

ISSTI Newsletter

THE INSTITUTE FOR
THE STUDY OF SCIENCE
TECHNOLOGY AND INNOVATION



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Welcome

to the first edition of the ISSTI Newsletter! The aim of this newsletter is to give you an insight into the most recent and current projects undertaken by the Institute for the Study of Science, Technology and Innovation (ISSTI), at the University of Edinburgh.

The Institute was established to carry forward and consolidate the interdisciplinary network of research in science and technology studies at Edinburgh, coordinated by the Research Centre for Social Sciences. It involves a range of other specialist centres and groups including the ESRC Centre for Social and Economic Research on Innovation in Genomics (Innogen), and renowned Science Studies Unit, (School of Social and Political Studies); the Entrepreneurship and Innovation Group and Japanese-European Technology Studies Institute (Management School and Economics); the AHRC Research Centre for Studies in Intellectual Property and Technology Law (School of Law) and the ESRC Genomics Forum in the College of Humanities & Social Sciences. There are extensive links with colleagues in the College of Science & Engineering, especially Informatics, and the College of Medicine & Veterinary Medicine. Together these constitute a vital and vibrant field of activity: promoting, undertaking and disseminating high-quality research as well as engaging with policy and practice. A wide range of research projects is underway. For more information visit: www.issti.ed.ac.uk.

Over the years, ISSTI researchers have led or been involved in numerous projects funded by the UK Research Councils, the European Commission, and other bodies including the Scottish Higher Education Funding Council: the UK Department of Trade and Industry: and industry, to undertake interdisciplinary research into the 'social shaping of technology', encompassing economic and social dimensions. Our work emphasises the importance of exploring the interaction between 'socio-economic' and 'technical' factors in the adoption and use of technology.

We hope that you will enjoy discovering our projects. For more information check out the individual project websites or the ISSTI homepage www.issti.ed.ac.uk.

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Contents

Life Science Technologies 2
Information Technology and
Organisations 3

A Broad Range of Science and
Technology Studies 6

Specialist Centres Associated
with ISSTI 7

Life Science Technologies

Innogen

The ESRC research centre on innovation in genomics was set up at ISSTI in 2002 with the collaboration of the Open University. Its main aim is to provide a better understanding of and response to rapid changes in the life sciences, by looking at social, economic and political processes and issues surrounding developments in biotechnology. This work is being undertaken in a number of core projects run by the centre, including innovation in life science industries, generation and organisation of genetic information, exploring the power of knowledge and technology flows in developing countries, legal and bioethical regulatory mechanisms, the national and international policy environment for genomics, and interests and values in risk related stakeholder interactions, as well as through a range of related research projects. The centre is being widely recognised as vital to research in the field. Its director, Professor Joyce Tait, was awarded earlier this year, a CBE for services to social sciences, and will also serve on the assessment panel for the BBSRC Crop Science Initiative. Meanwhile, Innogen is already planning the next phase of its research. Further details of the centre's work, including publications can be found at:

<http://www.innogen.ac.uk/>

Genomics Innovation in Scotland

Run within the Innogen Centre, the "Genomics Innovation in Scotland" project has been exploring the dynamics of innovation in the biotechnology sector by looking at the impact of public policy and industrial structures. This has involved collecting evidence on the Scottish, Danish and Swedish systems of innovation and legislative/institutional frameworks, through interviews in 18 core biotechnology companies based in Scotland, and a further 14 based in Sweden and Denmark. The data collected are being used to understand the impact of policies on a firm's choice of location, how knowledge is created, used and transferred, the mechanisms underlining innovation processes and how these affect a firm's strategy and behaviour, and the interplay and co-evolution between industrial and innovation trajectories and institutions. The results so far have underlined the influence of public policies on the development of effective corporate strategies, and the growth of a significant number of competitive firms in Scotland. Key contact details and project overview are available at: <http://www.innogen.ac.uk/Research/Scottish-Enterprise-Project>

21st Century Genetic Health (21CGH)

21CGH is a multi-institution, cross-disciplinary collaboration led by the University of Edinburgh, embracing all of the Scottish Medical Schools, other important research institutes and the NHS in Scotland. Its aim is to address directly Scotland's three health priority areas – cancer, heart disease / stroke and mental health – as well as others. To do this, the research teams have led a public consultation on the ethical, legal and social issues arising from the construction of DNA databases, engaging with the people of Scotland, public interests groups, elected representatives and the media. This consultation exercise has involved interviews with 'specialists', such as geneticists, lawyers or theologians, as well as focus groups with patients, voluntary and civic groups representing a wide range of backgrounds. From the data collected, it appears that both groups of respondents hold similar views or concerns, even if differences have been found in the degree to which specific issues are seen as significant. The main areas of public concern relate to issues of consent, storage, access and use of genetic data. Further details on 21CGH can be found through the Innogen website at: <http://www.innogen.ac.uk/Research/21st-Century-Genetic-Health>

