

JISC

inform

issue 17 Spring 2007



An interview with
Professor John
Wood



Five centuries of
unique resources



Northern Ireland
means business

Making connections

Meeting the needs of the education
and research community

inform

issue 17



'We can't go our separate ways any longer'

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A resource from JISC infoNet is showing the way

www.jisc.ac.uk

Editor Philip Pothen

Production Manager Greg Clemett

Dissemination Co-ordinator Amy Butterworth

Designer Kelvin Reeves

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The views expressed by contributors are not necessarily those of JISC.

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A new audiovisual resource, made available by JISC Collections, is already inspiring a new generation of architects and designers, writes Brian Mitchell of JISC Collections

inform
plus

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Building resources for learning

A resource that features some of the most famous architects and designers from around the world speaking about their work is now available through an agreement between JISC Collections and Pidgeon Digital.

The Pidgeon Digital audiovisual archive was compiled by Monica Pidgeon who, as former editor of *Architectural Design* and the *RIBA Journal* and only recently retired at the age of 93, is still a major figure in the post-War architectural scene.

She began the collection of talks as a tape-slide resource in 1970, subsequently capturing some 200 of the most prominent figures in their field, many of whom have now died, including Buckminster Fuller, Harry Seidler, Maxwell Fry, Denys Lasdun and James Stirling. She also gathered the testimonies of living figures, such as Frank Gehry, Kisho Kurokawa, Richard Rogers, Frei Otto and Norman Foster, while a further six presentations a year

are to be added to the collection in the future, produced by Peter Murray of Wordsearch.

Stephen Albert is director of World Microfilms, publisher of the digitised resource. He says the resource gives students an invaluable opportunity to listen to the architects themselves. 'The digitised presentations show not only the details of these architects' work,' he says, 'but more importantly they show their approach to their work. They give their own accounts of how they developed the ideas that became the new buildings. Being able to hear them speak while seeing their work is a substantial addition.'

The agreement with JISC, which now makes the resource more widely available,



he continues, is 'a great advantage... Previously students could only access the resource one at a time. Now any student anywhere has instant access if their institution subscribes. It can be used in the classroom and in assignments. It's more useful and adaptable. And it's not only architecture and design students who will benefit, but also students of art history, design, media and communications and other disciplines.'

The resource is set to inspire new generations of students, says Stephen Albert. 'Being able to learn from the top practitioners is a real inspiration for students. They feel involved in the thinking that went into the new buildings. That's proving really valuable.'

For further information, please go to:
www.jisc-collections.ac.uk



inbrief

Funding worth more than £15m announced

Over 80 projects, totalling more than £15m, have been successful in the latest round of funding under JISC's capital programme.

The projects are being funded under e-learning, repositories and preservation, e-infrastructure, users and innovation and e-research strands of the overarching programme, which represents an investment of some £90m over three years. The call for proposals was issued in September of last year, the second of three under the programme.

A third call for proposals, to be issued in April, will focus on e-learning, repositories and preservation, semantic services for e-infrastructure and VREs.

For further information, please go to:
www.jisc.ac.uk/capital



JISC and UCAS sign partnership agreement

The use of ICT to support admissions procedures to higher education and research received a major boost in March with the signing of an agreement between JISC and UCAS (Universities and Colleges Admissions Service).

The agreement means the setting up of various projects that will inform future developments and provide evidence of best practice from other sectors. Current projects include a scoping study on how the methods used by employers in providing feedback to unsuccessful job applicants could be translated to feedback for university applicants and the development of e-portfolios that allow users to build a record of achievement and personal development goals.



JISC publishes updated strategy

Central to successful education and research sectors and therefore to a successful UK economy is an ICT infrastructure of the highest quality as well as innovative programmes to exploit the full potential of technology. This is the starting point for JISC's updated strategy, published in March, which reaffirmed its commitment to the support of institutions in realising their goals in the digital age while broadening its focus to include for the first time the support of institutions' activities to engage with business and the community.

For further information please go to:
www.jisc.ac.uk/strategy0709



Worldwide petition on open access

A petition calling on the European Commission to adopt policies to guarantee free public access to research results was delivered in February to the European Commission. Nobel laureates Peter Agre, Martinus Veltman and Harold Varmus, and Jimmy Wales, Wikipedia founder, were among the nearly 25,000 people from across Europe and around the world who signed the petition.

Organisations too lent their support, with the most senior representatives from nearly 750 education, research and cultural organisations from around the world adding their weight to the petition, including research funders, research organisations and national academies.

'Open access to the published scientific literature is one of the most desirable goals of our current scientific enterprise. How can we do cutting edge research if we don't know where the cutting edge is?' said Richard J. Roberts, another Nobel Prize winner – for Physiology or Medicine in 1993 – who signed the petition.

For further information, please go to:
www.ec-petition.eu

JISC sponsors ICT award

JISC is sponsoring one of the annual awards of the *Times Higher Education Supplement* (THES) this year. The award – for 'Outstanding ICT Initiative' – will reward an institutional initiative which has demonstrated a strategic and innovative use of ICT in support of the goals of the host institution. The award will be presented at an event in London in late November.

Details about how to enter will be issued shortly.

For further information, please go to:
www.thes.co.uk/Awards/2007

Theses unbound...

A fully integrated national electronic theses service moved a step closer with the announcement that a two-year project – EThOSnet – is to be funded to establish a live service run by the British Library in two years' time.

JISC and CURL (Consortium of Research Libraries), with the support of participating libraries, are funding the project to widen access to what is a rich and vast but up to now almost invisible and untapped resource for researchers.



For further information please go to:

www.jisc.ac.uk

Professor John Wood, who headed the organisation that until this month managed most of the UK's large scientific facilities, has recently taken over as chair of two important JISC bodies – its Support of Research committee and the JISC Scholarly Communications Group. Here he tells *JISC inform* about the challenges facing the research community and how JISC is helping to meet those challenges

interview

Facing the data

In the heart of the Oxfordshire countryside, just off the A34 and about halfway between Oxford and the M4, an enormous doughnut has risen from the ground. Inside is the Diamond synchrotron radiation light source, which began operation for scientific users in January. Generating the most intense and tightly focused beams of light ever created – a thousand billion times brighter than a hospital X-ray – it is being used to probe all manner of matter and materials, from biological cells to defects in metals.

