

1. Description of the consortium

The consortium includes organisations with key people that can do the process reengineering (SHH, USAL), ensure content from and promotion in the engineering (LJU, USAL, SHH) and the architectural (TUW) communities, develop new technologies (LJU, USAL), create fast prototypes (FGGI) and state of the art final products (ATL) as well as pioneer new business models to make solutions relevant to the industry (IBRI).

1. LJU - University of Ljubljana is the largest University in Slovenia. The unit involved is the Institute for Earthquake Engineering, Structures and Construction IT of the Faculty of Civil and Geodetic Engineering.. It pioneered the use of Web technologies in construction (since 1993). To the project, LJU contributes knowledge on electronic publishing (ITcon journal, CUMinCAD index) and bridges the modelling and analysis task and the pilot software development ones. LJU will work on architectural foundations and design advanced agent based repository management and end user interfaces.

2. SHH - Swedish School of Economics and Business Administration, Department of Management and Organisation (HANKEN). The Information Systems Science unit (within the department of Management and Organisation) both teaches and is involved in research of how the Internet affects the business processes of different industries. The unit will contribute by its experience in business process modelling as well as its overall know-how of the scientific publishing process. In addition the Library unit of SHH will be involved to provide in depth know-how of one part of the publication process as well as a European network of contacts.

3. IBRI - Icelandic Building Research Institute: The division involved in the project is the division of IT. The division on behalf of its institute was one of the founding members of the academic and research network in Iceland later INTIS the first Internet provider in Iceland. Main research areas have been on Internet and web technologies and client/server architectures in construction. In the project it will contribute to the development and integration of value added services - deliverable over the Internet and related interoperability issues and API specifications.

4. ATL - Atlante is a 100% subsidiary of INDRA Group (biggest Spanish IT Services Group) focused on e-business services. It is team of more than 300 professionals focused on the development and implementation of global customer tailored Internet Business Solutions, which cover the whole value chain of e-processes: from strategic and e-business consulting, through web design and creativity, to e-business SW development and e-business systems integration, to hosting and e-services. In this project, Atlante's main role is the deployment of Web based services, which they will exploit later to create knowledge management services.

5. TUW - Technical University of Vienna is the leading Austrian technical university. The unit involved is the Institute for Local Planning at the department of architecture. IFOER belongs to the pioneers concerning the implementation of (high-end) computer applications in planning. TUW also developed largest on-line index of abstracts for CAAD - CuminCAD - and brings the related experience into the project. In the project TUW will manage architectural content, state requirements and assess solution.

6.FGGI - FGG Institute is a technology park spin-off founded by the University of Ljubljana, Slovenia, and aimed at commercialising research and developments as well as consulting and design expertise of the Faculty of Civil and Geodetic engineering. FGGI has been involved with creating Web sites for the Slovenian chamber of Engineers, etc. In the process it uses tools for rapid prototyping of Web solutions. In the project they will use them to create early prototypes and final versions of the services.

7.USAL - University of Salford. The Information Systems Institute (ISI) is a School within the Faculty of Business and Informatics at University of Salford, UK. It was founded as a partnership between Salford University and leading businesses in the United Kingdom, with the aim of producing graduates who can make an immediate contribution to the application of IT in organisations, and an emphasis on

industrial collaboration. The ISI has currently about 30 organisations being involved as Industrial Associates.

8. IND - Indra is the leading Spanish company in Information Technologies (IT). Its activities are distributed into three lines of business: Information Technologies and Simulation and Automatic Maintenance Systems (80%), and Defence Electronic Equipment (20%). Indra is an outstanding point of reference on the markets in which it operates, at both national and international level Present in more than 40 countries on the five continents, more than 40% of its billing in 2001 came from its international activities. This position is strengthened by a network of delegations and permanent offices that provide the company with a sound insight into the markets on which it works, as well as by strategic international agreements and alliances.

1.1 PARTICIPANT #1: UNIVERSITY OF LJUBLJANA (LJU)

The University of Ljubljana is the largest University in Slovenia and has over 20000 students. The participating group is the Institute of structural engineering, earthquake engineering and construction information technology from the Faculty of Civil and Geodetic Engineering. This group was a pioneer in the introduction of computers into the Slovenian construction industry. Computer integrated construction (CIC) was systematically researched at LJU since the late 1980s. LJU has been actively participating in the work of the CIB's working group W78 on CIC, the corresponding group WG6 of IABSE, in eCAADe and ECCPM. They have also been studying the computerisation of building regulations, the electronic technical document management, integrated information systems, and object-orientated data-bases.

