

# ability

Assistive technology at work

Issue 90 Summer 2013

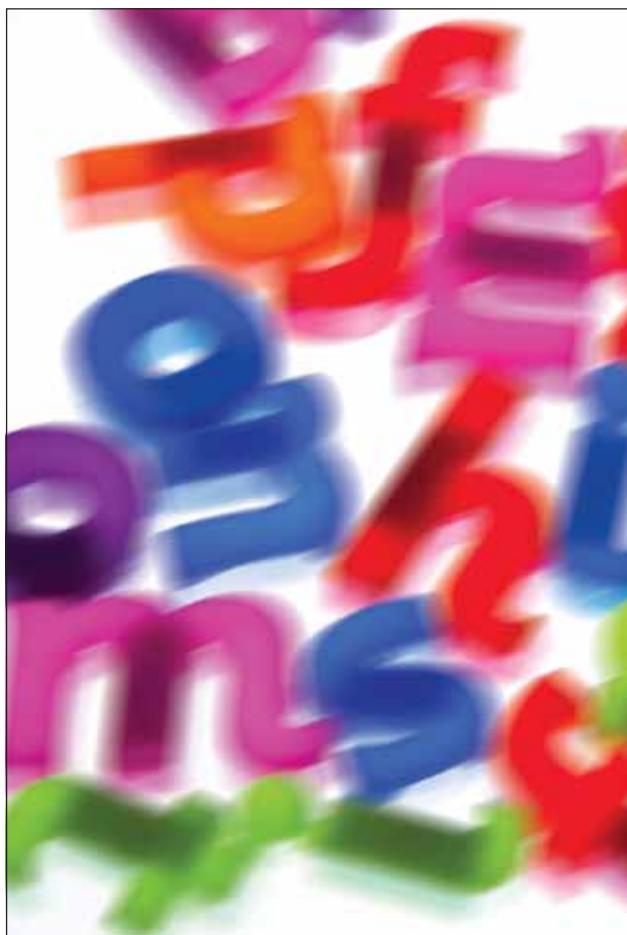


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### Cut the crap

Kevin Carey decides web accessibility comes from focusing on the customer



Why the government has got to think again on cutting computers for disabled students

## Hands off our Disabled Students Allowances

It should not come as a surprise that in the continuing hunt for cuts the £125m Disabled Students Allowances (DSAs) programme should fall under the beady eye of the Department for Business Innovation and Skills (BIS), which runs the scheme.

The department is conducting a review of the technology that is supported under DSAs and has asked professionals involved in the field to answer a number of questions about the ICT that disabled students need now and what they might require in future (see pages 14-15).

Sensible enough, you may think, given that technology is cheaper, more ubiquitous and changing at a greater rate than ever before.

But what is surprising is the underlying assumption that it should be possible to make savings by no longer providing desktop and laptop computers. All students are expected to have these devices, the argument goes.

BIS believes that there is a distinction between the assistive technology that a disabled student requires and the devices on which it runs, which represent about 27% of the cost of the typical system supplied under the DSAs.

This notion not only ignores the fact that assistive software and hardware often require more powerful platforms on which to run, but also that many disabled students use their ICT very differently from other students.

ICT is often part of a disabled student's day-to-day life, helping them communicate or get about. It may be impossible for them to use systems provided by their educational establishment which, though free, are only available at fixed times.

Not only that but the assessment, training and support that disabled students require to use assistive technology effectively is much greater than for the rest of the student body.

And of course disabled students are by definition the group least likely to have the funds to splash out on desktops, tablets, smartphones and the like.

Needless to say there has been a vigorous reaction from the groups involved with disabled students. "Leading and superficial" was how the National Association of Disability Professionals described the questions posed by BIS.

The sensible thing would be for BIS to quietly drop the idea when it reports back in the autumn, but that could just be wishful thinking. ■



**E**arlier this year we set out to make the PDF version of *Ability* more accessible. However, subscriber David Falcus sent us examples of how pages in the more accessible version failed to display well. Here is his letter and subsequent correspondence with our consultant Ted Page.

### Issues with *Ability*'s accessible PDF

With regards to the accessible PDF, I have done a quick test and unfortunately I did find issues.

I have enabled document reflow, set a high contrast colour scheme, and zoomed in to 150%.

I think this configuration is something that is quite valid, and something that I have tested with on PDF files in the past and found the accessible ones to work well with.

There are many pages in the document however that do not display well. I have included screenshots of a small selection of them below.

- Pages 7-15 just display as black.
- Page 4 has text that overlaps.
- Page 17 has quite a lot of information missing.
- Page 26 has text over the image.

David Falcus  
Accessibility Practice Lead, BT TSO

### Reflow view of PDFs is a broken technology

I'm really sorry, but I'm afraid I would have to disagree with David Falcus's view that PDF's reflow view is a valid configuration.

