



Annual Report 2002/2003

Tomorrow's
Technologies
Today



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1. Message from the Dean of School

Welcome to the second annual report of the University of Sunderland – Centre for Electronic Commerce for the twelve months to August 2003.

The past year has seen some fundamental changes to the organisational structure of the university, and also the physical location of several schools. New building work has taken place at St. Peter's to enable the arrival on this campus of staff and students from the School of Education and Lifelong Learning, and School of Arts, Design, Media and Culture. The Centre is now housed within the new Media Centre building at St Peters.

The Centre for Electronic Commerce has further developed its participation in our Masters programmes (MSc ecommerce, ecommerce applications, and network systems), and it continues to play an important role in the implementation of our integrated strategy for teaching, research and reach out.

I am pleased to see that the group will be broadening its scope in the year ahead, to include projects in Latin America as well as within the EU. By enhancing the reputation of the School and the University at international level, we can build towards greater success in the future.

Peter Smith
Dean

2. Message from the Director of Research

Welcome to the second annual report of the University of Sunderland - Centre for Electronic Commerce.

This report covers the calendar year to the end of August 2003.

I am pleased to see that the Centre's activities continue to grow and develop into new areas, and that participation in several new programmes is underway.

The past year has brought a number of new challenges to the group in terms of funding availability, and engagement with the University's integrated priorities of teaching, research and reach-out. The Centre for Electronic Commerce has increased its participation in the wider school curriculum through the involvement of centre staff in programme delivery, and development into new areas Centre of reach-out activity in partnership with Learning Development Services. I hope that the will continue to play a full and active part in supporting local companies in e-business development.

The Centre for Electronic Commerce has further developed its participation in the MSc eCommerce and MSc eCommerce Applications, through preparation and delivery of new modules, and become active in the preparation and delivery of undergraduate ecommerce components (through the BACS programme).

I look forward to the continuing success of the group in the future.

Andrew Slade
Director of Research

3. About the Centre for Electronic Commerce

The Centre for Electronic Commerce Research and Development is located at the University of Sunderland's School of Computing and Technology, which is part of the award-winning St. Peter's riverside campus.

With a proven track record of applied research in electronic commerce, we have established strong links with partners from industry, commerce and the public sector, and over the past few years we have worked with 73 project partners on a total of 16 projects.

There are, at present, 13 members of staff involved in the Centre's activities.

In this reporting period, we are involved in 7 projects: MACRO, PIKON, Burma-X, Deepsi@, Smartisan, Transact and WebDAC. In addition to our current project work, we are also aiming to build upon the results of our recent E-Business Success Programme by offering support and advice to SMEs in the North East of England regarding the e-commerce opportunities available to them. We are also looking to extend our work with SMEs by building on the success of the WebDAC project, which has been providing subsidised data capture services online to local companies.

We work with a number of leading edge technologies such as XML, Macromedia ColdFusion and Flash, Active Server Pages, Java and large-scale database management systems such as Oracle and Microsoft SQL Server.

3.1 Current Projects

3.1.1 MACRO



The overall objective of the project is to examine technical questions and business paradigms that surface from real business interfacing of e-CRM software with enterprise ERP (enterprise resource planning) software and SCM (supply chain management) software when these are interfaced to emerging web and mobile technologies.

The project will create a software platform that will act as an integration environment to interface and interconnect CRM, SCM and ERP systems to make data contained in those systems seamlessly available according to company's overall e-CRM strategy. The scope of the present "phase" in the overall project is to:

- Consider, prepare and test business scenarios by producing a pilot integration software layer
- Extract data from a trial software offering
- "Publish" data from the trial systems over the web and onto mobile devices
- Measure the technical functionality and economic feasibility of the integration model

The phase will test the system using real company data and produce detailed business plans to reduce the risk of companies adopting the MACRO e-CRM strategy.

The Consortium's long term objective is manage increased complexity and produce new business paradigms in order to stimulate increased industrial uptake of company-wide e-CRM integration solutions. To this end the MACRO Consortium will test our business scenarios and pilots in real situations in real companies.

IT Companies involved in the consortium will integrate and test a variety of software for interoperability and test it according to preliminary business scenarios. Over the course of the entire project numerous CRM, SCM and ERP systems will be integrated and made available in mobile settings thanks to partners involved in the telecommunications field.

The overall project will address integration of the widest number of pre-sale and post sales marketing and service business applications.

3.1.2 PIKON



The PIKON project will develop an integrated Information and Knowledge Management Environment that supports personal information and knowledge management needs and enables effective sharing of information and knowledge in the extended/virtual enterprise. The system will comprise:

- A behaviour-based learning and self organising methodology
- A personal information and knowledge organiser
- An enterprise cognitive network with semantic navigability

The solution will include thematic features and spaces for the exchange of ideas and creative activity and cater for teleworkers and flexible teams. The solution combines both organisational and technical perspectives which have equal weight.