In 1993, LJU was among the first in the field to start publishing on the Internet and the WWW (among the first 1000 web servers world wide) and studied the role of communication media, such as the Internet, on the construction industry's practice. A number of frequently visited services were prepared, aimed at the international community of researchers and scholars. LJU set up the WWW core of Slovenia's technical information system for building and civil engineering - TIGRA. LJU also hosts the first construction related international electronic academic journal - ITcon, an internationally renowned earthquake engineering database EASY, bibliographic database on CAAD CUMINCAD, software.orAEC.com and many others.

LJU has been taking part in several EU TEMPUS projects, in Esprit ToCEE, Esprit SCENIC, ETTN-CONNET and in IST-ISTforCE.

1.1.1 Expertise and experience

In this project LJU contributes:

- Perhaps the longest experience in the team with providing Web services and tools in construction and beyond, including a Web based peer reviewed scientific journal and an abstracts database.
- Theoretical knowledge related to information modelling and Web based integration architectures.
- Experiences with creating teaching and dissemination material.
- Research potential in the fields of agent technology, managing heterogeneous and semi-structured data, machine based data clustering and classification.
- Librarians.

1.1.2 Role in the project

In this project ULJ is the co-ordinating partner. It will work in some aspects of the publishing process re-engineering. Its main contribution will be in the state-of-the art technical studies for the repository services, as well as its analysis and design. Since Prof. Turk is the vice-char, co-chair or member of all relevant construction IT organisations (CIB, IABSE, ECPPM) he is also well positioned to ensure the influx of papers as well for dissemination and promotion activities.

1.1.3 Key persons

Ziga Turk (1962) holds a B.Sc. and a Ph.D. in structural engineering and a M.Sc. in computer science from University of Ljubljana, Slovenia. As an associated professor, he lectures in Ljubljana, was a visiting lecturer at the KTH in Stockholm and is a visiting professor at the ITU in Istanbul. His research topic is construction information technology, particularly computer integrated construction, engineering information systems and communication technology such as the Internet. Internationally he has published over 60 conference and journal papers. On the Internet he invented www.shareware.com. Dr. Turk is involved in editorial or scientific boards of two journals and in the steering committees of many relevant international associations such as CIB W78, IABSE's WC6, ECCPM and contributes to ISO/TC10/SC8/WG16. Dr. Turk's homepage and full bibliography is available on the web at <http://itc.fgg.uni-lj.si/~zturk/>.

Janez Duhovnik (1942). Professor in Mechanics of Structures and the Computer-Aided Design (CAD) of Structures. Worked for three years for the contractor GRADIS on building-sites for road and railway bridges, and for industrial buildings. In 1969 he joined the staff of the Faculty, where he now lectures, at undergraduate level, in the Statics of Linear Structures and Numerical Methods, and, at postgraduate level, in CAD and Expert Systems. He has acted as mentor to 49 undergraduates, 5 M.Sc. students and 3 Ph.D. students. From 1992, Janez Duhovnik has acted as national co-ordinator for the research field of Building and Civil Engineering and managed several national and international EU projects. At the present time he is involved in research concerning possibilities for the robotized assembly of reinforcement, and has played an active part in the implementation of Eurocode 1 and in the adjusting of other building and civil engineering technical regulations to meet the requirements of the European Union. He has published a total of 103 technical papers, and has been the editor of the proceedings of 17 seminars. He has also been the chief designer of 21 structures, and participated in the design of a further 52 structures.

Anon. The newly appointed head of library and information system will be required to take an active role in the project.

Anon. A PhD student will take an active role in the project.

1.2 PARTICIPANT #2: SWEDISH SCHOOL OF ECONOMICS AND BUSINESS ADMINISTRATION - HANKEN (SHH)

The Swedish School of Economics and Business Administration (HANKEN) is one of the two Swedish language universities in Finland, and is located in Helsinki, with a smaller unit in Vasa. Currently there are some 2500 students enrolled.