I think the near universal view of people who work with PDFs is that reflow view is a more or less completely 'broken' technology.

A document may work in reflow view, but it is never guaranteed. The only control I or anyone else will have over reflow view is in the reading

order. There is just no functionality for fixing overlapping text or making text reappear when it is missing or fixing any other problem.

Probably the leading expert in PDF accessibility in the US is Duff Johnson. He is the chairman of the PDF/UA committee and vice chairman of the PDF Association.

Duff recently wrote an article entitled 'pdfGoHTML: PDF Reflow Done Right' (<http://duff-johnson.com/2013/01/21/pdfgohtml-pdf-reflow-done-right/>).

The article is not actually about



the problems of PDF reflow view per se, more about a product to do what PDF reflow can't.

But I am aware that Duff's view is very much that reflow is currently unworkable. I have also had discussions with the subject of the interview, Olaf Drümmer, on the same topic. He gave up on reflow view years ago.

However, I think there is a solution which is to produce the magazine as an epub as well as a PDF. Once you have a well tagged PDF you can create an ePub relatively easily from it.

Ted Page  
Director, PWS

### Is Adobe Acrobat's reflow really broken?

Thanks very much for the comprehensive reply.

I have to admit that this area is something that is relatively new to me – so I am busy trying to get up to speed.

The comment "...near universal view of people who work with PDFs is that reflow view is a more or less completely broken technology" is interesting.

I have been searching the web and cannot really find anything to back this up, perhaps this is a view that the experts have but are not really articulating to a wider audience? If the reflow view is so bad why is there not more public criticism of Adobe?

What led me to the original view was that I did find some documents

on the Adobe site that worked 100% correctly in the reflow view – so certainly with some types of document at least that view is workable.

It is a bit of an ironic situation that we now have the PDF/UA standard, but potentially the most popular PDF viewer is

not capable of taking full advantage of it.

Whilst pdfGoHTML is interesting, at the moment it is only available for the full version of Acrobat, which is not really a realistic option for the majority of users who would have the free Adobe Reader.

I need to do some more investigation on this and will let you know if I come to any different conclusions.

David Falcus

## HAVE YOUR SAY

*Ability* welcomes letters and articles on all issues relating to IT for disabled people in work, education and daily life.

Contributions can be sent to the editor, John Lamb, at [john.lamb@abilitymagazine.org.uk](mailto:john.lamb@abilitymagazine.org.uk)

# Humanware remakes the CCTV reader

Canadian assistive technology company Humanware has redesigned the traditional desktop closed circuit TV (CCTV) reading machine as a digital reading system with voice output.

Humanware's Prodigy, launched at the Sight Village exhibition in July, is a gesture controlled device, based on the Android operating system, which combines a desktop and a portable tablet magnifier.

The Prodigy has optical character recognition software and features usually associated with computer-based magnification software such as contrast and colour adjustments; and text-to-speech.

The system has a trademarked technique called Diamond Edge Text that does away with the blurring of text caused by high magnification.

Users can read magnified printed material in a smooth scrolling column, row by row or they can view

the whole page. And the system has bookmarks that help readers find their place on a page.

"CCTV technology was first designed 45 years ago and it is still fundamentally the same and I am embarrassed about that," said Pedro Polson, chief executive of Humanware Europe at a recent briefing on the project in the House of Lords.

"Prodigi is intelligent at a reduced price. The XY reading table is gone. The optical camera has gone and the large coloured buttons have gone.

"There is no more losing your place on the page and no more nausea and visual fatigue caused by moving your document under the camera."

The system has a built-in training video to help users who may be unfamiliar with the tapping, swiping and pinching needed to control the system.



Prodigi is available in three versions: a 5" portable HD magnifier and reader with touch screen; an all-digital magnifier and reading system with detachable tablet and a 20-inch or 24" monitor; or as a magnifier and reading system (20" or 24") without the tablet. ■

[www.humanware.com](http://www.humanware.com)

*Turn to page 27 for our feature on low vision systems*

## Stelios award takes off with £50,000 prize

The Stelios Award, which has a £50,000 prize for the winning disabled entrepreneur, is now open for entries.

Started six years ago by easyJet founder Sir Stelios Haji-Ioannou, the award has gone to a number of

individuals who founded online and high tech ventures.

Last year's winner was David Hawkins, an entrepreneur from Hull whose business – Cyclone Technologies – supplies wheelchairs and fitness equipment to disabled people.

The deadline for entries to the 2013 award is October 25th. Entrants must be disabled and have a 25% stake in a UK business that has been trading for up to five years and has a turnover of above £10,000. ■

<http://bit.ly/YuxKT7>

## Regulator aims to rectify wonky subtitling

TV companies will have to produce regular reports on the quality of their live subtitling if Ofcom gets its way.

