowledge transfer from universities and research centres to SMEs is an important driver and enabler of innovation; the critical factor is to establish the right platforms and channels that enable this transfer.

**Good practice examples**

The buildingSMART initiative in Norway (see p. 53), which focuses on ICT usage in the construction industry, is supported by research organisations and academic institutions such as Sintef Byggforsk (SINTEF Building and Infrastructure) and NTNU (The Norwegian University of Science and Technology). These organisations not only contribute expertise and project resources, but also support the dissemination and promotion of activities through their own networks.

An innovative feature of the Finnish VERSO technology programme (see p. 17) is the internationalisation of the business activities of Finnish companies. VERSO supports firms’ growth beyond their regional and national domains and opens their business towards the global market, not only to increase the export of their products and services, but also to foster international cooperation.

The concept of the German TASK pilot projects (see p. 33) – to work on architectures for “software supply chains” – is rooted in work of the regional research association PRIMIUM, which brings together about 20 universities, research organisations and companies in Baden-Württemberg. The project was well embedded within the regional technology transfer programmes and networks.
The policy initiatives analysed have in most cases effectively reached their target groups, including SMEs, associations and other relevant intermediaries. The right communication strategy can be decisive, particularly in involving stakeholders external to the industry community. The apparently narrow focus of the policies (limited to one or a few sectors) helped to achieve broad objectives. In particular, it made it possible to work cooperatively on practical operational issues (such as standards and the agreement on exchange practices) that can be transferable for use more broadly.

In policy initiatives, communication is essential both for managing the initiatives (internal communication) and for involving relevant stakeholders and beneficiaries (external communication). A common – good – practice among many of the initiatives was the management of awareness and communication activities both centrally (through involvement campaigns, the initiative’s website, links with other initiatives and external bodies) and locally (through involvement of local promoters, beneficiaries, and the organisation of business events).

Internal communication and a strong relationship between central management and those in charge of local implementation are important to efficiency. This holds true in particular when numerous players are involved and when the policy is implemented at two levels, typically a central coordination level and a local implementation level. Effective project management was a key success factor.

The effectiveness of external communication can be assessed on several criteria. For direct beneficiaries, communication activities not only increased awareness among members of the business community, but also served as examples of novel practices, tactics, and ways of doing things which SMEs can later adopt in their own business.

The most important elements highlighted by this analysis are: the involvement of other sectoral stakeholders, and the related consideration of management of various communication channels. Intensive and selective involvement of the right people is often a success factor. Digital NL, for example, was effective in exploiting the network of industry associations, chambers of craft and commerce, and events. PROZEUS, TASK and Digital NL actively sought participation in sectoral fairs and events for communication purposes.
Another important feature of the sectoral e-business policies analysed is that they successfully communicated with and raised interest among relevant stakeholders outside the industry. If policy goals are focused and clear, these initiatives can involve and benefit from external players, such as legislation and standardisation bodies and suppliers and customers in the sector chain.

PROZEUS again provides an interesting example here, as large retailers became involved and exerted positive pressure on small manufacturers to use standardised data and tools. Similarly, the experience from eSLOG confirmed that market pressure on companies is a more effective way to promote e-business standard that using pure awareness-raising.

The exchange and dissemination of best practices (and of learning points from less successful projects) also emerged as a best practice element that benefits the community at large. This is crucial for expanding the range of potential beneficiaries, as cultural constraints and inhibitions can thus be overcome.

**Good practice examples**

The German PROZEUS initiative (see p. 29) is an outstanding example in its focus on showcasing SME e-business projects. The projects are not only documented in detail on the initiative’s website (www.prozeus.de), a possibly unique source of unbiased information about e-business projects; they are also presented at events, and, whenever possible, by senior representatives of participating firms themselves. PROZEUS also cooperates with multipliers (e.g. the competence centres) in the wide dissemination of good practice examples and lessons learned.
Improving business processes – how individual companies benefit

There is probably no better inducement to ICT investment among SMEs than the demonstration of concrete, well documented and plausible success stories from peers. Unfortunately, the documentation of e-business projects conducted in many policy initiatives is still poor, although there are some notable exceptions. Initiatives that monitored and assessed the outcome of their activities can provide convincing evidence of effects that are largely positive. In other words, investments in ICT provide attractive returns for SMEs more often than not, either by supporting their growth or by helping them to cut costs. The selection and implementation of standards in business processes is often a critical success factor. The challenge for policy initiatives is to enlarge their impact from companies that benefit from grants to the wider business community.

Companies use ICT and e-business mainly for three purposes: to reduce costs, to better serve the customer, and to support growth (e.g. by increasing their market reach). In essence, all e-business projects of companies explicitly or implicitly address one or several of these objectives. In almost every case, e-business introduction can be regarded as an ICT-enabled process innovation. Understanding one’s business processes, and improving them (be it to save costs or to improve service quality) is therefore the key underlying issue in most projects.

e-Business policy initiatives, then, support companies in achieving related goals, either by directly providing support to individual firms, or by addressing framework conditions. This section looks at the effectiveness in this respect of the initiatives analysed, and summarises the main learning points.

A challenge in this context is that the empirical evidence on the impact of e-business implementation projects is generally poor. Many initiatives that provide grants to companies pay little or no attention to the evaluation and documentation of the outcomes and the challenges experienced. This neglect is a mistake, because the information is essential for a better understanding of success factors and for optimising the design (and effectiveness) of similar initiatives in the future.

In addition, investments in ICT-enabled process improvement must increasingly be justified by demonstrable payback within acceptable timeframes. A good-practice element is therefore to assess or even measure the return-on-investment, with documentation of project results, which can then be used as show-cases. Several initiatives reported that showcasing effects are even more pronounced if delivered in a peer-to-peer context (e.g. ALFA, PROZEUS).

Good practice examples

Several initiatives presented in this booklet are benchmarks when it comes to documenting SME e-business project results, and to linking this process with the provision of grants.

The French ICT-SME 2010 initiative (see p. 21), for instance, is strictly results-oriented. The French Ministry supports industry projects on condition that their results will impact the competitiveness of SMEs and the overall economic sector. The programme manager explains: „Of course, there is no certainty whether a project will really have an impact, at least not before it is completed. However, it is possible to prevent a project that is not effective from starting at all, or at least from going too far when there are indications of ineffectiveness.“ To this end, milestones were defined for each selected project. The funding of subsequent project phases is delayed or even cancelled if the requirements are not met.

In the PROZEUS initiative (see p. 29), the rigorous documentation of lessons learned and project outcomes was a central condition for receiving a grant.

A special case is the Canadian Supply Chain Logistics Metrics project (see p. 69), where the key project goal was establishing a benchmarking method for assessing supply-chain efficiency.
It is broadly recognised that e-business initiatives require a differentiated approach depending on the target group’s e-maturity. While many of the earlier initiatives focused on „starters“ with little or no ICT experience, particularly in technologically less advanced economies, more recent policies exhibit a trend towards focusing on more advanced and motivated SMEs. These companies typically have a more positive attitude towards ICT and „know what they want“, i.e. they have clear business objectives with regard to ICT. Focusing support measures on those firms constitutes a strategic shift, from addressing weaknesses, to reinforcing existing strengths. This increases the efficiency of activities, as less effort is needed for convincing companies of the usefulness of ICT. Instead, resources can be directed towards the realisation of projects. Initiatives which confirm this approach are ALFA, and Digital Future - which is the continuation of a preceding initiative, but turned towards more advanced SMEs. The concept is that the programme can help these emerge as pioneers and trigger a follow-on effect.

A differentiating feature is whether initiatives focus on promoting the deployment of existing e-business solutions, on the adaptation of solutions for SMEs and processes for specific purposes, or on the development of new services (e.g. in DDTA and VERSO). None constitutes a best practice per se, as the effectiveness of the method depends heavily on the specific background and context. Moreover, a combined approach is possible, for example when it comes to decisions on standards and processes. The eSLOG initiative in Slovenia is a successful example. Here, a national standard for e-invoicing was developed in line with the requirements of the SME-dominated economy; however, the success derived from selecting a globally accepted standard (GS1 EANCOM) and simplifying it. This ensures compatibility with international business.

The initiatives confirm that addressing standards and interoperability is of paramount importance to get SMEs digitally connected within their supply chains. Work on standards, awareness-raising and the provision of information to companies (e.g. guidelines for the selection of standards) constitute central elements in many of the initiatives (e.g. PROZEUS, buildingSMART, ICT-SMEs 2010).

While recognising the importance of standards in e-business initiatives is no longer merely good practice, but a necessity, an important learning point is that information campaigns should adequately address business managers. This requires the preparation of information material in „executive summary“ style, targeting time-constrained decision-makers. Managers can be helped to understand which decision they have to take by well-structured guidelines and introductions which explain underlying concepts without excessive technical detail, and make recommendations for specific purposes. In particular when working with smaller companies, often without a dedicated IT department, it is vital to address the owners or managers efficiently. This matches the earlier finding of the 2005 benchmarking study that „(…) the adoption of e-business applications needs to be determined by the overall business strategy of the company, calling therefore for an integration of e-business in the overall management practices,” which should be reflected by the communication and implementation strategy of respective policy initiatives.

Another learning point is that it can be more effective to focus on the deployment of specific processes or ICT applications rather than aiming at promoting e-business in the broadest sense. There is greater impact when initiatives go into more detail and address challenges – technical, organisational and legal – more specifically. (This is, by the way, also an argument in favour of sector-specific approaches). The impressive success of several e-invoicing initiatives throughout Europe (the Slovenian eSLOG initiative reported in this study replicates elements of similar initiatives in Finland) appears to confirm this assertion. Another example is the CITAX initiative’s focus on five processes that are particularly relevant in construction projects.
Several of the initiatives aim at harmonising data exchanges between players in different segments of a sector’s supply chain. The objective is to bridge the digital divide by supporting smaller firms in meeting the requirements, so that they are not excluded from digital supply chains. Significant challenges need to be addressed in this context, requiring time and adequate resources: initiatives typically have a larger scale than earlier awareness-raising policies. The most innovative policies recognise that this requires a cross-sectoral approach, since smaller firms in tier-n typically deal with customers from different industries. Excellent project management, involving coordinators that are broadly accepted by the target groups, is a critical success factor. The initiatives also confirm that technical innovation in SMEs goes hand in hand with organisational innovation, requiring „soft skills“ e.g. in change management.

A key objective in many of the sectoral initiatives is to enhance SME participation in digital supply chains, in order to strengthen the regional economy. Large companies are increasingly streamlining and integrating their procurement processes; small firms in lower tiers of the supply chain that are not capable of complying with technical requirements of their customers (e.g. tier-1 suppliers) risk being eliminated from the supply chain.

Policy initiatives such as ALFA and ICT-SMEs 2010 aim to counteract this digital divide, with a view to strengthen the competitiveness of SMEs in the target area of the initiative. The strategic approach of those initiatives, and probably a key success factor, is to be able to create a win-win situation for all players involved, i.e. not only for small firms. If more companies can exchange data electronically based on agreed standards and processes, buyers and sellers will both benefit. In particular, large manufacturers that maintain B2B exchanges with a large number of business partners will benefit from improvements in the overall e-maturity in their supply chain. Moreover, as the ALFA initiative demonstrates, the quality of customer service cannot be separated from the quality of supplier relationships.

Since most of the initiatives presented in this booklet are recent and even still under way, it is challenging to assess their wider impact on sectors or regions. However, some conclusions with regard to promising approaches and facilitators that help to achieve the intended effects can be drawn. First, there is a trend towards larger and longer-term initiatives, often with a duration of more than five years. The scope of policy initiatives has arguably widened by comparison with the awareness-raising programmes and grant schemes of earlier years. This is necessary, considering the increased complexity of the objectives and activities, often involving numerous organisations and stakeholders.

In the CANARIE programme, for example, which ran for eight years, a key component was the requirement that each industry consortium submitting a proposal had to develop a five-year business plan addressing the sustainability of the proposed project. The largest initiative presented in this study, the Sectoral B2B Networks initiative in Korea, has been operational since 2000, with
The biggest challenge is probably convincing firms that they have to introduce organisational changes, which, in some cases, may question the way they have been doing business for many years. Several of the initiatives highlighted this issue, e.g. Sectoral B2B Networks and ICT-SMEs 2010.

Another challenge is the structural complexity of supply chains, particularly for companies producing components used in different industries. This requires a cross-sectoral approach and coordination, particularly if different systems or standards are used in the sectors concerned.

At first sight, this appears to challenge the whole idea of „sectoral initiatives” at the heart of this study. In fact, it does not. The consideration of sectoral specificities in e-business networking projects is absolutely critical. It is therefore important to analyse the value-chain characteristics (e.g. types of exchanges, players involved, standards used) prior to – or as a first step in – designing and implementing specific network projects. Cross-sectoral requirements can then be identified and addressed.

Due to the complexity of such cross-sectoral initiatives, a key success factor is that the project leader is representative, legitimate and recognised by all related sectors. Without achieving broad consensus among the relevant players (prime contractors, OEMs, subcontractors) in the sectors concerned, harmonisation of data exchange models is scarcely possible. In addition to recognition of project leaders, strong central project management was also found to be important. Conflicts of interest cannot be avoided in complex projects where many stakeholders have to agree on common processes and standards, so it is important that working groups and other joint activities within the project are coordinated by experienced, neutral third-party moderators.

A good practice which is increasingly considered is to hold projects accountable, in the sense that the impact of large-scale networking projects on the productivity of firms and the sector as a whole must be clearly demonstrated already in advance in order to receive grants (see, for example, ICT-SMEs 2010).

Another important success factor for supply-chain-oriented initiatives (besides scale and scope) is the participation of large enterprises, as they are normally key nodes within „their” chain. Ideally, policy initiatives will leverage their role. Large firms have an interest in exerting pressure on tier-1 suppliers to enable electronic data exchange, not only in direct exchanges, but also upstream within the different segments of the supply chain. Tier-2 companies will then pass on the concept to their own suppliers. Policy should act as a moderator and SME ambassador in such processes, trying to ensure that agreements are fair and do not consider only the large firms’ requirements.

While the overall objective and concept are quite clear, the operational implementation of such initiatives is confronted with significant challenges. First and foremost, it is not enough to acquire hardware, software and standards (i.e. upgrading ICT infrastructures in numerous companies); it requires organisational innovation.

a total funding of about €83 million, which demonstrates that substantial resources (and some patience) can be required to create momentum and critical mass. By contrast; some of the shorter and smaller initiatives reported inadequate resources as a major problem in accomplishing their goals (e.g. TASK).
VERSOS – Vertical Software Solutions (Finland)

**Best practice elements**

- **Opening up a global dimension:** Beyond support at home, the initiative gives Finnish companies access to new, international innovation centres (e.g. in Eastern Europe, Asia) through provision of networking services.

- **Two-step sector approach:** Through SMEs in the software industry sectors (primary target group), companies in any of their customer sectors can benefit from the initiative.

Verso is a market-based technology programme of Tekes, the Finnish Funding Agency for Technology and Innovation. Its main objectives are to enhance the digitisation of business processes, and to promote expertise in business activities and internationalisation.

It generates customer- and market-oriented software products, collaboration and services for cooperation and trade.

Verso offers participating companies access to Tekes’ international network services. It also facilitates international research cooperation, and provides partners from abroad a gateway to the key technology players in Finland.

**Background, objectives and resources**

**Background and objectives**

Innovation is vital for the economy and society; research and development help to create new companies, businesses and services. Finland is one of the most research-intensive countries in the world, with R&D investments of about 3.5% of the country’s GDP.

Verso, one of the technology programmes of Tekes, is a market-based technology programme. By improving the digitisation of business processes and promoting business expertise, it aims to promote substantial growth (10-30% annually) in the international business operations of participating software businesses. It also aims to increase the activities of Finnish software SMEs by widening the focus of their business activities to the customer-sector software market, and by enhancing the international business expertise and networks of participating companies.

On a higher level, Verso intends to create value by combining expertise on sectors, businesses and software in new and innovative ways, and to promote customer sector-specific clusters through networking.

The programme has dual targets. First and foremost, the programme is designed for the Finnish software industry. Secondly, the companies that are the end users also stand to benefit from the programme’s promotion of R&D within specific application areas and sectors. In 2007, the R&D focus is on developing applications and services in the finance, trade, construction and games and entertainment sector.

**Profile**

- **Approach:** Large-scale programme with a strong international component, promoting e-business through the software industry
- **Sectors addressed:** Software, finance, trade, construction, data management, games and entertainment, bio and medicine, traffic and logistics; the programme can cover any market sector
- **Duration:** 2006-2010
- **Funding:** €56 million from Tekes
  - €64 million from participating companies
- **Contact point:**
  - Mr Keith Bonnici (Programme Manager), Tekes.
  - Tel.: +358 1060 55777; e-Mail: keith.bonnici@tekes.fi
  - Ms Marit Tuominen (Programme Coordinator), PROFict Partners Ltd.
  - Tel.: +358 400 810 018; e-Mail: marit.tuominen@profict.fi
- **Website:** [http://www.tekes.fi/verso](http://www.tekes.fi/verso)
From 2007-2008 onwards, Verso will extend its activities to other user sectors - with energy, forestry, healthcare and the public sector currently under consideration.

**Resources**

The budget for VERSO in 2006-2010 is about €120 million. Tekes is contributing €56 million, and the remaining costs are covered by companies participating in the programme. Funding is provided in the form of grants, capital loans and industrial loans, or combinations of these. Differing funding methods can be combined in a single project.

**Activities and results**

**Activities**

A key aspect of Verso is the provision of individual consultancy services to help companies in the programme to grow and internationalise their business. Joint activities in the form of clusters for participating software companies similarly aim at internationalisation and growth. Verso organises seminars (such as the Verso Software Summit 2007), round tables etc. to support and share knowledge on important themes related to growth and internationalisation. Tekes also actively informs the participating companies about other services, funding etc. which might be helpful for them.

The following action lines characterise the implementation phases of each project funded under Verso:

- **Activation**: promoting the programme to stakeholders, by means of seminars and networking events etc.
- **Solutions development**: development of e-business solutions by the participants, and subsequent commercialisation accompanied by Tekes consultation.
- **Networking**: interfacing through joint events with other Tekes activities related to software business.
- **Business development**: joint business development programmes in areas such as business expertise, internationalisation, new business models, or quality of software solutions, and for different customer sectors.
- **Surveys**: surveys for selecting new customer sectors, e.g. the public sector (i.e. e-government), energy, forestry, or the machine and metal industries.