3.1.3 Burma-X



Traditional organisational forms do not support competitiveness of SMEs in the global market. The emergence of the Internet eases the creation of Extended Enterprises, whilst Implementation of the extended enterprise concept increases competitive capabilities of SMEs and creates value in the whole supply chain.

The user consortium, a characteristic supply chain, has recognised the need of the extended enterprise concept in order to facilitate the following:

- Development and production across company boundaries.
- Provision of high level after sales services, even if components have been produced by partners.
- Definition and easy execution of cross organisational business processes.

Within Burma-X the consortium will support the operation of extended enterprises with an adequate communication platform that contains:

- Integrated suitable technologies that make up an Internet portal for the extended enterprise.
- Additional functionality fitting the requirements for cross organisational collaboration.
- Suitable process interfaces for cross organisational business process interoperability.

3.1.4 DEEPSI@

The strategic aim of DEEPSIA – Dynamic on-line IntErnet Purchasing System based on Intelligent Agents -  is the creation of a state-of-the-art solution information and business system based on Internet network, which will support companies' usual day to day purchasing requirements via the Internet.

Intelligent agents, human agents, catalogue management, software mediation, database technology and up to date communication technologies will be used towards the integration of the flow of business information to and from buyers and suppliers.

DEEPSIA will provide a purchaser centred solution available on the desktop and tailored to individual requirements, rather than a supplier centred marketplace.

The project aims to introduce SMEs to e-commerce as purchasers, rather than suppliers. It will support/help the end user processing more cost and time effective purchases, providing an interface with catalogues containing offers from various suppliers (approved or alternative ones). <http://www.uninova.pt/~deepsia>

3.1.5 Smartisan

SMEs need an affordable, integrated set of WEB tools to take advantage of the new ways of doing business in the E-commerce environment.



SMARTISAN will develop a generic XML based service to facilitate easy access and search to a range of systems, and support synchronised delivery of products against deadlines in the wholesale and retail sectors. This service will be piloted in several varied test situations, which will include food materials, decorating supplies, and furniture.

SMARTISAN will support the participation of both consumers and suppliers in the generation of a new market mediation system aiming at enhanced consumer supplier relationships. Furthermore SMARTISAN will provide a Framework for Electronic Commerce implementation and a Road Map to guide SMEs to understand and select the methodologies, tools and architectures. The project partners have a broad base of experience from E-commerce projects currently under way.

3.1.6 Transact

The overall objective of TRANSACT is to increase collaboration between RTD projects and accelerate the speed with which project results are disseminated and exploited. By stimulating the exchange of information between research centres, industrial enterprises, industrial sectors, projects and programmes, and by supporting collaborative activities between RTD projects, Transact aims to facilitate the cross-fertilization of ideas, the discovery of synergies and collaborative opportunities, and help avoid the duplication of results and deliverables within RTD projects.



<http://www.eu-commerce.org/>

3.1.7 WebDAC

Data you can depend on



Data Capture Solutions from the University of Sunderland specialises in providing high-quality research solutions and data capture services to businesses and organisations across the UK. From questionnaire and dynamic e-form design to data analysis and online reporting, the Data Capture Bureau can help you to collect the information you need to support your business decisions.

Tailored solutions

DCB clients have access to a "one stop shop" for all of their research requirements. With expertise in research processes, project management and the latest technologies to capture data accurately and reliably, the Data Capture Bureau can help with a range of data collection tasks.

Typical projects

- Customer satisfaction surveys
- Employee attitude surveys
- Form archiving and disposal
- Market research
- Opinion polls
- Performance monitoring
- Quality auditing
- Social survey research

<http://www.datacapture.sunderland.ac.uk>

4. Reaching Out to SMEs

NE England Regional

The WebDAC project provided a new business opportunity allowing SMEs in the North East of England to take advantage of the expertise already in place in the Centre to assist them in online data capture. The Data Capture Bureau, part of Learning Development Services within the University of Sunderland, co-ordinate this project.

The Data Capture Bureau is established both as an internal part of the university structure, offering data scanning and OCR services to staff, and also as a supplier of scanning and data management services to local companies.

The project aims to promote use and awareness of data capture technologies among SME communities in the North East of England. To do this, we will:

- Develop a range of web services for use in the data capture process
- Customise subsets of these services for individual SME use
- Promote awareness of the web data capture service in the North East of England
- Generate a sustainable business platform for web-enabled data capture in the future

Opportunities are available to help companies to exploit the Internet to win new business through market research and customer relationship management, for example via online brochure requests, questionnaires, enquiry and feedback forms and quotation engines.