Each experiment produces data that contain information about the sample. To release this information and turn it into knowledge and insight, the data must be processed, analysed and sent back to researchers at their host institutions for final interpretation.

Managing and preserving data

Diamond is the largest scientific facility to be built in the UK for 30 years and the latest addition to the Rutherford Appleton

Laboratory (RAL), which also houses other major facilities including a suite of powerful lasers, a pulsed neutron source and major databases in the environmental sciences.

All these facilities produce or contain data which must be handled, managed and preserved to extract the maximum amount of information and knowledge, explains Professor Wood, chief executive of the former Council for the Central Laboratory for the Research Councils (CCLRC), which managed RAL and its sister laboratory, Daresbury in Cheshire. This month CCLRC merges with the Particle Physics and Astronomy Research Council (PPARC) to form the new Science and Technology Facilities Council.

'Data, data storage, data curation, preservation, what sort of metadata do we have and keep – these are the hottest and biggest issues for us at the moment. We are expecting to store 2 Petabytes of data this year – that's equivalent to a stack of CDs two kilometres high – and we expect that in a few years' time we'll be curating 10 Petabytes a year,' he says gazing out on Diamond from his office window.

Another type of data challenge will be posed by the Large Hadron Collider (LHC), the latest machine at the particle physics laboratory, CERN, in Geneva which is due to come online early in 2008. RAL will act as a conduit, receiving data



The Diamond synchrotron radiation light source at the Rutherford Appleton Laboratory, Oxfordshire, generates the brightest light source known to science.

interview

a deluge

from the LHC and sending them on via the JISC-funded JANET network to particle physics groups at UK universities. 'The amount of data coming from the LHC, and their speeds, are so enormous you can't comprehend it – and on one of the detectors we're going to take out over 99% of the data in the first few microseconds in order to protect the web and the networks,' he says.

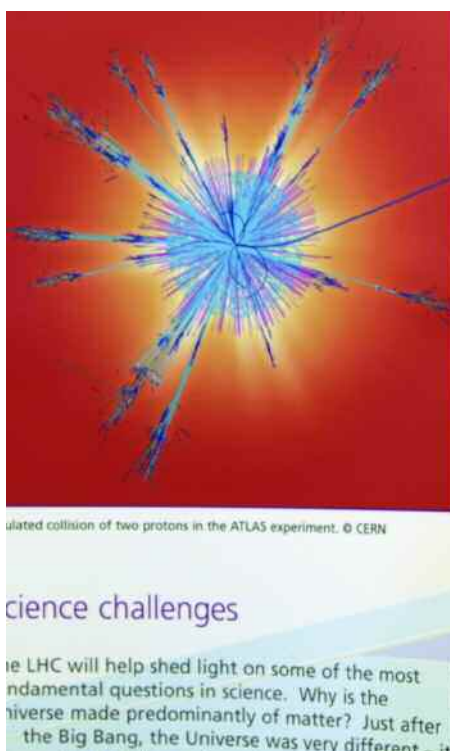
JISC's role

It's not just large facilities that are facing the data deluge. Researchers working in the arts and humanities and social and biological sciences also have similar data issues and several of the UK's eight research councils are under pressure to develop data policies. So how does JISC fit in?

'JISC is important for two reasons,' explains Professor Wood. 'I come from an academic background and so JANET is the starting point for so much of our work. From our perspective, the whole area of information and networking between the large facilities that we have and the data we create and the publications we eventually produce, all come together.'

For me, to have an integrated approach between what the research councils do and what JISC does is vital. We can't go our separate ways any longer.'

The Digital Curation Centre, which JISC funds with the Engineering and Physical



Sciences Research Council, is doing extremely important work in the data area, acknowledges Professor Wood. His chairing of the JISC Support of Research (JSR) committee adds another dimension to this collaboration and ensures that JISC is challenged to play its part in addressing the 'big issues' of data creation, management and preservation.

More attention could be paid to preserving not just raw data, but also metadata that can reveal how data were collected and the way researchers worked. This would be not only of historic

'JISC is seen as one of the leaders in Europe and it has an important role'



interest, but would also help to reduce misinterpretation and falsification of data and scientific fraud, a major concern for many research communities especially in the biomedical sciences. 'To me verification of the truth and its provenance is a very big issue and we've all got to get our heads around it,' he says.

The JISC Scholarly Communications Group, which Professor Wood also chairs, is working to make data more readily available through online publications. It is also investigating alternative models of publishing which



'...to have an integrated approach between what the research councils do and what JISC does is vital'

would enable readers to access research results free of charge, known as Open Access publishing. 'The future challenges for the group are linking data to publications and what form of Open Access do we want. The work that is going on between JISC, the Research Councils and others to review the impact of different Open Access models is very, very valuable,' he says.

Supercomputing

Two other issues over which JISC can have influence include: how to enable researchers to work together across boundaries; and the choice of operating system for supercomputers so they can be linked, often across national boundaries, to run very large simulations. An example of the latter was the SPICE UK e-Science project, which won an award at the

Supercomputing 2005 conference in Seattle for demonstrating that supercomputers on the US Teragrid and the UK National Grid Service could be linked to run a massive simulation of a strand of DNA moving across a cell membrane.

Easier ways of grid-enabling supercomputers and linking them are required if such big simulations are to become routine and maximum benefit is to be derived from national and international supercomputing facilities. 'It's really about getting the most out of these big machines, which are often very underused,' comments Professor Wood.

He brings a strong international perspective to his JISC roles. He chairs the European Strategy for Research Infrastructure which has recently

compiled a large facilities roadmap for Europe agreed by the representatives of all member states. Many of the 35 facilities included are large databases in the humanities, social and biological sciences. 'Linking investment decisions on these facilities with the policies and actions of the European Commission's Directorate for Information Society and Media is vital if we are to maximise the impact they have for research,' he says. So how does he see JISC's role in Europe?

