JISC

JISC, making it possible…

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JISC is at the heart of UK education and research, driving the innovative use of technology to support the sector's activity nationally and its competitiveness globally.

JISC provides a world class ICT infrastructure, and acts as a test bed for digital innovation providing authoritative advice and guidance, and leadership. Its extensive innovation programme covers a broad field from supporting research, through learning and teaching, business and community engagement, administrative and management systems, to network technologies, and the infrastructure needed to support online content.

Much of this work is world-leading and is largely responsible for JISC's very high international reputation. No other country has a comparable single body providing an integrated range of network services, content services, advice, support and innovation programmes.

Without the work of JISC, directed by the needs and demands of the higher education and research communities, a whole range of things, now taken for granted, may never have come into being or been as successful as they are.

JISC only achieves so much because of its unique position: being part of, and working for, the sector. And such transformational activity can only be carried out through genuine collaboration, by the widespread building of skills and knowledge of individuals and organisations and by allowing all to leverage the unique success of JISC.

www.jisc.ac.uk

JISC, making it possible by being...

" Over the last decade JISC has invested its research and development funds in over 200 UK universities and colleges to create a collaborative innovation engine that has driven and delivered new products and approaches and increased sector skills and capacity ensuring UK education and research remains world-leading, now and in the future. "

Professor Sir Tim O'Shea, Chair of JISC

Proven
Janet – the net that really works, for schools, colleges, universities and research

Open
JISC's promotion of the use of repositories and common standards means that the UK has more digital repositories than anywhere else in Europe

Popular
JISCmail an academic email and mail list system used by 700,000 subscribers worldwide

Pathfinder
The work of JISC has helped ensure that the UK, along with the USA, is seen as a pathfinder for e-infrastructure

International
JISC's e-science agenda keeping the UK at the forefront of international developments

JISC

Innovative
JISC's support for academic libraries since the early 1990s has been essential in ensuring that they continue to meet the challenges of emerging digital technologies

Pioneering
JISC's pioneering work building a UK e-learning infrastructure that has a truly global reputation

Advanced
JISC's Digitisation programme is internationally recognised as the most advanced and integrated in Europe

Unique
National licensing agreements to provide the education system access to an unparalleled range of online content that is the envy of the world

Cutting Edge
JISC ensuring that the UK is in the vanguard of 'single sign on' access to resources

JISC, making it possible … for managers

JISC assists universities and colleges by delivering value for money through economies of scale, by providing research and development into how technology can better support education and research, and by offering a range of services and resources that meet the needs of colleges and universities and those that manage them.

Saving you money

Negotiating and purchasing online resources is both time consuming and expensive; JISC Collections eliminates the need to tackle these issues at a stroke, saving UK education vital time and millions of pounds every year.

Innovation

JISC facilitates digital innovation by enabling institutions. Since 2000, JISC has funded over 1,000 innovation projects across further and higher education that have changed the way institutions support learners, deliver teaching, carry out research, engage employers and use technology to support change. These projects also prevent the widespread duplication of work: one institution pilots a technology and then spreads the word about what works and what doesn't, saving other institutions time and money and allowing successes to be replicated across the sector.

Delivering here and now advice that you want

JISC provides a range of unique advisory services with no commercial equivalents dedicated to supplying focused advice and support to the community on a wide range of issues that institutions face on a daily basis. JISC is also a source of research in itself, both in terms of reports and information generated and the staff themselves, informing managers and practitioners on a wide range of issues from student behaviour and expectations to flexible service delivery and green ICT. JISC innovation programmes are having an impact on institutional strategy and policies at the local level. Work through and with institutions enhances the skills and capabilities of those people within education and research who are using or are responsible for ICT, from hands-on staff to strategic decision-makers.

TechWatch is, for me, the best single source of such information that I have come across in the past two or three years.

John Connell, Learning and Teaching Scotland (Autumn 2008)

Mapping the benefits

© 2007. An Ordnance Survey/EDINA supplied service

With no commercial equivalents the JISC service Digimap, which delivers Ordnance Survey data and maps, saves the community £16.71m every year.

In 2007/08 Digimap was used:

- **240,010** times by **105** different higher education institutions

- **3,242** times by **43** further education colleges

- Through JISC, they each saved over **£112,000**

Some facts and figures...

