

# ICT: essential guides for school governors



**This guide for school governors focuses on ICT infrastructure – the hardware, cabling, networks, connectivity and software that enable a school to use ICT to support learning, teaching and administration.**

Few schools are fortunate enough to develop their ICT infrastructure in one well-resourced package. Most have systems that are a mixture of an ICT suite, small networks or stand-alone computers to support specific areas of the curriculum and administration. Whatever your current systems, a strategic approach to planning, procurement and maintenance will help to deliver the sustainable and accessible ICT infrastructure that your school needs.

A key consideration in developing the ICT infrastructure in a school is that its capabilities should match the specific requirements of the school. Where ICT is purchased to support the learning and teaching, it is crucial to focus on the educational outcomes required by the school and consider how technology can best support the achievement of those outcomes. Improvements in the



management of an institution may also be realised through wider use of ICT. Consultation with users of the system is essential, to ensure that the ICT resources meet their needs. Once the school's needs have been determined, the school can consider how to fund the infrastructure, clearly setting out a procurement process.

## Procurement

Not all governors will be involved in the procurement process, but the governing body has a responsibility to ensure that the procurement of ICT equipment and services is legal and represents best value for the school, and to ensure that public funds are spent in an appropriate and auditable manner.

There are a number of methods by which schools can acquire ICT equipment and services. Each method has advantages and disadvantages,

and each places different burdens and responsibilities on schools. Making frequent one-off purchases from a variety of suppliers offers flexibility but can place a heavy demand on management and technical support within the school. If your school adopts this approach, the governing body needs to ensure that quotations are obtained from a variety of suppliers in accordance with local financial regulations. For more complex purchases involving, for example, building work when installing a network, a formal tender process may be required. For purchases of above £150,000, EU directives must be followed.

Another approach to purchasing ICT equipment and services would be via a completely managed service. This solution offers a more strategic long term approach. Becta manages an Accredited ICT Service Suppliers scheme that lists suppliers that have been through a rigorous and comprehensive testing process, demonstrating they can provide a high level of service. Schools may also take advantage of framework contracts that their local LEA, Regional Broadband Consortium (RBC) or Becta already have in place, significantly reducing the administration often associated with the procurement process.

These two different approaches to acquiring ICT equipment and services are not mutually exclusive – a combination of methods can be adopted. For more information, see Becta's procurement advice [<http://www.becta.org.uk/schools/procurement>].

### Case study

Richard Jones from Malpas Church Junior School in Wales, has made bold changes to his school to enable the full benefits of ICT to be available to pupils and teachers, where and when it is required. This video clip outlines the decisions he took and the journey of the school as it developed ICT.

[<http://www.becta.org.uk/corporate/display.cfm?section=21&id=3219>]

Windows media player or Quicktime required.

# Networking issues

## Choosing appropriate networks and ICT infrastructure

There is a wide range of ICT infrastructure available that may be used to support different functions within your school. The school may find that the 'right' technology is not always the most obvious or cheapest available.

'What do we want to achieve?' and 'How can we do this better?' are two questions that would help the school determine the most appropriate infrastructure.

Some targets are preset by DfES such as computer:pupil ratio (1:8 primary, 1:5 secondary) and the Laptops for Teachers scheme, which has a target that by 2006 two thirds of teaching staff should have personal access to a laptop.

It is important when specifying and purchasing ICT infrastructure and networks that all the components are compatible with each other, and future ICT purchases. The best way to ensure this is to purchase equipment which complies with existing standards where available, such as those for wireless equipment. Avoid proprietary systems which may not be compatible with equipment or software from another supplier.

Becta is currently working to establish standards that will allow improved connectivity between schools, LEAs and regions, so that in time an entire national network for education will be established. These include authentication (user identities that enable single password entry to many networks), network security, video conferencing, caching and delivery of curriculum content. Adherence to these standards will enable schools to achieve a coherent, sustainable and dependable ICT infrastructure.

## Sustainability

ICT procurement and management are a major investment for every school and involve ongoing costs. Some costs are immediately obvious, such as purchase of hardware, but some are less obvious, such as software licences or technical support. Governing bodies need to be aware of the full range of ICT expenditure that a school may need to fund including the ongoing costs of upgrading and replacing ICT infrastructure.

An important consideration when purchasing ICT equipment is to consider the Total Cost of Ownership (TCO). This involves calculating all the costs of owning an item of equipment, and extends beyond the financial value of the hardware. It includes all of the related costs such as maintenance, replacement costs, technical support, training, extended warranties, software, connectivity, insurance, security and consumables.

In order to ensure sustainability of the ICT infrastructure the ICT development plan should be carefully costed and integrated into the school's overall financial planning. It is important to consider all the procurement options

including leasing. Schools should also consider working in partnership with other institutions with a view to sharing costs (such as technical support). It is also important to have a robust system for retaining staff expertise including training of colleagues and clear documentation of systems and processes.