The current unit for Information Systems Science was created in 1999. Thus it hasn't yet established a track record of its own. Consequently the following is more an account of the know-how, international network and experience of Professor Bo-Christer Björk, who assumed the professorial chair in September 2000. In addition to Prof. Björk there are two more senior staff attached to the unit. The unit will in particular conduct research concerning the effect of the Internet on different industries.

Prof. Björk has in two previous employments (VTT Finland, KTH Sweden) earlier participated in four EU funded research projects; COMBINE, SCENIC, CONDOR and CONCUR.

In addition staff from the library of SHH will take part in the project. The library is currently revising its strategic business plan to take into account the changes brought by the Internet and is involved both in national and European level activities. The Head librarian, Maria Schröder, is a member of the board of EBSLG (the association European Business School Libraries) which provides a good contact forum for dissemination and promotion of the projects results.

1.2.1 Expertise and experience

In this project SHH contributes with:

- Knowledge about the scientific publication process, both as hands-on experience of setting up a journal, and through following the research concerning Internet publishing.
- Experience of formal process modelling methods (IDEF0) and of how to apply these for modelling current and re-engineered business processes.
- Knowledge of document management techniques using web servers and web browsers as user interfaces
- Overall research management skills and an extensive international network
- Know-how about the functioning of scientific libraries and a contact net in Europe to other scientific libraries

1.2.2 Role in the project

SHH leads the publishing process reengineering work; contributes contacts to ensure engineering content, states requirements and evaluates the prototypes and final solution. They are also involved in the dissemination and publishing work and contribute the technical co-ordinator of the project.

1.2.3 Key persons

Prof. **Bo-Christer Björk**, born 1952 in Helsinki, Finland, is one of the internationally leading researchers on issues related to the application of Information technology in Construction, in particular integration issues. He holds degrees from three universities; Ms. Sc. in Engineering (Systems Theory and Computer Science) and Dr. Tech. (Construction management) from the Helsinki University of Technology, M. Sc. in Economics from the University of Grenoble, France, and a Lic. Pol. in Economics from the Helsinki University.

From 1980 to 1992 he worked as a researcher at the Technical Research Centre of Finland VTT, heading a research team studying different aspects of computing in construction, in particular building product modelling. From 1993 to 2000 he was Professor of Information Technology in Construction at the Royal Institute of Technology (KTH) in Stockholm. He has recently taken up a new appointment as professor of Information Systems Science at HANKEN, the Swedish School of Economics and Business Administration in Helsinki.

Prof, Björk has over 15 years experience of managing national and international research projects. He is the editor-in-chief of the Electronic Journal of Information Technology in Construction, the first World-wide-web based refereed scientific journal in civil engineering. In addition he is the member of the editorial boards of four other scientific journals. From 1993 to 1997 he was the chairman of ISO TC 10/SC8/WG 13 which defined an international standard (ISO 13567) for the use of layers in construction CAD. He has published over 100 reports and research papers.

Patrik Paetau is associate professor in Information Systems Science and holds M.Sc. and Licentiate degrees in information systems science from HANKEN. His particular research interest is in the application of object-oriented analysis and design methods for application development in industry.

Maria Schröder, has the equivalent of a Ph.D in Information Science from Åbo Akademi, and is the Head of the SHH library. She is a member of the board of the association for European Business Schools Libraries.

1.3 PARTICIPANT #3: ICELANDIC BUILDING RESEARCH INSTITUTE (IBRI)

The Icelandic Building Research Institute (IBRI) is a multidisciplinary research institute in the building and construction sector. IBRI is an institute responsible to the Ministry of Industry and operating according to statutes in research in the interests of industry and commerce since 1965. It has technical divisions in the following fields: Concrete Research, Building Technology, Geology and Soil Mechanics, Road Research, Heating, Ventilation and Water Piping Research, Construction IT. IBRI is the principal testing body in construction in Iceland and provides research, material testing, quality control and advice for the industry with special effort to incorporate research results of practical interest to industry application. As such IBRI maintains a close relationship with organisations and association in the construction industry. IBRI by its role is the largest single producer of technical material in the construction industry in Iceland with over 300 published documents and reports.

1.3.1 Expertise and experience

The IBRI is a member of international bodies such as: ENBRI, RILEM, NORDTEST, NORDIND, NBS, ASTM, EuroLab, CIB, ACI, the Icelandic member of EOTA and the notified body for Construction Products. IBRI has a member in the RC in the SMT program and has provided experts for evaluating project proposals in that program. IBRI is participating in several EU-funded projects as a main contractor and co-ordinator.