+ The 2008 'Google Generation' report has been downloaded nearly 50,000 times

+ From public funding of just under £3.4m in 2008/2009 JISC Advisory Services delivered savings to the value of £41.5m or £12.25 for every £1 invested

+ JISC's negotiating and purchasing power with publishers saved UK colleges and universities £43m between August 2007 and 2008

+ 96% of head and senior librarian staff say that JISC keeps them up to date with developments in ICT

For every £1 spent...

...the community received services with a commercial value of over £34

JISC, making it possible … for researchers

For over 15 years JISC has been constantly developing, evolving and delivering a flexible, resilient, information and communications infrastructure, positioning UK institutions at the forefront of research worldwide in the global knowledge economy.

Collaborating, enabling and managing research

JISC provides many key components of the information and communications infrastructure for research, including:

- The National Grid Service, which provides resources that enable the interconnection of computing resources across the world, allowing researchers to collaborate and manage and use their data more effectively
- The Digital Curation Centre, which addresses the acute need to preserve, reuse and repurpose data as collaboration increases
- The JISC National Data Centres at EDINA and Mimas, which provide state-of-the-art facilities for hosting and serving complex content and datasets
- Projects and programmes that support virtual research environments having an impact on the efficiency and effectiveness of research through better collaboration

Opening research

Sharing and opening access to research has always been central to JISC's values. JISC is not only opening access to resources using technology – it is also helping institutions open up the UK's research knowledge base. Through Open Access, research results become freely available online to the whole research community and to other potential users of the research literature. When authors deposit copies of their research papers in an institutional repository, the repository acts as an advertisement for the institution. JISC's work in this area has highlighted the benefits of Open Access to authors, readers, funding agencies, institutions and publishers. JISC's promotion of the use of repositories to facilitate open sharing using common standards means that the UK has more digital repositories than anywhere else in Europe.

The National Grid Service provides computational resources that wouldn't be available to people unless they managed to win a large research grant or they had major backing from an institution that had that resource. I don't know how far I would have got without that help.

Andy Turner, computational geography researcher

Innovating research

The burgeoning of published text means that nuggets of insight or new knowledge are at risk of languishing undiscovered in the literature. Text mining offers a solution to this problem by replacing or supplementing the human reader with automatic systems. The National Centre for Text Mining, established by JISC in 2004, is the first publicly funded text mining centre in the world.

Collaborating, enabling and managing research

Rana, an experimental biologist looking for genes that might be linked to human disease, collaborated with Alex, a bioinformatician, using a number of e-research tools that allowed them to home in on some good candidate genes in a fraction of the time it would have taken working on her own.

Some facts and figures...

+ 40% of users surveyed stated they could not have done their research without this service.

+ The Archives Hub, a Mimas service, provides a single point of access to online catalogues and archives, making available 23,451 descriptions of archives held in 181 UK repositories.

+ myExperiment is a JISC-funded social networking site for scientists that allows them to share workflows, data and research outputs with their colleagues within the department and across the world.

+ Drug discovery is a long process, which often begins with a literature search for new associations between genes, proteins, symptoms and diseases. Without text mining tools to narrow down searches, hundreds or even thousands of documents could be returned, many of them irrelevant, rather than a handful of highly relevant papers.

+ For the major categories of research expenditure in the UK in 2006 a 5% increase in accessibility and efficiency provided by Open Access is conservatively estimated to be worth £172 million per annum to public sector research and development.

# JISC, making it possible ... with networks

JISC provides the UK Education and Research Network – JANET – providing unparalleled, high-speed, highly reliable network connectivity and access to an extensive portfolio of computing services to over 18 million users. The continuing development of JANET is crucial for the future of education in maintaining and building on high-speed networks, enabling communication speeds that are the envy of the world.

Lighting the way to the future

The JANET Lightpath service was launched in November 2007 to meet the growing needs of the UK research communities. The service enables the UK's research communities to transmit large volumes of often delay-sensitive data across the network without it being disrupted by everyday network traffic. It has been joined by JANET Aurora, a high quality fibre network that provides a platform for photonics and optical systems research. With approximately 350km of dedicated fibre, this is amongst the largest test-beds for optical networking research in Europe and enables a wide range of projects that hitherto have been impossible on existing research network infrastructures.

Internationally important

Internationally, JANET is playing a part in the research taking place in Cern, Switzerland with the Large Hadron Collider. When work resumes on the 'big bang' project, JANET will help to transmit worldwide the five gigabytes per second of data that will be pumped out of the site. During a test, the Rutherford Appleton Laboratory near Oxford used the network to send 60 million megabytes of data to CERN over a ten-day period – using the best domestic broadband available, this would have taken 30 years.

