Contents

Regional Broadband Consortia

Broadband: a must-have technology

Today almost 70 per cent of schools in England are able to enjoy high-speed connectivity at the desktop, thanks to the efforts of the 10 Regional Broadband Consortia (RBC) tasked by the Department for Education and Skills (DfES) to connect all schools in England to broadband by 2006.

The £500 million invested to date has enabled all those connected schools to:

• collaborate – through video conferencing with other schools, locally, nationally and internationally;

• communicate – pupil to pupil, peer to peer, parent to teacher – between home and school and across geographical boundaries;

• access digital content – much, free at the point of use, thanks to the successful licensing agreements by RBCs for key collections such as Pathé News Archive and Audio Network plc; and

• share resources – either publishing pupils' work or sharing teaching resources.

The challenge persists to connect the remaining schools in England. Once all schools in England are linked, they will create a National Education Network where every school in the country can take advantage of, and contribute to, a national archive of learning resources, support and advice.

The role of the RBCs has been crucial in:

• achieving best value in terms of procuring connectivity;

• understanding the needs of schools in their locality;

• providing access to relevant resources, often free at the point of use; and

• finding creative solutions to the technical barriers for success.

This booklet illustrates the way in which RBCs are working in your area to meet the challenge and reap the benefits. To ensure your school is able to benefit from being part of the wider educational community, we urge you to:

• consider the options open to you;

• make contact with your local RBC; and

• include Broadband as a must-have solution in your whole school development plan.

Further information

• Go to
  www.dfes.gov.uk/ictinschools/ict_active/subject.cfm?articleid=248

• Or email
  Andrew.PERRY@dfes.gsi.gov.uk or
  Susan.FLETCHER@dfes.gsi.gov.uk

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About us

Established by Cumbria and Lancashire County Councils, CLEO aims to provide high-quality broadband connectivity, content and services to over 1,000 schools in the region. The content provided on the CLEO website has a regional flavour and aims to be media rich, providing high-quality teaching and learning resources. CLEO learning consultants work closely with schools to make sure that the materials included meet the needs of teachers and pupils. The website also includes CLEO Communities, an opportunity for schools in the region to create open or private community spaces online.

Nearly 65 per cent of CLEO's schools, including some of the most isolated and rural small schools, are already connected to its own broadband network. The CLEO network infrastructure uses a mixture of connectivity through wireless, fibre and SDSL and is designed and managed by Lancaster University. Through CLEO, and in collaboration with the university, the 2 LEAs are ensuring that schools across the region have the infrastructure and broadband services, such as videoconferencing, to meet the *Embedding ICT in the Curriculum* agenda.

Connectivity and network

CLEO aims to reach 100 per cent connectivity in 2006. Through its network provider, Lancaster University, it will be looking closely over the next 2 years at ways of reducing ongoing costs to schools. Work has already begun through the process of local loop unbundling, with access for CLEO to 44 exchanges to be enabled by April 2005.

A major project to install cache boxes pre-loaded with Espresso curriculum content into all primary, nursery, special schools and pupil referral units in the RBC is also under way; a large proportion of secondary schools have opted to install the cache boxes on their networks too. Rollout commenced at the beginning of November 2004, with completion scheduled for March 2005. The project includes a programme to train ICT co-ordinators and Key Stage 1 and 2 teachers to use a new module filmed in Lancashire and Cumbria for Foundation/ Key Stage 1, *People Who Help Us*.

During 2005 the RBC will be working with a number of schools across the region in developing the curriculum use of videoconferencing. The RBC currently has its own videoconferencing system that provides point-to-point and multi-point conferences, through its own multi-point conferencing unit, both within the CLEO network and between RBCs. It also has its own ISDN gateway, to allow schools to call further afield. Work will continue to develop and expand this service.

Projects, events, resources

Schools in Cumbria and Lancashire are currently involved in a number of videoconferencing projects. These include an in-depth case study, Helmshore Victorian Wash Day, which uses videoconferencing for support before and after visits to museums and in the use of loan boxes in schools.

CLEO has also provided streaming technology and temporary broadband links to support the highly acclaimed and BAFTA nominated www.artisancamnorth.org.uk project, funded by Culture Online and developed by Artists@Work and notion23. This project makes working artists more accessible to school children through the use of videos shot in studios, galleries and classrooms and the provision of highly interactive materials such as the Slip Decorating Tool. The RBC has also been involved in content design for the site, through the input of CLEO learning consultant Roger Lang.

Looking ahead

A pilot project to enable remote access to school networks using virtual private network technology over the CLEO infrastructure is currently on trial, with a small number of schools from each county testing staff access. The pilot aims to expand in 2005 to investigate remote access for pupils.