1.3.2 Role in the project

IBRI is developing a value added wrapper service that will sit on top of the repository and "wrap" its content in such a way and with proper editorial information, that the otherwise too academic information would be suitable for readers from practice.

1.3.3 Key persons

Gudni Gudnason has been responsible for IT development at IBRI since 1982 and manager of Computer and Information Systems since 1987 with special emphasis on research and development in Construction Information and Communication Technologies in the last 6 years.

Gudni Gudnason has more than 15 years of experience in software development both in development of IBRI specific systems and systems in national projects. Currently he is the Co-ordinator of a related nationally founded project to establish a National Standard Specification System on the web that will host a library of standard specifications and associated GroupWare tools for Project Specifications in a virtual engineering workspace. He participated in the development of the Finish national project RINET and the EU project CONNET-MPS as a visiting researcher at VTT in 1999 and as a full partner in the EU funded project I-SEEC in 2000.

1.4 PARTICIPANT #4: ATLANTE (ATL)

ATLANTE is a 100% subsidiary of INDRA Group (biggest Spanish IT Services Group) focused on e-business services. It is a multidisciplinary team of more than 300 professionals focused on the development and implementation of global customer tailored Internet Business Solutions, which cover the whole value chain of e-processes: from strategic and e-business consulting, through web design and creativity, to e-business SW development and e-business systems integration, to hosting and e-services. Through the constant innovation, they anticipate themselves in the highly competitive digital markets in order to satisfy their first class customer needs with one mission in mind “To help our clients develop their Internet Business Strategies, providing them with leading edge solutions combining the innovation, creativity and experience of a first class global player”.

The strategic decision to create ATLANTE dates from 1999, when INDRA decided to segment its Internet business activities and integrated them in a new subsidiary highly specialized in rendering complete Internet services. With this objective in mind, in year 2000 Indra acquired “Comunicación Interactiva (CI)”, a Spanish company specialized in Internet developments and services with a large experience in EU projects. Through this acquisition CI merged with ATLANTE and is now fully incorporated into the subsidiary. ATLANTE’s turnover in the year 2000 has been 15 million euros.

1.4.1 Expertise and experience

Customers from ATLANTE are found in almost all sectors of activity, ranging from TELEFONICA, CAJA MADRID (one of the main savings banks in Spain), IBERIA, PETROTEC, BP OIL, MINISTRY OF DEFENSE, NATIONAL SPANISH LIBRARY, MINISTRY OF EDUCATION, COCA COLA, GILLETE, SUCHARD, MADRID STOCK MARKET, NEWS AGENCY EFE, NATIONAL AIRPORTS, URALITA (building), etc., and an similar list can be drawn for corporative customers, for which we provide applications and services for e-mobile, e-commerce, corporate intranets, web design, e-learning systems for education and training, market place developments, supply chain management systems, on-line marketing applications, etc.

Atlante offers end-to-end services for the implementation of successful e-commerce solutions, which range from Consultancy services (research, strategy management, IT consulting, BPR, etc.), through Design (graphic design, usability, ergonomics, etc.), Engineering (e-business system design, development and deployment), Site marketing to Operation services (hosting, housing, maintenance, etc.)

Regarding Atlante experience within the EU projects arena, some of the projects we have been involved are:

- HEROE (ES 28220, High Performance Networked Kiosks based on broadband technologies and satellite access for open electronic commerce and business operations). COORDINATOR.
- AMICOS (ES 24145, Advanced Multimedia Internet Catalogue for Ordering System). PARTNER.
- SERVICENET (ES 25255, An application bureau service for the SMEs on the Internet). PARTNER
- INK (ES 20855, Interactive networked kiosks). PARTNER.
- CHAMELLEON (ES 20597, An Adaptive Authoring Tool)

On the other hand other projects currently running are, among others:

- CORONET Corporate Software Engineering Knowledge Networks for Improved Training of the Work Force (IST-1999-11634).
- ISTforCE: Intelligent Services and Tools for Concurrent Engineering (IST-1999-11508).
- EURO-CITI: EUROpean CITIes platform for online transactions (IST-1999-21088).

1.4.2 Role in the project

Atlante takes part in the design and deployment of the on-line services of the repository. They are also leading the dissemination and exploitation activities and will assign an exploitation manager into the project.