A subsidy can be offered to eligible Small and Medium Sized Enterprises for a range of online data capture projects.

Beginning with their existing customer base, the Data Capture Bureau developed and extended the service to include clients previously involved with the Centre on other reach out projects, such as ERDF Supplypoint Clusters and the ESF E-Business Success Programme.

EU Dimension

The Centre is/has recently been engaged in reach-out activities via our projects with the following 39 commercial organisations throughout the EU (alphabetically by country):-

Company	Country
<u>TWZ Vertriebsgesellschaft m.b.H.</u>	Austria
<u>NetGuide Danmark ApS</u>	Denmark
<u>Shannon Mineralwater Ltd</u>	Ireland
<u>International Information Management Group</u>	Ireland
<u>Pallas Food Manufacturing Ltd</u>	Ireland
<u>Fatman Oy</u>	Finland
<u>ISKIV</u>	France
<u>LanceXport</u>	France
<u>Forschungszentrum Informatik</u>	Germany
<u>THEN</u>	Germany
<u>TLON</u>	Germany
<u>Logicdata</u>	Germany

<u>CAS Software</u>	Germany
<u>Prodeotec Ingenieurgesellschaft mbH</u>	Germany
<u>Logcontrol</u>	Germany
<u>PONTON Consulting</u>	Germany
<u>T-Systems Nova GmbH</u>	Germany
<u>OHB Teledata AG</u>	Germany
<u>Informationsmanagement GmbH</u>	Germany
<u>Unisoft S.A.</u>	Greece
<u>INTRACOM</u>	Greece
<u>Gruppo Formula S.p.A.</u>	Italy
<u>TXT e-solutions</u>	Italy
<u>Tecnologia Energia Ambiente Materiali</u>	Italy
<u>Apuan Industrial Zone Consortium</u>	Italy
<u>ComArch S.A</u>	Poland
<u>Veneporte - Industrias Metálicas S.A.</u>	Portugal
<u>Comercio e Industria de Materiais de Construcao, SA</u>	Portugal
<u>Informacao, Sistemas e Desenvolvimento S.A.</u>	Portugal
<u>UNINOVA - Institute for the Development of New Technologies</u>	Portugal
<u>Fábrica de Artefactos de Borracha, S.A.</u>	Portugal
<u>Atlante</u>	Spain
<u>Telefonica Servicios Avanzados de Informacion</u>	Spain
<u>Marwik Informatik</u>	Switzerland
<u>Ingenieurbüro Brönnimann Thun</u>	Switzerland
<u>TIE International</u>	The Netherlands
<u>S J Dixon & Son (Holdings) Limited</u>	UK
<u>Hawkins Heath Partnership</u>	UK
<u>Cytecs</u>	UK

5. Our Project Partners

A total of 73 partners have worked with us on 16 past and present projects.

Our partners are based in the following countries:

- Austria
- Brazil
- Eire
- Finland
- Germany
- Italy
- Portugal
- Switzerland
- United Kingdom
- Belgium
- Denmark
- Ecuador
- France
- Greece
- Poland
- Spain
- The Netherlands

Working in areas such as:

- Local and National Government
- State Telecommunications
- B2B software & services supplies
- IT Development
- Dye Machine Manufacturing
- Academia (Universities and Research Institutes)
- Engineering
- Research & Development
- Telecommunications Manufacturing
- IT Consultancy
- Software Engineering, etc

6. MSc eCommerce, Teaching and Learning

From September 2001, the University of Sunderland began 2 new e-commerce programmes - **MSc ECommerce** (for computing graduates) and **MSc ECommerce Applications** (for non-computing graduates) - in association with the Centre for Electronic Commerce.

These programmes are designed to provide graduates with advanced skills and knowledge in the application of Information Technology to the field of Electronic Commerce. These postgraduate courses will:

- Enable students to make critical assessments of technology and its application in Electronic Commerce
- Develop the skills and knowledge of students so that they can contribute at a high level the adoption of a systematic, professional and quality approach to Electronic Commerce systems development
- Identify the appropriate role for Electronic Commerce Technologies in developing and implementing IT strategies
- Provide students with the skills and knowledge to make a significant contribution to Electronic Commerce Research and Development activities

Both programmes can be studied on either a full time basis (1 year) or part time (3 years). Each offer two separate routes to cater for computing and non-computing students.

Please email Simon Stobart (simon.stobart@sunderland.ac.uk) if you have an enquiry about any aspect of these courses or for more information.

Centre staff teach on a range of modules on this MSc programme.

A new MSc in Network Systems has also been launched, and module preparation delivery undertaken by Centre staff.

Research Supervision

Postgraduate research student supervisions in the period were undertaken by Albert Bokma. Two MPhil and two PhD students' supervisions were carried out in the period.