**Project example: DynaRoad 4**

The aim of the project is to develop an industry-specific international software and service product for earth-moving and heavy construction experts. DynaRoad is a project management tool as well as an instrument for planning and optimizing the mass balance and economics of construction projects. Before the start of construction work, the software is used for design optimisation and creation of cost-optimized mass haul plans. During construction work the software is used to control, monitor and forecast activities at the site. Actual work volumes are compared to the plan and the effects of possible deviations of production rates, mass hauls etc. on the project are analysed.

Up to 65% of the costs of road construction projects are related to earthworks, and DynaRoad was developed to optimise these costs. Verso is financing the development of a new DynaRoad release, for which specifications were finalised and coding and testing activities had begun by August 2007. DynaRoad Oy considers Verso far better than previous Tekes programmes: it supports the development of new software products and solutions, it helps SMEs to market them at national and international level, and it provides companies with high-level consultancy services.
Outcomes

In the year that Verso has been running, it has funded more than 50 projects - relating to both research and enterprise. Most projects concentrate on user sectors, while others have a vertical focus or address other issues. Eight enterprise projects have been completed.

Some of the companies that participated in completed projects have already taken significant steps towards internationalisation, selling their products to major domestic or international customers, or starting pilot projects. The products and solutions already developed represent a significant competitive advantage for software companies, which can now offer additional functionalities that are adaptable to some of the many challenging communication and research tasks in the public and private sectors.

In general terms, participating companies have benefited in terms of enhanced research capabilities and skills development, increased competitiveness and business internationalisation. The progress and implementation of the projects was positively influenced by active cooperation with the consulting team in individual dealings with each participating company.

Conclusions

The Verso initiative is still at an early stage, and wider impact is expected to emerge. Already, competitiveness and cooperation at the national and international level have been enhanced among the participants of the projects already concluded.

The international aspect is central to Verso’s innovative character. As a national policy addressed to Finnish SMEs, it supports the improvement of their competitiveness and helps them to move beyond their regional and national domains into the global market. The services of the international Tekes network have helped them gain a foothold in strategic innovation centres in growing markets such as Shanghai and St Petersburg. Tekes is reinforcing this international approach with flanking measures, such as signing agreements on research and technology cooperation with three of the most important regions in China. These agreements will provide Finnish companies with improved access to networking and cooperation with top Chinese researchers and enterprises.

Lessons to be learned

The Verso Technology Programme provides some interesting lessons:

Customised consultation: Verso offers participating companies active support in their project development by supplying them with individual consultancy services and information.

Market-oriented approach: Because all projects within the programme are based on proven customer needs, they impact on companies’ business as a whole and not only on R&D.

International cooperation: Through mutual cooperation with major international partners, Finnish companies can strengthen their international ties and produce better results.

Transparency of objectives and ease of participation: The entire Verso initiative follows clear objectives and has a straightforward implementation plan, making it attractive for SMEs to participate.
Facilitators

The possibility offered to participating companies to use the services, infrastructure and resources of Tekes’ international network and of other stakeholders involved in the policy, and regular individual consultancy services for companies.

The adoption of the sector-specific cluster model in supporting growth and internationalisation of companies. The programme is market-oriented and all projects within the programme are based on proven customer needs.

Barriers

So far no major barriers have been identified. Tekes is implementing the programme so as to maximise the advantages for participating companies, and especially for small enterprises; which often lack financial and human resources to increase their activities.

As far as the participating companies and their projects are concerned, barriers or weaknesses can mainly be found in relation to the solutions they are developing and, in some cases, also in difficulties experienced in the management of their international activities. The size and cultural constraints of SMEs sometimes hinder their emergence from a purely local dimension. The Verso technology programme offers individual consultancy to help overcome these barriers.

Strengths

- **Clear targets**: Clear objectives and specific targets have helped maintain focus and promote joint work.
- **International networks**: The availability of the consolidated international network of Tekes and of other participating organisations contributes to the internationalisation of the business of participating Finnish software companies.
- **Use of the cluster model**: Focusing on sector-specific clusters permitted progressive selection of sectors and step-by-step approaches to specific companies.

Weaknesses

- No major weaknesses have emerged so far.

Acknowledgements

Research and interviews for this case study were conducted by Databank (www.databank.it). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The ICT-SMEs 2010 Action Plan aims at the integration of small and medium-sized enterprises in industrial supply chains, which are typically dominated by large enterprises. It supports projects in selected sectors of the French economy, focusing on harmonising the exchange models used by companies in a chosen sector.

The policy initiative has three main objectives:

- to support the implementation and use of common ICT tools in companies belonging to the same sector in order to create „digital supply chains” (based on models deployed in the aircraft and car manufacturing sectors).
- to improve interoperability across different sectors between the tools developed.
- to provide local technical assistance to SMEs, supporting organisational changes and helping them to integrate ICT into their internal processes and data exchange with suppliers and customers.

The main expected outcomes are agreements at cross-sectoral level to optimise production and supply-chain processes.

**Best practice elements**

- **Innovative approach**: a cross-sectoral approach to harmonising data exchange models, recognising that many SMEs are sub-contractors to firms from different industries
- **Broad stakeholder involvement**: strong support from all relevant stakeholders and from both the private and public sectors
- **Inherent consensus-building process**: The long negotiating process for selecting one significant project by sector compelled stakeholders to agree on a common project.

**Background, objectives and resources**

**Background and objectives**

SMEs are at the centre of the industrial sphere as drivers of innovation and creators of new jobs, and they are a determining factor for prime contractors’ competitiveness. To fulfil this role, it is crucial that SMEs adopt and use ICT in B2B exchanges. A major opportunity to enhance the competitiveness of production processes and supply chains presents itself with the digitisation and harmonisation of SMEs’ data exchange models. However, ICT investment, especially by SMEs, is considered insufficient in France.

**Profile**

<table>
<thead>
<tr>
<th>Approach:</th>
<th>Initiation of supply-chain projects in different sectors, aiming at a harmonisation of data exchange models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sectors addressed:</td>
<td>Cross-sectoral (including clothing, watch-making, mechanical engineering, aircraft and aerospace, agriculture, fisheries, transport, manufacturing industries, public works, construction, logistics)</td>
</tr>
<tr>
<td>Duration:</td>
<td>October 2005-December 2010</td>
</tr>
<tr>
<td>Funding:</td>
<td>~ €10 million from the French Ministry of Economy, Finance and Employment</td>
</tr>
<tr>
<td></td>
<td>~ €5 million from FEDER funds</td>
</tr>
<tr>
<td>Contact point:</td>
<td>Mr Marc Moreau, Ministère de l’Economie, des Finances et de l’Emploi (MINEFE), Direction Générale des Entreprises; 139, rue de Bercy, 75012 Paris, France. (<a href="mailto:marc.moreau@industrie.gouv.fr">marc.moreau@industrie.gouv.fr</a>)</td>
</tr>
</tbody>
</table>
Against this background, the French Ministry of the Economy, Finance and Enterprises launched the ICT-SMEs 2010 Action Plan, with the aim of harmonising data exchange models within and between sectors, based on global technical standards such as ebXML and GS1.

This initiative builds on successful initiatives in previous programmes such as Utilisation collective d’Internet pour les PME (UCIP) and in several industrial sectors, in particular the automotive and aircraft industry.

Emphasis was placed on appointing project leaders who are representative and recognised by all sectors participating in a project. The harmonisation of data exchange models requires consensus among all players in a value chain, including prime contractors, original equipment manufacturers and subcontractors.

The primary targets of the Action Plan are small and medium-sized enterprises (i.e. firms with up to 500 employees) from selected sectors. By extension, however, targets also include companies from other sectors which indirectly participate in the global production processes of the direct target sectors.

**Resources**

Contributions by the French Ministry of Economy, Finance and Employment amounted to about €15.3 million, including FEDER funds, for 2006-2010. The major part of this budget was used for funding the selected projects.

**Activities and results**

**Activities**

To support SMEs climbing the „e-maturity ladder“ towards digital business ecosystems, the ICT-SMEs 2010 Action Plan:

- supports projects led by professional organisations and/or prime contractors for a given sector of activity;
- supports innovative and advanced forms of ICT usage;
- provides grants to project owners (for project management, developing specifications, launching a call for tender, acceptance tests, communication of project results);
- coordinates activities and projects and offers a platform for exchanging information across sectors and projects.

The first call for project proposals (issued in October 2005) was a success, with 76 proposals received from 26 industrial and services sectors. In May 2006, the DGE (General Directorate for Enterprises) selected 48 projects, covering 17 specific sectors, with an additional support project for information exchange, coordination and consistency of standardisation among the projects. The second call for projects was issued in late 2006 and the selection process ended in July 2007. Six projects were selected during this call for projects.
The third phase targets companies at the local and regional level in France. It promotes the adoption of ICT solutions, and offers training to teams which disseminate standardised data exchange formats within companies. A regional call for projects will be issued by the end of 2007, and projects will run until the end of 2010.

Project example: TICIO (Standard TIC Inter-Opérable) / FIEN (Filière des Industries Electroniques et Numériques)

Many SMEs in the electronics industry work with customers from different sectors which lack common and homogeneous standards for data exchange. This hampers efficient business processes and impedes competitiveness.

This project aims to facilitate ICT integration in the vertical logistics and supply chain of companies from the electronics industry, down to tier-5 subcontractors, via the „mutualisation“ of tools and systems. Implementing interoperable standards should facilitate data exchanges within the supply chain. It should also strengthen the integration of SMEs into networks, by helping them to deal better with customers: low added-value tasks can be reduced by conducting business via extranets and customer portals.

Outcomes

Major expected outcomes are definitions of models of data exchanges within the value chain, and harmonisation of business processes within the sectors addressed. This should make it possible to specify a stable architecture for data processing and exchange. It is expected that 20-30,000 SMEs will be interconnected by 2008. The objective is to have 100,000 interconnected SMEs by 2010, when all three phases have been implemented. If this can be achieved, and once the architectures have been standardised, it should be easier to define a software solution that matches SMEs’ needs and requirements. For SMEs, the risks linked to ICT investments will become more acceptable because they can be anticipated.

Lessons to be learned

Broad involvement of stakeholders: The broad involvement of stakeholders, especially professional organisations and/or prime contractors, has helped increase the number of project proposals and the implementation of selected projects in each economic sector.

Focus on one specific project by sector: The selection of (only) one significant project by sector, rather than conducting several projects in parallel, is of interest. It required a long negotiation process and compelled stakeholders and professional associations to adopt a consensual decision on a project.

Local and regional implementation: The chosen approach involves deploying projects at local and regional level.

Financing under conditions: The plan is results-oriented. Ministry support is available for selected projects on the strict condition that their results will impact the competitiveness of SMEs and the overall economy.

Conclusions

The main innovative aspects can be found in the objectives and in the cross-sectoral approach. The optimisation of customer and supplier relationships takes into consideration the wider „eco-system“ of companies: many firms have relationships with several economic actors. Tier-2 sub-contractors in particular are often subcontractors to firms from different sectors (e.g. the automotive, aeronautics, railway and shipbuilding sectors). The purpose of the cross-sectoral approach of ICT-SMEs 2010 is to relieve these companies of the requirement to adopt different architectures when processing data from different customers.
Facilitators

The main facilitators are:

- **Industry commitment**: strong industry support for the chosen approach, and especially the willingness of professional associations to share their developments in standardisation and models of data exchange.

- **Organisational structure**: the strong commitment of players at national and regional level, such as MEDEF, DRIRE and regional economic clusters.

- **European dimension**: the keen interest of the European Commission in this type of initiative.

- **Experience**: the replication of previous successful experiments (such as UCIP), especially in the aeronautic sector.

Barriers

Some factors have impeded implementation, however, and possibly reduced the effects:

- **Challenge of scale**: the large numbers of players involved creates organisational challenges

- **Challenge of scope**: the complexity of implementing a cross-sectoral approach

- **Conflicts of interest**: the different strategies and priorities of economic sectors

Strengths

- **Clear targets**: clear objectives and specific targets have helped to maintain focus.

- **Win-win situation**: Stakeholders have a clear understanding of benefits from a more standardised data-exchange process.

- **Wide support**: The initiative has received the support of many players in the public and private sectors.

- **Good governance scheme**: A steering committee and a coordination body bring the main stakeholders together and are tasked with monitoring and assessing the implementation and effects of each project.

Weaknesses

- **Complexity and size of the action plan**: the initiative carries some risk of „over-ambition“ in terms of objectives and the chosen approach.

- **Long-term and theoretical approach**: the lack of concrete results and feedback in the short term may discourage some actors.

Acknowledgements

Research and interviews for this case study were conducted by IDATE (www.idate.fr). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
ALFA aims at helping CEOs and managers of SMEs to understand, manage and implement ICT solutions and related business processes. The project has been deployed in nine regions of France, using a standard “blueprint” developed by GALIA. Projects are co-financed by the DRIRE (the Regional Governmental Office under the French Ministry of Finance and Industry) and the Regional Council.

Background, objectives and resources

Background and objectives

The roles of players in the automotive industry are changing. Car manufacturers aim at strengthening contacts with their customers either directly or indirectly through their distribution channels. They design their cars in response to their own marketing studies and assemble products all over the world as close as possible to their final customers. The design of car components, however, involves a large number of players in the supply chain (tier-1, tier-2, …, tier-n), and OEMs are increasingly transferring responsibility to their suppliers. They are integrating production processes across the supply chain, based on the concept of the “extended enterprise”. This new way of working requires technological and organisational innovation, and one of the consequences is a reinforcement of customer-supplier relationships, in particular between tier-1 and tier-2 suppliers.

Profile

Approach: Focus on improving relationships between tier-1 and tier-2 suppliers in the automotive industry
Sectors addressed: Automotive industry
Duration: October 2004 - December 2010 (estimated)
Funding: ~ €1 million by the Regional Council and DRIRE
Contact point: Mr. Alexandre Loire, GALIA (Groupe pour l’Amélioration des Liaisons dans l’industrie automobile), 96, avenue du General Leclerc, 92514 Boulogne Billancourt Cedex, France, loire@galia.com
Website: http://www.galia.com
Against this background, ALFA focuses on data exchanges between tier-2 and tier-1 suppliers in the automotive industry. Until a few years ago, tier-1 suppliers used to concentrate on managing their relationships with customers, while devoting little attention to their suppliers. They are now challenged to improve business processes with their suppliers. ALFA is a supporter and advocate of small and medium-sized enterprises in this industry segment.

The standardisation of information exchanges has been a preoccupation of GALIA since it was founded in 1084 to provide solutions to related problems. GALIA’s recommendations and standards are taken into account in the ICT-based tools proposed by ALFA.

Activities and results

Activities

ALFA started in October 2004 with a pilot phase to check the robustness of processes, create a national promotion team and conduct initial case studies. The project was initially deployed in eight regions, each of which set up a promotion team and launched a two-year pilot. Subsequently, a forum provided the starting point for the main project activities. The regional promotion teams took charge of contact and liaison with local industrial networks, using web conferences and workshops.

Once this infrastructure had been established, companies were contacted and advised. The targets were to reach 2,000 tier-2 suppliers of the French automotive industry, to get 100 SMEs actively involved in one of the projects during the pilot phase, and to advise 1,000 SMEs on how they could use ICT solutions.

By mid-2007, 135 companies had participated in projects, exceeding ALFA’s target. A.L.F.A. selected ten of the completed projects, and documented them as case studies.

The initiative focuses on the deployment of proven, existing ICT applications that can be grouped in three categories:

• Applications focusing on logistics and data exchange between companies (e.g. ERP, EDI)
• Communication tools (e.g. websites, web-conferencing)
• Tools for on-line cooperation / collaboration (e.g. collaborative work platforms)

Resources

ALFA consists of regional projects with a similar organisational pattern, but with funding schemes that can differ. Budgets are normally not fixed from the start, but managed flexibly, depending on project requirements, success and development. It is therefore not possible to provide figures for the total budget of the initiative.

Project example: Implementing Web Conferencing in Lachant Spring (28)

It is one of the leading French companies in springs manufacturing. In addition to being spread across different regions, it works with customers or partners in Europe, Asia and the Americas. GALIA learnt on its first visit how much time was needed to solve problems on customers’ sites. For instance, providing a service could take three days there and back, involving a car trip to Paris Charles de Gaulle airport, a flight, and another car trip to reach the customer. The use of web conferencing promised substantial savings, if it could replace some of these trips.

The project consultant worked with the project team to identify the users with the highest needs for this tool and to define the underlying business processes. It emerged that management, sales, quality, logistics, maintenance, and engineering departments all described daily situations where web conferencing would provide a fast return on investment. For example, it was possible to replace a three-day trip for on-site customer support with a 15-minute web conference.

Promotion and communication are based on a simple but effective peer-to-peer mechanism: “Let CEOs of SMEs speak to CEOs of SMEs”. Communication relies heavily on testimonials from CEOs involved in ALFA, through brochures, articles, videos, and participation in forums, workshops and web conferences.
Outcomes

In most projects, the integration of tools with business partners is required. As a result, the initiative has helped to strengthen links within the supply chain.

Several companies conceded that their decision to use electronic data interchange (EDI) was mainly imposed by customers. Nevertheless, nearly all of them reported significant advantages stemming from EDI usage, in particular a decrease in the number of errors, reduced delays, and improved demand forecasting.

Companies that decided to implement ERP reported that it helped them to achieve their growth targets. It also served as a backbone to facilitate EDI installation, and reduced the workload in audits.

Conclusions

The initiative has been innovative in the way it has approached and convinced companies that they should innovate and make investments in ICT applications. The combination of central management and regional deployment is an interesting method for an industry-led initiative.

ALFA is also a good example of a public-private partnership; in this case, the initiative came from the industry, with broad involvement of stakeholders, but it was also adopted and supported by national and regional governments.

Lessons to be learned

Importance of supplier relationships: The ALFA initiative confirms that customer service is inseparable from supply chain management.

Broad involvement of stakeholders: It would have been difficult to achieve a satisfactory level of participation without the commitment of the relevant industry organisations.

Importance of regional promoters: Implementation has benefited from the active involvement of local/regional players with good connections to regional business networks.

Access to “neutral” information: Because GALIA is a forum for consensus and discussion, its published recommendations and standards are trusted as “reasonable” technical constraints.