Atlante has a strong desire to incorporate knowledge management to improve business efficiency by making best use of corporate knowledge. Atlante plans to integrate various items of knowledge, now dispersed along the organisation as isolated islands, to boost the benefit obtained from various corporate databases (marketing, sales, suppliers, etc.). Atlante is looking at easy access to all corporate information and organisational wisdom, in order to bypass the problem of staff rotation and strong dependence on 'unique experts' who may not stay with the company and bring such solutions to market.

1.4.3 Key persons

Pedro Magaña was Project Manager for the Esprit AMICOS project. Having graduated in Software Engineering from the University of Berkeley, California, he worked for Apple Computer Corp. in Cupertino CA and then in Spain. He then worked as a consultant for several Spanish companies in both networking and multimedia. In Atlante he has been in charge of the RTD department for the last four years, taking care of managerial issues as well as the technical development of IST projects.

Jorge de Teresa. Graduated in 1995 as a Telecommunications Engineer at the Universidad Politécnica de Madrid (UPM), Spain. From 1996 to 1998 he worked for Comunicación Interactiva S.L. as a project engineer in several ESPRIT projects. From 1998 to March 2000 he managed the "Engineering and Software Development" department of Comunicación Interactiva leading several Internet based projects such as UNIVERSIADE'99 intranet system, Air Cargo Manifest Intranet for EAT (European Air Transport) and SWT (Swift Air) companies and a document management system for the Spanish Navy. From March 2000 to November 2000 he worked as a senior manager in the "Engineer and Software Development" department in ATLANTE. Since December 2000 he is managing the "International Projects" department of ATLANTE

Gema-Isabel Lopez received her Master degree in Computer Science in 1997 from the Polytechnical University of Valencia (Spain). The subject of her final research work was to create an interactive multimedia toolbox for operational research learning, especially focused on new lineal programming algorithms. During her professional career she gained expertise as a project manager in the IST project OPELIX and is currently working as the technical responsible for two IST projects (EURO-CITI and MESSENGER) in Atlante.

1.5 PARTICIPANT #5: TECHNICAL UNIVERSITY VIENNA (TUW)

Vienna locates a number of different universities, among them Vienna University of Technology. Around 4.500 students are studying at the Faculty of Architecture, Regional and Urban Planning. The Institute of Local Planning at the Vienna University of Technology was founded in 1974. The working field of Urban and Local Planning is the communal land including its functional and spatial integration into greater spaces, thus representing a comprehensive, interdisciplinary task. Apart from the required methodical and scientific advancement of the specific field of work the application of the governing legal and planning tools are integral part of the education of urban and regional planners. The teaching subjects provided feature building-up planning, communal development planning, village and city designing and media-assisted spatial planning. The department is dedicated to representing practical work, teaching and research as interacting units.

1.5.1 Expertise and experience

The expertise is mainly aimed at methods and design relevance of communal development planning and building-up planning village configuration, urban design sustainable development of space, low-energy concepts spatial impact analysis, space compatibility test computer-integrated spatial planning, simulation- and visualisation techniques space-related communal information systems mediation and civic participation as well as village renewal.

A main field of experience is the development of suited digital "simulation environments" required for the consideration of recent and future issues of planning to accompany space-related processes of analysis, synthesis and decision-finding, the representation and optimising of planning variants and the conveying thereof.

The most relevant expertise brought into this project is the CUMinCAD index developed jointly with LJU and FGGI as well as the contacts in the Computer Aided Architectural Design (CAAD) community where Prof. Martens heads the leading European organisation - the Education of CAAD in Europe (ECAADE).

1.5.2 Role in the project

TUW contributes the experiences from the CUMinCAD project. Their role is to ensure architectural content to the repository and to contribute to the requirements specifications and assessment of the services. They will also disseminate and promote the results in the architectural community.

1.5.3 Key persons

Bob Martens (1961) holds an M.Sc. in Architecture from Eindhoven University of Technology (The Netherlands) and Dr. Techn. from Vienna University of Technology. He is appointed as an associate professor for Spatial Simulation and Interior Design in Vienna and guest professor for Simulation Techniques at Graz University of Technology. His main research topic is focussing on Simulation Aided Architectural Design (SAAD) including full-scale and virtual modelling techniques as well as applied communication technology. Besides the scientific organisation of conferences (EAEA '95 / EFA '96 / eCAADe '97) he is currently acting as the president of the eCAADe-association. Dr. Martens has been involved in paper reviewing activities for all world-wide CAAD-associations and has produced over 50 publications from which 20 conference papers respectively served 8 times as a (co-) editor.