Information Technology and Organisations

Network Enterprise

Network Enterprise, a two-year ESRC study on the shaping of institutions and standards in e-business was recently completed by ISSTI researchers. The project investigated through three in-depth case studies in the insurance sector, health service and logistics, the emergence of standards and institutions that coordinate business-to-business e-commerce based on XML and related technologies. The results from the case studies show that the emergence of data exchange standards is coordinated by local institutions addressing the requirements and interests of specific users, whereas the emergence of hardware interoperability standards is coordinated at the level of global institutions, complemented by a range of local institutions that customise the generic standards to local needs and practices. Read more about the project and its findings by visiting: <http://www.managementschool.ed.ac.uk/research/netent/>



Chameleon - *"Powerful yet fragile instruments of change"*: Understanding and Improving the Design, Deployment and Use of Electronic Health Records

The Chameleon research project, which will be completed in February 2006, was set up to understand clinical record keeping practices and thereby inform the design, deployment and use of Electronic Health Records (EHR) that aim to support coordination and cooperation between healthcare providers. The patchy success record of past electronic medical record projects has made it clear that the introduction of EHRs face numerous and often complex problems, including: clinician acceptance, usability, fitness for purpose, aligning local terminologies and practices as well as ensuring the preservation of confidentiality in distributed systems. They also pose the problem of how strategic approaches to ensuring interoperability (such as using standards or packaged solutions) can be reconciled with local innovations and requirements. To address these issues, the three year multi-site project involving ISSTI researchers, the Cooperative Systems Engineering Group at Lancaster University and the Digital World Research Centre at the University of Surrey, has developed strategies and tools for the design and deployment of EHR. More information can be found on the project's website: <http://www.iccs.informatics.ed.ac.uk/~mjh/chameleon/>

NO-REST: Networked Organisations – Research into Standards and Standardisation

The IST funded NO-REST project was set up in 2004 by a consortium of researchers across Europe, to investigate the applications and dynamics of standards in e-business, e-government and ICT sectors, with the aim of developing tools for the assessment of their performance and impact on networked organisations. By analysing how standards are changed by the environment within which they are implemented, the project hopes to generate new perspectives in the field and importantly too, to help businesses and governments gain a better understanding of the significance of standards. The project website offers further insights into the research, together with details of publications and presentations. See: <http://www.no-rest.org/Project.htm>

The Biography and Evolution of Software Packages

This comparative study of the development and use of commercial off-the-shelf (COTS) software packages, and their adoption and use in new organisational contexts, traces the 'biography' of a number of software packages to examine the dynamics and tensions between software suppliers and users. Through ethnographic research in both supplier and user settings, the project investigates the little explored strategies of COTS suppliers and how they develop systems for both specific users or classes of similar users and wider markets. It considers also how user organisations themselves assess and make decisions about the wide range of systems available, as well as the implementation and customisation strategies they adopt. A recent paper by Neil Pollock and James Cornford based on the Biography research, and published in the journal *Organisation, Information Technology & People* has won The Emerald Award for Excellence. The project website can be found at: www.erp-online.co.uk

Gender in/of Engineering

This ESRC funded project examines in detail various ways in which professional engineering may be both 'gendered' and 'gendering'. In particular, it addresses the suggestion that the retention and progression of women engineers is impaired because the occupational practices, cultures and identities of engineering are more comfortable for their male colleagues. In contrast to research on women engineers, the focus of this study is on engineering as a 'community of practice', and on how it comes to be 'coded' and experienced as masculine.