'JISC is seen as one of the leaders in Europe and it has an important role,' he says. Issues over which it has influence include: the choice of common platforms to e-enable European facilities; linking research data to publications, so giving readers access to the original data from the online published research article; and what sort of computing capability and capacity is required in Europe.

This will mean closer links between JISC and the Research Councils. Professor Wood warns, though, that researchers are a broad and diverse community and that for many issues 'one size will not fit all'.

But he thinks that a common approach is required, especially over data. Concern over ensuring the authenticity of data is now so great for several Research Councils that such an approach would be particularly timely, he says.

interview

'There'll be a responsibility laid upon universities to guarantee that experiments or data are true, and that they haven't been corrupted with time'

Supporting research

Institutions also need to be involved. 'There'll be a responsibility laid upon universities to guarantee that experiments or data are true, and that they haven't been corrupted with time,' he says. He suspects that few institutions really understand what's required or the financial implications. 'My view is that there should be a code of conduct and good practice that universities or individuals should be signing up to,' he says.

Although JISC has served the research community for many years through the provision of JANET and other services, many researchers, even in senior management positions, have not heard of JISC. This hasn't mattered too much, says Professor Wood, because the services JISC provides work well and researchers haven't needed to engage with it. But, with so many pressing issues on the horizon, this is about to change. 'JISC does have a role in raising strategic discussion about some of these big issues,' he says.

Judy Redfearn
JISC/EPSRC

inform
plus

www.jisc.ac.uk/inform

JISC and Research Councils formalise partnership

Information services for the UK's research community received a significant boost with the signing of a formal agreement between JISC and the Research Councils in March.

The agreement strengthens cooperation and ensures that the research community will have access to improved services, such as increased network bandwidth. The move also ensures that thousands of scientists in Research Council Institutes will have the same access to JISC services as their university-based counterparts.

As John Wood explains (see interview), JISC and the Research Councils already cooperate closely across a wide range of areas, including e-infrastructure, e-Science, the National Grid Service, data curation and access to research outputs. Outputs from this relationship have included advances in drug discovery, new insights into the distribution of poverty among ethnic minorities, and experiments with e-Science techniques to push the boundaries of artistic performance. The new agreement

cements the existing relationship, but provides formal representation of the Research Councils on the JISC Board and its networking and research committees.

Dr Malcolm Read, JISC Executive Secretary, said: 'This agreement cements what is already a close and very fruitful partnership. But more importantly perhaps, it paves the way for even greater cooperation in the future. This agreement means that UK research will continue to have access to the best possible services and support to help ensure that it remains among the best in the world.'

The agreement was signed by JISC and Research Councils UK (RCUK), the strategic partnership of the Research Councils.

'This agreement cements what is already a close and very fruitful partnership'

Over the last few years a wide range of JISC e-learning projects has helped further our understanding of how ICT can enrich learning and teaching. Sarah Davies reports on how this work is providing the foundation for a new generation of projects

e-learning

Enriching education

Getting in the habit of learning

Connecting learners directly to IT and other professionals through the online tools which make up a 'personal learning environment' (PLE) is proving a 'revelation' to those learners. This is the verdict from an extension to a regional pilot called Mansle which is being funded through JISC's Distributed e-Learning programme.



The pilot is using social software tools such as RSS newsfeeds (delivering news automatically) and Skype (Internet telephony) to connect learners directly to experts, discussion tools and online content. The result, says Mark Johnson, project manager and senior lecturer at the University of Bolton, is that the learner takes an important degree of control over their learning.

'Learning technology can sometime get in the way of learning', he says. 'This approach means that technological habits are being absorbed by learners because we're equipping them with technical life skills. They're doing real stuff.'

Establishing these habits is crucial for the learning experience, says Johnson, because, he continues, 'learning isn't about artefacts, it's about the habits you acquire.'

And connecting them to professionals in the field through the PLE allows them to

Learning about learners

Work to explore the impact of new technologies from the learner's perspective has been so successful and its insights so important that seven more projects are being funded to take this work forward.

Rhona Sharpe is an educational developer at Oxford Brookes University and project director of the Learner Experience Support and Synthesis project. She says: 'The earlier LEX and Learner XP projects were concerned with uncovering individual narratives about the

relationships between technology and learning. We discovered some very important things that are feeding into the new projects. For example, many students told us that their primary use of technology is as a social networking tool. This has important implications for course design, for instance.

'We also discovered that students' primary source of information is the web. The question then becomes: do we understand that experience? Some students use the web in sophisticated

ways; others not. So we need to think about giving appropriate guidance.'

New projects will build on this work, exploring more specific questions, says Sharpe. 'One of the projects will look at the experience of students with disabilities; another at the experience of those at points of transition - for example, moving from FE to HE. Each will have quite different points of view, which we need to know more about.'

'The earlier projects discovered something they called the "underworld";

'They're getting used to managing the complexity of the web'



ion

engage with experts and to learn things they may not otherwise get access to. 'They're talking about technical issues and some of the human issues behind those. They're getting used to doing that, to carrying those habits forward and managing the complexity of the web. It's opening up great opportunities for them.'

For further information, please go to:
www.jisc.ac.uk/whatwedo/programmes/programme_edistributed/mansle.aspx

she continues, 'the use of technology not sanctioned by the learner's institution, such as using mobile phones to record lectures or instant chat to support group project work. These are not things we know much about, but they're important to learners. And that's what this work is all about.'

For further information, please go to:
http://www.jisc.ac.uk/whatwedo/programmes/elearning_pedagogy/elp_learnerexperience.aspx

Setting standards

Providing prospective learners with the information they need to make decisions about where to study is a prerequisite for lifelong learning. Yet a standard format for electronic course descriptions for prospectuses, marketing and other sources of course information has so far remained elusive.

But six new projects, which build on earlier work by XCRI (eXchanging Course-Related Information), are set to change all this as they use the XCRI Course Advertising Profile to make standardised course descriptions available over the web.

'If a learner is presented with a standard set of descriptions,' says Mark Stubbs, XCRI project manager at

Manchester Metropolitan University, 'it becomes a lot easier for them to compare options. Not only this, but value-added information can be added to that data, for example, geographical information. Someone can now ask: "Where can I study on a Tuesday evening to qualify as an AV technician?" and see the options on a map.'