The development of content for the CLEO website continues through the work of the CLEO learning consultants, using content commissioned by Pathé and CLEO. Work includes developing a detailed case study of broadband content use in a school through a residency, which aims to provide material and advice for all schools. In 2005, CLEO aims to launch a new design and content management system for its website, integrating many of the services the RBC offers.

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About us

East of England Broadband Network (E2BN) consists of the region's 11 LEAs: Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Luton, Milton Keynes, Norfolk, Peterborough, Southend-on-Sea, Suffolk, and Thurrock. There are 2,822 schools in the region and the consortium is well on target to have them all connected to broadband by 2006.

In addition to connecting schools to broadband, E2BN's focus is moving towards exploiting the world-class network that is now in place, managing many activities and projects in conjunction with LEAs and schools, to benefit the whole region.

E2BN has much experience in collaborative activities that are truly innovative and challenge much of what is currently available, both educationally and commercially. The whole point of this programme is to raise the standard of teaching and learning.

Network and connectivity

The majority of the connectivity is completed (or at least ordered) and E2BN is on target to meet the DfES 2006 goal. E2BN is also driving initiatives to work as a region and deliver, share, collaborate and provide the world-class services our schools deserve.

The consortium makes sure that high-quality broadband services, activities and content are available to schools and LEAs, and are used in a way that can bring real benefits to teachers and learners. This is achieved by:

- working with LEAs and teachers across the curriculum to participate in, share and create broadband resources;

- providing teachers with the skills and information they need to be confident in using these resources; and

- advising on networking targets and standards and providing technical support and guidance.

E2BN has taken a landmark approach to portal delivery with the 2 main educational portal providers working together to provide interoperability for schools across the region. The consortium has advised the LEAs on the use of content delivery and on another project on the best approach to caching in education to maximise resources.

The RBC also works with the museums, libraries and archives sector to release their great resources to schools, as well as collaborating with the Regional Development Agency and other Government agencies to fully exploit the region's resources for the benefit of all.

"E2BN seeks to raise educational standards across the whole community by providing effective broadband services throughout the East of England," says Chris Kastel, E2BN CEO.

"Harnessing the full potential of ICT and broadband connectivity, and drawing on good practice and collective expertise, we will continue to develop, share and deliver high-quality educational opportunities and contribute to community and economic development in our region."

Projects, events, resources

E2BN is succeeding in achieving its aims through a range of ground-breaking projects that are providing opportunities for schools throughout the region.

Galleries and Libraries Project

In this project, E2BN works with teachers and LEAs to create high-quality online resources that can be developed and shared. Teachers contribute to these galleries through the use of simple Web forms and upload media in many formats. Resources include the E2BN image gallery; the essential site (where teachers can share recommended websites, content and tools); the E2BN digital assets library; the digital storytelling library; the E2BN Pathé library of school-produced material and the E2BN videoconferencing library (which includes a database of lesson plans and videoconferencing resources).

E2BN content projects

E2BN schools, other RBCs and commercial partners are developing a number of cross-curriculum projects for practical use in the classroom, as part of the E2BN content projects. Among these is *Making the News*, an Internet news channel developed for pupils by pupils.

This is a truly innovative project, valuable for literacy, communications, ICT, languages and Citizenship. It allows pupils to upload news stories in all media formats, as well as to interview people remotely and record their stories direct to the site using a simple webcam.

Workshop training and conferences

E2BN provides workshops with hands-on teacher training in multimedia skills, linked to practical demonstrations of how these can be used in lessons.

The E2BN Regional Conference was an outstanding success, with over 600 attendees over 2 days, nearly 50 exhibitors and 14 workshops covering numerous aspects of ICT across the curriculum that focused on providing teachers with ideas and practical skills they could use in the classroom. Please see www.e2bn.net for 2004 conference highlights and breaking news for 2005.

Looking ahead

A wide range of projects and developments are in the pipeline at E2BN. To make sure that the projects and activities already developed are accessible and fully utilised throughout the region, E2BN is running a set of training workshops that will deliver hands-on training to LEAs and teachers.

The broadband learning and teaching group will be presenting its proposed projects to the steering group, with a view to extra funding being made available. This will require demonstrable educational outcomes matching the DfES ICT targets across the curriculum. Many LEAs are concerned about the lack of hands-on training and will support this approach.

E2BN's videoconferencing project has been in place for 2 years, providing point-to-point and multi point videoconferencing throughout the region, as well as an Internet and ISDN gateway. It will shortly be upgraded to enhance the whole service. There will be an increased push on the use of videoconferencing (VC) nationally, and this will be reflected in the region, building on existing good practice.

Demonstrable benefits of VC use are also being collected. E2BN, working with LGfL and WMnet, has designed and commissioned a videoconferencing collaboration tool for use by schools. VC is being embedded by schools in the curriculum and E2BN will continue to support them.