ERP challenges: The projects demonstrated (once again) that successful implementation of an ERP system requires a company to be absolutely clear about its internal processes. This can conflict with company culture, particularly in smaller firms which have not worked with process design before.
Facilitators

An important factor facilitating implementation of the initiative was GALIA’s status as a community of experts on the automotive industry drawn from those who work in the automotive industry. From the outset, the initiative was strongly supported by Renault and PSA Peugeot Citroën. Some projects were initiated at the request of a tier-1 supplier to its tier-2 suppliers.

Barriers

The main impediments the initiative had to overcome were:

- Organisational challenges: Some SMEs underestimated the organisational challenges involved; they under-staffed projects, despite the clear-cut recommendations made in the methodology guide.
- Technical challenges, due to a lack of technical skills
- Contextual challenges: While increasing market pressure motivated many SMEs to participate in projects, the rapid evolution of the market environment can itself be a barrier. Some SMEs were reluctant to commit time or resources to projects, due to the urgent demands of managing their day-to-day business in an increasingly challenging market.

Strengths

- Clear targets: Nine tools and nine processes widely used by manufacturers made the objectives very clear.
- Win-win situation: The focus of the initiative was to strengthen the digital links between tier-1 and tier-2. Better links and automated processes are beneficial for both.
- Leveraging a snowball effect: Tier-2 and tier-3 suppliers took advantage of the processes and tools already used by manufacturers and tier-1 suppliers. Furthermore, CEOs engaged in the initiative acted as ambassadors towards their peers.

Weaknesses

- Different regional approaches: In some instances, regional specificities led to organisational problems.
- Dependency on tier-1 purchasing policies: Tier-1 suppliers are sometimes trapped in a delicate situation. They are required by their OEMs to work with suppliers located in low-cost countries. Consequently, they cannot focus on the needs of their French suppliers.

Acknowledgements

Research and interviews for this case study were conducted by IDATE (www.idate.fr). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
PROZEUS – Processes and Standards (Germany)

**Best practice elements**

- **Innovative approach**: grants for SME projects linked with the condition of showcasing project results
- **Quality of outputs**: detailed e-business project descriptions as a unique source of information; focus on proven, widely accepted standards
- **Effective communication tools**: wide dissemination of management-oriented information guides on e-standards

The German PROZEUS initiative promotes the adoption of e-business among SMEs based on proven, widely recognised standards. It focuses in particular on manufacturing sectors and the consumer goods industry. About 60 SME projects were supported with grants.

The innovative and successful approach of PROZEUS is that these companies receive grants only on condition that they meticulously document the project, and make the documentation available to other firms as case studies. As a result, the project has an impact far beyond the direct beneficiaries.

**Profile**

| Approach: | Grant scheme for SME e-business projects; detailed documentation of projects for the benefit of other companies |
| Sectors addressed: | Manufacturing sectors, consumer goods industry, retail, construction |
| Duration: | July 2002 – December 2008 |
| Funding: | €8 million by German Federal Ministry of Economics and Technology |
| Contact points: | Mr. Ralf Wiegand, Institut der deutschen Wirtschaft Köln Consult GmbH, wiegand@iwkoeln.de |
| | Mr. Tim Bartram, GS1 Germany GmbH, bartram@gs1-germany.de |
| Website: | http://www.prozeus.de |

PROZEUS, launched by the German Federal Ministry of Economics and Technology in 2002, was initially planned to run until the end of 2005, but because of its success, of the initiative, it was extended until the end of 2008.

**Background, objectives and resources**

**Background**

Inter-firm processes, such as procurement, logistics, sales and cooperative design processes, are increasingly being digitised. This enables companies to cut costs and makes it easier to enter new markets. However, it can be a challenge for SMEs to make the investments necessary to participate in digital B2B value chains. Against this background, PROZEUS promotes the adoption of e-business in SMEs based on proven, recognised standards. It aims at providing „neutral, independent and free information to companies in Germany on how to automate their business processes and make them faster and more efficient.” The objectives are to increase transparency and security in e-business related investment decisions, and to empower SMEs accordingly. The initiative is jointly implemented and managed by Institut der deutschen Wirtschaft Köln Consult (IW Consult) and GS1 Germany, in close cooperation with the „Netzwerk Elektronischer Geschäftsverkehr” (the German e-commerce competence centres).

It focuses on companies with up to 500 employees from several sectors, mainly manufacturing (e.g. textile and footwear, food and beverages, chemical, rubber and plastics, machinery and equipment, electronics), the consumer goods industry, and retail.
Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs

Resources

The PROZEUS initiative has been funded by the German Federal Ministry of Economics and Technology with a total budget of €8 million for 2002–2008. Funds are used for coordination, for project grants and for the development and dissemination of information material about e-standards.

Activities and results

Activities

PROZEUS helps SMEs to recognise their e-business potential and to exploit it, by supporting projects covering business processes and e-standards that support these processes, in particular by grants and consulting services.

Selected projects are eligible for a grant covering up to 50% of their related personnel costs (typically between €20,000 and €50,000). A minimum of 20% and a maximum of 80% of the project work must be conducted internally (by staff of the company) for projects in manufacturing sectors (managed by IW Consult); while 20-80% of the work can be outsourced to external service providers. On average, companies used about 40% of the grants for external service providers and 60% for their own effort.

Soliciting, supporting and monitoring SME projects are among the core activities of PROZEUS. So too is the showcasing of results. All projects are documented in detail, and results are made available to other SMEs on the PROZEUS website. Special emphasis is given in the documentation to practical applications and commercial benefits.

In addition, PROZEUS initiated working groups that bring together standardisation and e-business experts from German companies and institutions. Their work has resulted in guidelines on standards for identification, product classification, catalogue exchanges, transactions and processes.

PROZEUS cooperates with multipliers and uses a wide range of communication channels to disseminate good practice examples and lessons learned.

Project example: Enderlein GmbH – stock management at a toilet bag manufacturer

Enderlein GmbH is an owner-managed, medium-sized business (190 employees) in Berlin specialising in the production of toilet bags. The large German retail chain Karstadt Warenhaus GmbH is a major distribution partner.

Enderlein started e-business at an early stage. Together with Karstadt, it successfully completed a PROZEUS-supported project to set up a manufacturer-controlled stock management system (also referred to as VMI – vendor managed inventory) in mid-2004.

The new system permits optimised product presence in Karstadt stores and demand-oriented range planning at Enderlein. In addition to improved strategic positioning, a tangible impact on process efficiency has been recorded: VMI helped cut out-of-stocks from 12 days to 3 during a test phase. Sales at the Karstadt test branches controlled by VMI increased by 22%, as opposed to 4% at comparable branches not covered by the system.

The total costs of the system were €62,200 in the first year for implementation, and subsequently about €21,800 per year for running and maintaining it. The payback period was about 2.5 years. The success has encouraged Enderlein to expand the approach to other retail distribution partners.

Source: PROZEUS Best Practice Examples (folder); detailed documentation available at www.prozeus.de/prozeus/praxis/enderlein-karstadt

Outcomes

PROZEUS possesses what is possibly a unique source of detailed empirical evidence about the effects of e-business on participating companies. The payback period for investments varies between projects, but companies typically reach the break-even point in 1-3 years. In exceptional cases, even small investments have turned into substantial annual savings.
Qualitative information suggests a positive effect on work processes and skills development. For some participants, PROZEUS was one of their first steps into e-business, and has created a successful basis for further activities.

Project results also demonstrate that the improved digital integration between companies has a positive effect on relations with customers and suppliers.

**Conclusions**

A major innovation in PROZEUS is the combination of depth and breadth in reaching companies. Many e-business initiatives focus either on support to a few selected companies ("depth") or on raising awareness by disseminating information to many companies ("breadth"). The PROZEUS strategy of concrete projects, measured and documented impacts, and communication to others, is a smart solution.

A positive side-effect is the creation of an unbiased data collection on e-business impact in the PROZEUS on-line archive of case studies (see: www.prozeus.de/prozeus/praxis/index.htm).

**Lessons to be learned**

**The potential of joint initiatives**: PROZEUS is the result of a "merger" between separate (but similar) proposals from GS1 Germany and IW Consult in 2001-02, which demonstrates the potential of combining similar ideas to exploit synergies and to avoid duplications.

**Addressing managers effectively**: PROZEUS has produced information brochures that address business managers who want a quick, easy-to-read introduction to the topic and its underlying concepts.

**Voucher for initial consultation**: Providing companies with a voucher for an initial consultation is a useful mechanism to create momentum.

**Time requirements underestimated**: Experience has shown that companies often underestimate the time it takes to implement an e-business project.
Facilitators

When PROZEUS was launched, growing importance was being attached to agreement on e-business standards and promoting their adoption. The timing was ideal for PROZEUS. Other factors also enhanced the effects:

- Excellent positioning of the implementing organisations.
- Long-term project: PROZEUS benefited from prolongation until 2008, building on the momentum during the first phase.
- Ease of participation: Submitting a project proposal demands little initial effort and few requirements on companies.
- Pressure of large retailers: In the consumer goods industry, large retail chains exert pressure on manufacturers to use standardised data exchange tools. PROZEUS was exactly the right initiative for consumer goods producers in this situation.

Barriers

PROZEUS was also confronted with some challenges, notably:

- Complexity of the issue: Awareness and knowledge of e-business standards was limited among companies in the early days of the initiative.
- Generation gap in the mind-set: In owner-managed SMEs, there was often a generation gap in the attitude towards ICT and e-business.
- Chicken-and-egg problem: The base of SME business partners with whom data can be exchanged electronically was low until recently, in particular in manufacturing.
- The often significant initial effort to collect and digitise company data (e.g. product data) in a standardised manner.
- Ambiguous reputation of ICT service providers after the dotcom crash.

Strengths

- **Coherent, systematic approach** in the design and implementation, with all activities well connected.
- **Effective external communication** by intensive use of multiplier networks (competence centres, chambers of commerce).
- **Efficient use of resources**: the outputs, in particular the on-line project documentation, are impressive and present a unique resource of information
- **Ability to provide unbiased advice**: PROZEUS does not sell software, but acts as a neutral source of assistance, information and advice.

Weaknesses

- **Limited regional / sectoral impact**: Since PROZEUS works with companies from all over Germany and from different sectors, the impact is less focused and visible than in regional initiatives.
- **Limited number of projects**: The chosen approach necessarily restricts the number of SME projects that can be directly supported with grants (about 60).

Acknowledgements

Research and interviews for this case study were conducted by empirica (www.empirica.de). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs

**TASK – Programme for Establishing Software Supply Chains (Germany)**

**Best practice elements**

- **Innovative target:** application of the manufacturing „supply chain“ concept to the software industry
- **Systemic approach:** The initiative was well embedded within regional technology transfer programmes and networks.
- **Sustained effects:** continuation of networking activities beyond end of project (e.g. foundation of TaSK company)

The production of software is increasingly conducted as a distributed process, involving different service providers. System integrators coordinate their work and integrate the various components of the software.

The TASK project aimed at enhancing value creation within these emerging „software supply chains“ in Baden-Württemberg, one of the leading high-tech regions in the country. In three pilot projects focusing on the joint development of software components, some 60 companies, including software producers and user companies, cooperated in the development of innovative and marketable solutions for on-line customer service and e-billing.

**Background, objectives and resources**

**Background and objectives**

Baden-Württemberg, the third-largest of the 16 German federal states, with 10.7 million inhabitants, is one of the leading European locations for IT and media. With about 300,000 employees in more than 30,000 companies, the sector represents the biggest and most profitable industry in the region, accounting for close to 10% of the gross value-added. It plays a major role as an enabler of innovation, via strong connections with other sectors.

In software engineering, inter-firm cooperation and collaboration is gaining in importance, particularly for SMEs. TASK aimed at enhancing this development in Baden-Württemberg, to ensure the sustained competitiveness of SMEs in the sector.

The initiative is rooted in the concept of „software supply-chains“, which transfer the concept of a manufacturing and retail supply chain to the software industry. The argument is that small firms in this industry have to organise themselves in software supply chains in order to stay competitive in the long run. This concept was developed by the regional research association „PRIMIUM“, which brings together about 20 universities, research organisations and companies in Baden-Württemberg. The Ministry responded to this idea and launched TASK in spring 2005. It addressed primarily small and medium-sized software companies in the region, and – indirectly – their business customers. Its implementation was managed by the MFG Baden-Württemberg, the state’s centre of excellence for IT and media, in the framework of the „do it Baden-Württemberg – IT and Media Initiative“ (www.doIT-online.de).

**Profile**

| Approach: | Piloting „software supply chains“ in three pilot projects |
| Sectors addressed: | Software industry |
| Duration: | March 2005-October 2006 |
| Funding: | €150,000 from the Ministry of Economics Baden-Württemberg |
| Contact point: | Mr Manfred W. Petz, TaSK GmbH; Vordere Karlstraße 12, 73033 Göppingen, Germany (petz@task.de.com) |
| Website: | http://www.doit-task.de, http://www.task.de.com |
Resources

TASK received funding of €150,000 from the Ministry of Economics of Baden-Württemberg, mostly for setting-up, promoting and coordinating the three pilot projects. Many of the participating software companies contributed services in kind (e.g. software modules that were required for the jointly developed solutions).

Activities and results

Activities

TASK established three working groups, bringing together software providers, system integrators and user companies from Baden-Württemberg, to plan and initiate innovative cooperative pilot projects in three application areas:

- Infrastructure/Middleware – interoperable data transfer for group data in groupware, CRM and ERP
- Business applications for B2B and finance – component-based reference solutions for finance applications
- Business applications for customer service – productive systems for processing of customer service demands

More than 60 companies participated in these working groups, some 20 software companies contributing services (in particular software components) in kind, and other companies participating in the consultation process.

When TASK ended in November 2006, participants founded the "TaSK GmbH – Transferagentur für Software- und Servicekooperationen" ("Transfer Agency for Software and Service Cooperations"). TaSK GmbH is an integration, communication and business platform connecting software-producing companies and their service providers.

Outcomes

TASK demonstrated that improved cooperation within software supply chains helps the development of targeted, high-quality software solutions, particularly for SMEs. Improving the conditions for cooperation in the software industry, notably within regional clusters, has positive effects in two ways: for the companies themselves, and – as a wider impact – for users of the solutions developed.

The effects the initiative triggered in participating software SMEs can be summarised as a sequence, starting with improved work processes and ultimately leading to improved market performance.

Project example: colamo.org – facilitating real-time mobile collaboration

colamo.org was one of the three pilot projects in TASK. This is an open source (OS) groupware project, focusing on the development of middleware (in a Java-based environment) for mobile collaboration tools. Today, the forum for colamo.org is coordinated by Neuberger & Hughes, inmedias.it and Rahlfs+Ross Multimedia.

The main goal of colamo is to permit real-time communication with on-line users, by making possible access to services from different mobile devices (e.g. from Java-compliant mobile phones). With its transparent and open interface, the solution can be used by every modern software system for mobile services. The project addresses existing technical problems in mobile collaboration, such as synchronisation errors, lack of secure services, and lack of access to real-time collaboration processes.

The idea for colamo and an OS community had existed before TASK started, but gained significant momentum when it was selected by TASK. Workshops were conducted to identify potential contributors, i.e. software companies in the region which would support this OS approach. About 20 companies actively participated in this TASK working group.
The main goal was to enhance sustained cooperation among software SMEs. Cooperation in the pilot projects provided the opportunity to test joint development processes, which they confirmed was a positive experience. The foundation of TaSK GmbH as a commercial enterprise after the project ended indicates that the idea behind the project was not just theory, but a realistic business model.

Conclusions

The main innovative aspect of TASK is the practical application of the underlying concept of „software supply chains“. This concept has been occasionally discussed in research and literature, but has only rarely been put into practice. TASK has piloted the concept. In particular, the working group on „business applications for customer service“ started the design of requirements, processes and architectures for building a software supply chain.

Lessons to be learned

The need for unbiased moderators: The project confirmed the critical importance of having an unbiased third-party moderator in cooperation initiatives, particularly during the set-up phase, to neutralise the risk of blockages from conflicts of interest.

The concept of software supply chains is promising: The concept could be a viable business model for SMEs to stay competitive. The project also demonstrated the need for reference models and architectures for cooperation within the supply chain.

„Repackaging“ of software solutions: In software supply chains, companies often contribute only parts (modules) of their existing solutions and products as an input to a joint project. This may require a change of mindset among firms, as they normally sell the full product, package or service.

Larger-scale pilot projects needed: The time and budget for the project were insufficient to fully develop an architecture and organise an industry supply chain based on this model.
Facilitators

The following factors have facilitated the implementation and success of TASK:

- Strength of the regional software cluster: There was “critical mass” to generate an interest in this initiative.
- Sector-specific approach: By explicitly focusing on the supply chains of regional software SMEs, TASK was able to address specific requirements of companies and of the regional economy.
- Positive attitude of SMEs: The working group moderators report that the software companies addressed were mostly cooperative and interested in the project.

Barriers

TASK was confronted in particular with the following challenges:

- Legal issues: Liability turned out to be a critical and complex issue for cooperation and collaboration in software projects.
- Conflicts of interest: Although most SMEs were motivated and eager to participate, there are unavoidable conflicts of interest in joint projects. Solving these issues was a key function of the project moderators.
- Finding users for prototypes: A major challenge was to find user companies for testing prototypes of software solutions.

Strengths

- Systemic approach: The project was well embedded within the regional development programme and innovation strategy of Baden-Württemberg.
- Focus: By explicitly focusing on the supply chains of regional software SMEs, TASK was able to address specific needs.
- Marketable outputs: The working groups have developed marketable solutions that are being used by regional software companies.

Weaknesses

- Inadequate budget / project life-time too short: The funded period of TASK was probably too short to achieve a sustained impact. If no initiative had been taken to continue the activities after the end of the project (via TaSK GmbH), the longer-term effects would be questionable.
- Hardly any exchange between the working groups: There was no interface to exchange experiences between the three working groups.

Acknowledgements

Research and interviews for this case study were conducted by empirica (www.empirica.de). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The Digital Future Initiative (Greece)

**Best practice elements**

- **Systemic approach / continuity**: The programme builds on a preceding initiative, but has adapted its focus towards “motivated” SMEs.
- **Creating critical mass**: The amount of funding is large not only by Greek but also by European standards; the programme is intended to have an impact on the economy as a whole.
- **Role model**: The programme operates in a fully electronic environment which enhances transparency and timeliness in awarding grants.