## Technical support

The school network needs to be reliable to encourage user confidence and to support learning and teaching, as well as school management and administration. This requires access to technical support, which can come from technicians within the school, or from the LEA or another provider, or perhaps a combination.

In order to develop a high degree of technical support, schools need to move away from a reactive system in which incidents are dealt with only as they arise, and instead create a more pro-active system where technical support works to prevent problems and ensure that individual ICT systems are robust and reliable and available when required.

Becta has developed Framework for ICT Technical Support (FITS) specifically for schools. FITS is a toolkit of advice, checklists and downloads which contains ten processes for efficient and effective ICT management and support. The Becta Technical Support website [<http://www.becta.org.uk/ntss/index.cfm>] also has details of ICT technician competencies, sample job descriptions and links to relevant training. All of these can help schools when recruiting or planning professional development for technicians.



# Broadband

Broadband is a general term used to describe high-speed connectivity with the internet and between schools and other institutions and networks. A broadband connection can change the way ICT is used in a school. Broadband allows greater simultaneous access to the internet as there is more bandwidth for users to share. Broadband enables the delivery of multimedia content such as video or animations to support teaching and learning and can allow schools to communicate with each other and with outside institutions, 'bringing the world into the classroom'.

Caching technologies can be used to enhance broadband connectivity – these technologies store frequently accessed information and content on the school's server, speeding up future requests for the same information.

Broadband connectivity will give rise to greater and more varied use of the internet and other forms of communication in your school. The governing body should assure itself that sufficient safety precautions (such as internet filtering technologies) and acceptable use policies are in place and documented. Whilst no network can ever be entirely safe or completely secure, there is much that can be done to minimise risk (see the Governors' guide on Safety and Security with ICT).

The DfES has funded the development of broadband services for schools and other educational institutions through 10 RBCs. RBCs are working together to procure cost-effective broadband services. They are providing an increasing range of broadband educational resources to all

## Case Study

The introduction of broadband technology to Icknield High School in Luton has helped transform learning and teaching. The school received its first 2Mbps broadband connection in 1999, the year it gained specialist art college status. As part of a pilot, Icknield devised a project based on the idea of using video conferencing as a transitional aid. A video conferencing link was set up that allowed Year 6 pupils at a feeder primary school to consult with Year 10 pupils at Icknield. The younger children asked the Year 10 pupils about bullying, the school uniform, school dinners and the strictness of the teachers.

[[http://www.dfes.gov.uk/ictinschools/ict\\_active/composite.cfm?partid=81](http://www.dfes.gov.uk/ictinschools/ict_active/composite.cfm?partid=81)]

those schools connected.

The RBCs interconnect through the Joint Academic Network (JANET) ensuring that all schools, colleges and universities are connected together – providing for the first time a national education network.

The DfES target is that by 2006 all schools should have a broadband connection at bandwidths appropriate to their particular circumstances and needs. Typically, all schools should be connected at a minimum of 2 Mbps and ideally secondary, including secondary special, at 8 Mbps or higher. All connections should be 'symmetric' that is, they enable communication at the same speed in either direction.

# Network security

Schools no longer need to have a separate physical network for administration and curriculum. A single network can have areas that may be accessed by different users, depending on their access rights. For example, teachers can access pupil data, shared planning areas and curriculum areas, whilst pupils are limited to curriculum areas and selected personal data. The introduction of appropriately secured, combined networks involving virtual and managed learning environments (VLE/MLEs) will facilitate parents and pupils accessing their specific personal and curriculum data. Pupil data can be used in conjunction with curriculum material to enhance personalised learning experiences.

The main advantages of an integrated network are the ability for learners and teachers to access curriculum material and administration data and the entry of assessment and attendance data without having to use a dedicated computer.

## Case Study

Mark Simpson, assistant Headteacher at Cramlington High School, has overall responsibility for ICT in the school. Mark gave a presentation at a Becta expert technology seminar on Cramlington's innovative approach to embedding ICT across the curriculum and how this is incorporated within the school's accelerated learning philosophy. His presentation, which is available online, outlines how ICT infrastructure in many guises is used to support learning and teaching and how the school supports ICT and staff development.

[[http://www.becta.org.uk/etseminars/presentations/presentation.cfm?seminar\\_id=29&section=7\\_1&presentation\\_id=67&id=2608](http://www.becta.org.uk/etseminars/presentations/presentation.cfm?seminar_id=29&section=7_1&presentation_id=67&id=2608)]



# Disposal of equipment

Schools are responsible for the disposal of ICT equipment and care needs to be taken in appropriate disposal. Under the Data Protection Act (DPA) 1998, schools need to ensure that personal data is properly disposed of – simply erasing a hard disk is not sufficient. The school should contact its LEA to seek advice and identify any local arrangements for the disposal of such equipment, if the school does not have its own documented disposal policy. Governing bodies need to monitor that this process is being carried out.