The six new projects are contributing worked examples to a web-based 'implementers' guide'. 'If universities and colleges publish XCRI feeds,' says Stubbs, 'aggregators and regional portals can add value to them for learners. We're hoping marketing officers and web managers from colleges and universities will like the "publish once" philosophy and get involved.'

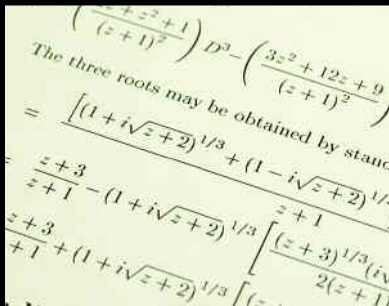
With UCAS (Universities and Colleges Admissions Service) having been involved in this work from the beginning, the system is set to become the technical standard within a couple of years, suggests Mark Stubbs. 'The DfES and Becta have shown real interest in XCRI for the 14-19 sector. Lots of initiatives around progression and widening participation rely on accurate, regional course information, so this work has enormous potential.'



For further information, please go to:
www.elframework.org/projects/xcri

The JISC Digitisation programme is building significant e-resources from some of the UK's greatest collections in a wide variety of formats – sound, images, journals, moving pictures, newspapers and much else. Using the latest technology available, the projects provide the education community with the opportunity to engage with a critical mass of previously difficult or impossible to access resources for the first time. Images and short descriptions here give a flavour of what to expect

Five centuries of ur



inspire

'...building significant e-resources from some of the world's greatest collections'

unique resources



From left to right, top to bottom

Medical Journals Backfiles

Free access to the best in medical publications – past, present and future

Archival Sound Recordings at the British Library

A slice of the world's rich audio heritage at your fingertips

18th-Century Parliamentary Papers

Bringing all existing records of Britain's 18th-century Parliament to users across the UK

19th-Century Pamphlets

Polemical voices from the past on the great debates of the 19th century

Historic Polar Images 1845–1960

Making historic Polar exploration resources accessible to all

UK Theses

Opening access to over 5,000 of the most popular British research theses

Moving Images in the Public Sphere

Watch the key social, political and economic issues of our time unfold

Historic Boundaries of Britain

Mapping the past: a digital library of Britain's borders

British Newspapers 1620–1900

Read the first three centuries of newspapers from across the British Isles

Newsfilm Online

See and hear the events that shaped the 20th and 21st centuries

Online Historical Population Reports

Putting you in touch with historical population data

Electronic Ephemera from the John Johnson Collection

Discover hidden treasures of everyday life from the 16th century to the 20th

First World War Poetry Digital Archive

Preserving and sharing memories of the War through the words of its poets

Cabinet Papers, 1914–1975

In its own words: the British government at peace and war

British Cartoon Archive

Browse the largest online archive of cartoons in the UK

Core e-Resources on Ireland

Visit a one stop shop for Irish studies e-resources

London Broadcasting Company's Independent Radio News Archive

From Callaghan to Thatcher – the only UK radio news archive outside the BBC

Modern Welsh Journals

Free online access to the best Welsh periodicals – past, present and future

The East London Theatre Archive

Putting the spotlight on East End music hall heritage

Pre-Raphaelite Resources

Trace a movement that changed the face of English art

www.jisc.ac.uk/digitisation

Securing and preserving identity has become an issue high on the public agenda. JISC's Alice Gugan reports on its likely impact on the education sector and what JISC is doing in this area

A question of identity

Few can be unaware of central Government's controversial proposed identity card scheme. However, Identity Management (IdM) is in fact proving a challenge right across the public sector.

In part this is due to the increase of services available online, from online learning to filing tax returns. While access management systems control who can reach a particular resource, they rely on users being reliably identified, and this becomes more important the more valuable the resource becomes.

Public sector agencies are addressing IdM through various initiatives with differing technologies arising. However, the core issues within IdM and data sharing remain constant. Individuals need to be identified in ways that enhance their personal privacy as well as build confidence in government services. Relevant data need to be shared in order to deliver more personalised and interconnected services while reducing the potential for fraud. And authentication needs to be enabled at a level sufficient for any particular service or transaction.

In higher education, HEFCE's e-Learning Strategy calls for a more flexible and student-focused approach to ICT to support lifelong learning agendas, shifting the focus away from institutions and towards users. JISC is funding a number of initiatives exploring IdM requirements to determine the next steps. The recently launched UK Access Management Federation is driving this work, providing

as it does a distributed framework for fine-grained access to resources in a manner transparent to end-users.

Two JISC-funded projects are reviewing different aspects of IdM: the Identity Project, led by the University of Cardiff, is researching current practice and future needs of UK academic institutions in IdM, while the University of Manchester's e-Infrastructure Security: Levels of Assurance (eS-LOA) project is looking to gain consensus on the relation between levels of assurance needed and the value of the accessed resource. Findings from both projects are set to be shared at a JISC event in November, aimed at all HE and FE institutions.

'Identity management is a vital component of an authentication and authorisation infrastructure for FE and HE that meets increasingly complex demands for access to data and resources', says James Farnhill, e-Research programme manager responsible for this area of work. 'The current projects and initiatives we have should ensure that we are well placed to address this issue within the context of what is being done in other areas of the public and private sectors.'

But what of the future? Should the various public agencies consolidate around a

'Individuals need to be identified in ways that enhance their personal privacy...'

more standard set of methods? Could this improve the lot of the individual?

The DfES e-Strategy sets out ambitious goals for a cross-sector integrated online information system for all citizens, and IdM will be at the core of this development. In June, JISC will be involved in a cross-sector Strategy Forum led by the Oxford Internet Institute, to look into these and wider issues and to move towards a shared vision of what an IdM and data sharing infrastructure for society as a whole should look like, and how we in the UK can take steps towards it.



