

# AbilityNet

## ICT, Special Educational Needs and Building Schools for the Future

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Adapting Technology - Changing Lives

## ICT, Special Educational Needs and Building Schools for the Future By John Liddle and Adam Waits

### 1) Introduction

Building Schools for the Future aims to finance the rebuilding, remodelling or refurbishment of each of England's 3500 state secondary schools over the next 15 years.

At AbilityNet, we see BSF as a huge opportunity to make some real progress in ICT accessibility for children with SEN and disabilities in education.

If we get accessibility element of the programme correct, we have the potential to enrich the lives and opportunities of hundreds of thousands of children who would otherwise face barriers to learning. However, failure to prioritise accessibility on the BSF agenda will result in the gap between the 'haves' and the 'have nots' in the access to learning 'stakes' becoming ever greater, as innovative learning technology with no access considerations threatens to revolutionise education at the expense of those in greatest need.

One of the greatest levers to securing ICT accessibility in the schools of the future is the sheer scale of the BSF undertaking and the money involved. Of the overall 'pot', some £4.5 billion will be directed towards ICT provision to support 21st century learning and teaching in the establishments concerned. An average secondary school might well attract £1.5 million of ICT funding.

For perhaps the first time, this is a real opportunity to oblige ICT suppliers to get accessibility right. With £4.5 billion at stake, the collective force of the education procurement managers across the country has the power to specify exactly what is required in terms of universal access. With this kind of carrot/stick effect in operation, procurement managers can demand that ICT suppliers and service providers re-evaluate their 'offer' and make the necessary changes to meet the needs of our children. For far too long we have accepted what has been provided, rather than questioning its suitability and viability.



To support you in this, we wanted to give you some tools and guidelines which would get you thinking about what your local accessibility will look like and how you can achieve this.

We have provided a list of questions you should ask yourselves to best find out your local needs. Then we have given some direct questions and examples around accessibility of hardware, software, learning platforms, managed service etc, which will help you to specify and articulate your needs to ICT suppliers you are in dialogue with

When working on this, let your starting point be your utopia and see how close you can get to this. Our utopia is:

- any child regardless of ability has equal access to ICT so that it provides true enrichment of their learning experience.
- students should be able to log on the school's learning platform wherever they are working most comfortably and find it fully accessible and delivering a learning experience and content which is appropriate to their level and needs.
- when students need any access technology, it is delivered to them in a seamless way over the network, regardless of the machine they log on to.
- all other teaching and learning ICT tools employed with the school allow

SEN children to learn and participate  
**2) Understanding your local needs**

There are a number of questions you need to ask yourselves to understand what your specific ICT accessibility issues and challenges are likely to be:

- What are our legal responsibilities?
- What are the needs of the current cohort of students?
- How much should our accessibility aspirations be limited by the current cohort? The concept of universal access and the anticipatory nature of the DDA indicates that you shouldn't limit yourselves in this way.
- What expertise around accessible ICT solutions is there available locally? - what existing resource do we have and what could we buy in.
- Have we engaged this local expertise throughout the whole process?
- Have we spoken to special schools and SEN professionals when creating our vision of ICT for teaching and learning?
- Student consultation - has this taken place? Has it thrown up any accessibility issues?
- What difficulties are our schools/students currently facing?
- What impact will local and national policy and legislation have on our requirements e.g. moves to greater inclusion will mean more accessibility requirements in mainstream schools
- What assistive technology solutions are students currently using and what impact might these have on the systems being considered?
- Do we understand what the accessibility implications of particular needs groups are? E.g. what are the access issues faced by blind students or switch users? Where can we find out more?



- Will the accessibility elements in the Becta procurement frameworks go far enough to meet our needs?
- How are our SEN pupils currently accessing ICT? It is important to avoid backward steps which would result in the students having less access to learning resources than they previously had.
- What assistive technology solutions are support staff familiar and comfortable with?
- What lessons have been learned from past experiences in procurement - are there examples of good practice to follow and pitfalls to avoid which can inform the current procurement exercise?
- How far do we want to go with getting accessibility right? How much are we prepared to spend? Are we prepared to accept any compromises in functionality for all students in order to ensure accessibility?
- Do we understand that the accessibility considerations of different students might not always be compatible? E.g. media rich content may be good for dyslexic learners but not so useful for visually impaired learners. What would be our strategy for dealing with this ?
- What is our plan for dealing with those students with low incidence and high impact disabilities - e.g. Switch users or non reading symbol users? Do we look for this level of accessibility within

the main solution, do we seek an alternative approach for these

learners?