Andreas Voigt (1962): Studies of Urban and Regional Planning at Vienna University of Technology, prizewinner for sciences of the City of Vienna and the Federal Ministry for Sciences and Research (BMWF), Austria, doctoral degree sub auspiciis praesidentis, research-coordinator Institute of Local Planning, consulting engineer for regional planning, founder member and present chairman of Institute for Spatial Interaction and Simulation (ISIS), main emphasis of research: simulation-assisted, space-related planning and quality management.

1.6 PARTICIPANT #6: INSTITUT FGG (FGGI)

Institut FGG d.o.o. is a technology park spin-off founded by the University of Ljubljana in 1999, aimed at commercialising research and developments as well as consulting and design expertise of the Faculty of Civil and Geodetic engineering. Experts from FGGI were involved in many design projects as designers or consultants.

1.6.1 Expertise and experience

Due to its short existence, FGGI does not have a track record of involvement in EU projects, however, because of the strong ties with the University this should not prove a problem.

FGGI has been involved with creating Web sites for the Slovenian chamber of Engineers, Slovenian Ombudsman etc., and has in the process developed tools for rapid prototyping of Web solutions.

1.6.2 Role in the project

FGGI will create rapid prototypes as well as other, non-professional software that will need to be developed in the course of the project, for example for the user surveys. It will also create the dissemination Website.

1.6.3 Key persons

Janez Reflak (1937) is the CEO of the FGG Institute. Recently he has been concerned with the field of quality assurance in building and civil engineering. He has published 56 articles in journals and other technical papers, both in Slovenia and in other countries. He has been in charge of 34 research projects. For the needs of civil engineering practice, he has, together with his colleagues, carried out 8 developmental studies and 72 static designs. He has also been engaged in the review of as many as 169 design projects. He acts as a mentor to both undergraduate and postgraduate students, as well as in the case of the professional examinations which are undertaken by graduate civil engineers. Janez Reflak has assumed many functions at both Faculty and University level. Amongst them, he is a member of the Administrative Board of the University of Ljubljana, a member of the expert committee for professional examinations which is established at Slovenia's Board of Commerce, chairman of the Technical Committee for Structures at Slovenia's Standards and Metrology Institute, and chairman of the technical council of Slovenia's Society for Research in Roads and Traffic Studies.

Tomo Cerovšek (1972) graduated with honours in Structural Engineering from University of Ljubljana. His technical expertise includes client-server systems, multimedia and data-mining. He took part in the development of the Earthquake Engineering Slide Information System EASY and co-authored several conference and journal papers on earthquake engineering, regulation processing and distance learning and participated in some national research project, ESPRIT-ToCEE, European Technology Transfer Network CONNET project as well as Stanford University's PBL Class. He developed several web services for example for the Slovenian Chamber of Engineers, the Ombudsman of Slovenia, software.forAEC.com etc.

1.7 PARTICIPANT #7: SALFORD UNIVERSITY (USAL)

The Information Systems Institute (ISI) is a School within the Faculty of Business and Informatics at University of Salford. It was founded as a partnership between Salford University and leading businesses in the United Kingdom, with the aim of producing graduates who can make an immediate contribution to the application of IT in organisations, and an emphasis on industrial collaboration. The ISI has currently about 30 organisations being involved as Industrial Associates. These include many of the major computer manufacturers, computing services companies and large user organisations.

1.7.1 Expertise and experience

The work of the research centre, one of the most successful in the country with an international recognition, is focused around information systems, and is presently playing an active role within a variety of national and international standardisation bodies (e.g. ISO). The University of Salford has extensive experience in exploiting the results of its research on a commercial basis. Recent, relevant activity in the school in this area includes the creation of a spin-out company concerned with knowledge management technology for collaborative groups. It is heavily involved in research, technology transfer and standardisation work in the area tackled by the SciX project. On a European level, the ISI has been involved in several EC projects (e.g. CONDOR). The ISI is currently involved in the OSMOS project in which it is playing a leading role as the project scientific co-ordinator. The ISI is also presently collaborating on several national projects with leading companies in the UK, including AMEC, BDP, and WS Atkins, and leading UK Universities active in the construction IT domain, including The University of Sheffield and The University of Loughborough.