The portal and its use will receive a fresh approach, with training taking place all over E2BN. In addition:

• more use of the streaming services and how to better exploit them is planned;

• filtering will be enhanced and a more scaleable model is being researched;

• the network caching and filtering project should deliver its report in the first quarter of 2005;

• content pre-positioning will continue to be exploited;

• the core contract will be tendered and the new contract will need to be in place before the end of 2005;

• ways of generating income will, as always, be investigated;

• the E2BN admin office is being moved to new offices in April 2005;

• E2BN is starting to work in unison with LEAs to deliver joint programs in schools; and

• the Regional Annual Conference will take place on July 5 and July 6 2005.

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About us

East Midlands Broadband Consortium (embc) consists of the 9 LEAs in the region. The authorities range from Rutland County Council, with only 21 schools; through small unitary authorities such as Leicester City, Nottingham City and Derby City, to large rural shires such as Derbyshire County Council, Lincolnshire County Council, Leicester County Council and Northamptonshire County Council.

The region is characterised by a mix of small cities, market towns and sparsely populated rural areas covering one sixth of England. There are many small rural schools in the region, as well as a range of large urban and community secondary schools.

Connectivity and network

Since 2000, embc has successfully connected 60 per cent of the region's schools to the regional broadband network. This includes most secondary schools and professional development and City Learning Centres. embc has also worked with member local authorities to connect libraries, adult learning centres and a range of other educational establishments.

All connected schools become part of the managed regional learning network. This has been designed and built to meet the need to provide 24/7 access to high-quality interactive and media-rich content and applications to support learning, teaching and school management.

The embc network is also interconnected to the national United Kingdom Education and Research Networking Association (UKERNA) backbone and to the East Midlands FHE network or MAN. This supports interconnections between all the English RBCs and to the National Education Network. Thus, all schools have safe and secure access not only to the Internet but also to each other, throughout the region and England. The infrastructure supports collaboration and sharing between schools in their local clusters, LEAs, across the region and with colleges and universities. Thus embc provides more than a commercial ISP service to schools.

Projects, events, resources

embc focuses on educational outcomes and how to deliver the best value-for-money solutions to achieve them. embc has established a series of learning and access objectives to complement the project's vision. These are:

- raising educational achievement to make sure that all actions are balanced against their contribution to schools, learning communities and individuals;

- learning by encouraging all institutional and community partners to establish educational achievement targets from their access to broadband content and services;

- increasing access to, and the development of, learning content and opportunities accessible by broadband. This requires establishing measurable and verifiable targets; and

- staff development by use of targets for all members of connected learning communities, increasing staff, voluntary and paid participation; and

- pedagogical innovation will be essential in obtaining maximum return on human and financial investment and the project will be seeking to establish innovation opportunities.

embc has developed a range of key services to schools to support the learning and teaching process, including access to key national learning resources using the UKERNA interconnects. These feature the full British Pathé archive of photographs and film footage, as well as unlimited access to the Audio Network's library of sound and music. embc will be supporting access to National Strategy resources, the BBC digital curriculum and Teachers' TV online resources in 2005.

Other services include:

- access to freely available learning content across all the English RBCs;

- a region-wide videoconferencing service that any school can use to work with other schools in the East Midlands, or with schools, libraries, museums, colleges and universities throughout the UK and internationally;

- learning resources produced with the EM Libraries and *Archives Changing Lives Project*, and a range of commercial and community content providers; and

- a mobile learning project where laptops with 2.5G and 3G wireless connectivity into the regional learning network are supporting adult and family learning across a wide range of hard-to-reach locations. Work with travellers and showmans' families has been a notable success here.

Looking ahead

In the coming year, embc will continue to work to fulfil targets to provide upgraded bandwidth to all secondary schools and to achieve the national target of 100 per cent broadband connectivity by August 2006.

Also planned are:

- new film and video projects with EM Media and The Broadway Cinema in Nottingham are in development for 2005;

- new services to support single sign-on to the workstation, school network, embc and national resources, for all users; and

- new enhanced email and messaging services with collaboration tools for students and teachers, from January 2005.

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About us

'It can never be done!' was the cry when the intention of creating the London Grid for Learning (LGfL) as a consortium of all 33 London Boroughs was first mooted.

LGfL was targeted to reach over 2,700 schools serving an ethnically diverse population of over 1 million pupils. From leafy suburb to inner city, from the most deprived to the wealthiest neighbourhoods, an area of approximately 620 square miles provided LGfL with significant technical and operational challenges. With over 85 per cent of schools physically connected to the network, LGfL is now committed to seeing the pedagogical use of the network take off.

Connectivity and network

The LGfL Community of LEAs acts through the London Grid for Learning Trust to procure broadband services for schools on a regional basis. It is a not-for-profit company and charitable trust, of which all London councils are members. The company employs a chief executive and other staff, and is administered by an Executive Board of Trustees, who are mainly CEOs of London LEAs.