For further information, please go to: www.jisc.ac.uk

A major review of FE in Northern Ireland is leading to some far-reaching changes in education provision in the province, including the role of ICT. With the JISC Regional Support Centre at the heart of these changes, Philip Pothen meets its manager

Northern Ireland means business

One of the most important items in the in-tray of Northern Ireland's newly devolved government when it returns to Stormont in May will be overseeing the final lap of a major overhaul of the FE sector currently being undertaken in the province. Colleges are being merged, new partnerships are being forged and, with the local RSC at the centre of developments, ICT is set to play a crucial role in the emerging educational landscape.

The review was initiated by Northern Ireland's Department of Education and Learning (DEL) following its report 'FE Means Business', which set out what was required of the sector to ensure it was able to meet the education, skills and business needs of the region. Following this will be the publication of DEL's e-learning strategy, due out soon, which will identify a work plan to realise the strategy's aims and the agencies that will work with colleges to deliver the work plan.

Martin Peoples is manager of Northern Ireland's RSC, one of the organisations being called upon to support these changes. He says that these developments represent a major step-change, not only in raising the profile of FE in the province, but also in the embedding of ICT in the sector's activities.

'It's an important time for education in Northern Ireland, and the RSC is making its voice heard'

'We expect that DEL's strategy will make a very clear statement about the need for collaboration,' he says. 'It calls on colleges to make collaboration a byword for what they do. For the first time colleges are being required to provide an ILT (Information and Learning Technology) strategy in order get ICT funding.'

The RSC is part of a Key Stakeholders Group, along with the Learning and Skills Development Agency (LSDA), the Qualifications and Curriculum Authority (QCA) and other key bodies. 'The work plan,' says its manager, 'will identify clearly what each should do, what our roles are and the programme of support that we will provide for colleges.'

Also recommended by DEL's review was the merger of the province's 16 colleges into six area-based colleges, or 'super-colleges', a consolidation which, says Martin Peoples, brings challenges, but also opportunities.

'With colleges merging across Northern Ireland and becoming much larger organisations,' he says, 'they'll be dealing with the whole range of standard merger issues. But along with those issues, they now have to think about their ILT strategies



too. This is giving added focus to the question of how ILT can be mainstreamed across the sector as a whole.'

August 1st – the date when these changes come into effect – will be an important date for the province, says Martin Peoples. 'These changes are making a very clear statement about the region and its educational future. It's an important time for education in Northern Ireland, and the RSC is making its voice heard on behalf of the colleges it serves.'

With the so-called 'peace dividend' drawing increasing numbers of people to the province to learn, work and do business, Northern Ireland's evolving FE sector is playing its part to meet the challenges of the future. And so, it seems, is its RSC.

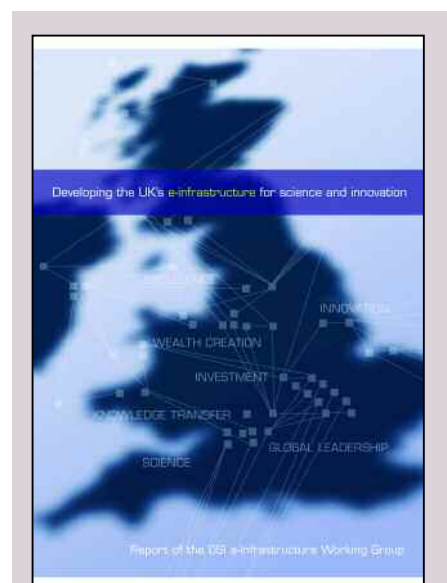
For further information, please go to:
www.rsc-ni.ac.uk

With heavy investment being made in technology by developing countries such as China and India, continued investment in e-infrastructure is vital if the UK is to maintain its international standing in science and innovation. A new report by JISC and partners is looking to meet this enormous challenge, writes Philip Pothen

Supporting science

The UK has a world-class research base, second only to the USA as measured by citations. But it is in danger of being overtaken by rapidly industrialising countries in areas crucial to the future of its economy.

This is one of the messages of a far-reaching report published in February which sets out the UK's infrastructure requirements in the digital age. Produced by the Office of Science and Innovation (OSI) e-Infrastructure Working Group, the report – *Developing the UK's e-infrastructure*



'A national e-infrastructure for research provides a vital foundation for the UK's science base, supporting not only rapidly advancing technological development, but also the increasing possibilities for knowledge transfer and the creation of wealth.'

for science and innovation – calls for greater investment in e-infrastructure, a 'step-change' in national provision and 'concerted action towards e-infrastructure development.'

Made up of senior representatives from JISC, the Research Councils, the British Library and others, the working group was formed in response to the *Science and Innovation Investment Framework 2004-2014*, published by the Treasury, the DTI and the DfES in 2004 (see inset box, right). It explored the current provision of the UK's e-infrastructure and is now helping to define its future development.

Matthew Dovey is programme director for JISC's e-research activities and one of those closely involved in the writing of the report. He says that one of the major challenges is to provide coordinated services that can support 'the whole gamut of research activities, whether undertaken by lone researchers or massive collaborative teams. It also has to tie in with infrastructures supporting other academic activities such as teaching and learning. There's also the vitally important task of supporting outreach into industry and collaborations between public and private sectors.'

But, while the current e-infrastructure has, the report finds, helped secure the current standing of UK research, supporting vital developments in many

fields, including pharmaceuticals, defence, information and media and financial services, there's still much to be done, it suggests, to ensure that the innovations of its research community can be translated into commercial applications, which can in turn support the country's wider social and economic goals.

While a national e-infrastructure will stimulate the development of new tools, products and even, in some cases, entire industries, UK researchers need an e-infrastructure to help them build vital partnerships with the commercial sector.

Investment is needed for this, says the report, and so is greater coordination between the key agencies in the field. 'To be effective,' says Matthew Dovey, 'the e-infrastructure has to interoperate across all the parties and institutions involved – higher education institutions, Research Councils, funding bodies, learned societies, national libraries, and so on. This can only be achieved if they all work together and play a part in its development.'