1.7.2 Role in the project

Salford will participate in the process modelling and requirements analysis parts of the project, and will lead the development of the core API and software/system architecture. It will also be responsible for co-ordinating the software and systems quality aspects of the project.

1.7.3 Key persons

Professor Grahame Cooper is the director of the Information Systems Institute. He has been actively involved in research and consultancy in systems engineering and information modelling for over 15 years, particularly object-oriented systems analysis and design, software architecture, and IT application in the construction industry. He was actively involved in several EC projects, including the ESPRIT CONDOR and IST OSMOS projects, and has been a leading participant in a number of national projects including the EPSRC funded ICON, OSCON, COMMIT and ADS projects.

Dr Yacine Rezgui is a Senior lecturer and Research Co-ordinator at the Information Systems Institute. He has published over 70 academic papers, mainly in the area of information management, document engineering, and business process re-engineering. In the last five years, he has completed successfully, many research projects, including the ESPRIT funded CONDOR project. He is presently the technical co-ordinator of the IST funded OSMOS project (IST-1999-10491).

Dr Maria Vakola is an organisational psychologist and is currently a lecturer in business information systems at the Information Systems Institute. Her background is psychology, organisational psychology, program evaluation, business process re-engineering and IT. She has carried primary responsibility for the process re-engineering aspects of construction IT related projects including CONDOR and OSMOS.

1.8 PARTICIPANT #8: INDRA SISTEMAS (IND)

Indra is the leading Spanish company in Information Technologies (IT). In 2001 the company achieved revenues of 550 million euros. The company's activities are divided into three lines of business: Information Technologies, Simulation and Automatic Maintenance Systems, and Electronic Defence Equipment. Indra is an outstanding point of reference on the markets in which it operates, both nationally and internationally, with presence in more than 40 countries on the five continents. This position is strengthened by a network of delegations and permanent offices, allowing the company to acquire sound knowledge of the markets on which it operates, as well as by international agreements and strategic alliances.

1.8.1 Expertise and experience

New markets/ Emerging technologies

Indra bases its response on a continuous spirit of innovation and on the application of the most avant-garde competitive technologies, to satisfy the needs of its clients. The Indra offer is designed to provide a complete response to the needs of its clients in the environment of the new economy of the 21st century. The new scenario brought about by the Internet boom and electronic business has led to the acquisition of new companies of the IT sector and the creation of a specific business line (e-Business unit) within the company; which comprises Indra's expertise in solutions and technologies related to electronic business.

Indra guarantees the development of innovative solutions through technologies belonging to the latest generation. These are at the forefront in the application of new solutions, such as Electronic Business, Security and PKI (Private Key Infrastructure), ERP (Enterprise Resource Planning) and ERM (Enterprise Resource Management), CRM (Customer Relationship Management), SCM (Supply Chain Management), KM (Knowledge Management) and Network Infrastructure Integration and Management, among others.

Intellectual Capital and Knowledge Management

The essence of the company's activities, and the high degree of specialisation and development offered by Indra in relation to both solutions and services, rest on a team of highly qualified professionals.

For this reason, the development of measures aimed at attracting the best talents on the market, is considered to be a cornerstone of corporate management. Indra continuously improves its knowledge management system, which is aimed especially at strengthening the capacity for innovation, flexibility and on-going learning of the 5,000 professionals that make up the company personnel, of which 76% are highly specialist graduate technicians.

Innovation and Quality

The nature of Indra's activity and the company's strategic position come together to make Research, Development, Innovation and Quality fundamental supports of the corporate profile. Indra's effort in innovation allows the company to offer solutions providing competitive advantages over others on the market, lower degrees of risk, better results and, ultimately, a solution adapted to the needs of each specific client.