More information and contact details at:

http://www.ssu.sps.ed.ac.uk/research/faulkner/faulkner_g%2Be_project.html/

DIRC – Interdisciplinary Research Collaboration in Dependability

ISSTI researchers have been involved since the summer of 2000 in the six-year long DIRC project, which has involved researchers at the universities of Newcastle, York, Lancaster and City University London. DIRC is truly a multi-disciplinary project, bringing together researchers from computer science, maths, psychology, sociology and business. The aims of DIRC are to develop knowledge, methods and tools that contribute to our understanding of socio-technical system dependability and that support developers of dependable systems. DIRC has made remarkable progress across a number of areas, and the DIRC interdisciplinary approach is being increasingly recognised as an important contribution to dependability research. The research achievements to date include over 400 publications, 13 conferences organised or contributed to by DIRC, attendance at 3 industrial exhibitions, 15 case studies performed or collaborated on, as well as significant industrial national and international contact. A wealth of resources are available on the DIRC website, including research results, publications and contacts, at: <http://www.dirc.org.uk/>

SLIM

The SLIM project has involved researchers at nine universities across Europe, who together have investigated processes of innovation in multimedia. Their work has shown how the eventual uses and utility of multimedia products are often far removed from supplier presumptions, because "social learning" is crucial to how generic Information and Communication Technology (ICT) capabilities are applied and used in particular settings. More specifically, the study underlines how multimedia is an 'unfinished' technology, which evolves, and acquires meanings in its implementation and use. The research demonstrates therefore the urgent need for policy makers and others to pay more attention to processes in the appropriation of technologies and their content. The project's final report can be downloaded from the SLIM website, by visiting: <http://www.rcss.ed.ac.uk/SLIM/SLIMhome.html> These findings have recently been published by Edward Elgar: Robin Williams, James Stewart, Roger Slack (2005) *Social Learning in Technological Innovation: Experimenting with Information and Communication Technologies*.

SIGIS

The SIGIS project has investigated across five European countries women and girls' participation in ICT (Information and Communication Technology), in education, training, employment and in the development and consumption of technology products. The research has involved 45 detailed case studies of gender inclusion strategies by public and private sector organisations, underlining the key obstacles to and success stories in gender inclusion. The findings emerging from the case studies have been used to develop recommendations and examples of best practice aimed at both policy makers and practitioners, and others involved in the development of new inclusion efforts. The project has generated a wonderful resource on gender and ICT, covering a variety of themes, ranging from constructions of gender and gendered identities in ICT settings to the market mechanisms for inclusion. Project reports and detailed findings can be found through the SIGIS project homepage, at: <http://www.rcss.ed.ac.uk/sigis/>

ParcelCall

ISSTI researchers were recently part of a consortium of leading European industrial and academic partners involved in the research and technological development project ParcelCall. The project's aim was to create a scalable real-time, intelligent, end-to-end tracking and tracing system for transport and logistics applications - to operate across all border, carriers and transportation modes. In order to ensure seamless tracking and tracing across the entire logistics and transportation chain, the research has pointed to the need to focus on interoperability, open interfaces, and standardization. It was also found that by using an open and scalable system architecture, the ParcelCall system can be easily extended by adding new server components, whilst the use of Radio-Frequency Identification (RFID) tags to complement existing automatic identification methods using bar codes and labels, allows reliable automated data capture and status acquisition for individual movements, key processes and events throughout the transport cycle. For more information, go to: <http://www-i4.informatik.rwth-aachen.de/parcelcall/>



FLAWS

The IST funded FLOWS project was set up in 2002 as a multidisciplinary project investigating the convergence of wireless standards and services, with the collaboration of eight industrial and academic research partners across Europe. The aim of the project has been to develop a multi-standards approach for the provision of mobile wireless services, to enable seamless access to integrated broadband services. This convergence perspective has been seen as critical since the ever-increasing number of wireless-based standards make a unified standard unlikely. The research was carried out by developing a number of future user scenarios, which were then simulated to explore the features that could be added to create multi-standard terminals. The findings demonstrate the potential benefits of multi-standard convergence to both users and service providers. Project reports and contacts can be found at: <http://www.flows-ist.org>

A Broad Range of Science and Technology Studies

ATBEST

This international study, funded under the European Union's New and Emerging Science and Technology (NEST) programme and involving the universities of Twente, Edinburgh and the Centre for the Study of Innovation at the Ecole des Mines in Paris, has aimed to develop a process, with corresponding tools, for the management of new and emerging science and technology. This has involved exploring a number of questions including understanding how practitioners handle emerging and potentially breakthrough science and technology, what differences exist between NEST areas, the trade-offs surrounding the choices in managing NEST, how they are addressed by science and technology programme builders and research funders, and what strategies are available for managing NEST (for example through the promotion of portfolios of research). The research project has through this work produced concepts and related tools that may improve the selection and monitoring of projects under NEST, to enable scientists, technologists and policymakers to improve their strategic reflection and choices. See <http://www.rcss.ed.ac.uk/atbest/> for more details.