The working group established six sub-groups which each produced reports in their own specialist areas. JISC was involved with all sub-groups (see inset box, right), chairing two of them. Matthew Dovey suggests that 'this reflects JISC's work to develop the current infrastructure, through JANET, the Information Environment, e-Science and other activities.'

invest



e and innovation



'UK researchers need an e-infrastructure which will provide the conditions for knowledge transfer'

In fact, he continues, the vision for the national e-infrastructure, as set out in the report, crosses all of JISC's programmes. 'Our Virtual Research Environment programme is taking forward much of the vision for collaborative research environments, for example, while our Core Middleware programme, Access Management Federation and our work on the issue of security in general is taking forward much of the vision in the field of authentication.

'Information Environment programmes (see *inform 15*) are working on data access, preservation and curation whilst providing a foundation for the e-infrastructure,' he continues. 'Other areas of work are looking at accommodating teaching and learning as well as business and community engagement, and how it impacts with administrative systems in HE.'

But next steps in the development of the national e-infrastructure can only be

delivered through partnership, Matthew Dovey emphasises. 'JISC, the Research Councils, OSI and others, are now considering how their current and planned activities support the vision and recommendations. This information will be shared between us so that gaps and responsibilities can be determined. JISC is also considering the feasibility of analysing higher education institutions' readiness for an e-infrastructure as proposed in this vision.'

With UK research in the forefront of meeting some of the 'grand challenges' facing the country and indeed the world, such as climate change, an ageing population and the combating of disease, a national e-infrastructure is vital on many levels.

But, while much has been achieved so far, there is an enormous amount still to be done. For, as the report suggests, there is a great deal at stake.

Sidenotes

e-infrastructure is the term used for the distributed computing infrastructure that provides shared access to large data collections, advanced ICT tools for data analysis, large-scale computing resources and high-performance visualisation.

The Science and Innovation Investment Framework 2004–2014 set out the Government's ambitions for UK science and innovation, in particular their contribution to economic growth and public services.

The OSI e-Infrastructure Working Group was set up to explore the current provision of the UK's e-infrastructure and help define its future development.

Specialist sub-groups have reported on: data and information creation; preservation and curation; search and navigation; virtual research communities; networks, compute and data storage; authentication, middleware and digital rights management.

For further information, please go to:
www.nesc.ac.uk/documents/OSI/index.html

JISC is supporting institutions as they establish and develop digital repositories to host a wide range of online content. Guest journalist Tracey Caldwell investigates two new strands of this important work which are set to impact on institutions across the country

Reaping the re

The UK is raising its research profile as universities increasingly showcase their research content in digital repositories.

in context

'Institutional repositories contribute to raising the profile of institutions, making their research output visible and accessible and providing a potential research assessment tool, for monitoring and evaluating research in institutions as well as at national and European levels...

Enhanced visibility and accessibility may lead to higher citations.

Although more substantial investigations are needed to confirm this effect, recent studies show that open access increases impact. An analysis at the article level reveals that there is an important difference in terms of the frequency with which the article is cited when it is also available in an OA archive...'

From the EC-commissioned *Study on the Economic and Technical Evolution of the Scientific Publication Markets of Europe*, available at: http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf

A third of universities now have repositories at some stage of development. They are looking to reap the return on their investment in a number of ways, including improving research efficiency, raising institutional profile and easier recruitment of top class academics.

JISC has stepped in to maintain the momentum of repository development, supporting a number of projects aimed at underpinning repository development in large institutions and kickstarting development in small or specialist institutions.

Within the JISC Repositories and Preservation programme there are a number of strands of funding, including the Start-up and Enhancement strand, which is providing £4 million of development funding, matched by investment from institutions themselves. Alongside this JISC has set up the Repositories Support Project, a two and a half year project funded to the tune of over £1.3 million from HEFCE and HEFCW to support repository development in England and Wales.

The Start-up and Enhancement projects will develop best practice models for sharing and managing content across different sizes and types of institutions and focusing on a variety of different formats for a range of disciplines in learning, teaching and research.

For example, it will fund Jazzhub, supporting the UK jazz research network which has members in over 50 FE and HE Institutions. Manchester Metropolitan University, Hertfordshire and University of Worcester will be working together to concentrate on developing and embedding repository use. The University of Oxford's BID project will be exploring the integration of repositories with key institutional systems.

Many of these projects focus on individual pieces of the repositories jigsaw. JISC is also looking at the bigger picture. Long term embedding of repositories into key institutional strategies – information, IT, education, research – is essential and the repository projects sit within JISC's Information Environment programme and links with external initiatives such as Jorum, the national repository of teaching and learning materials and DRIVER, the European repositories project.

Start-up and Enhancement programme manager Amber Thomas believes the time is right to accelerate repositories development: 'There is greater accountability in publicly funded research and there are drivers from research funders such as the Wellcome Trust and the Research Councils, which mean that institutional repositories are becoming a requirement.'

She adds, 'The benefits to universities include a greater visibility to business and



www.jisc.ac.uk/inform

'The benefits to universities include a greater visibility to business and improved knowledge transfer'

wards

improved knowledge transfer, allowing universities to justify their place in society by making their output more visible. Also they gain increased standing in the research community through greater visibility for their research and their researchers.'

The early adopters started developing their repositories three to four years ago. The variety of institutions and disciplines leads to widely differing barriers to setting up repositories. 'There are perceived difficulties in the set-up of repositories including legal, technical and organisational challenges. That's why institutions need support,' says Thomas.

Advocacy is one of the key themes of the Repositories Support Project (RSP) which will help institutions introduce digital repositories and sell their benefits internally. Higher education institutions in Scotland and Northern Ireland and FE institutions will be able to access much of the project's work via the RSP web site and it is working with Scottish projects such as IRIScotland.

Bill Hubbard, RSP project manager, says: 'For existing institutions with repositories we are trying to give them what they need to help them to grow the repository: standards for interoperability, providing advocacy material, briefing papers targeted for different audiences from senior managers to academics.'



The RSP hopes to raise the profile of repositories so that institutions that do not yet have a repository reconsider their benefits. 'Some say they are too small and that their research output is not enough to justify setting up a repository. Some say they are not interested, others say they are more interested in teaching and learning,' says Hubbard.

'We need to deal individually with these institutions, first assessing what direction they are coming from. We have a suite of different advocacy materials for librarians to senior managers. By and large most institutions have some sort of champion for an institutional repository. We have to identify them and work with them.'