60,000,000MB data
10 days
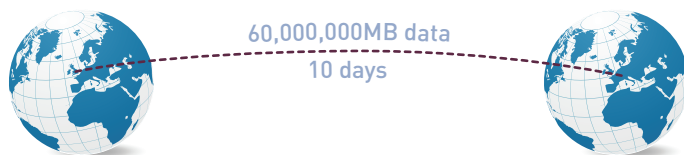
> *The JANET team provides services which are internationally competitive and really serve the UK academic community well. In such a fast moving field, they are always looking to innovate and have a proven track record in doing so.*
>
> Sir David Wallace, Director of the Newton Institute at Cambridge

From the few to the many

Webcam technology in the dermatology theatre.

One of the 18 million JANET users Dr Maria Gonzalez, reader in dermatology at Cardiff University, is using the JANET network to broadcast live surgery to more than 30 countries worldwide. Instead of just a few being able to watch the complex surgical procedures, now undergraduate students on placement, registrars, distance-learning postgraduate doctors and 3,000 members of the department's web-based continuing professional development society across the world can watch them.

"This type of system has the power to revolutionise how surgery is taught,' says Dr Gonzalez

JANET connects troops with their children

In 2008, Iraq-based British troops in Basra organised a video conference to talk to some of their children at a school in Fallingbostel, Germany but technical staff found that the school's IP broadband system was not compatible with the Basra Headquarters ISDN system. JANET stepped in to provide a bridging solution between the two systems and enabled soldiers to talk to their families during the school's morning assembly.

Bagpipes – with no delay

JANET Lightpath isn't just relevant for science but has a myriad of wider potential applications. In a recent live demonstration it was used to transmit a flawless, studio-resolution 'real time recording' of bagpipes played live in Edinburgh to award-winning composer Ambrose Field at the University of York, who immediately remixed and returned the data.

JISC, making it possible ... for students

JISC ensures that ICT is used to enhance the environment in which learners learn and teachers teach, and that resources are available and accessible to all in the higher and further education communities. Through the use of digital technologies JISC cultivates an educational environment where learning resources are freely available, easy to access and routinely shared.

Improving the student experience

Why have two or more passwords to remember when you can just sign in and go? That's the principle behind 'federated access management', JISC's initiative to make life easier for students and staff. As well as improving the student experience, it also frees librarians of the burden of user name and password administration.

Integrating technology

JISC is ensuring that learning and teaching practice in the UK's universities and colleges remain world class by helping institutions integrate appropriate technologies based on, for example, Web 2.0 and simulations.

Working in partnership with others, such as UCAS, JISC has applied technological solutions to issues such as the student admissions process. JISC is also influential in the formation of e-learning strategies such as those developed by HEFCE.

Unlocking rich resources

JISC is leading the way in opening up educational resources, and our digitisation programme is internationally recognised as the most advanced and integrated in Europe through:

- Unlocking 6.5 million hard-to-access items
- Preserving fragile resources
- Creating a critical mass of digital content
- Bringing together scattered resources
- Opening up new areas for research
- Repositories and preservation
- A UK National e-Infrastructure

Access all areas

By 2009, over 90% of higher education institutions and more than half of further education providers had signed up to federated access management, providing access to approximately 8 million users across the UK, which makes the UK the first country in the world to establish such a comprehensive and sophisticated system.

Student centred
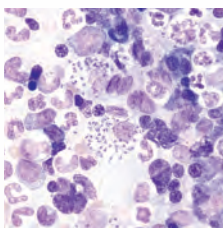
At the University of Edinburgh the Virtual Patient project used Web 2.0 technology to construct imaginary scenarios for veterinary students, effectively allowing them to author their learning activities. By applying their knowledge to a virtual representation of a real world scenario helped them develop a better understanding of the learning process and reflect on their veterinary practice.

Unlocked

The 90th anniversary of the Armistice in November 2008 saw the launch of the University of Oxford's JISC-funded First World War Poetry Digital Archive: A free-to-access open resource with over 7,000 images, text, audio and video materials relating to major British poets. The site's dedicated education area allows teachers to create tutorials and slideshows as well as use podcasts to engage A-level and university students. One year later, the website is integrated into lesson plans at further and higher education institutions across the UK and even worldwide.

