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Section Five

Digital Ecosystem

Projects Cluster



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The “Technologies for Digital Ecosystems” cluster of FP6 projects

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<http://cordis.europa.eu.int/ist/ict-ent-net/index.html>

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This FP6 cluster of IST research projects is specifically focused on technologies for local growth and SMEs needs. It implements a strong integration between European R&D policy (under the ERA/European Research Area agenda) and national/local growth policies. It is of a highly multidisciplinary nature, with strong interaction between business and technological aspects, and related socio-economic issues.

Aims of the Technologies for Digital Ecosystems cluster

The Technologies for Digital Ecosystems (DE) cluster aims to foster local economic growth through new forms of dynamic business interactions and global co-operation among organisations and business communities enabled by the most recent, user-oriented and efficient combinations of information and communication technologies.

The main research targets basic enabling technologies supporting the local implementation and deployment of a network of interconnected digital ecosystems. The work conducted within the DE cluster contributes to identifying and developing the technologies as well as the scientific and economic models leading to distributed and co-operative bottom-up development and deployment of a pervasive network of digital ecosystems populated by a diversity of ICT-based services, components, knowledge, practices and business models adapted to local conditions.

The “digital ecosystem” is an evolutionary self-organising system aimed at creating a software environment for networked organisations that supports the cluster development of open and adaptive technologies and evolutionary business models. The key enabling technologies developed within digital ecosystem research are geared at providing an ecosystem-oriented infrastructure² that supports the spontaneous composition, distribution, evolution and adaptation of ICT-based services, business services, knowledge and models.

1) The views expressed are those of the author and have not been adopted or approved by the European Commission.

2) See the descriptions in Section 3: Digital Ecosystem Technology.

This platform should allow:

- ▶ The SME software industry to develop co-operatively – and to launch on the network – services and software components that are composed together to form complex solutions of increased added value, suited more precisely to users needs.
- ▶ User SMEs to find the affordable ICT services which support their specific and evolving business networking needs, enabling them to co-operate within and among business ecosystems.

Hence the cluster is addressing the two following strategic issues, with high potential contributions towards the Lisbon objectives:

- ▶ Re-boosting the software ICT service industry in Europe, by proposing a new, more efficient, paradigm for software production - through new forms of co-operation, developing reusable components Europe-wide and enabling multi-revenue-models;
- ▶ Preventing the decline of Small and Medium Enterprises currently unable to adopt ICT in order to increase their productivity³ and to cooperate among each other towards higher visibility, creativity and added value by combining services and joining resources, enlarging their global presence.

Specific outcomes expected from DE deployment include:

- ▶ Enlarging the ICT market, as it adapts to the specific needs of SMEs/micro-enterprises, increasing their productivity
- ▶ Boosting software competition, with increased interoperability, reusability and flexibility (i.e. durability) of software components
- ▶ Increasing quality of service and quality of life (for both producers and consumers)
- ▶ Boosting training and knowledge diffusion, creativity, innovation and SME-based employment
- ▶ And as these improvements diffuse progressively across SMEs/micro-enterprises in all sectors and reach down to final users/consumers, they will help bridge the digital gap throughout society.

Development of the DE cluster up to FP6:

The concept of digital ecosystem has recently emerged in Europe as the next step towards ICT adoption and a European model for the ICT-based enabling infrastructure needed to support the local business ecosystems.

In September 2002, the e-Business unit of the Information Society Directorate-General published on the 'Go-Digital' website and widely disseminated the discussion paper "*Towards a network of digital business ecosystems fostering the local development*". The debate which followed within the scientific community confirmed that the digital ecosystem is a complex and ambitious multidisciplinary field of research, which is defining its identity, structure and exploitation potential, and whose outcomes provide the technological support for innovation in the local business with an impressive potential in generating positive economic impact.

Between and 2002 and 2003, workshops and on-line debates have explored:

- ▶ The interest of the European research community in improving and enriching the research area related to digital ecosystems.
- ▶ The views of incubators and main players from local and regional communities on whether and how local digital ecosystems could support the transition of SMEs towards the digital age.

As part of the 2003-04 implementation of the FP6 IST work programme, the development of the Digital Ecosystem concept aggregated a large multidisciplinary community and led to the presentation of several relevant proposals for Integrated Projects (IPs) considered above threshold, plus other large projects and specific targeted research projects (STREPs) in related areas.

In 2004, owing to the growing interest in digital ecosystems, DG Information Society and Media created a new sector, "*Technologies for Digital Ecosystems*", within the "ICT for Business" unit – which was since renamed "ICT for Enterprise Networking".

A Cluster on Technologies for Digital Ecosystems was defined, with three projects initially, including one large Integrated Project (DBE).

3) It has been estimated that 50% of the differential in productivity increase between US and EU SMEs over the last 5 years is due to the differing adoption rate of ICT in their internal/external business processes.

This cluster has since grown with the addition of new sets of projects, and in 2006, with the last projects launched within the FP6, reached its current configuration described in the table below. The complementary roles of the various projects in the DE cluster are further highlighted on the next page and in the DE project summaries included in the next section.