Schools may wish to include, within their terms of contract, a clause that states that a supplier providing new equipment will be required to collect and dispose of any old equipment that is obsolete.

## Inclusion

Where pupils need specialist technologies in school, these should be considered as part of the ICT infrastructure of the school. Appropriate maintenance, network access, and replacement plans should cover all these technologies.

Under the Special Educational Needs and Disabilities Act (SENDA) schools must anticipate the needs of pupils before they enter and develop a plan on how this will be achieved. ICT infrastructure is part of this. Care needs to be taken that, for example, pupils with severe visual impairment are not disadvantaged by using an ICT suite or an interactive whiteboard that they cannot see clearly. Where pupils have accessibility options to enable them to use a computer, these settings can be set on the network so they can access them whichever computer they log on to. A range of specialist camera devices can also enable pupils to see both text books and the whiteboard.

Some specialist technologies, for example, sound field systems that support pupils with hearing impairment, show good practice and should be considered by all schools.

[<http://inclusion.ngfl.gov.uk/>]

## Research

A range of research evidence exists to demonstrate the benefits to schools of carefully planning an ICT infrastructure.

Becta's What the Research Says series summarises the research findings and presents it in an accessible format. The series includes papers on network technologies, portable ICT devices, and virtual learning environments. One paper looks at ICT support for schools and addresses issues of providing effective technical and curriculum support for ICT.

A report on the exploration of use of ICT at the Millennium Primary School, Greenwich, investigates the impact of a significant investment in ICT infrastructure at the school.

The ICT Test Bed evaluation has developed a set of research tools in the form of Maturity Models. These make it possible to grade organisations to reflect the level of maturity at which they operate. The Models allow us to ask whether the institutions have the resources and structures to deliver effective educational experiences using ICT.

For more information visit the Becta Research website [[www.becta.org.uk/research](http://www.becta.org.uk/research)].



# Useful information

## Where can you go for further help regarding ICT?

Your own LEA team, particularly the ICT Adviser, should be your first contact for advice on ICT infrastructure. Your LEA's Governor Training section may be able to direct you to support.

### Becta

#### Expert Technology Seminars – Presentations Archive

An archive of expert technological presentations from over 20 previous seminars is available

[http://www.becta.org.uk/corporate/corporate.cfm?section=7\\_1&id=2608](http://www.becta.org.uk/corporate/corporate.cfm?section=7_1&id=2608)

Links to Becta's advice on procurement, purchasing schemes, accreditation and content

<http://www.becta.org.uk/corporate/display.cfm?section=12>

More detailed Becta procurement advice is available on the ICT choice site

<http://www.ictchoice.org.uk>

Becta technical papers (including broadband and web caches)

<http://www.becta.org.uk/technicalpapers>

Interactive Whiteboards framework agreement, including links to purchasing

[http://www.becta.org.uk/leas/leas.cfm?section=6\\_1\\_1&id=3158](http://www.becta.org.uk/leas/leas.cfm?section=6_1_1&id=3158)

Video conferencing

[http://www.becta.org.uk/leas/leas.cfm?section=7\\_1&id=1137](http://www.becta.org.uk/leas/leas.cfm?section=7_1&id=1137)

*Wireless networking in schools: a decision making guide for school leaders* publication

[http://www.becta.org.uk/corporate/publications/publications\\_detail.cfm?currentbrand=all&pubid=81&cart=](http://www.becta.org.uk/corporate/publications/publications_detail.cfm?currentbrand=all&pubid=81&cart=)

### British Educational Suppliers Association (BESA)

A summary of *Resources in English Schools Survey for 2004*

<http://www.besa.org.uk/besa/documents/view.jsp?item=59>

### Curriculum Online

Content delivery, selection and purchase

<http://www.curriculumonline.gov.uk>

### DfES

ICT in Schools Survey 2004 – full report

<http://www.dfes.gov.uk/research/programmeofresearch/index.cfm?type=5>

### GetConnected

Details of Regional Broadband Consortia

<http://getconnected.ngfl.gov.uk/index.php?s=rbcon>

### Laptops for Teachers scheme

<http://lft.ngfl.gov.uk/>

### Superhighway Safety

Security, safety, filtering, acceptable use information

<http://safety.ngfl.gov.uk>

This document is one of a series, developed during Autumn 2004, by Becta to support school governors. Each guide, together with supporting material, will be made available for downloading in the Governor Support area of Becta's website [<http://www.becta.org.uk/leaders/display.cfm?section=13>].

department for  
**education and skills**



Becta is the Government's key partner in the strategic development and delivery of its information and communications technology (ICT) and e-learning strategy for the schools and the learning and skills sectors.

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