PROMETEA

PROMETEA is a research project involving 18 European research institutions. The aim of the project is to develop a better understanding of gender issues in engineering and technology research settings, in order to propose effective measures and recommendations to empower women engineers' careers in academic and industrial research in Europe. This project combines existing knowledge with new in-depth pilot studies on women engineers' career progression, linked to qualitative research work on the experiences of both women and men working in engineering and technology research. For more information contact: Wendy Faulkner w.faulkner@ed.ac.uk or Lisa Lee lisa.lee@ed.ac.uk

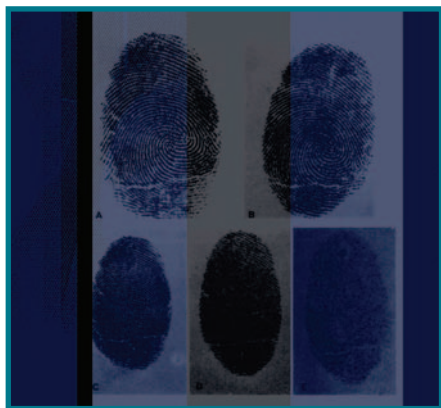
Building Renewable Energy Innovation Systems (BREIS)

BREIS is a two year ESRC funded research project which is examining the enablers and barriers to developing innovation systems in marine (tidal and wave) technologies in the UK, with a particular focus on Scotland. The aim of the project is to inform policy support for these strategically-important industries. By focusing on key players in marine energy innovation systems in the UK and other parts of Europe, including technology developers and adopters, a number of case studies of large firms, SMEs and non-firm organisations have been selected to provide evidence-based policy recommendations in a strategically important area for Scotland and the UK. To find out more about the project or to get in touch with BREIS researchers,

visit: www.sustainabletechnologies.ac.uk/projects/renewables.htm

Social Studies of Finance

In 2003, the ESRC awarded Donald MacKenzie a professorial fellowship to research "social studies of finance". This research involves the application to financial markets of social-science disciplines such as sociology, anthropology, and social studies of science. The project aims at building a platform that helps scholars to become aware of each other across disciplines, and to enhance the sharing and exchange of resources. More details at: <http://www.sociology.ed.ac.uk/finance/index.html>



The Boundaries of Forensic Psychiatry

The project investigates the emergence of forensic psychiatry, by considering the courtroom behaviour of the psychiatrist, the construction of boundaries between psychiatry and the law and other medical disciplines, and the formation of psychiatric objects in a legal context. Central to this project is the way that psychiatry has developed specific knowledge about insanity and criminal responsibility that could be used as the basis for strategies to challenge legal beliefs about insanity within the court as well as in medical publications.

See: http://www.ssu.sps.ed.ac.uk/research/crozier/crozier_boundaries.html

Rival Theories of the Aerofoil 1904-1926: A Sociological and Historical Study

Aircraft played an important tactical role in the Great War of 1914-18. Britain fought that war with many of its leading experts in aerodynamics committed to the wrong theory of how an aerofoil creates lift. German experts, by contrast, had the right theory, as judged by today's standards. The aim of this ESRC funded research project, led by Professor David Bloor, is to find out what caused this theoretical divergence, which lasted until the 1920s. The problem is addressed as an exercise in the historical sociology of knowledge, by placing the details of the two theories in their institutional contexts. The project looks into how and why this theoretical difference came about, what led the experts and scientists of the two nations to diverge in this way, and what sustained the difference in approach for nearly two decades.

Specialist Centres Associated with ISSTI

JETS

The Institute for Japanese-European Technology Studies (JETS) was launched in April 1989, with three major objectives. First, to do policy-oriented research on science, technology, industry, and business strategy in Japan and Europe. Secondly, to promote co-operation between Japan and Europe by encouraging closer links between researchers in Japan and Europe. Finally, to develop a documentation centre on science, technology, industry, and business strategy in Japan and Europe. For more information visit the JETS website - <http://www.jets.man.ed.ac.uk/>