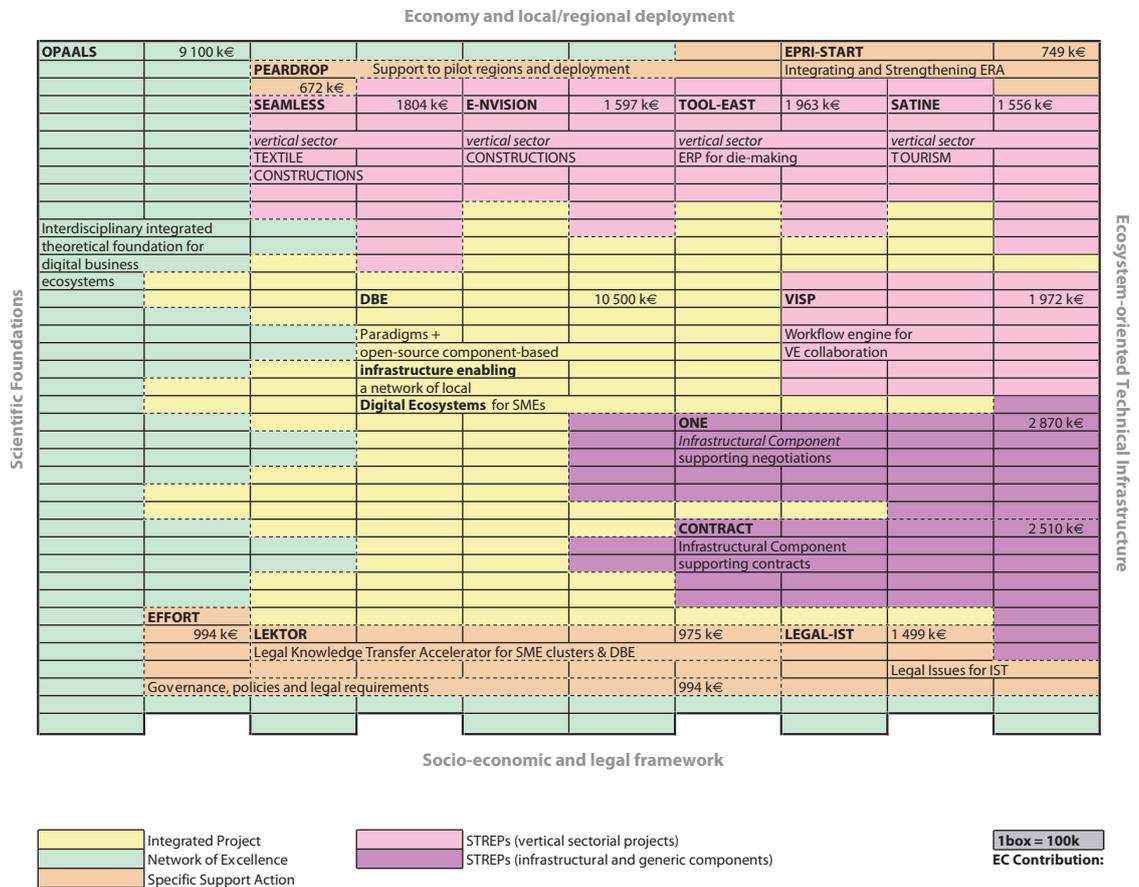
The EC-funded research in digital ecosystems is largely complemented by ERA national and regional initiatives together with local policies, which activate a virtuous cycle based on research innovation, deployment, adoption and growth.

In addition to the three initial EU-funded pilot areas (Aragon in Spain, Tampere in Finland and the West Midlands in the UK), a number of further regions have already joined or are in the process of joining the DBE project initiative, like Extremadura, Lazio, Trentino and the regions of Ireland.. Interest outside Europe is also flourishing, with some cooperation commitments with partners from Africa (such as Rwanda), Asia (such as Kanpur, in India) and South-America (in combination with the Brazilian Pontos de Cultura).



Fig. 1

The Cluster of FP6 Research Projects on Digital Ecosystems



Overall achievements of the DE cluster up to the end of 2006:

To date, FP6 results of the DE sector include:

- ▶ Individual projects research results (including open-source software regarding not just the DE infrastructure developed in the DBE Integrated Project, but also vertical applications geared to the needs of SMEs in various sectors – in support of the tourism, construction, textile and die-making industries but also new services related e.g. to Internet Service Provision, logistics/fleet management, design etc.).

- ▶ Joint results (e.g. due to result from specific collaborations between projects, such as between the CONTRACT and ONE Specific Targeted Research Projects regarding horizontal services to facilitate electronic contracting and negotiations) or their re-use (e.g. following adoption of the DBE architecture by the SEAMLESS STREP) and a strategic research roadmap stemming from close collaborations within and among DE projects (see http://www.digital-ecosystems.org/de/refs/ref_proj.html).
- ▶ The foundation of a new interdisciplinary science helping to bootstrap, observe and guide the development of Digital Ecosystems supporting innovation and development within/across territories, organisational systems and cultures (through the OPAALS Network of Excellence).
- ▶ Collaboration & uptake from regions across the EU & the world, with active support from the DBE and OPAALS projects as well as from Specific Support Actions either specific to the DE cluster (such as PEARDROP aiming at DE deployment, EFFORT aiming to develop DE governance) or with more general objectives (such as LEGAL-IST and LEKTOR on legal issues, EPRI-START to help Enterprise Networking uptake in countries which recently joined or are candidate for joining the EU).