### 3) Specifying requirements

What are the key accessibility factors we need to outline in developing our tendering documentation and output specification and during our continuing dialogue with potential ICT suppliers:

#### 3.1) Hardware such as PCs

What accessibility criteria should we be outlining when ordering hardware such as desktop PCs e.g.

- Can peripheral devices be easily attached by people with dexterity difficulties - things such as USB sockets at the front of machines can help
- Will the screen size and type be suitable for all learners including visually impaired children?
- Will hardware be compatible with common access technology software packages and hardware devices? E.g. soundcard compatibility with voice recognition packages
- Are there any legacy issues to address? Such as needing support for PS/2 and serial port devices for connection of switches or special keyboards or mice.



#### 3.2) Hardware such as laptop computers

What accessibility criteria might influence the choice of laptop for various students?

- Weight, screen size, battery life, ease of opening etc are all factors here.



#### 3.3) Hardware such as teaching and learning tools

What accessibility criteria might influence our choice of teaching and learning tools for the classroom?

- Do we need height adjustable interactive whiteboards for students in wheelchairs to access them?
- Are students still able to access the interactive whiteboard without a pen if they cannot use this input method?
- Are students likely to be disturbed by their shadows in front of the image? Consider rear projection, short throw projectors or plasma screens.
- Can you bring a slate to the child rather than the child to a whiteboard?
- Can children get a local image of the whiteboard on a screen at their desk (can help visually impaired children)?
- When considering systems such as pupil voting systems, is the input method accessible

#### 3.4) Managed services

With programmes such as Building Schools for the Future meaning a move over to externally managed ICT services, are there any factors here we need to consider to ensure the best service for our learners with SEN?

- Is there a possibility that local technicians with specialist knowledge will be lost? - perhaps replaced by more generic technicians from the managed ICT services company.

- What impact will instant replacement agreements for hardware have on SEN pupils? E.g. if a computer which a student is using with voice recognition, word bank/grid software or word prediction software goes wrong, will these student lose their voice files, word banks, grids or prediction lexicons?
- Will such files be available to the student regardless of which computer they log on to?
- Will users of individual bespoke ICT systems such as personal laptops or communication aids be able to gain access to printing and network facilities?
- Will externally managed service providers allow access to the control panel for accessibility options and display properties etc so that the computer can be personalised to the users' needs
- Will these accessibility settings be available to the user wherever they log on, without having to set them up again each time?
- Will externally managed service providers allow non standard software to be installed without long delays ?



### 3.5) Operating system and network configuration issues

There will be a number of possibilities for the operating system which will be chosen for your schools and also how the network will be configured. It is important that any implications of these choices for students

with SEN are considered and addressed in the decision making process. These factors include:

- What accessibility options are available within the operating system?
- What range of third-party assistive technology solutions are available for the operating system?
- Will accessibility features in the operating system be locked down?
- Will the operating system allow log on for non keyboard users - e.g. onscreen keyboard users or switch users?



### 3.6) Software

Even with the most accessible environments and hardware, students with disabilities can still face huge barriers to learning if the application and learning software chosen by schools is inaccessible to them.

Becta have very recently produced guidance for schools and software developers around this very issue:

*Making accessible software, a guide for developers and providers,*  
<http://publications.becta.org.uk/display.cfm?resID=33482>  
 with supplementary resources at:  
[www.Becta.org.uk/industry/content/accessibility](http://www.Becta.org.uk/industry/content/accessibility)

and

*Making software accessible, a guide for Schools* at:  
<http://publications.becta.org.uk/display.cfm?resID=32113>  
 with supplementary resources at:  
[www.Becta.org.uk/Schools/Inclusion](http://www.Becta.org.uk/Schools/Inclusion) - and click on 'access to learning'

### 3.7) Learning platforms

With BSF, there will likely come a move to an online learning platform or perhaps a virtual / managed learning environment (VLE/MLE) for most if not all schools.