JISC, making it possible ... for society

JISC's influence reaches beyond education, funding activities that support the arts, health, libraries, and the public sector in the UK and abroad. JISC also responds swiftly to society's needs from funding research to make ICT more environmentally sustainable to access to resources that promote understanding of world faiths.

International partnerships

JISC enjoys an enviable reputation worldwide and has contributed to the UK being seen as one of the world leaders in many areas of ICT applied to research and teaching. It enables institutions to compete on an international level but has also succeeded in establishing the UK's reputation for excellence and innovation in key ICT areas such as data networks, digitisation, data repositories, promotion of open standards and the adoption of Web 2.0 technologies. JISC has achieved this through partnering with international organisations, leading debate and fostering innovation in UK institutions.

Access for all

JISC and its services produce a wide range of support and research materials, from publications, toolkits and reports to multimedia and workshops, all are freely available online. The openness of this information is greatly valued not only by UK audiences but particularly by international audiences. JISC's investment in unlocking difficult-to-access resources through digitisation and making them available online not only benefits UK Education and Research but also has enormous social value. We make many of these resources, from highly fragile photographs to rare manuscripts, accessible to those studying outside institutions through public libraries and via websites.

Opportunities for all

JISC is at the forefront of exploring how technology can open up and extend educational opportunities to ensure a future that is economically competitive and socially cohesive:

- supporting lifelong learning
- encouraging non-traditional groups of students
- engaging employers
- supporting learners as they move between schools, further and higher education
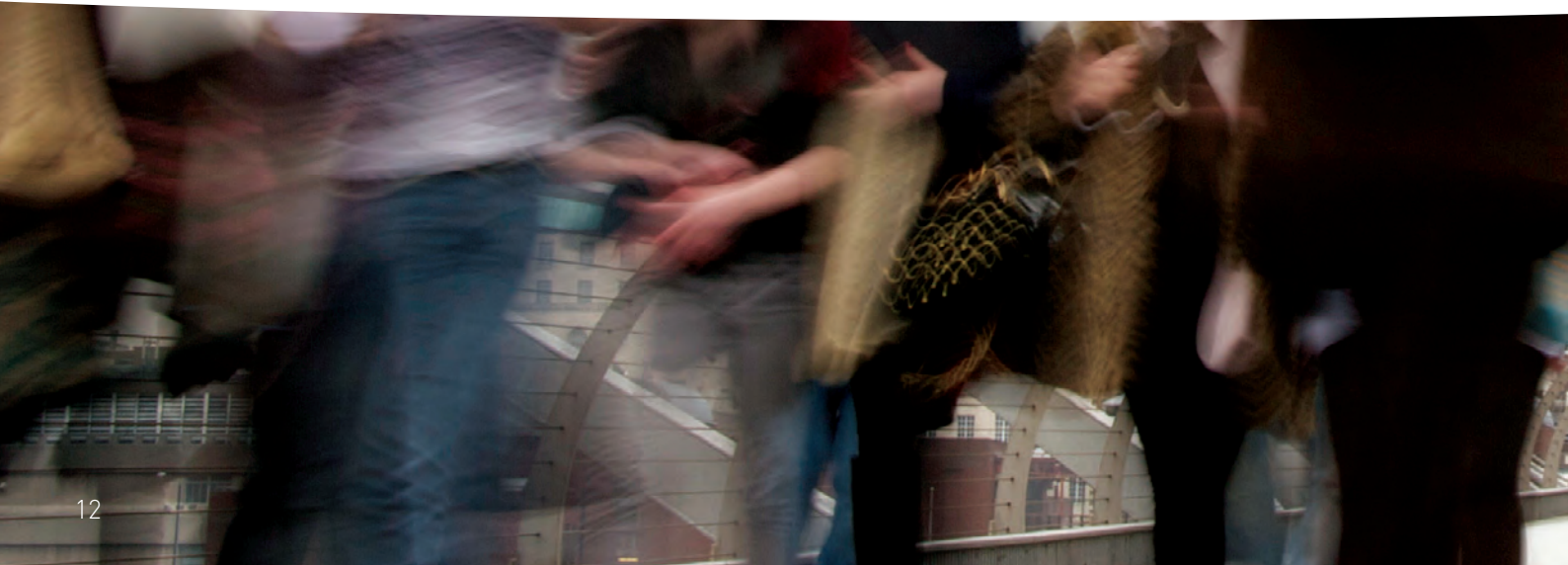
Schools can now access JANET and much of the content JISC has created or negotiated – and all via the single password sign on system. JISC supports innovative learning technologies allowing students to study remotely, which also helps to broaden access to further and higher education.