Perspectives of further Digital Ecosystems research and uptake under FP7, CIP and Regional funds:

- ▶ In the Applications Research part of IST, the FP7 programme specifies the following tasks: "new forms of dynamic networked co-operative business processes, digital eco-systems in particular for small- and medium-sized organisations; optimised, distributed work organisation and collaborative work environments such as knowledge sharing and interactive services (e.g. for tourism)".
- ▶ While Digital Ecosystems research activities are not called for in the initial FP7 work-programme among the priorities covering the period 2007-08, most of the DE cluster projects launched under FP6 will continue within this period.
- ▶ The Competitiveness and Innovation Programme (CIP) being set up in parallel to FP7 includes ICT demonstrations via large scale pilots and networking actions, which should be applicable to Digital Ecosystems (some feasibility studies are due to be called for initially).
- ▶ DG Regional Policy is also intending to cooperate with DG Information Society and Media in order to identify how deployment of Broadband and Digital Business Ecosystems across Europe may be boosted within the "Regions for Economical Change" framework.

In summary, due to the important economic and regional development stakes addressed by the DE cluster, the soundness of its objectives and progressive implementation path, and the remarkable quality of the results attained so far within this sector of FP6, an uptake process has been triggered which goes much beyond the three EU regions originally involved in the DBE integrated project (with over a dozen regions now either actively engaged in or contemplating DE uptake), and has the potential to spread much more quickly and efficiently across the EU if knowledge transfer actions of the DE results are launched within the CIP Programme and as part of Regional Policy actions.

These results have been achieved thanks to the intensive work and high academic and scientific standards of the members of the DE research community, and their strong personal engagement and enthusiasm towards the shared objectives of this new research discipline - whose foundations they are helping to lay, and which the February 2007 IEEE Conference devoted to "Digital Ecosystems for SMEs" in Cairn, Australia, will help to further disseminate on the international stage.

2 Summaries of FP6 projects from the “Technologies for Digital Ecosystems” (DE) cluster

1. Network of Excellence structuring the Digital Ecosystem Knowledge/Research

OPAALS

Open philosophies for associative autopoietic digital ecosystems

Project Acronym: OPAALS

Project reference: 034824

Contact person

Organization name: LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Contact person name: DINI, PAOLO

Description

Objective:

Digital Ecosystems are emerging as a novel approach for the catalysis of sustainable regional development driven by SMEs. The two overarching aims of the OPAALS NoE are to build an interdisciplinary research community in the emerging area of Digital Ecosystems, and to develop an integrated theoretical foundation for Digital Ecosystems research spanning three widely different disciplinary domains: social science, computer science, and natural science.

The main claim that OPAALS makes is that in order to achieve sustainable digital business ecosystems of SMEs and software components we need to understand in depth the collaborative processes and ICTs that underpin the continuous creation, formalisation, and sharing of knowledge in the form of business models, software infrastructure for e-Business transactions, and new formal and semi-formal languages. Our strategy is based on the development of an Open Knowledge Space.

Because this process must be sustainable and scalable it must be recursive and self-reinforcing. It follows that OPAALS is the first step in a recursive, reflexive, and self-reinforcing community building process that will culminate at the end of the project with an Open Knowledge community of research and innovation inclusive of all the stakeholders of digital ecosystems but mainly of academic institutions and SMEs.

We will integrate the research outputs in automatic code generation, autopoietic P2P networks, and distributed accountability, identity and trust into the existing infrastructure from the DBE project. These technical and scientific research activities will be balanced by research in the role of formal and semi-formal languages in epistemic communities and in new Open Source models emerging in public and commercial projects. Finally, we will develop a unifying evolutionary framework for language in order to base the evolutionary and adaptation characteristics of the digital ecosystems on the main medium of social constructivism: language.

Start date: 2006-06-01

End date: 2010-05-31

Web site: www.opaals.org

2. Integrated Project developing the first core of the Digital Ecosystem infrastructure

DBE

Digital Business Ecosystem

Project Acronym: DBE

Project reference: 507953

Contact person

Organization name: T6

Contact person name: NICOLAI, ANDREA

Description

Objective:

The overall objective of the DBE is aimed at proving Europe with a recognized advantage in innovative software application development by its SME industry, launching a disruptive technology paradigm for the creation of a digital business ecosystems for SMEs and software providers thus improving their value network.

An open-source distributed environment will support the spontaneous evolution, adaptation and composition of software components - which also embed business rules - and services allowing SMEs, that are solution and e-business service providers, to cooperate in production of components and applications adapted to local business needs.