The LGfL network is large, powerful and employs leading-edge technology. At its heart are 2 core locations linked at 20Gbps, each of which accommodates Juniper M160 switches which each provide 160Gb of switch fabric (comparable to equipment used by national Internet services providers) and banks of servers.

The network extends out in resilient fibre loops to the suburbs, where aggregation points or 'points of presence' provide for low-cost fibre-optic connections to schools at 2, 5, 10 or 100Mbps. The network, which is more than capable of supporting London's 2,700 schools at high bandwidth, has been built and is managed for LGfL by Equinox Converged Solutions Ltd. LGfL and its partners provide a secure and resilient service which includes:

• URL (Internet) filtering

• email (virus) filtering

• email hosting

• DNS hosting

• Web hosting

• The LGfL Portal

• Local (in-school) cache server

• Online learning content.

As well as connecting schools, LGfL is at the forefront of using this technology to give London teachers and pupils a tool for e-learning fit for the 21st century.

In developing this e-learning strategy, LGfL has focused on sharing good practice across the London educational community and on encouraging and supporting teachers and LEAs to develop and share material across the grid.

Projects, events, resources

LGfL makes sure that any commercial material is high quality, makes the best use of broadband content and represents value for money. It emphasises that all content should have relevance to London schools, topics and priorities, where possible.

The organisation also supports and encourages partnerships within the broader educational community, and works with other RBCs to avoid duplication and maximise cost-effectiveness and relevance.

LGfL is providing a suite of online premium content that includes *Talking Stories* for infant children, online *Virtual Experiments* for junior science and the British Pathé library of 3,500 video clips.

It also offers:

• complete online coverage of the secondary school curriculum for both Maths and Science;

• unique interactive video material on London's faith communities; and

• online music lessons for bass, drums, keyboard and guitar.

LGfL@home enables home learning by providing everything parents and pupils need to extend their use of LGfL into the home. This includes industry-leading filtering at source and a choice between 512Kbps and 2Mbps connections with unlimited download, 5 email accounts, 25Mb of webspace and ECDL online computer training are all part of the package.

As well as all this, each London school benefits from free broadband connections and cashback for each account opened. Everybody wins!

Looking ahead

The recent report, *London Learning through ICT*, described personalised learning as:

'…the way to enhance the learning experience for all pupils. It is about providing a wide range of learning opportunities that will allow all learners to participate and achieve. Success relies on access for teachers, pupils and parents to up-to-date and appropriate data, information and the necessary resources to manage learning effectively.'

The LGfL aims to become an essential school improvement partner making the vision inherent in this understanding of personalised learning a reality for London's learning community. By enabling sustainable, equitable access to broadband content and connectivity for pupils, parents, teaching and support staff, the LGfL is working to help raise attainment through embedding broadband ICT in education.

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About us

NGfL works in partnership with Darlington, Gateshead, Hartlepool, Middlesbrough, North Tyneside, Redcar and Cleveland, South Tyneside and Stockton local authorities.

The LEAs that work with NGfL are metropolitan or unitary borough councils. Altogether, there are over 530 nursery, primary, special and secondary schools in the 8 LEAs.

NGfL promotes the use of broadband technologies to encourage teachers to think creatively and exploit the educational benefits offered by the investment.

Broadband offers new opportunities to encourage innovation and creativity. Already, NGfL can see evidence that broadband is making an impact on learning and teaching styles. We are working proactively with LEAs, commercial partners and schools to capture best practice and identify new learning opportunities fostered through broadband technologies.

Connectivity and network

NGfL's vision is to support schools and LEAs in achieving national targets for ICT, to promote high standards in schools and to offer a range of services which will support the implementation of the Government's new 5-year development plan.

NGfL is 2 years ahead in achieving Government targets for connectivity and is delivering a robust and reliable broadband network. It intends to carry on increasing the quantity and quality of online learning resources through the NGfL portal.

Projects, events, resources

Providing regional videoconferencing facilities across the broadband network has been one of NGfL's key developments during 2004. The organisation has also been promoting the use of broadband through seminars, conferences and publications. In addition, NGfL has developed high-quality online resources to promote the use of ICT and broadband in schools and has also enabled National Interconnect.

This connects the NGfL network to the other 9 RBCs, enabling schools to access national resources without needing to use the Internet.

Looking ahead

NGfL has developed a planned programme of activity to support the transformation of learning through ICT. It will continue to drive forward regional developments in ICT through a number of activities, including promoting the effective use of managed learning environments (MLEs).

The organisation also intends to continue improving communications with schools by providing regular briefing sheets, guidance on network design and security for schools and LEAs. This will ensure that NGfL activity promotes school improvement through ICT.

Also, as part of our programme, we will be providing individual 'health checks' on internal school networks, celebrating success in schools across the region and showcasing best practice through the regional portal and at roadshows, seminars and conferences.