Responding to society's needs

Responding to the need to make Islamic Studies a 'strategic subject area' JISC pledged to digitise the last ten years of theses in Islamic Studies and uncover and provide access to some of the many Islamic manuscripts held by British libraries. Already the JISC Funded Virtual Manuscript Room project at the University of Birmingham has already made two of the oldest known copies of the Qur'an in existence available to scholars across the world. JISC is also responding to the green agenda driving new work to explore and provide guidance in areas such as video conferencing, 'intelligent' building design, carbon-efficient data centres, and sustainable procurement.

Opportunities for all

Enabling technologies are helpful to everyone, not only to students with disabilities as exemplified by a Lanarkshire college. Following staff training from JISC Regional Support Centres in Scotland, the college invited students to try out the applications themselves, resulting in a performing arts student who can now use text to speech software to listen to her lines on her MP3 player.

Making Morecambe Bay safer

In 2004, 21 Chinese cocklers drowned in Morecambe Bay. Today, maps generated by satellite images, which use radar to penetrate thick cloud cover, are being used to prevent future cockling deaths in Lancashire. Images of Morecambe Bay's mudflats beamed by a European Space Agency satellite are converted into maps and then analysed by Mimas, one of JISC's National Data Centres, to forecast how the area's mudflats change each month.
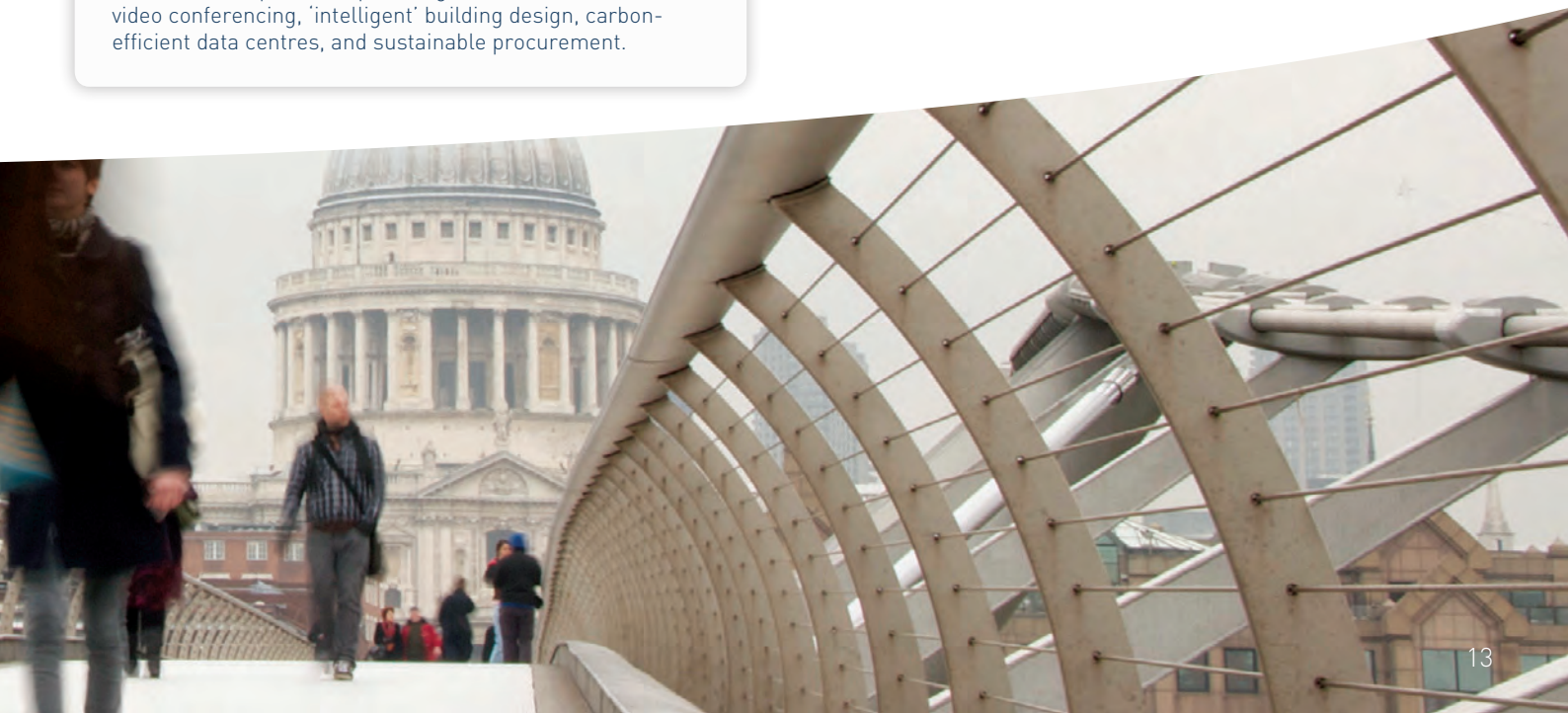
...made possible by JISC