This will allow EU small software providers to leverage the possibility of new distribution channels providing services at local ecosystems and extending their market reach through the DBE. Easy access and large availability of applications, adapted to local SMEs, will foster ICT adoption and local economical growth of innovation nodes. This can only be achieved with a vision leading to a paradigm shift: the complexity of distributed software production and the new forms of networked business require a multi-disciplinary approach based on biology, physics and social sciences mechanisms and models.

DBE transposes from living organisms mechanisms like: evolution, adaptation, autonomy, viability, introspection, knowledge sharing, selection, and will lead to emergence of novel architectures and technologies, business processes and knowledge. The DBE will change the way SMEs and EU software providers use and distribute their products and services. It will allow SMEs to link enterprise-wide external resources and value networks, and to allocate them based on their business priorities.

The DBE is based on the key finding that with such evolutionary and self-organising system Europe could harness the complexity of software production and its SME software industry could regain competitiveness.

Start date: 2003-11-01

End date: 2007-01-31

Web site: www.digital-ecosystem.org

3. Specific Targeted Research Projects developing horizontal services to provide enhancements to existing infrastructures, with a focus towards the DE infrastructure

ONE

Open Negotiation Environment

Project Acronym: ONE

Project reference: 034744

Contact person

Organization name: CREATE-NET (CENTER FOR RESEARCH AND TELECOMMUNICATION EXPERIMENTATION FOR NETWORKED COMMUNITIES)

Contact person name: TELESCA, LUIGI

Description

Objective:

The main objective of the ONE project is to enrich Digital Business Ecosystems with an open, decentralised negotiation environment and enabling tools that will allow organisations to create contract agreements for supplying complex, integrated services as a virtual organisation/coalition.

The project is especially geared towards SMEs, providing them with a trusted, secure and free of charge technological environment through which they can create the tactical and strategic alliances to pursue business opportunities and growth. To be competitive in Digital Ecosystems SMEs will need to develop alliances and collaborate to provide joint service offerings and also address large tenders.

Current negotiation platforms, such as Business-to-Business electronic marketplaces and Internet trading platforms are centrally managed, not fully trusted by SMEs and/or too expensive and hence not widely used by European SMEs today. Without the support of proper tools, SMEs cannot easily find trustworthy partners to provide services or be found themselves. Access to reputation information is not readily available and negotiations are time consuming. To solve these problems, a negotiation environment must be affordable, open, not centrally controlled, support the sharing of knowledge via flexible security and trust policies and be able to learn and evolve with the changing market conditions.

ONE provides such a solution via an open-source approach ensuring transparency and sustainability. By using the ONE environment all business players (SMEs, Corporations and others) will benefit from reduction of time to market and transaction costs. The ONE environment will also provide wider ecosystem benefits in terms of an increase in the number of participants; better negotiation performance and collaboration while creating new business opportunities.

Start date: 2006-09-01

End date: 2009-02-28

Web site: www.one-project.eu

CONTRACT

Contract based systems engineering methods for verifiable cross-organisational networked business applications

Project Acronym: CONTRACT **Project reference:** 034418

Contact person

Organization name: UNIVERSITAT POLITECNICA DE CATALUNYA
Contact person name: WILLMOTT, STEVEN

Description

Objective:

As technologies for new generations of digital business systems have forged ahead, new and exciting applications have become feasible. However, along with this potential it has also become clear that very significant challenges remain in the need for rigorous analysis of possible execution behaviour and the need for business interactions to be underpinned by sound, binding legal agreements. The main aim of the CONTRACT project is therefore to provide innovative new solutions, which specifically address the need for sound software and business guarantees in digital business applications. In particular, CONTRACT will build on existing theories of software contracts to create new formal models and practical tools for use of dynamic contractual agreements in electronic business environments.

The results will make it possible to:

- ▶ specify electronic business interactions in terms of contracts,
- ▶ dynamically establish and manage contracts at runtime,
- ▶ apply formal verification techniques to collections of contracts in a digital business environment, and,
- ▶ apply monitoring techniques to contract implementation to help increase confidence in business infrastructures.

The contract based approach promises to be a significant breakthrough in the formal specification and verification of business software systems since it raises the level of abstraction at which verification methods can work from detailed execution code to obligations, commitments and rights. Project results will include publicly available theoretical models and a reusable contracting language specification, open source software components compatible with leading business environments and tools implementing innovative verification techniques that make it possible to check contract properties both at design time and run time.

The consortium includes 1 major industrial partner, 3 Universities, a research institute and 3 associated SMEs participating in distinct business case studies.

Start date: 2006-09-01

End date: 2009-02-28

Web site: www.ist-contract.org

4. Specific Targeted Research Projects developing enterprise networking applications (which could be installed on, or linked to the DBE infrastructure) targeting SMEs

SEAMLESS (Construction + Textile sectors)

Small Enterprise Accessing the electronic market of the enlarged Europe by a smart service infrastructure

Project Acronym: SEAMLESS

Project reference: 026476

Contact person

Organization name: UNIVERSITA' DEGLI STUDI DI MODENA E REGGIO EMILIA

Contact person name: BONFATTI, FLAVIO

Description

Objective:

The SEAMLESS project studies, develops and experiments an embryo of the Single European Electronic Market (SEEM) network where a number of eRegistries are started up in different countries and sectors. Distinctive features are:

- ▶ Addressing Craft & Trade (C&T) companies through the respective mediators (chambers of commerce, entrepreneurial associations, local development agencies, ASPs).
- ▶ Focusing on two sectors, Textile (TEX) and Building & Construction (B&C) that are relevant to C&T companies and present overlapping areas (e.g. fabrics for tapestry).
- ▶ Starting up experimental RRs in both EU-15 and new member states (NMS) and establishing interactions between them based on a proper collaboration framework.