NGfL also plans to:

- promote the possibilities for collaborative working across the region and with other regions;

- co-ordinate an annual ICT professional development programme for technical officers in LEAs, core subject advisers, link advisers and advanced skills teachers;

- establish effective relations with named school improvement officers in each LEA;

- improve project management and monitoring and evaluating outcomes;

- embed new technologies within teaching and learning to promote school improvement and the raising of standards, with particular reference to Building Schools for the Future; and

- manage and develop the regional broadband infrastructure and its associated technologies, to provide a robust online service for schools.

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About us

NWLG currently comprises 18 full-member LEAs in Greater Merseyside, Greater Manchester and Cheshire, with 2 unitary authorities in Lancashire. Wigan is an associate member. The grid represents a total of 340 secondary schools, 1,871 primaries and 155 special schools, with 800,000 pupils and 42,000 FTE staff.

Connectivity and network

Broadband connectivity in the North West is very high, with more than 85 per cent of the region's schools connected. The remaining schools will be connected during 2005 and 2006 and Government targets will be fulfilled.

NWLG has recognised that, with completion of the key broadband infrastructure, it now needs to evolve from an RBC to regional collaboration around ICT. Physically connecting schools has always been just the start of the process of embedding e-learning. The organisation now needs to respond to reflect the growing maturity of ICT in learning, and will continue to act as a regional lead in exploiting the benefits of e-learning.

With the recent appointment of a Chief Executive, who has direct experience of leading ICT development within an LEA, the activities of the NWLG now have a stronger focus. Delivering according to the needs of its members to enable them to exploit broadband fully has always been a feature of NWLG's activity, but this has now intensified considerably. Forthcoming programmes of work will enable the NWLG to demonstrate the high return on investment that can be generated by genuine regional collaboration.

A regional partnership on Building Schools for the Future (BSF) positions NWLG as a conduit for transferring intellectual capital about BSF from each authority to the next, as they implement it. This will be done through NWLG-funded activities including:

- developing a vision for a Personalised Learning Environment (PLE);

- sharing best practice and reducing risk through regular assessments; and

- initiating regional strands of BSF procurement.

The regional collaboration around the ICT strand of BSF will eliminate poor investment and reduce risk across the BSF programme in the North West. It will enable authorities to adopt best practice and increase standardisation. It also offers the opportunity to repeat successful elements of BSF in every North West authority.

Projects, events, resources

NWLG has generated a number of recent content development projects. All the content has been created and made freely available to every NWLG member.

- Local history has been showcased in the creation of 2 sets of content – *The Home Front* and *Living through the Blitz*. Central to this resource are interviews with local people who lived through the Second World War.

- Two series of interactive games have been produced to support Primary School Science Key Stage 1 and Numeracy Strategy.

- The need to support the professional development of teachers has been recognised with the release of online tutorials on using the Macromedia Studio Suite.

- To build on broadband availability in every school, 2005 will see a 10-fold increase in content development, with key strategic educational needs being delivered.

- The development of resources to deliver the Diploma in Digital Studies, described in the next section, will involve a rich mixture of public and private sector partners. It will be delivered as a public asset to all schools in the UK, saving an estimated £9 million a year from schools' own budgets.

- The development of media-rich VGCSE materials, aimed at stimulating the take-up of vocational courses across the North West region, is also under way.

Looking ahead

NWLG will be creating £1 million worth of digital learning resources during 2005 and 2006, and enabling these to be distributed and used by all schools in the region.

The resources will be in the form of reusable learning objects that are Virtual Learning Environment (VLE) independent and produced to fill specific market gaps.

A key project will be the development of materials for the Diploma in Digital Studies. These will be made available to all secondary schools nationally.

Resources will be developed by co-ordinating current activity in City Learning Centres and creating a network of teachers who can contribute ideas in their specific subject areas. This will provide a sustainable model of content production post- eLC (post-electronic Learning Credit) funding. This approach will prove that when 18 authorities pool resources, they can receive a return on investment of 18 times their contribution.

By using funding to encourage collaboration and the co-ordination of existing resources in our member authorities, we are creating a model of regional collaboration that needs to be replicated nationally.

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About us

SEGfL is working with its 17 local authority members to build the South East segment of the National Education Network. The South East is a large region with more than 1 million pupils, 57,000 teachers and 3,113 schools.

The consortium enables learners in schools and communities to gain fast access to high-quality digital learning materials through the broadband network. Other digital materials can be accessed via accredited services and the Internet.

The SEGfL website also provides opportunities for learners to form online communities and interest groups.

With its member authorities, SEGfL provides contractual vehicles for the aggregation of local government broadband services. In addition, the consortium offers strong representation on broadband issues for schools and local authorities at regional and national levels.

Connectivity and network

SEGfL's main aims are to become an integral part of the strategies used by schools to raise educational standards and to provide access to learning opportunities for members of the community. To this end, SEGfL has already connected over 2,000 schools and a variety of other local authority premises, and is on course to meet Government targets to have all schools connected by 2006.