SMEs are increasingly aware of the opportunities offered by advanced ICT solutions, and they accordingly develop more sophisticated ICT requirements. However, they are still in need of technical and financial assistance in their way up the e-business ladder, typically because of the high costs.

Against this background, and since most Greek SMEs still need to boost their ICT modernisation efforts, the Greek Ministry of Development launched the “Psifiako Mellon” (Digital Future) Programme in October 2006.

Digital Future focuses on more advanced and ICT-minded SMEs with a demonstrated interest in innovation in their business processes. It aims to support them notably through subsidies for developing information-technology solutions, and by increasing IT professionalism in firms. It is co-funded by the European Regional Development Fund and will probably run until December 2008.

**Background, objectives and resources**

**Background and objectives**

e-Business has become an important part of modern business practices and a condition for staying competitive. However, SMEs are facing challenges in implementing the required technologies and processes, because they lack financial, technological, and human resources.

Greek SMEs, in particular, need a boost to their modernisation efforts. In recognition of this need, the Ministry of Development has launched several initiatives to assist micro and small firms in ICT use. Now it has emerged that state subsidies and grants can have a multiplier effect if awarded to SMEs that are more aware of the opportunities offered by ICT solutions.

Against this background, the Greek Ministry of Development launched the Digital Future programme, which can be seen as a continuation of the preceding and successful “Epihirite Electronica” programme (Operate Digitally). But Digital Future targets SMEs with 15-250 employees in all sectors of economic activity, whereas Operate Digitally focused on the vast majority of micro enterprises with up to 10 employees.

**Profile**

<table>
<thead>
<tr>
<th>Approach:</th>
<th>Large-scale grant scheme for SME e-business projects, focusing on more technologically-advanced companies with 15-249 employees</th>
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<tr>
<td>Sectors addressed:</td>
<td>Broad range of sectors</td>
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<tr>
<td>Duration:</td>
<td>October 2005-October 2007</td>
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<td>Funding:</td>
<td>Public sector funding of €75 million (about 50% of total cost), with about 75% of public sector contributions stemming from ERDF.</td>
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<tr>
<td>Contact point:</td>
<td>Ms D. Anagnostou, Director of Informatics, Ministry of Development, General Secretariat for Industry, Informatics Department; 119 Mesogeion Ave, 10192 Athens, Greece. Tel.: (0030) 210 6969810 – 6969187</td>
</tr>
<tr>
<td>Website:</td>
<td><a href="http://www.psifiakomellon.gr">www.psifiakomellon.gr</a></td>
</tr>
</tbody>
</table>
Activities and results

Activities

The General Secretariat for Industry at the Ministry of Development is the administrative body responsible for running Digital Future. The programme’s choice of activities is the result of discussions with other stakeholders, in particular the Association of Greek IT Companies.

The subsidies are for SMEs’ ICT-related investment plans aiming at:

- improvements in information management and integrated electronic support of inter- and intra-firm processes, through installation and operation of, for instance, ERP, CRM and CAD systems;
- promotion and use of modern information systems for the integrated support of business processes (e.g. with the use of the ASP model);
- strengthening collaborative electronic commerce and networking among collaborators, suppliers and customers with the use of modern tools supporting electronic transactions;
- creation, management and distribution of electronic content.

The programme subsidises expenditure on equipment and software, costs for installation and customisation of applications, the creation of digital content, and external consultancy services.

Grants can cover 45%-55% of project costs. 841 investment plans were selected from more than 1,000 plans submitted in response to a late-2006 call for proposals, and they should all be completed within 12 months. The average funding provided per project is more than €250,000.

Resources

The public-sector contribution is about €75 million. This corresponds to about 50% of total costs. 75% of the public sector contribution is financed by the European Regional Development Fund. Participating companies should contribute at least 25% of the private sector budget. The rest can be from other sources, such as bank loans.
Outcomes

The policy design was driven by the assumption that an increased flow of funds into firms with identified and sophisticated ICT needs would have multiplying effects not just for the beneficiaries themselves, but for the whole economy. It was assumed that such a targeted flow of funds would trigger further investments by ICT-minded companies, thus triggering a snowball effect, as pressures to adopt similar business practices would pass on from early adopters to their peers.

Previous initiatives, such as Epiphrite Electronica, shared similar objectives in terms of enhancing the adoption of e-business practices among SMEs. However, their approach was to create business needs, rather than to respond to them. Creating some market pressure on companies has proved a much more effective mechanism than pure awareness-raising activity.

In addition, the financial investment, in both absolute and relative terms, has been large not only by Greek but also by European standards. The secretariat is optimistic that the initial assumptions behind the policy will prove accurate and that the initiative will positively affect all major business processes of beneficiary organisations.

Conclusions

The innovative element of the policy has been to follow a bottom-up instead of a top-down approach. It has responded efficiently to existing market demands (i.e. already identified ICT needs) rather than creating new demands. In this way, market pressure is now expected to be passed on from innovative SMEs to their business partners and collaborators.

### Project example: Epsilon & Epsilon Medical S.A.

Epsilon & Epsilon Medical S.A. is a medium-sized Greek company with about 70 employees. It is located in Athens and its primary activity is the import and distribution of medical equipment supplies. The company maintains its own ICT department.

Epsilon & Epsilon Medical already participated in the Epixeireite Electronica programme, using the opportunity to set up an intranet and an ERP system. It immediately became apparent that the ERP system could become more effective if it were equipped with a CRM component, allowing marketing follow-up to procurements and sales among the company’s many customers in the Greek public and private medical sector. Grouping customers according to their procurement profiles could support targeted marketing campaigns.

Participation in Epixeireite Electronica was completed in time, and the company was left with positive impressions from the entire scheme. The Digital Future programme provided a new opportunity for procuring a CRM system. Epsilon & Epsilon Medical is now better aware of its specific requirements, and has gained experience with the bureaucracy of proposal preparation and follow-up. Its new proposal was approved. Currently, the ICT department and the selected CRM vendor are setting up a tailor-made CRM solution.
**Learning points**

The Greek environment is dominated by SMEs with uneven ICT capabilities and a generally low interest in e-business practices. For these reasons, most policies up to now had an awareness-raising character to cultivate demand among SMEs even for basic ICT use. Digital Future, however, adopted a different approach. It was driven by a demand-pull rather than supply-push perspective. By deliberately targeting medium-sized firms with some level of ICT sophistication it aims to create some market pressure among SMEs, which should be more effective than pure awareness-raising.

**Facilitators**

The design and implementation of the programme has been aided by involving the Association of Greek IT Companies in the choice of activities for funding. The Association was seen as “the voice of users” in the design process. Given their long experience in the field, members of the Association were able to make valuable contributions and suggestions for the finalisation of the main contents and activities of the initiative.

**Barriers**

The severe cuts in the original budget of most projects is likely to impede implementation and possibly reduce the industrial impact of the initiative as a whole. The secretariat claims that such reductions were necessary to rationalise investments and protect beneficiaries from over-pricing of ICT service providers.

The ICT industry, obviously, believes otherwise. They argue that budget cuts had administrative rather than technological reasons, and thus may create major problems in the implementation phase, possibly leading to semi-executed projects.

**Strengths**

- **Focused approach:** The focus on more advanced SMEs is expected to trigger a snowball effect that will continue after the end of subsidies, due to pressure and promotion from early adopters to peers.
- **Role model:** The programme operates itself in a fully electronic environment which enhances transparency and timeliness in awarding grants.

**Weaknesses**

- **Administrative burdens:** The programme did not manage to overcome the burden of increased bureaucracy often associated with public subsidisation schemes. In practice, few SMEs are able to deal with the highly bureaucratic application processes without the assistance of advisors.

**Acknowledgements**

Research and interviews for this case study were conducted by Anastasia Constantelou, Assistant Professor in the Department of Financial and Management Engineering, University of the Aegean (a.kostantelou@fme.aegean.gr). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The construction industry is an important part of the Irish economy. With its high concentration of employment and contributions to GDP it has been the principal factor in Irish economic performance for the last 30 years.

The activities within the sector are largely configured around the traditional project model in which trade people, professionals, contractors and clients work in short-term, lowest-bid contractual arrangements. The industry is known for its conservative culture with a relatively high resistance to change. The take-up of ICT has been significantly less than in other industries. Electronic documents exchange in the industry is fragmented and rarely interoperable.

The Construction IT Alliance eXchange (CITAX), set up in July 2006, aimed to facilitate more efficient business transactions between companies in the Irish construction sector by deploying readily-available ICT tools.

**Background, objectives and resources**

**Background and objectives**

The Irish construction industry has been buoyant for the last decades thanks to continued economic growth. However, industry representatives and researchers warn that its fragmentation and delay in the diffusion of modern technologies such as IT impair its efficiency and leave it ill-prepared for less prosperous times.

Although the larger industry players operate internationally, the majority of work is done by local or national SMEs. These firms are project-centred and characterised by short-term partnering between teams with varying levels of process maturity and innovation capability. Furthermore, the sector is mostly driven by the pressures of time, cost and programme, rather than quality and value in the delivery of its products and services.

Innovative activity in the sector is additionally inhibited by low profit margins and an inequitable distribution of technological risk and financial reward. Typically, the financial risk is transferred down the supply chain through contractors to the designers, while the technical benefit is transferred up the supply chain towards the client.

Not surprisingly, this hampers the spread of ICT. As a consequence, many millions of paper documents are currently exchanged in the industry, each having to be re-keyed as it passes between different locations and computer applications.

**Profile**

<table>
<thead>
<tr>
<th>Approach:</th>
<th>Industry-led network pilot initiative to promote ICT take-up and facilitate data exchange between network members</th>
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<tr>
<td>Sectors addressed:</td>
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<tr>
<td>Duration:</td>
<td>July 2006-January 2008</td>
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<tr>
<td>Contact point:</td>
<td>Mr Alan V. Hore, Mr Connor Ryan, Construction IT Alliance Ltd; 32 Dartry Road, Dublin 6, Ireland. (<a href="mailto:ahore@cita.ie">ahore@cita.ie</a>)</td>
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<tr>
<td>Website:</td>
<td><a href="http://www.cita.ie/member_benefits/citax.htm">http://www.cita.ie/member_benefits/citax.htm</a></td>
</tr>
</tbody>
</table>
The opportunity to enhance efficiency in a fragmented industry by working together has been recognised by the government and industry leaders. Consequently, the sectoral organisation, Construction Technology Alliance (CITA) initiated CITAX as an industry-led networking pilot in July 2006. The contract involves about 25 CITA member organisations and a government body in a project built on five modules: Design, Trading, Electronic Tendering, Project Collaboration and Computer Aided Measurement. Currently, more than 90 companies participate directly and indirectly.

**Activities and results**

**Activities**

CITAX has a clearly-structured plan, describing tasks, schedules and responsibilities of actors. Implementation, through five separate but collaborative modules, aims to facilitate more efficient business transactions between companies in the Irish construction sector. Each module focuses on the exchange of data between network members, and seeks to verify that significant measurable economic benefits can be achieved by collaborating team members through redesigned processes using readily-available IT tools. This is done by analysing and reaffirming the inefficiencies in current processes, and by demonstrating - through a live pilot project - the benefits to be obtained in a new environment.

**Module 1** (Design) focuses on the production and exchange of two-dimensional CAD drawings during the design process, and will demonstrate, during a live pilot project, that CAD drawings can be more efficiently exchanged by the adoption of the CITA CAD Layering Standard.

**Module 2** (Trading) concentrates on developing an acceptable eXtensible Markup Language (XML) standard for electronic exchange of purchase orders, delivery notes and supplier invoices. The longer-term objective is a platform for the design and development of a collaborative tool kit that all IT companies and companies operating in the Irish construction sector could subscribe to and use.

**Module 3** (Electronic Tendering) studies the current practices and assesses the current inefficiencies in the exchange of tender information.

**Module 4** (Project Collaboration) identifies the current inefficiencies in the exchange of project information in the construction industry. It aims at demonstrating by a live pilot project that project information can be more efficiently exchanged in a secure on-line environment.

**Module 5** (Computer Aided Measurement): after completing an assessment of inefficiencies in current industry practices, the team is now identifying the most suitable readily-available software that could be adopted.

**Resources**

The project is co-funded by the government agency Enterprise Ireland, with a two-year funding contract with 25 CITA member organisations under the Industry Led Network Scheme (DETE, 2006). This covers 50% of eligible expenditure. The other 50% is funded by participant organisations.
To date, all module teams have been focusing on the analysis of existing business processes and operational boundaries. The participating companies completed a questionnaire to identify internal practices, and their responses were used to document existing processes. Based on this evidence, the project teams are highlighting inefficiencies in those processes, and calculating the associated costs.

**Outcomes**

As the initiative is still only halfway through, it is not possible to anticipate the final outcomes and wider effects.

At this point, the participants believe that significant measurable economic benefits will be achieved by collaborating members of the trading network. Proof is expected through a live pilot project, and if this is successful, bigger and more substantial projects might follow under the Industry Led Network Initiative.

**Conclusions**

An innovative aspect of CITAX is its strictly sectoral approach. Furthermore, its strength lies in involving both IT providers and companies from the construction sector.

The active involvement of companies from the sector will guarantee the spread of project results not only within those firms, but also among their suppliers, customers and partners, generating impact beyond the direct participants. The aim is to prove that the benefits of widespread ICT deployment within the construction sector will benefit all companies participating in electronic exchange and cooperation.

**Lessons to be learned**

**Sectoral focus is key.** Developing an e-business policy initiative requires sectoral understanding and commitment that only industry can provide. A sectoral focus helps to create critical mass: single firms are very limited in their ability to innovate without the cooperation and alignment of the “construction community”.

**Ensuring continuing commitment:** The initiative must ensure collaboration and continuing commitment among the participants. All participating companies need to identify representative personnel and availability. Planning of roles and commitments includes also providing for contingencies and identification of alternative personnel.

**Effective and dedicated management** is critical. The involvement of numerous stakeholders causes organisational problems, and imposes the need for consistent highlighting of the ‘win-win’ outcome for the participants over and above any individual and conflicting interests. Effective management and administration of the project is also necessary for marketing and for spreading information, so that the policy becomes widely known and accepted in the industry.

**Live pilot projects** are an excellent way to show real benefits of e-business for the industry. This is more convincing than research results.
**Facilitators**

In addition to the widespread agreement that the construction industry needs to increase its efficiency and productivity to cope with increasing competition and anticipate any economic downturn, the following factors enhanced the effects:

- **Network effects**: CITA already has over 130 members with wide network connections within industry, ensuring promotion of CITAX and its outcomes to the rest of the construction industry.

- **Support of ICT industry**: the creation of broad partnerships between construction companies from different sub-sectors and ICT providers brings together ICT developers and those in need of technology. This collaboration from an early stage ensures that the technology developed is the most suitable for industry needs.

**Barriers**

There are a few general and some more sector-specific factors that have had an adverse or slow-down effect, including:

- a lack of awareness of the potential benefits of ICT usage among companies in the construction sector;

- the fragmented nature of the industry and the conflicting interests between members who see one another as rivals and competitors;

- the construction sector’s lack of forward thinking in general, its low innovation culture, and short-term planning;

- budget/funding constraints.

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**Strengths**

- **Clear targets**: Having clear objectives and specific targets has helped maintain focus and make all parties work together.

- **Focus on specific modules**: where e-business applications are likely to have the biggest impact.

- **Cooperation of IT providers**: with industry members to find required sector-specific solutions

- **Continued level of commitment**: from the project participants

**Weaknesses**

- **Shortage of time and resources**: the goals may be too ambitious considering the available time and resources.

- **Scope of the initiative**: the number of companies and organisations directly involved in the pilot projects is limited.

**Acknowledgements**

Research and interviews for this case study were conducted by Aneta Herrenschmidt-Moller (Aneta@HMoller.com) on behalf of the study team. The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The DDTA initiative („Digital Districts in the Textile and Clothing Sector“) is part of the framework programme for the development of the Information Society in Southern Italy. Its main objective is to increase the competitiveness of the Italian textile and clothing districts through the adoption and usage of standard low-risk open solutions, requiring limited investments, in value-chain operations. The initiative combines central management with local/regional implementation. At the central level, activities are carried out in standardisation, definition and validation of ICT solutions for the sector. Local implementation is essential to respond to local needs and to bring services close to the target beneficiaries.

Best practice elements

- **Regional/local scope:** The initiative’s measures were tailored to specific needs of local SMEs operating in a sector experiencing economic difficulties.
- **National scope:** At the same time, the local level was connected to a wider world of international standards, IT solutions etc. through central management at the national level.
- **Creating sectoral momentum:** The initiative chose highly motivated SMEs for pilot projects, to overcome initial problems and create a critical mass.

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**Background, objectives and resources**

**Background and objectives**

The textile and clothing (T/C) sector in Southern Italy, which is of great importance for the national economy, is facing strong and increasing competition both at domestic and international levels. This has deeply affected the southern T/C districts, which are in a situation of relative weakness, with falling employment and decline of production in recent years. There is consensus that small local manufacturers need support in order to cope with these challenges, in particular to provide qualifications for their workforce, and to develop product and process innovation which can boost their competitiveness.

DDTA’s rationale is that the efficient adoption of relevant technologies is essential to compete on the global market. The starting point is that the adoption of ICT and e-business among SMEs is impeded by limited investment capability and by cultural barriers. For this reason, the organisation of training and consultancy services for beneficiaries is central to this initiative.

**Profile**

- **Approach:** Digital integration of South Italy’s textile and clothing SMEs through a combined top-down/bottom-up approach
- **Sectors addressed:** Textile and clothing
- **Duration:** July 2004-December 2007, extended to December 2008
- **Funding:** €11 million from CIPE
  €17 million from regional co-financing
- **Contact points:** Dr Tiziana Trojani, Department of Innovation and Technologies (t.trojani@governo.it)
  Dr Danila Sansone, Innovazione Italia S.p.a. (dsansone@innovazioneitalia.gov.it)
- **Website:** http://www.ddta.it
DDTA is funded by the Inter-ministerial Committee for Economic Planning (CIPE), and was launched by the Department of Innovation and Technologies (DIT) of the Ministry for Reforms and Innovation in the Public Administration. It has been implemented by the Department, with the support of Innovazione Italia and the regional governments of Campania and Puglia. A technological partner (ENEA) is also involved.

**Resources**

The overall budget is €28 million. About €11 million comes from CIPE resources, and about €17 million from regional co-financing. The budget for the central action project (DIT) is about €2.7 million (from CIPE resources).