In adopting eBusiness solutions, the target companies present figures lower than those of larger enterprises and increasing at a slower pace. The situation in NMS, where the percentage of C&T is even larger than in EU-15, is generally worse, with significant differences between countries. The SEEM vision is towards a web-based marketplace where companies can dynamically collaborate without cultural and technological constraints. The SEEM allows an objective comparison of profiles and offers of company of any size and location, and this could open the eBusiness space to the many small companies (providing high quality products and services at lower cost) that now risk to be left aside from the electronic market.

The main project activities are devoted to define a collaboration framework and proper business models, realise evolving sectoral ontologies, develop a technological infrastructure and a number of applications and services on top of it. Six eRegistries are experimented, in Poland and Slovenia (B&C sector), in Spain, Slovakia and Romania (TEX sector), and in Hungary (generic). The SEAMLESS project intends to provide an independent contribution to the Digital Ecosystem initiative and strictly collaborate with the relative cluster of projects.

Start date: 2006-01-01

End date: 2008-06-30

Web site: www.seamless-eu.org

E-NVISION (Construction sector)

A new vision for the participation of European SMEs in the future e-Business scenario

Project Acronym: E-NVISION

Project reference: 028067

Contact person

Organization name: FUNDACION LABEIN

Contact person name: ANGULO, JOSEBA INAKI

Description

Objective:

The future business scenario will be global, open and collaborative, dynamic and adaptive, frictionless and consistent. The main barrier SMEs have to face in order to exploit, adapt and migrate to this e-Business scenario is the lack of SME-oriented methodologies or tailored solutions.

The main objective of e-NVISION is the development and validation of an innovative e-business platform enabling SMEs to model and adapt particular business scenarios; to integrate all their enterprise applications and to incorporate legal, economical, social and cultural services, with the final goal of facilitating their participation in the Future European e-Business Scenario.

The main outcomes of the project are:

1. A specific SME-oriented e-Business Model formally described by a set ontologies.
2. A semantically enriched web service-oriented e-Business architecture providing modularity and integrability.
3. A set of business contextual services enabling SMEs to incorporate legal, social, economic, and trust aspects in their business model.
4. A number of semantic integration components facilitating the integration of the most common enterprise applications: Enterprise Resource Planning, Customer Relation Management, logistics, etc.
5. A range of Semantic Tools providing the necessary decision support for governing the behaviour and progress of e-Business, through inference processes.
6. An Open Source e-Business Platform integrating the previous elements in an efficient SME-scale Information System, open and configurable enough to be adopted by SMEs.

This Semantic e-Business Platform will be validated in the framework of four different scenarios involving SMEs of the Construction and Building industry.

The consortium is composed of 3 RTD organisations, 1 University, 4 ICT & consultancy companies, 4 SMEs and 3 Clusters of organisations from 5 European countries (Spain, France, Lithuania, Slovenia, and Poland) with the clear aim of incorporating and validating as much experience as possible.

Start date: 2006-01-01

End date: 2008-12-31

Web site: www.e-nvision.org

SATINE (Tourism sector)

Semantic-based interoperability infrastructure for integrating Web service platforms to peer-to-peer networks

Project Acronym: SATINE

Project reference: 002104

Contact person

Organization name: MIDDLE EAST TECHNICAL UNIVERSITY SOFTWARE RESEARCH AND DEVELOPMENT CENTER

Contact person name: PROF. DR. ASUMAN DOGAC

Description

Objective:

SATINE aims to develop a secure semantic-based interoperability framework for exploiting Web service platforms in P2P networks for tourism. Quantified objectives achieved:

- ▶ Exploiting semantics for Web services in the travel domain: SATINE provides a component to wrap existing information resources to make them appear as semantically well described Web services. It provides an easy to use tool for SMEs to easily create Web services from their existing enterprise applications. The wrapped resources are able to exchange information with other Web services in a Peer-to-Peer network.
- ▶ Semantically enriching Web Service Registries: Currently, the main service discovery mechanism is the service registries like UDDI and ebXML. SATINE project enriches the UDDI and ebXML registries with mechanisms to store and access Web service semantics to facilitate the discovery and automated composition of complex Web services for travel.
- ▶ Semantic Discovery of Service Registries: In SATINE architecture the Web service registries are connected through a Peer-to-Peer network to facilitate their discovery performing semantic routing of the queries.
- ▶ Semantic Interoperability of Diverse Tourism applications: Although there are efforts to standardise the messages exchanged in the travel domain such as Open Travel Alliance, not every travel company can be OTA compliant. In SATINE, the interoperability of all sorts of Web services is addressed at the semantic level through ontology mapping.
- ▶ Semantic Web Service Composition Tool: The platform provides a set of tools supporting the semi dynamic composition of semantically enriched Web services.
- ▶ Support for SMES: Web services could not be registered to any service registry but simply made available through a Web site, especially by SMEs. SATINE provides a mechanism to facilitate automated discovery of services through P2P technology.