JISC project outputs that come from the very heart of UK colleges and universities, JISC programme staff and JISC services all contribute daily to national and international agendas, representing the needs of education and research and influencing national strategy and policy.

Briefings and formal consultation and responses to Higher Education Funding Council for England (HEFCE), the Department for Employment and Learning Northern Ireland (DEL), UK Department for Business, Innovation The Museums and Libraries Archives Council (MLA) • The National Archives (TNA) • The NIACE inquiry on and Student Experience Committee • HE Agencies Action Group • HEFCW – e-learning subgroup • DIUS ICT Board • OfQual – e-strategy steering group • HEFCE Senior Management Group • HEFCE Shared Services Department for Children, Schools and Families (DCFS)/UK Department for Business (BIS), Innovation and Skills Strategic Content Alliance • Collaborating with Becta, spreading the benefits and advantages of new access the development of Open Education Resources for the UK • Working with the British Library, creating nationally Education in a Web 2.0 World • Highlighting ICT's contribution to carbon emissions, and the costs of this energy for energy costs • Building international agile communities that have helped institutions respond to the these with their traditional systems, services and resources • Developing the e-Framework initiative with of Education and SURF in the Netherlands • Co-founders of the Knowledge Exchange, a pan-European group US-based Coalition for Networked Information (CNI) and National Science Foundation (NSF) • Working with systems, and their institutional customers, to co-develop implementations of flexible and shared approaches European Normalisation • British Standards Institute – Committee IST/43 • Education Schools and Children's Schools Interoperability Framework • IEEE LTSC • Learning Education and Training Systems Interoperability

The Scottish Funding Council (SFC), the higher Education Funding Council for Wales (HEFCW), Welsh Assembly, and Skills (BIS), the Research Councils, John Denham, Lord Putnam and many others • The British Library lifelong learning • Becta National Strategy Board • Becta Research Advisory Board • HEFCE Teaching Quality Champions Group • Burgess Implementation Management Group • QIA- Excellence Gateway Operational Advisory Group • HEFCE International partners board • MIAP HE Advisory Group • Contributing to the e-Strategy for education and skills • Developing a 'Content Framework' across the public sector through the management technologies into the wider education community • In partnership with the HE Academy, leading important suites of digitised material • Instigating and overseeing the Committee of Inquiry considering Higher usage across the sector, and providing tools to help institutions monitor, reduce and improve accountability emergence of new collaborative technologies, user-owned devices and user-generated content, and integrated Australia's Department of Education, Employment and Workplace Relations (DEEWR), New Zealand's Ministry developing and promoting innovative approaches for HE across Europe • A history of collaboration with the the HEFCE and sector-wide professional associations to bring together suppliers of corporate and academic to ICT provision • Specifications and standards bodies • IMS Global Learning Consortium • Centre for Services Information Standards Board • HR-XML • International Standards Organisation – IEC JTC1 SC36 Suppliers Association for Learning Technology Interoperability in Schools • Dublin Core Metadata Initiative

Details of JISC services

Together, JISC's services provide a trusted technical infrastructure, wide-ranging resources and tools, and good practice guidance to help universities and colleges make effective use of digital technologies to meet their objectives.

Find out more at: **www.jisc.ac.uk/services**

Innovation programmes can be found at:
www.jisc.ac.uk/innovation

Transformation through technology

For more information about JISC's impact across two decades see the full report, *Transformation Through Technology* at: **www.jisc.ac.uk/publications/ generalpublications/2010/jiscimpact2010.aspx**