**Activities and results**

**Activities**

DDTA activities are carried out at two levels: the central level (by DIT), and the regional level (by the regional governments of Puglia and Campania).

**Action lines at the central level:**

- Definition and diffusion of interoperability standards, selected from existing standards and national/international good practice. The new standards will be in line with those of the European initiative Tex-Weave (promoted by Euratex at the European Standardisation Committee) and will be tested at the regional level through the District Service Centres (DSCs).
- Pilot project for the validation of ICT solutions for the T/C sector, including the development of open-source tools and methods conforming to standards, a toolkit helping SMEs to integrate the standards, and an integration project for one or more services provided by the DSCs.
- Development of a web portal providing services and information both to the general public and the participating companies.

**Action lines at the regional level:**

- Setting up DSCs: see project example below.
- Issuing a call for SME proposals for technological development (ICT infrastructure, adoption of e-business applications, and skills development).
- Provision of training and services to T/C SMEs in the implementation phase.

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Outcomes

So far, outputs have been partially achieved. Research in the standardisation field will end by December 2007, and intermediate results are already available. An extension of the research phase has been planned for 2008, when the DSCs will be operating. Pilot projects arising from the call for tenders will start implementation in September 2007. Out of 300 proposals submitted, a selection for this pilot phase was made of candidates judged suitable in terms of attitude and motivation - on the rationale that a group of pioneer companies with a positive attitude towards innovation and technology was a potential catalyst within the value chain, and would facilitate the subsequent inclusion of other actors.

Conclusions

The approach adopted by DDTA is innovative in the Italian context, with its organisational model combining top-down and bottom-up approaches. This model is based on the central (government) coordination of activities implemented at regional district level. Central coordination allows increased efficiency and facilitates collaboration with international stakeholders, e.g. in the field of standardisation.

The bottom-up approach of regional implementation assures a close link with SMEs in the T/C sector. All activities, from the development of open-source applications to service and training provision, are tailored to their specific needs and the cultural and organisational circumstances of the sector and the regions. By selecting SMEs with strong motivation, initial impacts are high, and DDTA has generated great expectations within target groups and local industry associations. Enhanced expertise in e-business practices is expected to help strengthen the districts’ competitive position.

Project example: Network of DSCs in Campania: the challenges

Five DSCs have been established in the regional districts involved in DDTA. Each DSC is expected to provide assistance, service and applications suiting the specific and differentiated needs of the participating SMEs within a district. The decision to set up a distributed network of centres has been driven by the peculiar situation of these highly disadvantaged areas. Micro and small firms are difficult to reach, and have limited time and resources as well as poor infrastructure. Consequently, only centres close to the beneficiaries provide easy access. Moreover, as one technical manager said, “We expect that once established in the area, these centres will act as technological catalysts and attract investments from telecoms operators as, in most cases, we still lack broadband in these areas”.

The activities of the DSCs have only recently started, and it is therefore not yet possible to draw conclusions about the effectiveness of the adopted approach. A point of strength is that so far it proved to be effective in involving SMEs and gaining their support. However, up to September 2007 only about 25 firms have been potentially selected for the pilot phase. This low ratio - combined with the high mortality rate of T/C firms in the area - raises concerns about the overall cost-benefits and the scale of the DSCs’ network structure. This will need to be monitored over time in order to make an overall assessment of the initiative.
Lessons to be learned

The main learning points are:

**Broad involvement of stakeholders**: including central and local administrations, standardisation bodies, industry associations and enterprises’ representatives

**Organisation**: it is the first governmental initiative aimed at creating an inter-regional network of DSCs for T/C enterprises

**Infrastructure**: development of open-source software solutions which will be made available to other relevant industry stakeholders

**Services**: development of innovative services for T/C companies (for instance: semantic web, e-knowledge for e-business, data-mining in support of e-knowledge)

**Facilitators**

The use of existing or new local networks for promotion and/or delivery of services. In particular, the strong connection between DSCs and local chambers of commerce.

The delivery of information and services in a manner specifically adapted to the stakeholders’ needs and expectations.

The approach is based on multiple actions and tools addressing distinct targets and issues (individual support, training, services).

**Barriers**

Lack of confidence among territorial stakeholders is the main obstacle. The prevailing attitude among companies is mutual mistrust, and managerial models are poorly oriented for collaboration

Possibly divergent interests among firms belonging to the same district

The weakness of the highly traditional Italian T/C SMEs, which are facing a crisis from increasing international competition, especially from Eastern countries.

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**Strengths**

- Having clear objectives and specific targets has helped to keep focus and make all parties work together.
- The initiative should trigger a snowball effect, as pioneer firms acting as catalysts are expected to involve their business partners.
- The decision to use and improve existing and internationally recognised standards (Tex Weave) and the requirement for open-source software and free applications.
- Active role of chambers of commerce and professional associations.
- Development of tools (starter kit) and tutoring actions directed to enable SMEs to use standards for e-business.

**Weaknesses**

- High mortality rate of T/C SMEs in the target areas: the first results of a detailed analysis pointed out that, in the last 24 months, the number of regional T/C enterprises in the market segment during the preliminary planning has fallen by more than 40%.

**Acknowledgements**

Research and interviews for this case study were conducted by Databank (www.databank.it).

The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
Digital Netherlands

Best practice elements

- **Modular approach**: The „cafeteria model“ – a programme consisting of a portfolio of instruments, enabling companies to select the offer that best fulfils their requirements.
- **Flexibility in implementation**: the policy consisted of different (but coordinated) phases, permitting adaptations to new requirements; moreover, differences in ICT awareness and adoption among SMEs could be taken into consideration this way.

„Digital Netherlands“ is a long-running public policy initiative aimed specifically at improving SME performance by using ICT. The initiative is financed by the Dutch Ministry for Economic Affairs, made available free of charge (or for very low fees) to the participants (i.e. all interested SMEs), and is carried out by the Ministry’s specialised agencies. It started in 2002.

Currently in its second phase, the programme has been adapted to the evolving needs of SMEs, since most of them have already incorporated some degree of ICT in their individual production processes.

Activities consist mainly of awareness raising, information dissemination, and specialist assistance. Digital Netherlands is implemented by specialised agencies of EZ, including Syntens, Media Plaza, SenterNovem, ECP.nl, HBD.nl, and Nederland Breedbandland.

Background, objectives and resources

**Background and objectives**

In 1999, the Dutch government defined the broad policy lines for the development of a new generation of networks and related services. As a result, a robust new infrastructure was established and broadband penetration grew, among both individual users and firms, putting the Netherlands among the frontrunners in this field. By contrast, only limited use was made of ICT for doing business, in particular among SMEs.

The Digital Netherlands initiative was launched to address this gap. It is aimed at SMEs and has been implemented in two stages. The first stage consisted of two parallel programmes: Digital Netherlands – Groundbreaking with ICT (NDB), and The Netherlands Go Digital (NGD). Both programmes ran from 2002 to 2006. The follow-up initiative – Digital Netherlands Connected (NDiV) – started in 2007.

The focus on SMEs is a reflection of the importance of SMEs in the national economy. In defining the strategy and deployment of the initiative, the Dutch Ministry of Economic Affairs cooperated closely with its specialised agencies as well as with trade and employers’ organisations.

Both programmes employed largely similar methods to encourage the adoption of ICT by SMEs, and after their completion, in 2007, activities were continued in a single programme (NDiV).

Profile

| Approach: | Long-running public policy initiative, applying a broad range of instruments, aimed at improving SME performance by using ICT |
| Sectors addressed: | Various |
| | Phase II: started in 2007 (open end) |
| Funding: | ~ €38 million (Phase I) from the Dutch Ministry for Economic Affairs (EZ) |
| | via Syntens, a specialised agency |
| Contact point: | Ms Monique Fledderman / Mr Peter Koudstaal, Syntens, info@syntens.nl |
Target groups have varied. The sectors addressed by NDB from 2002-2006 were transport and logistics, healthcare, ICT multimedia, mobile communication, construction and installation, ICT embedded systems, software engineering and financial services. NGD had a broader scope, targeting all SMEs. The new phase, NDiV, focuses more on an integrated vision of e-business. It targets SMEs from construction, logistics, wholesale, healthcare, the creative industries, manufacturing and agriculture - a potential target group of some 80,000 SMEs.

Gradually, the two parts of the programmes grew towards each other, and in this second stage, NDiV, the instruments are likely to be similar to those employed during the first stage - with the addition of a new cluster approach. NDiV caters in particular for SMEs which have incorporated already some degree of ICT in their individual production processes.

The initiative is now also actively facilitating the setting up of ICT-enabled networks of SMEs. The focus will be on a more integrated concept of e-business, including the sharing of information on products and orders between partners in the (digital) value chain, for example in logistics, projects, modelling and design processes, simulation, or providing specific sectoral knowledge. In addition, special attention is paid to promoting broadband, new publishing techniques, security (awareness and prevention of cyber crime), electronic payments, standards, the use of open source and the use of RFID.

Resources

The programme was financed by the Ministry of Economic Affairs through its specialised agencies. NDB had a budget of €4.4 million for the period 2003-2006; NGD had a budget of €33.5 million for the same period. The budget of NDiV, which was launched in 2007, is estimated at €15 million.

Activities and results

Activities

Implementation instruments included workshops and seminars; customised strategic business advice; and printed and digital information. During the first stage, the NGD focus was more on creating awareness among SMEs about the potential of adopting and incorporating ICT in the production process, while NDB focused on more innovative uses of ICT by SMEs from specific sectors (such as advice on the subject of state-of-the-art ICT solutions and Next Generation Scenarios for SMEs).

Project example: TCI Group

The TCI Group started off as a provider of ICT services for the Nederlandse Aardolie Maatschappij. Within 14 years, the TCI grew from four to a 100-staff company. More divisions were added to the company, some as a result of mergers and acquisitions. At the same time, the range of clients diversified to include public organisations, not-for-profit organisations, and later, SMEs. Some divisions specialised further in order to improve the way they meet the demands of certain categories of clients (such as SMEs).

In order to improve their services further, TCI was interested in introducing a digitised order and information system. Syntens was involved in advising on a new digitised value-chain approach to be introduced. The implementation of the new digital systems provided better oversight of activities carried out by the firms’ suppliers, easier (instant) customer access to all information regarding their orders at all stages, the possibility to compare offers and follow the progress of orders; clearer and shorter communication lines between client, firm and supplier; and improved productivity and customer service. It was overall a clear and time-saving solution.
Outcomes
An evaluation of the first phase of Digital Netherlands showed a recognition rate for Syntens of 29% among SMEs; its programmes had a recognition rate of 10% (lower than the targeted 25%); and 3-4% of SMEs had actually taken part in these programmes.

Overall, participants in both NGD and NDB were appreciative, expressing satisfaction with the programmes, the way in which they were conceived and carried out, and the professionalism of the staff. They indicated that they wished the programmes be continued. The adoption of ICT resulted in cost reductions, improved productivity and production quality, and higher turnover, the participants said. They were consistently positive about the effectiveness of ICT adoption in the production process. However, they also mentioned that, while ICT solutions solved a number of old problems, new ones were created, for example organisational and financial issues.

The lessons from the first phase were taken into consideration in planning for the follow-up. For example, the low-threshold character, which was a major success factor of the first stage of the initiative, was preserved.

Conclusions
An innovative aspect of Digital Netherlands is the modular “cafeteria model”. Instead of a monolithic construction, the programme is offered to those interested as a suite of stand-alone modules, making it possible for participants to select those that best fit their needs.

SMEs applying for support were required to submit a sound business plan to be assessed by Syntens. Once it was approved, Syntens would draft and issue the corresponding strategic advice, in close cooperation with the SME. Subsequently, Syntens experts would be involved at all stages of its implementation, by monitoring, advising, and where necessary, fine-tuning the original plans.

Lessons to be learned
The evaluation report of the initiative concludes with learning points and recommendations, notably:

Focus on non-technical issues: Policy should be focused on enhancing knowledge of non-technical aspects of ICT such as organisational renewal, improving products and services, and optimising operational processes.

Moderated exchange platforms: Knowledge exchange should be promoted among SMEs in networks, regardless of whether they are organised on a regional or industry-specific basis; the process should be guided by experienced and ‘ICT-neutral’ advisors.

Foster research: The participation of SMEs and their trade organisations in EU research programmes should be supported.

Integration of sources: Different sources of information and advice for SMEs should be integrated as much as possible, in particular in the fields of ICT, e-business and supply-chain digitisation.
Facilitators

The following factors have facilitated the policy implementation and helped to strengthen its effects:

- Stakeholder involvement at an early stage: the involvement of trade and employers’ organisations (close to the grassroots) in planning the programme.
- Step-by-step approach of the programme.
- Delivery of free-of-charge activities: making the modules of the programme available free-of-charge proved a highly effective method, lowering the threshold for all participants.
- Unbiased advice: the delivery of independent, unbiased advice to companies. External factors which facilitated the policy implementation included the strong growth of internet access and of electronic business recorded.

Barriers

The policy was confronted with the following challenges:

- Financing issues: Many SMEs are reluctant to invest in ICT, particularly if substantial initial sums are required. There are also uncertainties about the return on investments.
- Lack of awareness: Initially, there was still a lack of awareness about e-business issues among the companies targeted.

Strengths

- Progressive / step-by-step approach: The initiative successfully combined instruments to raise awareness with specialist and strategic advice.
- Differentiated approach: Differences in ICT awareness and adoption among SMEs were taken into consideration by setting up two separate programmes.
- Leveraging a snowball effect: Uptake is likely to continue after the end of the policy, due to pressure and promotion from early adopters to peers.

Weaknesses

- Organisational issues: The large number of organisations involved in carrying out the initiative was perceived as a costly and cumbersome construction.
- Lack of quantifiable output indicators and monitoring during the first phase of the initiative. That made interim evaluations and fine-tuning more difficult.

Acknowledgements

Research and interviews for this case study were conducted by Gabriela Bodea, TNO (www.tno.nl). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
In Norway, the building and construction sector is the third largest land-based business sector. It consists of a large number of small businesses and displays a low rate of ICT take-up. The sector suffers from a lack of process efficiency compared to other industries; up to 30% of typical costs are related to non-building activities. At the same time, society is imposing new pressures on the built environment - planning and infrastructure, energy consumption, sustainability, security issues and capital.

buildingSMART aims to increase interoperability and transparency so as to improve effectiveness, quality and security throughout the life-cycle of buildings. By introducing open standards for business processes and product directories it also aims at lowering the barriers for SME suppliers to enter the construction markets. buildingSMART is a strategic initiative financially supported by the Ministry of Trade and Industry and the Ministry of Local Government and Regional Development. buildingSMART has introduced the Building Information Model (BIM) and the global ISO standard IFC - Information for Construction protocol. The International Alliance for Interoperability (IAI) is developing and encouraging the use of BIM and IFC for its 600 members. The IFC standard is implemented in a number of core software systems for the construction sector.

### Background, objectives and resources

#### Background and objectives

The background to buildingSMART is widespread evidence of ineffective processes hampering the competitiveness of the construction industry. Buildings are typically designed and built by temporary, project-based groups of small firms, which makes

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**Profile**

- **Approach:** National implementation of a global standardisation approach for the construction sector based on the ISO IFC standard
- **Sectors addressed:** Construction and building sectors, architects, engineering, entrepreneurs, facility management.
- **Duration:** 2004-ongoing
- **Funding:** €5.5 million from Norwegian Homebuilders Association and member companies, €1 million from Innovation Norway, €0.5 million from the Buildingcost Programme of the Ministry of Local Government and Regional Development
- **Contact point:** Mr Jøns Sjøgren, Norwegian Homebuilders Association; Postboks 7186 Majorstuen, 0307 Oslo, Norway (jons.sjogren@boligprodusentene.no)
  Mr Roald Magne Johannessen, Innovation Norway; Akersgt. 13, 0104 Oslo, Norway (roald.magne.johannessen@invanor.no)
- **Website:** [http://www.buildingsmart.no](http://www.buildingsmart.no)
Resources
Around 30% of the total annual funding of €8.6 million is public money. 70% is provided by the companies involved in the buildingSMART projects, mainly in terms of time.

<table>
<thead>
<tr>
<th>Funding (annually)</th>
<th>Contributed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>€5.5 million</td>
<td>Norwegian Homebuilders Association and member companies</td>
</tr>
<tr>
<td>€1 million</td>
<td>Innovation Norway, BIT Program</td>
</tr>
<tr>
<td>€0.5 million</td>
<td>the Buildingcost Programme of the Ministry of Local Government and Regional Development</td>
</tr>
<tr>
<td>€1.2 million</td>
<td>Statsbygg (governmental property body)</td>
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<tr>
<td>€0.4 million</td>
<td>various governmental funds for energy planning etc.</td>
</tr>
<tr>
<td>€8.6 million</td>
<td>Total</td>
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</tbody>
</table>

Activities and results

Activities
In Norway, the international buildingSMART concept was implemented as a sector project under the public e-business development programme BIT (Business Intelligence Technology), organised by Innovation Norway.

Implementation follows three successive steps or platforms. First, a standards platform is developed on a sector level, based on the IFC. Second, a technology platform is built in cooperation with ICT suppliers, consisting of different types of applications and based on the standards developed in the first step. Third, a business platform is established; this is the implementation of the standards and technologies at the operational level of the construction companies.

Now, in the second half of 2007, the buildingSMART standards platform is in place and the next step is to establish a technology platform including IFC compatible software. At the same time, 13 construction companies have started testing buildingSMART in pilot projects. Competing companies are also collaborating in the exchange of data according to the BIM model.

project management and communication critical to the success of every project. Until recently, ICT to support these processes has been applied in piecemeal fashion to individual tasks rather than to entire projects, and positive impacts are accordingly low.

A key issue is the lack of interoperability, both between construction project participants, and through the successive phases of a building’s life-cycle. Against this background, IAI - one of the initiators of building SMART - has developed a comprehensive Building Information Model (BIM) based on the open global ISO standard IFC - Information for Construction protocol. Using BIM helps improve information flow in construction industry projects, thus increasing product quality and value for money. Intelligent building models can be used to test thermal performance, to automatically determine authority code compliance, or for automated assembly manufacturing.

Against this background the objective of the building SMART initiative is to improve work flows and productivity in the building and construction industry by the „smart” use of new technologies in all phases of construction projects. buildingSMART aims at the dynamic and seamless exchange of accurate information on the built environment among all members of the building community, and throughout the life-cycle of a facility.