Use and Impact:

- ▶ Providing an easy to use tool for Small and Medium Enterprises to easily create Web Services from their existing enterprise applications including a component to wrap existing information resources to make them appear as semantically well described Web Services.
- ▶ Extending the reach possibilities of tourism enterprises by making their own semantically enriched web services available to others either through service registries like UDDI and ebXML or directly through the peer-to-peer network.
- ▶ Extending the life of existing software by exposing proprietary functions as Web services.
- ▶ Saving time and money by cutting of software development time by wrapping already existing travel information system applications as Web services.
- ▶ Allowing complex service composition exploiting the semantics of travel services.

Start date: 2004-01-01

End date: 2006-06-30

Web site: www.srdc.metu.edu.tr/webpage/projects/satine/index.html

TOOL-EAST (Die-making sector)

Open source enterprise resource planning and order management system for Eastern European tool and die making workshops

Project Acronym: TOOL-EAST

Project reference: 027802

Contact person

Organization name: FORSCHUNGSINSTITUT FUER RATIONALISIERUNG

Contact person name: IMTIAZ, ALI

Description

Objective:

Tool and die making workshops provide critical support for industry by providing and designing customized mechanical components. It is estimated that within the EU these enterprises, especially the Eastern European, are mostly organized as SMEs. They do not have the financial and human resources for the implementation of complex ERP applications from the powerful software suppliers. Furthermore the functionalities of these standardized applications do not fulfil the specific requirements of the tool and die making industry.

The project Tool-East will provide a cost-efficient ERP application for tool and die making workshops on the basis of existing open source ERP applications. Within the project the open source application will be adapted and modified for the specific requirements of this branch. The new adapted and modified ERP application supports the efficient coordination of intra-enterprise order processing and strengthens competition and competitiveness of Eastern European SMEs. Primarily, orders management, work planning, resource allocation and CRM need to be optimised and linked together in a dynamic work environment. Moreover ERP applications are necessary for the electronic collaboration in dynamic business networks. To enable industrial cluster to e-collaboration the consisting process and data standards will be considered for the Tool-East project.

One main challenge of this project is to use open source technology for the development of an integrated business application for tool and die making enterprises with high performance regarding availability, safety and maintainability at the very onset. Strengthening the open source initiative in general and particularly in this field of business opens an enormous potential for SMEs. Since demands for business software from other branches with specific SME structures are predominantly comparable, results from this project can be transferred easily, so that a large impact can be assumed.

Start date: 2006-01-01

End date: 2007-12-31

Web site: www.tooleast.org

VISP (Internet Service Provision)

Virtual ISP

Project Acronym: VISP

Project reference: 027178

Contact person

Organization name: PERCEVAL TECHNOLOGIES SA

Contact person name: MANNIE-CORBISIER, ERIC

Description

Objective:

The VISP project will enable a cluster of SMEs to operate, as a single business entity, in multiple dynamic business models, for the production of tailored Internet Service Provider (ISP) solutions adapted to local business needs. VISP will specify ISP services by combining building blocks chosen in a list of a few hundreds that can each be parameterised. This will allow selling tailored services with a fine control and to differentiate from incumbent operators.

Ontologies of building blocks specified in a language like OWL will enable software based service design and ordering. It will result in a precise description of the services (knowledge base) to be implemented and provisioned that will be advertised in WSDL using UDDI. Implementation and provisioning of building blocks by different partners will require business and technical processes in the cluster. They will be modelled as workflows using choreography and orchestration formal languages in order to be executed and monitored on distributed workflow engines.

Technical workflows will act on network components through an abstract object representation based on existing standards like MIB, CIM, etc. Global data will be stored in LDAP following the Directory Enabled Networks (DEN) principles to be accessed by cluster's partners.

VISP will combine multiple innovative technologies mainly based on XML in the field of ontologies, workflow technologies, network modelling, DEN and Web services. VISP will build an integrated and automated software platform made of a modelling environment linked to a distributed, secured and manageable workflow execution environment interfaced with ERPs. VISP intends to use and produce Open Source software as much as possible.

VISP will also contribute to standardization by extending existing standards to encompass ISP services and their implementation. It will adapt and complement business workflows, and specify technical workflows as contribution to standards.

Start date: 2005-11-01

End date: 2008-06-30

Web site: www.visp-project.org

5. Specific Support Actions supporting specifically the DE cluster

PEARDROP

Promoting ecosystems and regional development - in support of regional operational programming

Project Acronym: PEARDROP **Project reference:** 034735

Contact person

Organization name: ASSOCIATION REGIONALE EUROPEENNE SUR LA SOCIETE DE L'INFORMATION
Contact person name: HUGHES, GARETH

Description

Objective:

The principal focus of PEARDROP is to make more accessible and more practicable for regional policy makers and key local actors the instruments for exploitation and adoption of research and deployment results in ICT for Enterprise Networking and, in particular, in Digital Ecosystems.