These on-line environments will have two areas of accessibility which need to be considered.

One is the framework which forms the environment itself and some steps towards core accessibility can be achieved by adhering to the W3C Web Accessibility Initiative guidelines – see <http://www.w3.org/WAI/> for more information.

It is worth noting that any set of guidelines will only go as far as general good practice. Achieving AAA accessibility within the W3C guidelines, will make great in roads for many students but testing by disabled users themselves and their assistive technology solutions will highlight many more accessibility considerations to be addressed.

Even then you can go much further in any direction to meet the particular needs of specific groups of SEN students. For example, making a learning environment entirely switch accessible is one route, or providing symbol support for non literate users, or following guidelines on easy read web sites for dyslexic students are other routes.



Your special schools are likely to have very different requirements of a learning platform, both between themselves and mainstream schools, but also between themselves and other special schools within the authority supporting different student groups.

The other area of accessibility to address is the nature of the learning materials

themselves within the learning platform. Activities within them should be accessible and ability appropriate and any exercises set must be relevant to the intended user. For example, in ICT learning resources you could make the instructions for resizing Windows with the mouse completely accessible to a blind person but the underlying task is impossible for a blind person to carry out. Instead they would need accessible instructions on how this might be done with keystrokes.



### 3.8) Assistive technology software and hardware

When all of the accessibility considerations have been addressed around the learning platform, software, hardware, operating system and the way the whole process is managed; it is inevitable that many students will still need third party access software and / or hardware.

There are a number of factors to consider so that students can access their necessary assistive technology easily and effectively. Including:

- Can assistive technology software solutions be delivered to students who need them over the network regardless of which computer they log on to ?
- Are licensing options offered by assistive software suppliers responsive to your needs ? Are you only paying for the number of users you need or are you expected to pay for one copy per machine?
- How will assistive technology updates work – will they keep abreast with application and operating system updates? What would happen for example if there was a new operating

system service pack to be rolled out but all of the current access software hadn't been tested with it yet?

- Will you limit the choice of assistive technology software to one of each type ? e.g. choosing just one screen reader package for all blind children to use (except in exceptional circumstances)
- Will the access hardware and software be part of the core package for schools or will it be part of the schools' choice element of provision?
- If a child is identified as having an access technology requirement, is the vision to provide that child with their own adapted equipment or to ensure that all machines are suitably adapted or a combination of the two?
- Where will funding for individual pupils' access technology requirements come from ? Will it be seen as part of the main BSF ICT pot or will this come from existing routes for support (in many cases these have been inadequate in the past)
- How will access technology hardware be made available to students who need it (e.g. switches, alternative keyboards, joysticks and trackballs). Will each location have a range of the common alternative access devices or will students be required to carry their access technology with them?
- Where assistive technology hardware such as trackballs, joysticks and Braille displays require drivers to be installed to work properly, will these drivers be available across all PCs?

### 3.9) Building design and furniture

Consider how ICT will integrate into the building design in the most accessible way possible. For example:

- Ready access to power sockets, invaluable for all students, can be even more essential for SEN learners, particularly when their laptop or other device is their only way of accessing the curriculum.
- Furniture such as height adjustable desks need to be considered, and it should be agreed whose budget and responsibility these are.
- Consider how lighting and positions of windows will affect visibility of computer screens and whiteboards – key for visually impaired learners.
- Space – this is a key consideration for disabled learners. Both space for manoeuvring when accessing ICT suites and space on desks for additional ICT devices and peripherals they might be using.



## 4) What next

AbilityNet is on hand to help and is offering a range of consultancy services to local authorities and suppliers who are keen to get ICT accessibility right in their BSF roll out. We are already working with Leicester City, Manchester and Waltham Forest in this way and are ready to help your local authority to get this right.

Please drop us a line on [education@abilitynet.org.uk](mailto:education@abilitynet.org.uk) or call us on 0800 269545 and speak to us.

John Liddle and Adam Waits, AbilityNet - October 2007