“The largest information gap in the chain of building information occurs between the design/construction of a building and the handover to those who will be responsible for operation and maintenance”.

Mr Jøns Sjøgren, chairman of the IAI Nordic Chapter.

The initiative targets companies and professionals in the building and construction industry, including architects, engineers, entrepreneurs and facility managers, software solution providers, business associations and the Norwegian public sector as a major customer of the building industry.
Outcomes

In its first two phases, buildingSMART has developed a number of technical components, including an object terminology library for the building and construction industry (IFD Library), and models for optimizing computer-based communication between different actors such as designers, carpenters, designer and electricians. Special presentation materials were developed to acquaint construction companies with the implications of buildingSMART components for their business processes. Additionally, BuildingSMART has produced business models and supporting systems, including solutions for e-collaboration, e-procurement, e-submission and e-plancheck.

Evidence from the pilot projects shows that buildingSMART components helped companies reduce process costs (planning and production) by up to 30% and documentation approval time from weeks to seconds by use of e-plan checking procedures. The reliability and quality in planning, budgeting, collaboration and coordination for contractors and sub-contractors could also be increased. On a meta level, the initiative has alerted public and private players to more effective operations in the construction and building sectors, and supported discussions on introducing standards as required formats for construction planning documents.

Conclusions

So far, buildingSMART has brought about a number of process and product innovations.

Process innovations include new ways of organising the internal and external workflow of construction projects with appropriate information systems, e.g. in terms of interoperability between actors involved in the construction process, and also between subsequent phases of the building life-cycle.

Product innovations include new software applications to support the new workflows and processes described above, for both CAD and ERP systems. New business opportunities have emerged, e.g. in electronic workflow applications and in implementation support services.

Further impacts are expected on construction projects and on the suppliers involved in line with the increased awareness and spread of the global standards underlying the programme.
**Lessons to be learned**

Norway has focused heavily on involving both public and private players in this initiative. There are many challenges ahead, but there are also some lessons to be learned:

- **Start with owners of constructions and buildings** and help them to see the potential for improved sustainability (less energy consumption, less construction material usage, less waste…) offered by BIM, IFC and related solutions.

- **Motivate medium-sized software developers** by highlighting the new business opportunities.

- **Use hands-on presentations** to make the complex programme structure widely comprehensible. A multimedia presentation entitled “Seeing is Believing” was used to good effect in demonstrating the buildingSMART approach.

- **The public sector** must leverage its role as owners of property and construction projects to increase the efficiency of planning and approval processes.

- **Demonstrate to educational institutions** the potential of new roles and new ways of providing knowledge, so that they adapt their curricula to take advantage of them.

**Facilitators**

Construction industry organisations are now supporting implementation of the buildingSMART project.

Research and academic institutions like Sintef Byggforsk (SINTEF Building and Infrastructure) and NTNU (The Norwegian University of Science and Technology) are supporting buildingSMART activities through dissemination and promotion, international networking, and knowledge and project resources.

Innovation Norway gave birth to the buildingSMART project, it co-funds selected sub-projects, and it promotes buildingSMART in international fora.

**Barriers**

The main barriers to implementation of building SMART are a lack of awareness of the new standards and software tools, and low management priorities to update business processes. Other barriers include lack of construction-sector interest in innovation and efficiency, limited resources for promoting the benefits of buildingSMART (including reference projects and tools), insufficient human resources in companies for system updates and training, and inadequate e-skills in the workforce.

**Strengths**

- The most important assets of buildingSMART are its branding, global acceptance of the concept through the IAI network, and the approval of IFC as an ISO standard.

- Through the 10 IAI global regions and their dissemination efforts, the concept receives attention at a global level.

- The basic funding of the secretariat and the supporting projects helped to secure a critical level of operations in Norway.

**Weaknesses**

- Difficulties in integrating trade products in the information models and planning software (backward integration).

- A lack of resources for awareness-raising and training of the workforce in the use of new tools and work processes. A classic mistake in introducing new tools is to underestimate the time and resources needed to motivate and train the users.

**Acknowledgements**

Research and interviews for this case study were conducted by Infosector (www.infosector.no). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The emerging digital economy requires companies to be ever more flexible and efficient. The „Digital SME“ initiative was launched to support small and medium-sized enterprises in Portugal in coping with this challenge.

The initiative promoted the adoption of e-business applications among SMEs. It considered e-business a key instrument to enhance contact, cooperation and trade between buyers and sellers. This includes the potential to improve customer service, to facilitate and increase sales, to ease processes for ordering and payment, to improve distribution and delivery processes, and to raise awareness of new business trends in general.

Background, objectives and resources

Background

There is broad agreement about the strategic importance of ICT across all sectors, even for smaller companies. But many operational challenges and barriers for SMEs remain, including finance for the necessary investments, and - in particular - organisational challenges, since successful usage of ICT often requires changes to business processes.

Against this background, the Portuguese government launched the „Digital SME“ initiative. It is part of the „Incentives Programme for Economic Modernisation“ (PRIME), which aims at stimulating the participation of SMEs in the digital economy in its broadest sense, beyond the promotion of e-business technology adoption.

Digital SME had the following objectives:

- To reinforce the technical and technological capacity of SMEs and the modernisation of their structures;
- To support SME innovations in their internal organisation and improvements in their work processes and human resources;
- To promote a higher degree of digital integration between firms („from action to interaction“);

Best practice elements

- **Innovative design**: modular, two-phase implementation, first preparing the ground, then supporting specific companies
- **Measures adapted to contextual factors**: the support networks considered sectoral and regional priorities; SIED supported projects at different levels of sophistication
- **Sustainability**: some of the RIAT coordinators continue to provide services after the initiative formally ended

Profile

<table>
<thead>
<tr>
<th>Approach:</th>
<th>Initiation of sectoral SME support networks (RIATs) in phase I and provision of grants to SMEs in phase II</th>
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<tbody>
<tr>
<td>Sectors addressed:</td>
<td>Aerospace, automotive, electronics and manufacturing, pharmaceutical and chemical, retail and consumer goods</td>
</tr>
</tbody>
</table>
| Duration: | Phase I: December 2001–February 2003  
Phase II: April 2004-December 2006 |
| Funding: | €20 million from the Ministry of Economy Affairs and Innovation |
| Contact point: | Ms Ana Raposo, IAPMEI – Institute for Support to Small and Medium-Sized Enterprises and Investment; Rua Rodrigo da Fonseca 73; 1269-158 Lisboa, Portugal |
| Website: | http://www.prime.min-economia.pt http://www.iapmei.pt |
The second phase – SIED – was designed as a complementary measure to the RIAT activities. It supported specific e-business SME projects, focusing on both the technological infrastructure of SMEs and their organisational innovation, including modern management techniques. SIED provided grants covering 30% of the eligible expenses. In total, 755 applications were received. 425 projects were approved, and 356 received a grant.

Proposals were selected and evaluated in three project categories:

- **On-line presence**: firms whose main goal is to publish information and promote themselves on-line.
- **Interaction**: projects involving some communication and data exchange, but with a limited degree of process automation.
- **Transaction**: more advanced projects, aiming at the digital integration of firms with their customers, suppliers and/or business partners, based on automated data exchange.

**Activities**

Digital SME was implemented in two phases. Phase 1 (from 2001 to 2003) focused on the implementation of the “RIAT” networks (Networks of Information and Technical Assistance). Phase 2 (from 2003 to 2006) was named “SIED” – Incentive Scheme for Digital Economy.

- **Phase I (RIAT)**: Development of seven Networks of Information and Technical Assistance (RIAT), intended to provide consultancy and accompaniment for a representative group of SMEs for one year;
- **Phase II (SIED)**: Creation of an Incentive Scheme for Digital Economy (SIED) to support projects that could encourage the participation of SMEs in the digital economy. It focused on several manufacturing sectors, the building industry, retail, tourism and transport services.

Each RIAT focused on distinct economic sectors (e.g. fashion, tourism, ICT, furniture, wood-working industry) to provide personalised services adjusted to the specific sector requirements. Some RIATs also had a local or regional dimension, concentrating on geographical areas where a sector was particularly important (e.g. the "TEAM NET" RIAT addressed in particular SMEs in the northern regions of Portugal).

The RIATs completed their activities as planned. Some RIAT coordinators, for instance AEP, have continued beyond the end of the initiative to provide SMEs with services such as training and technical assistance.

**Project example: RIAT – AEP (Portuguese Business Association)**

The first phase of Digital SME (2001–2003) focused on the implementation of seven Networks of Information and Technical Assistance (RIAT) which supported SMEs.

The Portuguese Business Association (AEP), situated in Porto, developed in 2001-2002 a RIAT that particularly addressed industrial sectors such as textiles, mechanical engineering, civil construction, cork and furniture. This initiative was seen as an excellent opportunity to support SMEs in developing their e-business services, with the objective of enhancing their economic growth in an increasingly competitive market.

The network reached approximately 200 SMEs with activities such as awareness seminars, advisory services, e-business diagnosis and personalised action plans for each selected SME.
Out of the 425 approved projects, 18 focused on on-line presence, 254 on interaction, and 153 on transaction. The majority dealt with the implementation of management systems (e.g. software), tools for e-commerce (e.g. business-to-business and business-to-consumer), and the modernisation of internal structures (e.g. channels of communication and work processes).

**Outcomes**

Digital SME played something of a pioneer role in Portugal, as it was the first initiative that directly focused on promoting the Portuguese digital economy. It has largely accomplished its objectives, notably by involving a large number of SMEs and other business associations. This helped to raise awareness and to gain momentum.

In total, approximately 1,400 SMEs were reached by the sectoral RIAT networks (about 200 by each RIAT). The 425 SME e-business projects implemented have helped companies to innovate in their organisational structure, work processes, and human resources management.

**Conclusions**

The main innovative elements, at least in the Portuguese policy context, were:

**Two-phase approach:** Development of the policy within two different but complementary phases – RIAT and SIED.

**Different levels of sophistication:** Support of projects at three levels of e-business sophistication (presence -> interaction -> transaction).

**Sectoral networks:** Creation of seven sectoral networks – each with approximately 200 SMEs. This approach made it possible to exploit synergies and to enhance cooperation among SMEs, business associations and universities.

**Lessons to be learned**

**Broad involvement of stakeholders:** The need to actively involve all relevant stakeholders in an initiative is commonly recognised and was confirmed by this initiative.

**Importance of ICT in international trade:** In a context of intense competition, innovation and globalisation, the use of ICT facilitates commercial exchanges in international markets. Export-oriented SMEs have practically no choice but to adopt e-business.

**Importance of awareness-raising:** It is still important to raise awareness among small companies for (new) e-business developments and opportunities, particularly in technologically less-advanced economies.
Facilitators

- Growing interest in e-business among economic agents;
- Opportunity to reach new markets and increase national and international business;
- Use of existing networks for promotion and/or delivery of services;
- Establishment of broad public-private partnerships between SMEs, business associations, universities and research centres.

Barriers

- Lack of awareness, training opportunities, and general knowhow in the field of e-business in Portugal;
- Lack of resources (financial, human and technical) to fully exploit the potential;
- Communication difficulties in promoting the initiative to SMEs, particularly in the RIAT phase, and during the transition phase from RIAT to SIED;

Strengths

- Clear targets: Having clear objectives and specific targets has helped maintain focus and make all parties work together.
- Personalised and sectoral approach: Each of the RIATs focused on specific sectors. This made possible the provision of tailored services to SMEs.
- Distinction of different sophistication levels: SIED supported projects at three levels of e-business sophistication.
- Organisation in two phases: The division of the policy into two complementary approaches facilitated the involvement of a broad range of organisations.

Weaknesses

- Deficiencies in communicating the approach: Communication of the policy to target groups was initially insufficient. Moreover, the transition phase from RIAT to SIED was long and not entirely clear.
- The „grant trap” – interest in money, not in action: Some SMEs demonstrated a lack of commitment to completing the planned activities, suggesting they were more interested in receiving a grant than in actually accomplishing the project they had proposed.

Acknowledgements

Research and interviews for this case study were conducted by Daniela Lopes, INOVA+ Serviços de Consultadoria em Inovação Tecnológica (www.inovamais.pt). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
eSLOG – e-Commerce in the Slovene Economy (Slovenia)

Best practice elements

- Successful top-down implementation: Large companies were involved in order to stimulate e-commerce in SMEs through a combination of market pressure and awareness-raising.
- Zero-budget: The initiative had a budget of only about €20,000. Other costs were covered by participants themselves.
- Broad involvement of stakeholders: So as to overcome inhibitions and to attract more companies, the initiative was open both to participants which had registered and paid, and to interested outside companies.

e-Business studies have shown that issuing paper invoices is neither cheap nor fast. While the electronic exchange of documents had been introduced by a number of Slovenian companies, the approaches were often cost-intensive and had never been standardised. Against this background, the e-SLOG project developed simpler standards for electronic business messages based on a simplified version of GS1 EANCOM.

The initiative used a top-down approach, with large companies acting as pioneers in using the standards in their sector, and market pressure ensuring that SMEs further down the line followed quickly. This spread the standard to about 3,000 Slovenian companies. The initiative had almost no funding and all participants covered their own costs. The Chamber of Commerce and Industry of Slovenia provided €20,000 for material costs and the necessary administrative infrastructure. This made it possible to expand the project’s initial mission beyond the development of standardised electronic documents for B2B e-commerce, to include the development of standardised electronic documents for payment traffic between private companies, banks and public institutions.

Background, objectives and resources

Background and objectives

The policy was launched in 2001 by the Chamber of Commerce and Industry of Slovenia to meet the needs of the Slovene business sector. At the time the implementation of e-commerce was time-consuming and expensive: it took on average six months for two enterprises to establish common standards, harmonise their documents and develop a working application. The only viable standards at the time were GS1 EANCOM (standards for electronic business messages based on UN/EDIFACT - a set of internationally agreed standards, directories and guidelines for the electronic interchange of data).

Profile

| Approach: Introduction of standards and documents for business communication by means of a top-down approach to a large number of beneficiaries. |
| Sectors addressed: Agriculture & fishing, manufacturing, electricity, gas and water supply, wholesale and retail trade, tourism, transport and logistics, financial services, public administration and defence |
| Duration: February 2001-May 2006 |
| Funding: There was no budget. Apart from the management infrastructure all players involved paid their own costs. |
| Contact point: Mr Dusan Zupancic and Mr Samo Grčman, Chamber of Commerce and Industry of Slovenia; Dimiceva 13, 1000 Ljubljana (dusan.zupancic@gzs.si / samo.grcman@gzs.si) |
| Website: http://www.gzs.si/e-poslovanje |
The work in each group was organised as a sub-project and based on a detailed work plan. Outside companies that were interested in the initiative (either potential end-users or software providers) were organised in two groups of more than 90 associated members, and were informed twice a year via special conferences.

These proved to be too complicated and too expensive for Slovene companies to implement. Additional factors were the high cost of exchanging paper invoices (compared to €0.50 per e-invoice), and the impracticability of such an approach for “just-in-time” inventory strategy. New, more practical standards were needed.

The goal of the project was to enable SMEs to conduct business electronically not only with other companies, but with public administrations and financial institutions as well. Cooperation with the Government Centre for Informatics permitted exchange of knowledge gained in projects introducing e-business in Slovenia’s public administration.

The main beneficiaries of the initiative are enterprises in transport and logistics, energy providers and telecommunications companies, which issue many invoices. The sectoral focus of the initiative is not intentional; it was a consequence of the companies involved.

Resources

There was no budget. All institutions and organisations involved in the project covered their own costs and worked without any funding. The only exception was a contribution by the Chamber of Commerce and Industry of Slovenia of €20,000 for material costs. The chamber also provided the project team with the necessary infrastructure.

Activities and results

Activities

The project was led by a council and the work was carried out by four working groups, covering:

- Business Content Standards: Preparation of standard documents for B2B exchange (invoices, order forms, despatch advice forms etc.).
- Electronic Signature: Preparation of manuals on the use of digital certification, a tool kit for verifying software solutions etc.
- Payment Standards: Preparation of standard documents for payment traffic between companies, banks and public institutions (payment orders, debit notice, bank account status, etc.).

- The work in each group was organised as a sub-project and based on a detailed work plan. Outside companies that were interested in the initiative (either potential end-users or software providers) were organised in two groups of more than 90 associated members, and were informed twice a year via special conferences.

Project example:

**e-Commerce between ZIMA and Merkur**

ZIMA, a middle-sized brush factory, and Merkur, a large retail company, use e-SLOG standards in their e-commerce.

In order to use e-commerce, Merkur was forced to standardise its internal documents. This improved the efficiency of the business. Merkur promoted the standards among ZIMA’s managers, and offered expert advice on how to integrate them into e-commerce. ZIMA introduced e-commerce in 2006 and based it on two applications that support e-SLOG standards.

Before the introduction of e-commerce, ZIMA employed two people to manually enter data from orders on paper into the company’s information system. With the introduction of e-commerce, those two posts were eliminated. The data for each order are entered only once: either a worker at Merkur or a ZIMA sales representative scans the OCR code of a missing article and types in the number of pieces that must be ordered. Stimulated by the positive impact so far, ZIMA is now considering an upgrade of its system to automatically identify departures and arrivals of its goods from Merkur’s stores.
Outcomes

Today, e-SLOG standards are used by about 3,000 companies in Slovenia, after continuous growth over recent years. The standards have simplified the implementation of B2B e-commerce, reduced operating costs and mistakes due to manual copying of data from paper documents, and increased the speed of business transactions. The standards have been integrated into a number of existing e-business applications.

Companies mostly use e-SLOG schemes for invoicing, ordering and order confirmation, whereas schemes for control order and despatch advice are only rarely used. While the standards have had a positive effect on connections between large companies and their smaller partners, and between cluster companies, many small companies are still unaware that standards exist, or that e-commerce can bring benefits.

Conclusions

e-SLOG standards have contributed to the diffusion of e-commerce in Slovenia, lowering the operating costs of retail companies and their suppliers, and increasing their competitiveness. A critical mass of users has been achieved and the usage of e-SLOG standards is now spreading by itself.

The two factors that contributed most to this success were the involvement of large companies in order to stimulate e-commerce in SMEs, and the implementation without any budget. The no-cost approach was not without difficulties (cf. below). At the same time, the fact that participation in the initiative was possible without direct costs helped to attract a large number of companies, as did the quality of the initial results, and the reputation of the Chamber of Commerce and Industry of Slovenia.