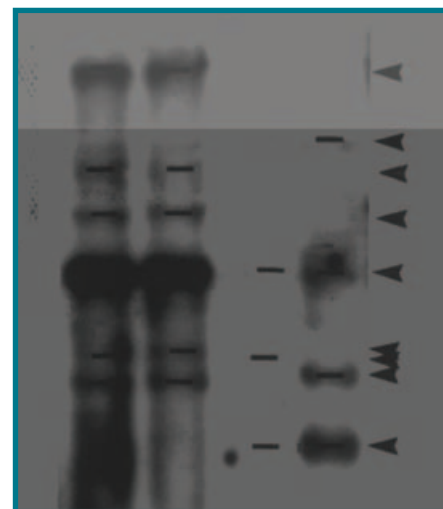
New Edinburgh eHealth Research Network set up

The e-health Research Network was established in 2005 as a means of sharing expertise and stimulating interdisciplinary collaborations in the area of eHealth - an emerging concept relating to the use of networked digital ICTs to facilitate the organisation and delivery of health care and services. Membership of the network spans the Colleges of Medicine and Veterinary Medicine, Science and Engineering and Humanities and Social Science at the University of Edinburgh, harnessing strengths in primary and secondary care medicine, informatics, social studies of technology, law and medical ethics and e-learning. In addition it encompasses colleagues from within the NHS, including Lothian Health Board and NHS Education for Scotland and related groups and organisations within Edinburgh, such as Innogen, Cancer Research UK, the National eScience Centre, Generation Scotland and Scottish Cancer Research Network. For more details, visit: <http://www.chs.med.ed.ac.uk/gp/downloads/eHealth/index.html>

The Economic and Social Research Council (ESRC)

Genomics Policy and Research Forum

The Genomics Policy and Research Forum was established in August 2004, as part of a £12million investment by the ESRC into research on the development and use of the science and technologies of genomics. Led by Professor Michael Banner, and based at the University of Edinburgh, the Forum provides a vital link between research from across the ESRC Genomics Network (EGN) and both public and policy debates in the field. It has a rich programme of national and international activities which attracts natural and social scientists, policy-makers, regulators, civil society and businesses, who want to engage in discussions and debates on the relationship between genomics and society. Examples of these activities include the Forum's co-sponsorship of a short course examining particular issues around science in society, its support of the world's first Film Festival on Human Cloning, or the forthcoming talk by Professor Ian Wilmut, who is best known for his involvement in the cloning of Dolly the sheep. Full details of the Forum's work, including publications are available at: www.genomicsforum.ac.uk



AHRC IP Law Centre

The AHRC Research Centre for Studies in Intellectual Property and Technology Law was established in April 2002 with the generous support of the Arts and Humanities Research Council. The work of the AHRC Centre focuses around three anchor projects: (1) Privacy, Property and Personality, including a dedicated project on Property and the Gene as Cultural Icons (2) Intellectual Property, Cultural Heritage and the Public Domain, and (3) E-Commerce Legislation within the EU. In total, the Centre is undertaking 11 projects over five years. The research has generated a rich body of work in the field, with the publication of numerous books, articles, policy and position papers. The centre has also been running a range of events and talks to engage with the public, industry, law and policy-makers. Publications, the latest news, contact details and much more are available via the project website at: <http://www.law.ed.ac.uk/ahrb/>

The Social Informatics Cluster

The Social Informatics Cluster works at the intersection of technologies, work practices and organisations, by studying Information technologies in their organisational contexts. A multi-disciplinary group that draws on insights from HCI, CSCW, participatory design, organisational sociology and ethnomethodological studies of work, the cluster's activities aim to go beyond traditional ways of developing IT systems, by engaging with IT professionals and breaking down the barriers between IT systems design and use. This approach to design leads to solutions that provide the competitive advantage that organisations are looking for. Find out more about the group's current research activities, by visiting: <http://corealisation.inf.ed.ac.uk/welcome.html>

SUPRA – Scottish Universities Policy Research and Advice Network

The SUPRA interdisciplinary network provided policy-related research and advisory services for Scotland, the UK and internationally. It became an internationally recognised authority on the conduct and management of interdisciplinary research and advised a wide range of organisations on the integration of natural and social science disciplines in research and policy contexts. SUPRA's distinctive, integrative approach to policy research, consultancy and advice combined the best of academic practice with professional consultancy expertise. SUPRA advised government departments, industry and the commercial sector, non-departmental public bodies, and public and private interest groups, including: the Scottish Executive, the Office of Science and Technology, the Economic and Social Research Council, the Royal Commission on Environmental Pollution, the European Commission, the Forestry Commission, and the OECD. Policy advisory activities in areas related to genomics are now being continued through the Innogen Centre. Further details of SUPRA, including publications are available at: <http://www.supra.ed.ac.uk/index.html>