PEARDROP aims to draw together the most salient results of the innovation and digital business ecosystem cluster of FP6, including some first regional deployment experiences and results, converting these where necessary into 'layman's' terms, as well as into a number of EU languages (minimum 5), with a view to making them more accessible and of more practicable use to regional policy makers, especially those concerned with regional operational programming and with eBusiness development.

PEARDROP expects to increase significantly the number of regions that are interested to adopt it, and actively participate in, or considering deployment of, innovation and digital business ecosystem research and models. PEARDROP will seek to better understand critical success factors in terms of the behaviour of regional development agents, and will propose systems (tools, methodologies and models) for assessing the risks and barriers, as well as the benefits and effectiveness, of such approaches and related policy interventions with a view to supporting regional policy makers and programmers in formulating more effective policies.

PEARDROP acknowledges and will take due account of the diversity of European regions and the inter-regional variations of context and conditions that exist. PEARDROP does not propose to identify, develop or promote a single DBE approach or deployment model but rather to collaboratively define alternative approaches or models that could be adopted according to specific regional circumstances.

Start date: 2006-09-01

End date: 2008-08-31

Web site: www.peardrop.eu

EFFORT

Governance behaviour, policies and legal requirements for facilitating access to market by dynamic clustering of SMEs

Project Acronym: EFFORT

Project reference: 035088

Contact person

Organization name: UMBRIA INNOVAZIONE S. CONS. A. R. L.

Contact person name: CARDONI, GIUSEPPE

Description

Objective:

The objective of EFFORT is to gain understanding of the behaviour, governance, sustainability and constituency drivers of dynamic cross-border and cross-regional clusters of SMEs to improve their ability to access the global market, facilitating collaborative production of products and services, as well as responding to procurement contracts of public or private organizations.

EFFORT will investigate also the legal framework and policy activities needed to address the setup of the innovation ecosystem governance structure. Market access will be improved through a double process of “extended” and “dynamic” clustering. The “extended” clustering implies aggregating capabilities of clustered SMEs at different level overcoming the geographical boundaries and operational limitations of traditional clusters. The “dynamic” clustering implies adaptability in configuring “virtual” clusters to respond to specific market opportunities.

The fundamental challenge is how to facilitate dynamic external clustering, and to build capacity across clusters and networks of SMEs. This challenge involves building ‘internal’ capabilities enhancing the organizational, knowledge and technological capacity of SMEs, and building ‘external’ capacity in the environments in which SMEs and their clusters operate. The key issues have to do with regulation/policy, legal framework, governance mechanisms and technological conditions that can function as the enabling framework for completing the Internal Market and to complement the vision of the innovation ecosystem objective.

EFFORT will bring a multidisciplinary perspective on the current status and future possibilities of cross-border and cross-regional “dynamic and extended SME clustering” based on the notion of building SME cross-cluster capacity by selecting complementary partners out of SME networks that extend beyond the boundaries of a traditional cluster. Thus, our working hypothesis is that dynamic clustering will facilitate market access for SMEs.

Start date: 2006-09-01

End date: 2008-08-31

Web site: www.effortproject.eu

6. Further Specific Support Actions included in the DE cluster

EPRI-START

STimulate the pARTicipation of SMEs from NMS in IST activities

Project Acronym: EPRI START **Project reference:** 015801

Contact person

Organization name: TELEPORT SACHSEN-ANHALT GMBH
Contact person name: LANGHOF, MARCO

Description

Objective:

EPRI start aims at stimulating, increasing, but at the same time qualifying the participation of SMEs from New Member States of the EU in the IST Programme.

In particular, it aims at:

- ▶ establishing a Qualified Partner Pool of at least 500 IST oriented SMEs from NMS, qualified by LoIs and concrete project ideas;
- ▶ developing a Certified Partner Pool of 200 qualified IST oriented SME partners from NMS described by Company Fact Sheets developed by a Guide for NMS participants;
- ▶ ensure an overall number of 100 project participations from IST oriented SMEs from NMS in the different IST Calls during the lifetime of the project.

The process of stimulating and developing SME participation will feed a second, parallel process which involves political decision makers of the target countries and Political Decision makers on the level of European ICT Policy in order to discuss socio-economic impacts of ICT and to prepare and support the discussion of the 7th Framework Programme. **EPRI start** aims at the broadest possible coverage by involving partners from all New Member States of the European Union.

On the other hand **EPRI start** works with a clearly specified and realistic focus on the field of SME participation in the IST programme. It addresses three important target groups:

- ▶ The group of highly innovative research oriented SMEs from the New Member States with no or low experiences in participating in the IST programme;
- ▶ The IST community who will benefit from new and innovative resources as an enhancement of existing or newly arising consortia;
- ▶ The societal environment receiving impacts from participation of NMS SMEs in IST research projects being represented by political decision makers of the SMEs regional and national environments.