Lessons to be learned

Two main lessons can be learned:

A broad involvement of stakeholders helped e-SLOG to attract participants and to reach critical mass. This was achieved by means of a consultation process among stakeholders which continued until a consensus was achieved. Consultations sometimes lasted months, but once targets were agreed, they could be executed rapidly.

The generation of market pressure on companies was shown to be more effective in promoting an e-business standard than awareness-raising measures. In e-SLOG this was achieved by using large firms as "pioneers". Nevertheless an additional awareness-raising strategy among small companies, especially among their management, would probably positively supplement the market pressure.
**Facilitators**

The use of existing or new local networks for promotion: the Chamber of Commerce and Industry of Slovenia linked with the Chamber of Craft and the Public Agency of the Republic of Slovenia for Entrepreneurship and Foreign Investments to use their connections for promotion of the project.

The provision of independent, unbiased advice to companies: In connection with e-SLOG, an e-invoicing project was prepared. This organised workshops to promote e-invoicing among SMEs and local enterprise centres, and consultancy training in the implementation of e-invoicing (especially for e-invoicing based on e-SLOG standards).

The delivery of services specifically adapted to the stakeholders’ needs and expectations: To adapt e-SLOG standards to the needs of different companies, complex as well as simple schemes of business documents and communication standards were defined.

**Barriers**

The main barrier to implementation was the lack of awareness and commitment among target companies. Usually IT specialists in a company were well-informed about the benefits of e-commerce, while senior managers were completely ignorant. Even when the company’s management was invited to conferences and workshops to promote the e-SLOG project and e-commerce in general, IT specialist were sent instead.

**Strengths**

- **Clear targets**: Having clear objectives and specific targets has helped maintain focus and make all parties work together.
- **Win-win situation**: The focus on specific standards for business-to-business e-commerce and payment traffic between companies and banks with a clearly visible benefit for all stakeholders led to a “win-win situation” and created momentum for the initiative.
- **Leveraging a snowball effect**: The initiative managed to trigger a snowball effect: the use of e-SLOG standards uptake is continuing after the end of the policy, due to market pressure and promotion from early users.

**Weaknesses**

- **No-budget approach**: In addition to some positive effects, the no-budget approach also negatively influenced the speed of the project. Because it had no budget, the project had no fixed timetable. And because the project’s team worked for free, it consisted of people regularly employed elsewhere (in this case in member companies) who could dedicate time only within the limits of their good will and the good will of their superiors.

**Acknowledgements**

Research and interviews for this case study were conducted by researchers from the Faculty of Social Sciences of the University of Ljubljana (http://www.fdv.uni-lj.si). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The CANARIE e-Business Programme (Canada)

Best practice elements

- **Linking sectoral stakeholders:** Groups of companies with a common purpose and/or similar business formed a “community of interest” to apply for funding, aided by CANARIE experts.

- **Strong focus on sustainability:** Each consortium applying for funding was required to submit a five-year business plan drawn up in cooperation with a CANARIE expert. Unsustainable projects were dropped at this stage.

- **Repayment obligation:** Based on sales of products developed within the project, a part of the funding must be repaid.

Canada has a very open economy, relying on exports for much of its economic growth. Present and future growth in Canada is very much SME-dependent. In Canada, SMEs (defined as firms with fewer than 500 employees) make up roughly 80% of all firms.

The e-business programme was initiated by CANARIE, a non-profit internet development organisation supported by its members and the Canadian government. It aimed to help Canadian industry to become more competitive through assisting organisations, especially SMEs, to develop and deploy e-business strategies and applications. A focus was on strategies and applications that related to such business models as supply-chain management, sell-chain management, customer relationship management or e-government initiatives, and that could exploit the capabilities of broadband networks. Development activities were carried out in the framework of individual research and development projects, selected from proposals made by private sector consortia.

The “communities of interest” concept was at the core of the approach. These communities could be any group of companies with a common purpose or in similar businesses such that initiatives taken could benefit all. A second key component was the requirement that each consortium submit a five-year business plan addressing the sustainability of the proposed initiative. CANARIE experts worked with project teams for several months to develop the community and the business plan.

Profile

**Approach:** Development and deployment of strategies and applications for sectoral “communities of interest” with special focus on sustainability

**Sectors addressed:** Grocery distribution and sales; pharmacies; food services provision; livestock production; livestock processing; construction materials; logistics; performing arts; sporting goods sales; maritime products sales; tourism; automobile leasing; hydro power generation and distribution; pharmaceuticals manufacturing; biotechnology manufacturing; metals marketing; food processing; printing and publishing; design and fashion; plastics production; construction; software development; insurance sales; supply-chain management for several manufacturing sectors

**Duration:** April 1999-March 2007

**Funding:** €20.0 million from CANARIE
€27 million from firms in the private sector

**Contact point:** Ms Susan Baldwin, CANARIE Inc.; 4th Floor 110 O’Connor St., Ottawa, ON Canada K1P 5M9 (susan.baldwin@canarie.ca)

**Website:** http://www.canarie.ca
Background, objectives and resources

Background and objectives
Canada’s e-business policies have developed as a governmental response to initiatives from the private sector, catalysed by the E-Business Opportunities Roundtable, formed in June 1999 by Nortel Networks and the Boston Consulting Group Canada to develop a strategy for accelerating Canada’s participation in the internet economy. The process has been a close collaboration between private and public sector entities. Since SMEs are central to the Canadian economy and since e-business is an essential component for improving productivity and sustainability among SMEs, this initiative became an important priority for Canada.

CANARIE was selected as the best option for an internet-based networking approach focused on communities of interest. It funded the e-business programme described here between 1999 and 2004.

The CANARIE policy invited contributions from all industrial sectors. The programme involved a call for proposals from private sector consortia focused on developing new e-business solutions targeted at one or more industry sectors. This “communities of interest” concept should generate activities that would benefit an entire community.

For example, in the steel industry, where broad Requests for Proposals (RFPs) are issued, small specialty steel companies had difficulty responding. Within this project, the SMEs were assembled into a “community” which, by means of an internet-based template, could then combine forces to bid on RFPs that would have otherwise been unattainable.

Resources
14 projects were funded with a budget totalling some €40 million, 40% from CANARIE, 60% from private sector partners. All funds were used to develop e-business solutions for SMEs in specific sectors or sub-sectors. Contract terms specified a repayment obligation based on sales of products developed within the project. To date, some €5.5 million has been repaid.

Another €36,000 was provided by CANARIE for workshops diffusing project results to promote solutions to investors, to sector-based SMEs, and to SMEs in other sectors.

Activities and results

Activities
As a first step, interested consortia had to submit a brief project proposal of 5–10 pages. CANARIE experts selected proposals with potential and helped build them into full project statements of work, including: a technology development plan; the definition of all project partners and their roles; and a five-year business plan focused on the sustainability of the products proposed for development. A senior steering committee reviewed all these submissions and recommended the best projects for funding.

Outcomes
From more than 40 applications for funding, 14 submissions were approved; 14 “communities of interest” were created around specific projects; and 14 new network-based e-business solutions for SMEs were developed. The leveraged contribution for e-business projects amounts to 56% of total project costs.

<table>
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<th>Funding</th>
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<td>52 person years</td>
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Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs
Each project demonstrated strongly increased utilisation of commercial internet networks both within the project and for SME target customers. Business process software was developed to facilitate the use of internet networks by SMEs in 60% of the projects. Expanded client bases for SME project partners were achieved for projects that developed products for sale to SME customers.

The range of expansion is from limited (initially a few clients in the Manitoba Insurance sector – 100% of a small universe) to very broad (electronic clipboard sold through channel partners such as Rogers, HP, and Microsoft).

A survey showed increased revenues and increased high-quality employment for 55.6% and 88.9% of respondents respectively as a consequence of participation in e-business projects. All participants interviewed are working on the “go to market” phase using their own funds or non-CANARIE funds, or have already reached this phase and have operational systems in use by industry.

Networks and partnerships have expanded throughout. Most teams have identified new markets, new channel partners, new investment partners, etc.

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**Project Example: The CCTP Project**

The goal of the Collaborative Community Trading Platform CCTP (created by CME, ecmarket and CANARIE Inc.) was to accelerate the adoption of e-business technologies within Canada’s manufacturing sector. It provided a cost-effective electronic order management solution for SMEs. The Platform demonstrated its ability to connect to all suppliers and customers of an SME regardless of size. The Platform was also able to connect to five different types of ERP system and could interface with any back-end accounting system.

According to Brent Halverson, President and CEO, ecmarket: “SMEs are a difficult market to reach for software companies and, as a result, have been at a competitive disadvantage with respect to e-business technology for years. Our partnership with CME and CANARIE allows us to cost-effectively access and support Canadian SMEs with our unique e-business solution.”

“SMEs typically don’t have resources for projects that are outside their day-to-day business. By pre-qualifying with the CME, then [obtaining] follow-up with a CCTP specialist, there is a very quick turnaround,” explains Mr Ian Braby of ecmarket.

Although take-up within the Canadian SME community was lower than initial hopes, the project developed a clearer view of the issues facing SMEs and of the constraints to their adoption of e-business solutions.

The official collaboration among the founding partners has ended but both the CME and ecmarket continue to promote the product and to foster its adoption within Canada’s SME community. So far, over 500 SMEs have entered the consultative process on implementation of the CCTP and 40 have adopted or are in the process of adopting CCTP. CCTP is now being targeted at larger firms, and is finding its way into Canadian SMEs through “trickle down”, as large firms implement CCTP in their supply networks.

The original CCTP approach to the SME community would have been more successful had it been better resourced. The budget of CAD $4 million should have been doubled to ensure a broader take up within Canada’s SME community at large.
Conclusions

The CANARIE programme helped participating companies to increase both revenue and employment. One company stated: “We wouldn’t exist without CANARIE and are definitely more competitive. We employ 23 people and we’re going to hire more. So, yes, the CANARIE funds have made a tremendous difference.” Another benefit was the discipline required by participating in CANARIE: developing a business plan, identifying the type of skills required to successfully complete the project, and discovering where to get the identified skills for the “go to market” phase.

By now, 13 of the 14 funded projects are ongoing and growing without further government assistance. Several project teams have agreed to make royalty-based repayments of assistance obtained in the project, and seven have already done so.

Lessons to be learned

The creation of “communities of interest” helped to bring together sectoral teams that were able to achieve critical mass in project development and exploitation of results.

The assessment of the five-year business plans weeded out weaker projects early in the process and strengthened the commercial viability and sustainability of accepted projects.

The open-call, cost-shared, and repayable nature of the programme meant that any sector was eligible for support. It also led several consortia to seek and receive private sector investment support in terms of loans or venture capital.

Facilitators

The provision of outside expert advice to develop statements of work and business plans was critical to the ultimate success of the selected projects. Many projects were dropped by mutual agreement at an early stage because they were either poorly constituted or ill-conceived.

A colloquium of all 14 project leaders, held near the end of the programme, helped to overcome barriers within multiple projects as consortia benefited from each other's experience.

Barriers

Budgets were small and programme timeframes limited. The CANARIE e-business programme is not ongoing; it terminated in March 2007. Although clearly successful in developing innovative e-business solutions, the programme has assisted only a small fraction of the potentially interested SME applicants. Had additional funding been made available for a continuation, impacts would have been greater.

Strengths

- The cost-sharing nature of the programme (50% funding support) and the provision of expert advice in preparing submissions weeded out weak, non-viable project ideas.
- The five-year business plan requirement meant that all approved proposals had a solid business base and were likely to be sustainable, as has proven to be the case for most.
- The communities of interest requirement ensured that the key collaborators within each sub-sector joined forces and that target markets were identified at an early stage.
- The repayable contributions element brought further commercial discipline to submissions. Current repayment levels based on royalties related to project sales are just under €4 million.

Weaknesses

- The programme had a limited time frame. Its success suggests an ongoing programme would be viable.
- CANARIE did not have the authority to co-invest in the projects (through deferment of royalty payments for example), which would have resulted in even greater success.
- The colloquium of consortium leaders near the end of the programme should have been convened at the outset and at mid-points for maximum benefit.

Acknowledgements

Research and interviews for this case study were conducted by Allan Martel Consulting (allanmartel@travel-net.com). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
Supply Chain Logistics Metrics (Canada)

Best practice elements

- **Innovative approach**: The initiative addressed an unmet demand for performance measurement in the area of logistics and supply-chain management.

- **Cross-border comparison**: A benchmarking approach was developed covering supply-chain partners, competitors and sectors both in Canada and the neighbouring US.

- **Broad involvement of stakeholders**: Strong industry associations as well as sectoral channel masters were included to reach a large number of beneficiaries, supported by a broad media campaign.

While investment in manufacturing production processes in Canadian firms can be justified through reference to cost savings related to clear performance metrics, the same cannot be said for proposals relating to logistics and supply-chain measurement. In the absence of clear metrics to assess performance improvement, investment in this critical component of innovation was lagging, leading to a lack of international competitiveness across several industrial sectors.

The objective of this programme was to develop a hands-on tool for Canadian firms to benchmark themselves to their supply-chain partners, competitors and sectors both within Canada and with US firms and sectors.

Supply chain-specific analysis has been completed for the six sectors in question at a micro level. Sector coverage includes: 250 manufacturing sub sectors, 30 wholesale and 70 retail sub-sectors.

Background, objectives and resources

**Background and objectives**

Investment in process improvement must be justified through a business plan with demonstrable payback within acceptable timeframes. In the absence of clear metrics to assess performance improvement, investment in this critical component of innovation was lagging, leading to a lack of international competitiveness across several Canadian industrial sectors.

Canadian manufacturers, retailers, wholesalers and logistics service providers need quality information on logistics and supply-chain management (SCM) costs, as well as performance indicators, to provide best practices and benchmarks, to justify investment and innovation, and to monitor industry performance.

The first step to obtain this information is a sector-focused analysis going beyond cost and efficiency indicators to examine the key elements within each sector.

Profile

| Approach: Development of a benchmarking tool for the analysis of logistics and supply-chain processes |
| Sectors addressed: Aerospace, automotive, electronics and manufacturing, pharmaceutical and chemical, retail and consumer products |
| Duration: October 2005-October 2007 |
| Funding: €300,000 from Industry Canada €150,000 from trade associations, provinces |
| Contact point: Mr. Philippe Richer, Industry Canada, 235 Queen Street, Ottawa ON, Canada K1A 0H5 (richer.phillipe@ic.gc.ca) |
| Website: http://www.strategis.ic.gc.ca/logistics |
sector and its sub-sectors that drive logistics and SCM. The development of a supply-chain perspective on an individual basis enables firms within the sector to see the wider picture over several years. In addition, each sub-sector has characteristics and nuances that must be addressed in detail to supply the data for building the internal rationale to justify investment.

Since Canadian manufacturers are strongly export-focused, the analysis was also conducted for the six corresponding industrial sectors in the US.

Three groups were targeted, comprising thousands of individual firms:

- Six industry sectors, including 350 sub-sectors.
- SMEs selling to large corporations as part of a supply chain dictated by their customer or “channel master”.
- Large firms with supply chains (as a means of filtering down to SME suppliers within the chain).

Resources

The key infrastructure consists of an SCL (Supply-Chain Logistics Association) industrial research committee made up of 25 SCM executives from the identified six priority sectors. There was no requirement for a financial contribution from SMEs. Associations funded their own involvement in this project, including hosting dissemination conferences and seminars for their members.

### Funding

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### Activities and results

#### Activities

Industry Canada (IC) initiated this project in October 2005 in response to the Industry Canada Innovation Agenda. The association responsible for supply chain and logistics issues in Canada (SCL - Supply Chain and Logistics Association of Canada) identified the six key industrial sectors for which key performance indicators (KPI) were required, through a survey of its corporate members conducted in October 2005. The SCL became a key project partner with the establishment of a new Industrial Research Committee (IRC) composed of 25 supply chain executives from the identified six priority industrial sectors in December 2005.

For each of the six key sectors, an individual supply-chain report was written, containing an economic model of the sector's supply chain based on key performance indicators. These reports were reviewed and adapted to the practical needs of industry by the SCL and subsequently presented at various industry fora and delivered electronically through IC and partner web sites. The next phase in the project was the development of the assessment tool by Industry Canada based upon feedback from firms during the presentation of the supply-chain reports.

#### Outcomes

50,000 SMEs have downloaded the tool and/or received the reports through their key associations. There are at least ten channel masters (i.e. large firms that set the terms and conditions for all members of their supply chains, including, at times, forcing the adoption of new technologies and processes) implementing performance measurement in supply-chain management with their Canadian and US suppliers.

The firms that implemented performance measurement (i.e. measured landed cost, shipment delays and documentation issues) on a corporate-wide basis achieved significantly larger improvements in performance than did firms that measured only locally and/or inconsistently.

Several large firms have adopted this system successfully and subsequently extended it to their external supply chains. Canada’s two largest industry associations became active partners, promoting this initiative strongly to their members. Media have described this initiative as ground-breaking and overdue, among other positive comments. Within IC and transport, this is a key process innovation project.
The assessment tool and the benchmarking data and analysis at the micro level have enabled executives responsible for supply-chain logistics management within Canadian firms to develop sound business cases to support the required internal investments for improving important business practices. The sub-sector-based data analysis, trends identification, and benchmarking enable firms to assess relative improvement and to set investment priorities.

**Conclusions**

The initiative has laid the groundwork for improving the competitive position of thousands of Canadian firms within the six industrial sectors analysed. It has reached critical mass, with thousands of firms (mostly SMEs) now aware of this initiative and reviewing the trends and tools developed. SMEs with good business practices gain a competitive edge when supplying commodities to large firms, locally and in export markets.

The initiative was highly collaborative, with industry experts determining priorities for data collection, trends analysis and reporting, and tools development. The sector focus at a micro level enabled the generation of results that individual firms in the 350 sub-sectors can use to evaluate their performance and to make the internal business case for investment to rectify problems identified.

**Project example: Supply-Chain Logistics and Management in the AstraZeneca Corporation**

AstraZeneca is a pharmaceuticals importer and distributor based in Toronto, Canada.

AstraZeneca compared its performance in various supply-chain business processes against Canadian competitors’ performance as reflected in the benchmarking analysis completed within the study. It concluded that its performance was consistent with the practices of Canadian competitors and that almost all firms within the Canadian sub-sector were performing at roughly the same level.