As part of this effort in innovative activities, Indra has been participating in several European R&D projects within the different Framework programs of the European Commission. In particular, as part of the V FP, Indra participates in several projects from different programs like IST, Leonardo, eContent and Growth; undertaking distinct roles such as financial and administrative coordinators, technical coordinators, technical partners and user partners. Some of these projects are:

- **CORONET:** Corporate Software Engineering Knowledge Networks for Improved Training of the Work Force (IST-1999-11634). Technological partner.
- **ISTforCE:** Intelligent Services and Tools for Concurrent Engineering (IST-1999-11508). Technological partner.
- **EURO-CITI:** EUROpean CITIEs platform for online transactions (IST-1999-21088). Technological partner.
- **MESSENGER:** Manufacturing, engineering and service status electronically negotiated for greatly enhanced response (IST-1999-10195). Scientific Coordinator.
- **DEEPSIA:** Dynamic On-line Internet Purchasing System based on Intelligent Agents (IST-1999-20483). Technological partner.
- **FLOCI-EE:** Flexible Low-Cost Internet Extended Enterprise (GRD1-2000-25844). Technological partner.
- **CHILDCARE:** Intelligent collaborative environment for out-of-hospital children healthcare (IST-2001-33383). Coordinator.
- **EMATE:** Electronic Multilingual Tourism Environment (EDC-22018Y1C1DMAL2). Coordinator. EContent programme.
- **WCM:** Definition of a new professional profile called “web content manager”, within the Leonardo programme. User partner.

1.8.2 Role in the project

Indra inherit his role in the project from Atlante.

Indra takes part in the design and deployment of the on-line services of the repository. They are also leading the dissemination and exploitation activities and will assign an exploitation manager into the project.

Indra has a strong desire to incorporate knowledge management to improve business efficiency by making best use of corporate knowledge. Indra plans to integrate various items of knowledge, now disperse along the organisation as isolated islands, to boost the benefit obtained from various corporate databases (marketing, sales, suppliers, etc.). Indra is looking at easy access to all corporate information and organisational wisdom, in order to bypass the problem of staff rotation and strong dependence on ‘unique experts’ who may not stay with the company and bring such solutions to market.

1.8.3 Key Persons

Jorge de Teresa. Graduated in 1995 as a Telecommunications Engineer at the Universidad Politécnica de Madrid (UPM), Spain. From 1996 to 1998 he worked for Comunicación Interactiva S.L. as a project engineer in several ESPRIT projects. From 1998 to March 2000 he managed the “Engineering and Software Development” department of Comunicación Interactiva leading several Internet based projects such as UNIVERSIADE’99 intranet system, Air Cargo Manifest Intranet for EAT (European Air Transport) and SWT (Swift Air) companies and a document management system for the Spanish Navy. From March 2000 to November 2000 he worked as a senior manager in the “Engineer and Software Development” department in ATLANTE. From December 2000 to March 2002 he managed the “International Projects” department of ATLANTE where all national and European R&D projects of the company were developed. Since April 2002, he is a manager of the e-Business unit of Indra Sistemas S.A., responsible for the R&D projects of the unit.

Almudena Fernández Valero. Graduated in 1984 in Psychology at the Universidad Autónoma de Madrid. Speciality in Clinic Psychology in 1985 in the Universidad Complutense de Madrid. Master degree in Computer Science in 1989 in the Universidad Pontificia de Salamanca (Campus Madrid). From 1989 to 1998 she worked for Indra, leading several projects for different public organizations, like the Social Protection Management System and the Euroflighter Provisioning System for the Defence Department. From 1998 to 2000 she worked for Insa, a subsidiary company of IBM, as Project Manager,

leading among others, a project of Financial Assets for the Urquijo Bank and the Intranet of her company Insa. From February 2001 to March 2002 worked in Atlante, as Project Manager, leading several web application for Telecommunication and Media Companies, like Amena and Onda Cero. Currently is working for Indra Sistemas, S.A. leading project of the e-business Unit.

Rafael Muñoz Álvarez. Graduated in 1998 in Mathematics (speciality of Operational Research) at the Universidad Complutense de Madrid (UCM). From 1998 to March 2000 he worked in Comunicacion Interactiva S.L. developing several web applications, like UNIVERSIADE'99 intranet system, the management system of the Air cargo and billing for EAT (European Air Transport) and SWT (Swift Air), as well as managing the development of two systems for production and delivery of radioactive sanitary products, for its diagnostic and use in hospitals, (an application for Nuclear Ibérica S.A.). In April 2000, he started to work in ATLANTE, participating in both commercial and R&D projects related to e-commerce. In July 2001 he moved to Indra Sistemas S.A. and worked in different IT projects. Since April 2002 he works as a project manager, leading R&D projects of the e-Business unit of Indra Sistemas S.A.