Together with The National Archives, SEGfL has recently published the Learning Curve website. Only available via the National Education Network (at www.learningcurve.gov.uk), this broadband version of the acclaimed resource for history is a growing source of media-rich materials for schools, a good example being Onfilm, the Film Archive.

Onfilm is a resource for teachers and learners designed to make use of the increased bandwidth going into schools. A complete list of historical film available to view can be found on the site. For many of the films there are classroom activities to download. Onfilm is jointly funded by the National Archives and the South East Grid for Learning.

Projects, events, resources

InfoMapper

A SEGfL pilot study of Geographical Information System (GIS) broadband mapping tools, suitable for primary and secondary schools, successfully concluded in 2004. Early findings indicate that digital mapping and associated software are important to curriculum areas way beyond geography.

Phase 2 of the pilot, managed for SEGfL by West Sussex LEA, includes the development of digital curriculum content anchored to GIS map layers, for sharing between schools across the region. Being able to use online maps and corresponding aerial photographs to form layers and to fade between the views brings a new perspective to learning about our own and other people's environments. There are 85 Schools currently being supported in using InfoMapper in the curriculum.

Broadband broadcasting

Another project has seen West Sussex schools broadcasting through their SEGfL broadband service. Any school with a broadband link can broadcast to Internet users, pupils in a different part of the building, partner schools anywhere in the world or parents, at almost no cost, using the standard Windows 2000 series software installed on most networks.

In West Sussex, the Schools Improvement Service ICT team has been exploring the use of broadband to deliver TV broadcasts created by pupils, as well as live interviews with authors visiting the county. Following the previous year's focus on using ICT – including digital video – creatively in the curriculum, it was a natural progression to move on to using the moving image in a genre that all pupils are familiar with – television.

Typical events have included sharing a visit by an author to one secondary school with other schools; a Christmas show broadcast by one middle school to its infant partner school; and the now regular Thursday afternoon spot broadcast by pupils in Year 6 to any viewers who care to join them on the target web page where the broadcasts are viewed.

Videoconferencing

Chyngton Primary School in East Sussex decided that videoconferencing could help pupils take part in experiments in the laboratories at the University of Brighton. Videoconferencing allowed the children to witness and participate in potentially dangerous experiments running in the laboratory and to ask questions at the same time.

Brighton and Hove LEA is involved in a pilot project with the Key Stage 3 Strategy that will develop Continuous Professional Development (CPD) across schools using videoconferencing. Schools have been supplied with hardware to support the project, including PolyCom VSX 7000 units, interactive whiteboard and data projector, laptop and a digital video camera.

The IP videoconferencing has already stimulated collaboration between the schools and LEA technical staff. Four schools are involved in the Assessment for Learning initiative and will be using the resources from the *Pedagogy and Practice Pack* during the project. Video footage of lessons will also be used during the conferences to stimulate discussion.

Looking ahead

To commemorate the bicentenary of Trafalgar 1805-2005, Portsmouth schools will be working with local maritime museums, producing digital learning materials for publication on broadband. Materials will include a virtual tour of Nelson's flagship, Victory.

SEGfL is also working with the South East Museums, Libraries and Archives Council (SEMLAC), to present an interactive broadband learning experience for Key Stage 2 pupils.

An expert historian and actor playing the part of Nathaniel Key, a prolific Victorian photographer, will journey the South East region complete with bellows camera for 12 weeks in the spring of 2005. Key is following a gripping storyline produced by museum education staff and classroom teachers, which will unfold weekly. He will visit museums and archives where videoconferencing will allow pupils to visit the past, view artefacts and interrogate experts.

Videoconferencing isn't just for secondary schools. Pupils from 3 Hampshire infant schools – Smannell and Enham Infant School near Andover, Pennington Infants near Lymington, and King's Furlong Infants in Basingstoke – joined forces to take up the challenge of pupil news broadcasting via IP videoconferencing.

Using the Hampshire videoconference service and birdboxes fitted with miniature digital cameras, young observers shared information between the 3 schools. This included coming to terms with the demise of several chicks just as they were about to fly the nest.

Tony Cook, ICT advisory teacher for Hampshire, assisted with the technical links between birdbox cameras supplied by Ecowatch and PC video-capture card and editing software. Stella Kenny, Primary ICT adviser, added a comprehensive mind map of curriculum opportunities and the children anxiously viewed their screens as blue tits took up residence.

"The project was a roaring success," *says Kevin Lynch, headteacher of* *Smannell and Enham School.* *"It's been great to work alongside* *the other 2 schools. The learning* *and sharing opportunities this facility* *could provide are wonderful."*

Because the school currently uses a 64K line and failed to transmit quality video, the staff are keen to upgrade. "It has made me determined to improve our provision to enable successful videoconferencing in the future", says Kevin.