The company is now making subtle changes (fine tuning) in its business practices related to supply-chain logistics in order to obtain a small margin of competitive advantage.

The best returns on business process improvement are being obtained in the areas of inventory turns and inventory carry (weeks of supply). There is less room for improvement in areas such as service to the customer, where AstraZeneca’s order index metric is recognised as already well-developed.

The bottom line is that participation in this project enabled AstraZeneca to set its investment priorities for business process improvement within the context of a benchmarking analysis. AstraZeneca has yet to use the specific tool that was developed in the project but will soon use it to calibrate progress to date and to obtain a more definitive and precise definition of its comparative status and progress in business practices improvement.
Lessons to be learned

The most important strategic factor is the sector-specific analysis. The analysis must take place at the micro level in order to accommodate the variations in context for SMEs operating in an industrial sub-sector. This means the tools developed are directly useful to each SME operating in the sub-sector.

Partnership with strong industry associations is key for industry outreach. Priorities were set by industry; communications channels were opened through industry associations; project promotion and credibility came through associations’ endorsement.

Heavy promotion through media and associations led to broad SME involvement. Tens of thousands of Canadian SMEs were reached during this programme – perhaps the most extensive reach in Canadian business history. The resulting model is broadly applicable and could be applied in other countries, including some EU countries that have access to detailed input-output tables, occupations and innovation KPI.

Facilitators

This project created a broad public-private partnership for all phases of the work. Industry set the priorities. Industry associations acted as disseminators for project results and provided the fora for feedback to the project team from association members. Website delivery of the reports and tools and exceptional support from trade media distributed project results widely. Most importantly, the analysis was designed for use by individual firms in the target sectors.

Barriers

The choice to conduct this analysis at the micro level for 350 targeted sub-sectors limited the possibility to analyse, at the same time, differences by firm size or region. Insofar, as this project did not conduct macro level analysis, it is of limited use to policy analysts within government agencies, but of great use to firms themselves.

Due to the substantial effort needed for gathering the required data, results of the project can only be updated every second year.

Strengths

- This project had both a clear focus and quantitative outcome targets.
- By allowing industry itself to set priorities, to develop trends based upon data collected, and to disseminate results through its trade associations, “ownership” of the project transferred to industry. Since the subject matter related to a critical component of competitiveness, it was a priority and continues to be a priority for all partners.
- Ever-increasing interest and adoption of results in unanticipated sectors such as banking demonstrate the momentum that continues to build around this project.

Weaknesses

- The process itself is not transferable to all jurisdictions because of data collection requirements that specify detailed input-output tables, occupations and innovation KPI collected at the national level.
- The decision to conduct the analysis across 350 sub-sectors eliminated the possibility of producing data related to size of firm.
- Sector coverage was limited to six industrial sectors. While this was reasonable for this study, expanded analysis into other sectors could also prove useful and should be contemplated.

Acknowledgements

Research and interviews for this case study were conducted by Allan Martel Consulting (allanmartel@travel-net.com). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs

**Sectoral B2B Networks (Korea)**

So far, funding of some €83 million has been made available by the Ministry, and 48 business sectors have benefited. Rather than supporting individual companies, the project aims to establish standardised B2B infrastructures which can be utilised by all companies in a given industrial sector. Applicants are required to form a consortium at the sectoral level, with the respective business association as a nucleus. In this way the project promotes the SMEs’ voluntary participation in e-business and avoids duplicative investment in B2B network establishment from individual firms.

**Best practice elements**

- **Boosting e-business**: The initiative promoted e-business on a broad scale, increasing the number of B2B transactions and the proportion of e-commerce to overall business in Korea.

- **Infrastructures instead of individual support**: The initiative established standardised B2B infrastructures for a whole sector and - potentially - all its companies.

- **Industry associations as nucleus**: The associations acted as knowledgeable managers of project consortia, thus attracting more companies and helping to avoid duplicative investments in a sector.

The Korean government has been strategically promoting e-business since the Fundamental Law for e-Business was enacted in 1999. In line with this, the Ministry of Commerce, Industry and Energy launched the Sectoral B2B Networks initiative in 2000, targeting key Korean industries such as electronics, car manufacturing, ship building and steel production. The project was designed to lay the groundwork for e-business and to encourage the private-sector-led standardisation of e-business. It was also intended to create effective business networks within the sectors by adapting common systems among competitors, consequently increasing the overall competitiveness of Korean industry.

**Background, objectives and resources**

**Background and objectives**

Korea is one of the most advanced countries in terms of Information Technology. Between 1997 and 2000, the expansion in e-business investment among the 200 biggest Korean companies was far higher than the international average, and the e-commerce market showed similar rapid growth. However, digitisation of information in industrial sectors did not match the Korean average. While investments in e-business among industrial sectors are growing, actual transactions by means of IT are still the exception rather than the rule.

One reason is the lack of collaboration among companies in the same sector. They tend to see one another only as competitors, despite many proven ways to increase productivity through collaboration. Another negative business practice in Korea is the ‘transaction without document’, which is commonly used to avoid tax payments. It impedes business transparency, an essential precondition for e-business. Other reasons are a shortage of software infrastructure, IT personnel and

**Profile**

| Approach: | Large scale initiative for the promotion of e-business solutions based on an intra-/inter-sectoral networking approach |
| Sectors addressed: | Steel production, ship building, paper manufacture, logistics, retail, ship supplier, credit insurance and other sectors (48 in total) |
| Duration: | February 2000-ongoing |
| Funding: | ~€83 million (105.6 billion Won) from the Korean Ministry of Commerce, Industry and Energy |
| Contact point: | Mr Seok Tae Ryoo, Ministry of Commerce, Industry and Energy; 3 Joongang-dong, Gwacheon-si, Gyeonggi-do, 427-721 Republic of Korea (ryoo@mocie.go.kr) |
| Website: | http://www.ebiznet.or.kr |
The B2B initiative also established a transaction service between the sectors, and set up an integrated platform for general services such as logistics, payment and insurance. It connected the established networks to G2B and giant buyers such as Samsung IMK, bringing the networks to the national level. In addition, the initiative now provides a relay service for electronic documents, and recently started the Global Data Synchronisation Network (GDSN) service to connect domestic networks to overseas markets as well.

Outcomes

The Sectoral B2B Networks initiative established B2B networks in 48 sectors, with about 1,400 individual companies (about 70% SMEs) participating. It is estimated that around 60,000 companies are utilising databases or e-marketplaces established through the initiative. The amount of B2B transactions among the companies supported during the first four rounds reached about €42 billion in 2005. This is 16.7% of the domestic B2B transactions in the same year.

Resources

The total budget of the initiative was about €88 million (105.6 billion Won), provided by the Ministry of Commerce, Industry and Energy in a six-year time frame from 2000 to 2006. A budget of that size was seen as a necessity to build a fully fledged e-business infrastructure.

Activities and results

Activities

The Sectoral B2B Networks initiative has a two-fold approach. It aims to establish a database and standardised B2B network for each selected sector. At the same time, it aims to build integrated platforms between sectors and to connect them to overseas markets.

For the first goal, the Ministry announced a call for proposals at the beginning of each year from 2000 to 2005, targeting not individual companies but business associations in different sectors. In this way, the policy aimed to maximise the number of participating companies, to promote intra-sectoral collaboration, and to increase sector impact.

To join the initiative, applicants were required to form a consortium consisting of a business association as a managing organisation, its member companies, and a network developer. Proposals were selected according to their impact on the sector, the expected outcome, and the potential to connect different sectors and overseas markets. For each sectoral project, the initiative provided funding for 70% of the cost of building a database and standardising e-business procedures.
Outcomes vary from sector to sector. In machinery equipment and paper manufacture, where a transaction model was developed and the stock information became available real-time, processes and overall efficiency were improved significantly. In the major industries of car manufacturing, retail and ship building, large enterprises and SMEs share their product information in the respective network systems, set up as a collaborative model. Although the specifics and functions are different in each network system, these systems allow SMEs to interact simultaneously with more than one business partner. As a result, SMEs were able to run their businesses more efficiently and to increase their competitiveness. Construction, furniture manufacturing, oil refining, toy and jewellery manufacturing industries did not meet the expected targets, and the government support lasted only one or two years, instead of three.

Conclusions

The Sectoral B2B Networks initiative supported the establishment of sector-specific B2B networks rather than sponsoring individual enterprises directly. By doing so, the initiative motivated other enterprises to join the network, and so created critical mass in the sector.

Ultimately, the initiative worked as a driving force behind a boost in domestic e-commerce. The number of domestic B2B transactions and the proportion of e-commerce to overall business are now increasing every year. By introducing a B2B network in those sectors, the initiative reinforced the competitiveness of the participating companies, and inspired other companies in the sector to positively consider adopting e-business, which in turn added to the sustainability of the system.

Lessons to be learned

There are three key lessons that can be learned:

Understanding business culture: Each business sector has its own way of doing business. Implementing e-business is not only the change from paper to computer but also the transformation of business practices. It is essential to understand SMEs’ business culture to attract them into e-business.

Understanding the procedure of B2B network building: The initial phase of the project – standardisation and building common databases – was lengthy and created high costs. Participating SMEs can become frustrated if they do not fully understand this procedure, and some may even drop out. It is important to make every participant understand the process of establishing a B2B network.

Practical Approach: In order to draw SMEs into the project it is important to show them that engagement in e-business means real-life “profit”.

Facilitators

Adopting both sectoral and cross-sectoral approaches at the same time, so that the common services could be provided without duplicative investment.

Establishing a B2B system for an entire sector and - potentially - for all companies in the sector, and so motivating companies to participate.

The central role of the business association as a Managing organisation, formulating the sector-specific B2B system, and collecting the needs of individual companies for integration.

Barriers

Legal advantages such as tax reduction could have increased participation.

A lack of IT understanding from the business side and a lack of process understanding from the side of system developers, which took time and resources to solve. Conventional business practices, such as a tendency to trade only with known companies, and conducting transactions without documents, discouraged many SMEs from participating in the B2B network. A lack of IT personnel and software in SMEs delayed the process of B2B network establishment.

Strengths

• Generating high impact on industry as a whole: The large scale and budget of the policy initiative generated impact on Korean industry in general.

• Fostering a collaborative atmosphere: By supporting the establishment of open B2B networks, the initiative fostered a collaborative atmosphere among competitors in a sector.

• Future potential: There is wide scope for future use of the standardised database. In each sector, the customised B2B network can be further developed and expanded according to demands of its business process.

• Modernisation of business practices: Through participating in B2B networks, some of the conventional business practices were overcome and transparency of the business process was increased.

Weaknesses

• High initial cost: The cost of the initial phase was high, and results took a long time to become visible, which frustrated some participants.

• Extra costs for adopting the B2B network: Costs for the adaptation of internal IT systems to the system used by the B2B networks had to be borne by the companies themselves.

• Lack of success in business sectors without a strong central point: Business sectors without strong leadership showed less success than other sectors.

Acknowledgements

Research and interviews for this case study were conducted by Hyeyoung Kim (korea.germany@gmail.com). The full case study, with references and sources, is available in the Benchmarking Report, which can be downloaded from the eBSN website (http://ec.europa.eu/enterprise/e-bsn/index_en.html).
The European e-Business Support Network for SMEs (eBSN) was established in 2003 by the European Commission, in response to high-level political focus on the important role of ICT in boosting the competitiveness of the overall EU economy. Its ultimate goal is to improve the effectiveness of public SME policies in fostering competitiveness by promoting the innovative use of ICT.

eBSN is an eBusiness policy coordination platform, bringing together decision makers and public policy experts in the field of eBusiness, to share information and to discuss strategic policy direction. It is a tool to make existing e-business policies more consistent.

Background of the eBSN: learning from each other – exchanging best practices

The eBSN builds upon the results of the „Go Digital” initiative (2001-2003), an umbrella policy covering many activities to support SMEs in using ICT for doing business. In 2002, the benchmarking study on „national and regional policies in support of e-business for SMEs” found many successful policy initiatives in Europe, but pointed out that their efficiency could be further enhanced by learning from each other and sharing best practice and information material. Similarly, in its conclusions on the impact of the e-economy on the competitiveness of European enterprises of 6 June 2002, the Industry Council invited the EU Member States and the Commission to „intensify dialogue, exchange regularly experience, identify specific goals for e-business policies and to share best practices”.

Objectives of the eBSN

The eBSN was founded to address this goal, by improving co-operation and using synergies within the European e-business policy community. Activities of the eBSN focus on networking and the exchange of good policy practice. More specifically, the objectives are:

- To bring together decision makers in the fields of eBusiness, with a view to sharing information and discussing strategic policy orientation;
- To provide a platform for policy coordination among Member States;
- To provide a „one-stop shop” for information about regional, national and European initiatives and funding possibilities for SMEs;
- To organise special meetings of governmental eBusiness experts as a platform for sharing practical experience and identifying future challenges.

The eBSN is open to all relevant policy initiatives in support of e-business for SMEs in the Member States, the Candidate Countries and the EEA EFTA States which are willing to share experience and information, as well as to eBusiness experts and representatives of the business community. A standing invitation for expression of interest to join the eBSN is available at the eBSN portal http://ec.europa.eu/enterprise/e-bsn/about/members/index_en.html.

A success story

The eBSN has become a success story. It has grown to involve more than 200 public policies or private-public partnerships from 30 countries in Europe. It supports policy analysis and benchmarking, shapes policy trends, generates synergies between national policies and inspires new e-Business policies, by exchange of good practice.

eBSN is a “policy intelligence” initiative, which follows policy developments and identifies new policy trends. At its first steps, eBSN confirmed a policy shift from sponsoring and co-financing ICT investments and Internet connectivity towards policy instruments that stimulate SMEs to explore the innovation potential of ICT and eBusiness.
More recently, eBSN confirmed a new policy trend, namely the sectoral policy approach for eBusiness i.e. supporting SMEs to develop their eBusiness strategy in full cooperation with their business partners, namely their suppliers, customers, and knowledge providers. Emphasis is given to the productive use of ICT by an entire group of enterprises that are interacting in daily business transactions, either within the same sector or between interacting sectors. SMEs do not operate in isolation: they maintain complex business links with business partners, customers and providers, often from different industrial or services sectors and spread all over the world.

A wide range of eBusiness policies at European, national and regional level are increasingly backing up this shift in policy. Therefore, there is a need for greater policy coordination capacity in this field, in order to spur progress towards the Lisbon target.

Moreover, eBSN provides opportunities for international collaboration, among the eBSN members. A good example is to be found in the elinvooing field: promoting “elinvooing by SMEs”, a very practical eBusiness initiative running under Finnish regional policy in South Karelia, was successfully transferred to Slovenia, thus demonstrating that transferability of best practices in eBusiness is feasible. This in turn quickly triggered a new series of cross-border joint policy initiatives, between Slovenia, Italy, Croatia, Hungary and Austria. In parallel, the Finnish regional elinvooing initiative expanded into cross-border exchanges with Sweden and Denmark.

With its activities, the eBSN is an important pillar of the ICT and eBusiness related policies of DG Enterprise and Industry, in combination with other policy pillars (for example the Sectoral e-Business Watch Function, the European e-Skills Forum, ICT standardisation and interoperability and policies in support of a favourable legal environment for e-business).

**The eBSN structure**

The eBSN Steering Group consists of representatives of the European Commission, the participating countries, academics and the business community. The Steering Group decides on the objectives and modus operandi of the network and the practical arrangements to foster cooperation, and specifies the overall policy priorities for action. The Steering Group meets about twice a year, on invitation of the European Commission.

The eBSN web portal (http://ec.europa.eu/enterprise/e-bsn/index_en.html) links all identified stakeholders and initiatives, and offers further information, statistical data and best practice examples.

As its main forum for exchange, the eBSN organises up to four thematic workshops per year. These bring together interested stakeholders to deepen the dialogue on specific e-business-related issues. Recently, workshops have focused on ICT solutions for SMEs, the deployment of e-standards, and sectoral policy approaches. Workshops provide an opportunity for sharing learning points from good policy practice. Workshops are hosted and organised by eBSN members, often taking place in the country that holds the EU Presidency. In total, 15 eBSN workshops have been held in 2003-2007.

**Current focus of work**

Since 2005/06, eBSN has focused on the following thematic priorities:

- Sector-specific approaches: identify which sectors are most promising for e-business support measures, and whether sectoral policy initiatives are more efficient than others;
- e-Business for micro-enterprises: discuss policies in this field and what should be the way forward;
- Improving e-business solution for SMEs: review the specific needs of SMEs and identify good policy practices in helping SMEs to find appropriate solutions;
- e-Invoicing and e-procurement: identify public policies and public-private partnerships that aim at further promoting the efficient usage of e-procurement and e-invoicing in SMEs.

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The booklet summarises the Final Benchmarking Report of the study „Benchmarking Sectoral Policy Initiatives in Support of e-Business for SMEs”, which was jointly conducted by empirica GmbH, Databank and IDATE, based on a service contract with the European Commission, Enterprise and Industry Directorate General. The study was conducted in the period from January to November 2007.

**The work plan – four search phases**

The study methodology consisted of four phases of data collection, and – for each phase – a set of selection or evaluation criteria to guide data collection and analysis.

**In phase 1**, the objective was to identify relevant sectoral policy initiatives in the countries covered by the study according to the established criteria. About 80 initiatives that broadly matched these criteria were identified. This search and information gathering was supported by national correspondents in the countries covered. Phase 1 was conducted mainly in March and April 2007.

**In phase 2**, more detailed information was collected for about 50 policy initiatives, selected out of those initially identified. Information was gathered via desk research and through interviews. At this stage, the selection was made entirely on the basis of the characteristics of policies, and no assessment was made in terms of a policy’s effectiveness. Phase 2 was conducted mainly from May to July 2007.

**In phase 3**, the 15 policies that best matched the criteria were selected and assessed in more detail in the form of policy case studies. Case studies involved additional interviews with implementing organisations, and, if possible, with participants (e.g. SMEs that had received a grant). As in phase 1, information gathering was supported by correspondents. Summaries of these case studies, which were conducted in July – September 2007, are presented in this booklet.

**Finally, in phase 4**, a synthesis view of the case studies was prepared, to identify best practice elements and common learning points. The objective was not to come up with an overall ranking of policies according to their merits, but to highlight innovative practices and success factors. Special emphasis was placed on understanding the background and context for a policy initiative, and on assessing the activities against this background. This synthesis assessment was prepared mainly in September and October 2007.
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