A network of repositories will provide a stepping stone to further exciting

developments in the future. Institutions that already have a repository are beginning to look into how to manage their new content assets for the benefit of the institution.

Rachel Bruce, director of the JISC Information Environment team, says, 'we need to make sure institutions have the means to manage their assets. This is central to JISC's updated strategy. It's all about the UK being competitive and information being accessible. It's about reaping the rewards of the investment being made in teaching and research.'

For further information, please go to:
www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres.aspx

Two new animations are proving highly popular in explaining complex but important areas of JISC's work, writes Sara Hassen

Animated conv

Integrating otherwise distinct IT systems, such as those that record student progress and those that monitor funding, could contribute to retaining student motivation and maximising income.

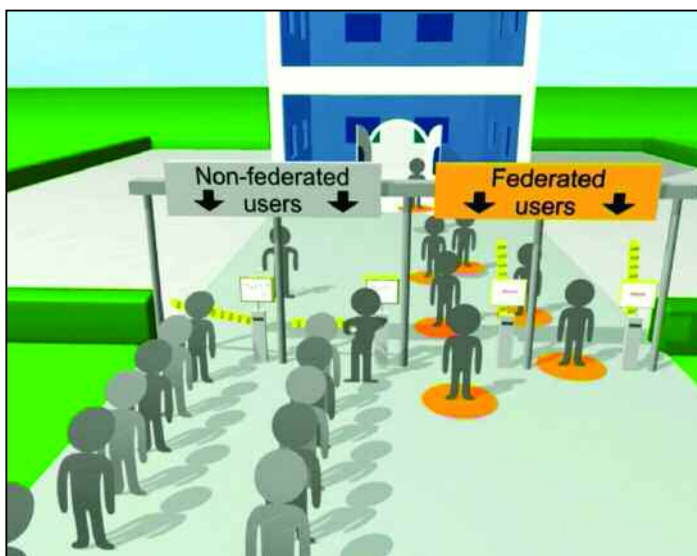
This is the scenario presented by a new animation which explains one of the most important – but also one of the most complex – areas of JISC's work, the e-Framework. The scenario suggests that by allowing systems to fit together or 'interoperate', previously distinct functions can be harnessed to present otherwise 'hidden' information flows – in this case, those that highlight the close links between student motivation, retention and institutional income.

This is just one example of the many benefits that the e-Framework could bring to education and research, benefits that the animation is presenting to an ever-larger community of interested people.

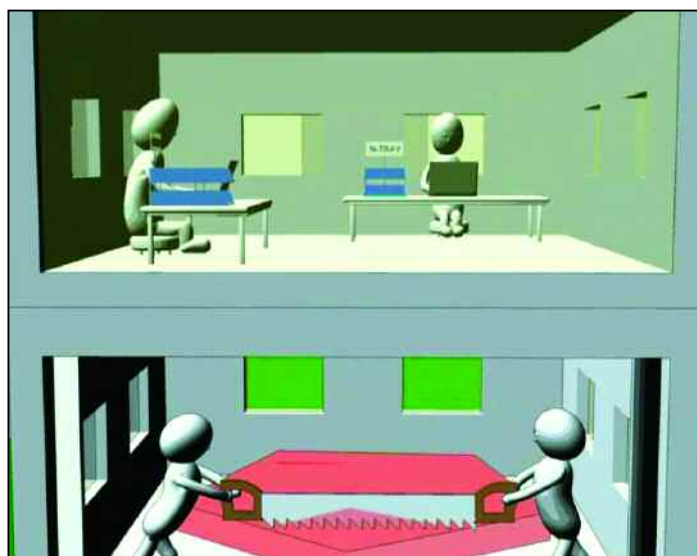
Susan Kumari manages JISC's involvement in what is an international initiative. She says that even though the terms and concepts behind the e-Framework, such as the 'service-

oriented approach', have for some time been widely known in the commercial world, for education and research sectors they represent a relatively new approach.

'Most universities operate "monolithic" IT systems,' she says, 'that limit and even hinder integration across systems. We created the animation to help demonstrate how important, easy and cost-effective alternative approaches are that address the need for interoperability between systems, but to do this in a way that people could understand and relate to easily. It was aimed at reaching out to various



From the **Access Management** animation: 'A Federation defines a set of rules that each of the members sign up to. This allows all members to trust each other and means that schools, further and higher education, public sector organisations and commercial partners can all gain the benefits of the federated approach'



From the **e-Framework** animation: 'What began as a workable system then locks valuable data in a silo. Sharing information is still possible but requires adaptations and tweaks. The process is laborious and time-consuming, leading to bottlenecks'

insight

versations

stakeholders and audiences as a practical explanation of what is called the "service-oriented approach", an approach that can enable IT systems to become integrated.'

Central to the e-Framework initiative is the development of community tools, such as the e-Framework Knowledge Base, which is being built as a resource containing services and specifications that institutions are free to adapt to create their own information architectures.

'The e-Framework is still in its early stages,' says Susan Kumari, 'so the next phase is to work closely with institutions to develop the Knowledge Base so that they can use it as a resource. It is a highly practical undertaking but we needed to explain in simple and clear terms what can otherwise be complex and abstract ideas.'

The success of the e-Framework animation has led to the development of another, in the area of access management. With JISC and Becta's establishment of the UK Access Management Federation providing the foundation for major changes in the ways in which students and staff in FE and HE access resources of all kinds, the animation sets out the benefits of so-called 'federated access management' which devolves responsibility for authentication to institutions. It also, crucially, shows the steps institutions

need to take to ensure they are prepared for these changes.

'The establishment of the UK Access Management Federation and JISC's plans for access management in general require a number of important decisions on the part of institutions,' says Mark Williams, outreach coordinator, who helped develop the animation. 'This animation sets out some of these in an accessible and non-technical way.'

As with the e-Framework animation, the newer animation is proving extremely popular to people in a wide range of roles. 'Feedback has already been very positive across the board,' he says, 'but especially from those IT managers who need to explain to their staff why important and far-reaching changes need to be made. The animation brings to life what can otherwise be dry and difficult concepts to convey.'