Jack, a pupil at Pennington Infants, full of motivation, prepared this report to share with the other schools:

"We have a blue tit nesting in our *birdbox. I went to see them. They have* *grown a lot the nest is too small. Baby* *birds know when the mummy's coming* *because they hear her wings. Their* *eyes were closed. The mummy bird* *keeps the nest clean by taking their* *poo out. You can see where they will* *have different colours when they're* *bigger. They are very noisy. The* *mummy or dad has to feed the* *baby 400 caterpillars."*

SEGfL is working alongside the schools and is delighted to be supporting this project. With such a huge investment in ICT for education by Government, LEAs and schools, it is encouraging to see pupils and teachers sharing their knowledge and expertise via broadband. The excitement of using videoconferencing to report the latest birdbox news is motivating research in a range of topics. It has stimulated learning beyond expectations.

It was not only the technical solutions that made all of this possible but also the determination of staff to make the technology work. As broadband is used more and more to connect schools to each other, nationally and internationally, we can expect to see many more shining examples of inspired teaching and shared learning.

The schools placed regular updates on their websites throughout the project. Look out for www.schools.hants.org.uk/kings-furlong-infants and www.priestlandsheritage.org.uk/schools/infants for comprehensive video logs of the chicks growing.

If the blue tits take up residence again in 2005, SEGfL plans to broadcast live from the nesting-box site. With the help of several digital sensors, they expect to make a stream of live data available to all schools.

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About us

SWGfL is a consortium of 16 LEAs serving 333 secondary and middle-deemed secondary schools, and 2,100 schools serving more than 750,000 pupils.

The SWGfL aggregates LEA spending powers to reduce costs and to maximise the number of schools connected to broadband infrastructure and services.

The SWGfL region stretches from the Isles of Scilly to Swindon, encompassing some areas of urban development, but largely characterised by extensive, sometimes remote, rural areas, making connectivity at affordable cost a continuing challenge.

Throughout much of the region, alternative broadband services are unavailable and the possibility of exclusion from the information revolution, including opportunities for e-learning, is a real educational concern.

Connectivity and network

SWGfL continues to work as a consortium to connect all the schools in 16 LEAs. At the end of September 2004, 63 per cent of the schools out of a total of 2,454 schools were connected, and by March 2005 it is planned to have connected 80 per cent. The consortium is still on target to connect all schools in the region by the end of 2006.

Projects, events, resources

Gamelan Orchestra Project
SWGfL is partnering Wells Cathedral School on this project, which aims to deliver the World Music module (Indonesia) to all schools in the UK via the SWGfL broadband infrastructure and the National Education Network.

InfoMapper
SWGfL has recently commissioned a digital aerial photo of the whole of the South West Region, from the Isles of Scilly to Swindon at a 25cm resolution. This tile is the largest single ecw format tile in the world and will be available for use by students and pupils in all SWGfL Schools. SWGfL has also obtained aerial photos of the South East of England. This allows schools in both the South West and South East regions to use aerial maps of the whole of the southern part of England. Over one-fifth of all the South West Schools are now using InfoMapper.

Videoconferencing
Now in its fourth year, the SWGfL videoconferencing service has been enhanced to fully meet national standards, enabling videoconferences to take place between RBCs. The latest developments include improvements to the security and management of the system by schools. Significant effort by LEAs within the grid has helped developed the educational benefits of videoconferencing, with a number of long-term projects teaching across a number of schools.

Looking ahead

Developments are under way to link the South West Grid for Learning portal to proprietary Managed Learning Environments (MLEs) and Virtual Learning Environments (VLEs). The portal has been fully released to all South West schools for use of staff and pupils and is a powerful tool for developing collaborative working between LEA staff, teachers and students.

The secure data transfer software used for all schools, SecureNet Plus, has been improved, automated and upgraded. The development of RM SecureNet Plus has opened up a whole range of new possibilities to streamline school data transfer processes, reduce administrative burdens on school and staff, and to meet stringent e-Government targets.

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About us

With a population of over 5 million, the West Midlands is the second largest conurbation in the UK. The region is highly cosmopolitan, and the vitality of its community life finds expression in local arts, culture, music festivals and events. Manufacturing still accounts for 30 per cent of the region's GDP. With 2,600 schools in the region serving over three-quarters of a million school-age pupils, broadband connectivity is key to connecting the community.

Connectivity and network

In the West Midlands, a major collaboration between universities, Advantage West Midlands (the Regional Development Agency) and the RBC has established a highly resilient, regional broadband backbone with high bandwidth links to local authorities, universities and the national Higher Education SuperJANET network.

Now that three-quarters of schools in the West Midlands have access to that network, the central task for the RBC has become that of ensuring that schools and local authorities are supported in the exploitation of the educational opportunities offered by these high-capacity communications links.