Undergraduate Teaching

During 2003, the undergraduate module, Ecommerce Strategy and Management (COM350), was redeveloped and delivered by Kevin Ginty.

Modules

The following modules were developed and/or taught by Centre staff during the period:

COMM1U, COMM1X, COMM1T, COMM2T, COMM1S, COMM1V, COMM1W,
COM350

7. Challenges and Solutions

A key part of our future development will be the further integration of the activities of the Centre with the School of Computing and Technology (CAT) of which we are a part. We are also actively seeking to develop strategic alliances with other groups within the university where scope exists for joint future development.

In the past year, we have had to face a significant climate change in the structure of research funding within the EU. Programmes have moved toward very large integrated projects, and away from smaller (2-3 MEuro) projects in which we have participated in the past. This change has reduced the scope for participation, although we did join several consortia preparing bids. A number of these groups disbanded, or merged together.

There have also been significant contractual changes, affecting particularly financial guarantees and joint and several liability on EU projects, which have acted as a disincentive to many organisations who were otherwise willing to act as co-ordinator.

We have been successful this year in attracting grant funding, and also in achieving our previously stated objectives of integrating more fully with the teaching and reach out objectives of the school. Extensive input has been made to the preparation and delivery of modules on a range of undergraduate and postgraduate programmes. In achieving these objectives, less time has been directed to securing grant income, and consequently grant income is less for this period than the preceding one. The Centre had to move offices during this period also, which proved particularly problematic.

Overall, the Centre will function in the future as a leaner and more compact unit, with activities tied in more closely to funding streams to preserve operational integrity.

8. The Year Ahead

The year ahead offers new research project opportunities, and the chance to build on existing success with teaching and reach out. New strategic alliances will be sought with other groups within the university, existing involvement with teaching and reach out built upon.

A number of projects ended during this reporting period, and there were fewer project starts. The quoted number of running projects is therefore artificially high. A reduced number of bids were submitted, the outcomes of which are still pending. Exploration of new funding sources will continue in the next period, following on from the successful acquisition of funding from @LIS, the first project to be carried out by the Centre under this programme (see below). In this way we hope to maintain continuity of funding, and therefore to continue to have significant skills transfer from one project to the next. The very long lead times on external funding present a significant challenge here. Typically, the time taken from beginning bid preparation, through negotiation to contract start, is of the order of 12-18 months.

At the time of writing, the SILAE project has just begun.

As part of the @LIS programme, for technology transfer into Latin American countries from IST, SILAE will support the development of energy supply infrastructure to remote communities in Ecuador. In partnership with several organisations in France and The Netherlands, we will be providing web support for dissemination, and also establishing a collaboration portal. This portal will support information sharing and joint development of project structures between stakeholder organisations. These organisation will include electricity suppliers in Ecuador, as well as European entities involved in the supply and installation of local grid structures such as micro-hydro, and solar systems, in addition to conventional fuel based systems. A forum will also be provided to bring together investors and project developers.



In terms of teaching, the existing range of modules will be updated and delivered to the new cohort of students. Further scope exists for developing more learning materials and extending involvement into other academic areas, and this will be explored. There is also some potential arising from the MACRO project to be more closely involved with distance learning, and we intend to explore this possibility during the coming year. The centre will also continue to be involved in the supervision of students undertaking research degrees within the school of Computing and Technology.

In terms of reach out, the Centre's current reach out project WebDAC will conclude operations during the next reporting period, and discussions are now underway to explore new avenues for funding reach out activities. Meetings have taken place with the Industry Centre to discuss future relevant initiatives and reach out strategies. Professor John MacIntyre and Professor John Tait have been involved in these discussions.

The increased participation of the centre in indirectly funded activities will mean that a more compact Centre will carry on with existing projects, and new work. The coming year will see more work carried out in teaching and reach out, and less in directly funded research work, so external research grant income will probably shrink further whilst involvement of the centre in teaching and reach out expands.

9. Financial Performance

Overall budget for 7 EU funded (various programmes) projects running during the reporting period

Cost Headings	2002 (Euros)	2003 (Euros)
Staffing	300,575	191,205
Travel & Subsistence	32,668	22,529
Equipment	6,024	5,779
Consumables and Other	6,063	20,701
Total Centre Turnover	345,330	240,214

10. Contacts

To contact the Centre for Electronic Commerce, please go to the website at:-

<http://voyager.sunderland.ac.uk>

...and click on the *Contact Us* tab on the left hand menu. From there you can directly email any member of the centre staff.

Telephone: click on the *Staff* link on the left hand menu of the homepage, and phone/fax numbers and email addresses for each member of staff are listed.

Snail Mail: click on the *Find Us* tab for information on our postal address and directions for finding us by road, rail, or from the airport (Newcastle International, NCL).