The consortium refers to comparable experiences in earlier programmes. Its coordinators have carried out a similar project during the accession process of the German New Laender.

Start date: 2005-03-01

End date: 2006-08-31

Web site: www.epristart.org/

Legal issues for the advancement of Information Society Technologies

Project Acronym: LEGAL-IST

Project reference: 004252

Contact person

Organization name: ESOCE NET (EUROPEAN SOCIETY OF CONCURRENT ENGINEERING)

Contact person name: SANTORO, ROBERTO

Description

Objective:

LEGAL-IST aims to provide support to the IST programme execution and to facilitate the rapid adoption of the relevant research results, by addressing legal issues and barriers which are hampering the implementation of IST related technologies and business models and by identifying an evolution strategy for the EU regulatory framework in the IST/eEconomy domain.

The Legal-IST initiative is capturing, analysing and framing the legal aspects of innovative technologies and methodologies emerging from within the Information Society, in order to:

- ▶ **harmonise and consolidate legal research results** undertaken in IST and support their use
- ▶ **support the IST research activities** from a legal viewpoint, by studying the legal implications of current IST research initiatives (in terms of both new emerging technologies and relevant “networked” business models) and providing implementation strategy suggestions. This is achieved by **conducting research studies on selected IST legal issues**, and **providing legal support to on-going IST projects**;
- ▶ increase the awareness of legal issues affecting ICT adoption/implementation
- ▶ **contribute to the definition of emerging policies to strengthen the EU regulatory framework**, validated through consensus building with **Governments, Policy-Makers and Public Institutions** representatives (for **SMEs** which cannot evaluate legal implications of their research)
- ▶ **provide IST-related legal support to industry (SMEs) and the IST research community.**

The LEGAL-IST project delivered:

- ▶ A **State-of-the-Art survey** on the IST research undertaken under FP5 and FP6. A public report highlighting research findings, recommendations and roadmaps is available and can be used by the European Commission, policy makers and researchers to consolidate results and facilitate their use;
- ▶ **Nine different studies** on selected legal issues relevant to IST areas of investigation, which are consistent with the needs identified in the State-of-the-Art survey. The reports on the studies give cases and recommendations on IST hot topics from a legal point of view and can be consulted by researchers, practitioners and lawyers in order to support their own activity in the field;
- ▶ **Legal support services** to facilitate the implementation of **Collaborative Innovation Clusters, Virtual Professional Communities and Business Ecosystems**, including:
 - ▶ **Training on legal issues relevant to IST** related topics and relevant business models;
 - ▶ **Support to IST research initiatives**, based on the Legal-IST approach and methodology;
 - ▶ Provision of legal/business consulting;
- ▶ A **roadmap for the implementation of the collected suggestions by the European and national regulatory frameworks**, validated through a consensus building campaign, aiming to contribute to defining emerging Policies for an IST related regulatory framework (with as target audience: the European Commission, policy makers, consumers, trade and industrial associations).

Start date: 2004-04-01

End date: 2007-03-31

Web site: www.legal-ist.org

LEKTOR

Legal knowledge transfer accelerator for SME clusters and digital business ecosystems

Project Acronym: LEKTOR **Project reference:** 034932

Contact person

Organization name: INMARK ESTUDIOS Y ESTRATEGIAS S.A.
Contact person name: URSA, YOLANDA

Description

Objective:

LEKTOR is a 24 months SSA intended to raise awareness of potential legal obstacles in the context of eBusiness and to provide solutions by creating a platform for autonomous legal knowledge exchange among the target groups, i.e. SMEs. LEKTOR is geared at SMEs, SME clusters and digital business ecosystems for SMEs and all multipliers involved.

LEKTOR will not investigate on its own into legal matters but will identify, compile and assess those existing (from other European, national and regional projects and initiatives), making the results available on the LEKTOR platform. Furthermore, it will identify legal eBusiness issues from the user side.

Final goal is to create a mechanism, the LEKTOR P2P (peer-to-peer) platform for legal knowledge exchange that will be based on OSS and functioning P2P models such as Wikipedia or flickr.com. It will be usable for all involved in eBusiness to showcase legal achievements and solutions in a global business environment and to foster the exchange of legal knowledge between those directly affected: SMEs. The increased knowledge will dissolve doubts or insecurities and accelerate the take-up of ICT in various business processes, thus, enhance the competitiveness of European SMEs in the global digital business environment (as postulated in the i2010 programme, amongst others).

To achieve these objectives, the LEKTOR Consortium partners will take advantages of their respective experience and networks that link SMEs in Europe (EU-25) and outside, through the international partners in India, USA and Chile (for Latin America). The 6-step methodological approach is reflected in the work plan, split into 6WPs: Identification of legal and regulatory issues affecting eBusiness; draft an eCatalogue; technical implementation of P2P platform; test phase of the legal knowledge exchange platform; Dissemination strategy and implementation activities in 9 EU countries and 3 outside Europe; and project management.

Start date: 2006-06-01

End date: 2008-05-31

Web site: www.ubique.org/lektor