Projects, events, resources

WMnet is working with regional partners on curricular activities that generate interactive events online, through webcasts and videoconferencing.

Projects and events include an enhanced repetition of the very successful Crossover Design and Technology activity, in which primary schools use online communications to look at an engineering problem.

There will also be a series of Friday webcasts between schools with a focus on Citizenship; a virtual reality pilot to produce Key Stage 2 resources; and a further set of online events based around the use of archive film in the presentation of 20th-century history.

Looking ahead

Videoconferencing (VC) is major focus for the coming year. VC facilities have been established and activities making educational use of them are being developed and promoted. There is an emerging demand for videoconferencing for curriculum enrichment, specialised subject tuition, participation in national projects online and for links between universities and schools for Initial Teacher Training support.

WMnet will continue to play a leading role in the national videoconferencing services pilot and in establishing a national directory of schools and services for VC. In parallel with these activities, WMnet will be implementing an application-sharing pilot of a system designed to facilitate shared presentations and demonstrations online.

As well as activities and events designed to increase the use of broadband technology, WMnet will continue to promote and publicise its educational benefits. There will be a number of successors to the 4 videos already produced in 2004, each illustrating the use of ICT in West Midlands schools, and there will be yet more evaluative work. The consortium will take advantage of every opportunity to carry its message to schools through local authority conferences.

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About us

Yorkshire and the Humber is an area of geographic, economic and cultural diversity, covering nearly 6,000 square miles with a population of about 5 million.

The Yorkshire and Humber Grid for Learning is a Consortium of 12 LEAs, with around 2,000 schools serving almost 1 million pupils. Of these, 275 are secondary schools, (97 per cent connected), 86 are special schools and 30 are nurseries.

There are 1,657 primary schools, of which 40 per cent are designated small with fewer than 200 pupils; of these, 40 per cent have 4 or fewer teachers.

So far, more than 97 per cent of secondary schools have been linked to the grid. The foundation is also linked into the national education network, which gives all participating schools access to JANET (Joint Academic NETwork), Europe's largest higher and further education website.

Connectivity and network

Developed in collaboration with company 3rd Eye Vision, YHGfL Foundation's new website was launched in June 2004. A vibrant and innovative tool, it includes a rolling news update, a monthly topic focus, the start of an e-magazines section, a school website host facility, and a resources section for teachers as well as features, competitions and special offers to member schools and LEAs.

An in-house, web-based email system has also been developed, with the project managed in collaboration with Sirius. The system was changed over in June and has been on trial with East Riding LEA, with a view to offering it to other LEAs around the region.
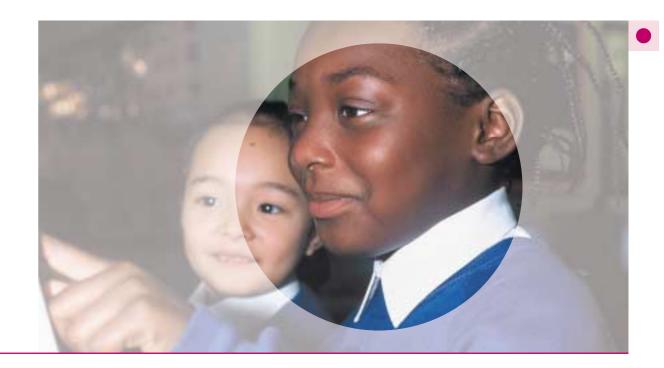
Projects, events, resources

Hanse Passage project
Further funding sources have been found, with European money secured through the Hanse Passage project. For this project, FHGfL Foundation funding consultant Sean Brady has joined with counterparts from 5 other EU member states to research and exchange best practice in the use of ICT in post-14 education.

Videoconferencing
FHGfL Foundation is also currently involved in furthering the development and use of videoconferencing through the Pathfinder pilot project. As part of the project, dozens of schools across the region are participating in schemes making use of videoconferencing. The foundation is installing a videoconference control unit to connect its schools to JANET via UKERNA (UK Education and Research Networking Association) to enable global videoconferencing.

Heightened profile
YHGfL Foundation has also raised its profile. A folder of promotional material and a CD-ROM has been produced using money from DfES, as well as three promotional display boards.

These are for use at exhibitions and conferences including the foundation's third annual one, entitled *A Look at the Future*, to be held in the autumn. Several articles have also appeared in local and regional newspapers.

Looking ahead

YHGfL Foundation has a number of objectives. These include:

• increasing the quantity and quality of tools and services available to schools;

• supporting schools in using virtual learning environments (VLEs);

• continuing to provide a safe and secure Internet environment;

• enabling schools to utilise videoconferencing and other digital communication methods to enhance teaching and learning;

• reducing costs for content and developing, in partnership, new regional content;

• making more content and services accessible from home; and

• increasing value for money by negotiating best prices.

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