For Susan Kumari, the e-Framework animation provides an important step not only in communicating the aims of an important programme of work, but also of getting people involved and contributing to it. 'We're now planning to unpack the information in the animation', she says, 'to provide supporting guidance material and case studies and to break down the examples used to help explain how to use this in very practical ways. The animation has been extremely successful as an introductory tool and we've already begun building on its success.'

'The animation brings to life what can otherwise be dry and difficult concepts to convey'

More than this, the animations are proving entertaining too, it seems. 'We've had great reviews from across the globe,' says Susan Kumari, 'from people in education and research and beyond. One person said they never thought interoperability could be so easy to understand – and so cute!'

Sidenotes

The e-Framework for Education and Research is a joint initiative by JISC, Australia's Department of Education, Science and Training (DEST) and other international partners to bring about technical interoperability within and across education and research through improved strategic planning and implementation processes.

The Service-Oriented Approach to creating and evolving ICT solutions is a phenomenon that is transforming the way many organisations in the private and public sectors operate.

The UK Access Management Federation provides a single solution to access online resources and services for education and research.

To view the animations, please go to:
www.jisc.ac.uk/federation
www.jisc.ac.uk/whatwedo/programmes/programme_eframework/soa

A new resource developed by JISC infoNet is using innovative methods to help staff in FE and HE come to terms with managing change, writes Patrick Bellis

Getting to grips with change

'Change is endemic in the education sector. The pressures for change come from all sides... and the pace of change is ever increasing. Living with change and managing change is an essential skill for all...'

This is the opening paragraph of the latest 'infoKit' resource from JISC infoNet. Developed from a HEFCE Good Management Practice project, the infoKit has been expanded to include FE and e-learning examples.

Dr Gill Ferrell, director of JISC infoNet, says that producing materials to support the management of change has been an important development. 'Failing to get to grips with the management of change, particularly where it challenges deep-seated cultures, can lead to massive resistance and even project failure,' she explains. 'We wanted a way to demonstrate to managers how important this can be. Using simulation software in a one-day workshop allows managers to try out some of the techniques and tools contained within the infoKit.'



The software simulation, produced at renowned business school INSEAD, allows delegates to become 'change agents' in the fictitious Humfeld University. These change agents must persuade senior management and other staff of the successful and highly autonomous Business faculty to adopt a new quality assurance system already in use by the rest of the university.

Lisa Lind of Queen Margaret University, Edinburgh, attended one of the workshops, becoming a change agent for the day. 'The course leaders' practical advice and insights were extremely useful when considering different approaches to managing change,' she says, 'and the simulation in the second part of the day was a really useful tool for reinforcing some of the new learning we gained.'

But delegates can get frustrated when the first two or three things they try don't seem to have an effect, says John Burke, senior advisor with JISC infoNet and one of those involved in the training. 'The simulation places them in a situation where the change being introduced is not welcomed with open arms. In such a situation it's going to be a slow start!'

'Living with change and managing change is an essential skill for all'

Such early disappointments mirror what often happens in reality, he continues. 'The simulation reinforces the messages in the infoKit about having a clear strategy and tactics that suit the organisational culture.'

Lisa Lind found that this worked in practice. She followed up her workshop attendance with a look at the web-based infoKit. 'I've used the materials to help introduce the concepts to colleagues, both formally and informally. The toolkit has helped us consider our approach to change and which models to follow.'

Gill Ferrell says that the new resource is an example of the general approach adopted by JISC infoNet. 'We promote a triangular model of "Culture, People and Processes",' she says, 'one in which all elements are of equal importance. Not everyone will embrace change and there will be some deep-seated cultures which will resist change. So the infoKit includes tools to determine the culture of an organisation and to choose a suitable approach.'

Patrick Bellis
JISC infoNet

For further information, please go to:
www.jiscinfonet.ac.uk/infokits/change-management

inform *plus+* is a web-based supplement containing additional materials available only on the web.

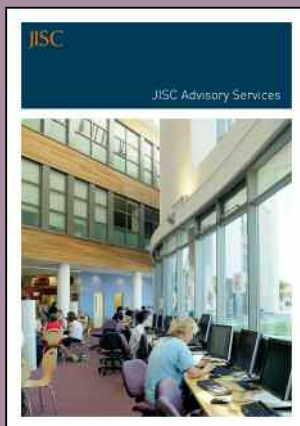
This issue of inform *plus+* contains: an extended article and additional images of Pidgeon Digital, a new resource available from JISC Collections; the full version of a specially commissioned article by journalist Tracey Caldwell on new strands of JISC's repositories activities; images from the JISC annual conference in March; and a podcast of the exclusive interview with Professor John Wood, chair of JISC's Support of Research Committee and the JISC Scholarly Communications Group.

For further information and to access the additional materials, please go to:
www.jisc.ac.uk/inform



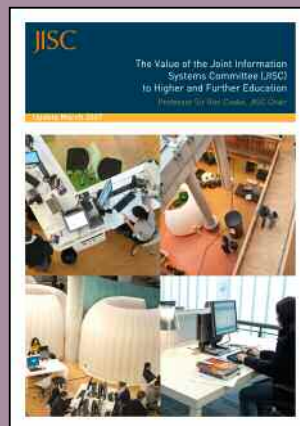
The JISC Conference 2007 in images, available at: www.jisc.ac.uk/inform

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The Value of JISC to Higher and Further Education



Connecting People to Resources – Federated Access Management: JISC Guide for Publishers and Service Providers (2007 update)

Questionnaire

JISC is committed to improving the quality of its communications and we are currently seeking readers' opinions of *JISC inform* with a view to improving it.

This issue of *inform* contains a questionnaire designed to elicit your views on this publication and how we might continue to improve it. We would be grateful if you could fill in this questionnaire and return it to the address provided or fax it to the number given on the questionnaire.

Alternatively, you can go to the JISC website to make your views known.

For further information, please go to:

www.jisc.ac.uk



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Further information:

Web: www.jisc.ac.uk

Email: info@jisc.ac.uk

Tel: 0117 954 5083

This document is available in alternative formats, please contact: info@jisc.ac.uk