The communications regulator wants more accurate live subtitling after complaints about spelling errors, wrong words, disappearing subtitles and unacceptable delays between someone speaking and the appearance of text on screen.

Some 1.4m people with hearing

impairments look at live TV subtitles in the UK, which are produced by operators who respeak what is said into voice recognition systems trained to their voices.

"There are major problems with voice recognition and with synchronising subtitles with what's on screen," Gareth Ford Williams, head of accessible services at the BBC, told an Ofcom seminar on accessible

applications.

"A news bulletin may switch from earthquakes to the weather, the [subtitling software] may not keep up with the change and the respeaker operator is left struggling to correct it."

Ofcom will be consulting with the TV industry on the proposals until July 25. ■

[www.ofcom.org.uk](http://www.ofcom.org.uk)

## Global treaty opens the door to accessible books

The prospect of accessible books for all blind and print disabled people came a step closer last month with the signing of an international treaty by over 50 countries.

Members of the World Intellectual Property Organisation approved a treaty in Marrakesh, Morocco, paving the way for published works to be copied freely into formats such as Braille, large print text and audio books.

The treaty binds signatories to introducing legislation to allow the reproduction and distribution of published works in these accessible formats.

The treaty took five-years to agree and earlier versions were criticised by campaigners for paying too much attention to the rights of copyright holders.

Not enough attention, campaigners said, was paid to the need for blind people to share books in accessible formats across borders. But in the end they were satisfied with the agreement.



**Stevie Wonder: pushing for speed**

"WIPO has taken a commendable approach in passing a treaty which benefits the public interest rather than solely the rights-

holder, dramatically increasing the amount of literature available to visually impaired people, which is currently as low as 1% in developing countries," commented Caroline Harper, chief executive of UK charity Sightsavers.

"While the signing of this treaty is a historic and important step, I am respectfully and urgently asking all governments and states to prioritise ratification of this treaty so that it will become the law of the land in your respective countries and states," said singer Stevie Wonder who spoke in Morocco.

"This history-making treaty ends the book famine for millions of blind and visually impaired people, providing access to publications which have previously been locked away by legal constrictions." ■

## Ability joins OneVoice Coalition

*Ability* magazine has joined the council of the OneVoice for Accessible ICT Coalition.

The Coalition, which aims to act as a hub for the digital inclusion and accessible ICT sectors in the UK, recently elected its first council in May.

"We can help join people and groups together. I think there's a real need for that, because there are too many people doing great

stuff in isolation," said Nigel Lewis, chief executive officer of technology access charity AbilityNet.

The council includes Nigel Lewis; Graeme Whippy of Lloyds TSB IT Accessibility Group; John Lamb of *Ability* magazine; Peter Abrahams of Bloor Research; Fiona Miller of BT, Ian Lyons of Shaw Trust, and Howard Lester, an independent disability consultant.

The recent AGM and council elections signalled a "seminal moment" for OneVoice, said Lewis. "We've done a lot through the current members and their goodwill and time, and I think this is the moment we can make a real step change."

At the recent AGM it was agreed that a fee structure for membership will be introduced, and OneVoice will also be looking for seeded project funding as well. ■

<http://www.onevoiceict.org/home>

## Online forms are a barrier to work

Employers should get help to remove inaccessible online job application forms that prevent disabled people finding work, according to charity Shaw Trust.

The use of digital technology and online application forms by employers particularly acted as a barrier for those looking for work, concluded a report by Shaw Trust on the Work Choice employment

programme.

"Increasing the accessibility of the application stage, could remove another systemic barrier to more people with disabilities entering work," says the study.

"There is ... a lack of subsidised support for employers to help make their application processes fully accessible."

Application forms with large

numbers of questions and time limits within which the form must be completed pose particular problems for people with dyslexia.

One *Ability* reader reports that he regularly runs out of time in filling in forms and recently had to grapple with an online application for a checkout job at supermarket chain Morrisons that posed 214 questions. ■

**The full report is available at**  
<http://bit.ly/19TceOU>

# Europe unveils assistive ICT database

The EU has announced the launch of a free online portal that will enable disabled people and professionals who work with them to find the right assistive information and communications technology (ICT).

The €600,000 (£512,000) project, called ATIS4all, will allow users to search existing product data across national databases in UK, France, Germany, Denmark, Italy, Netherlands and Belgium.

It will be a companion database to another EU database called EASTIN, which covers all kinds of assistive technology.

Visitors to ATIS4all, say the portal's developers, will be able to find products such as voice recognition and text to speech

packages, magnification software, mouse alternatives and differently shaped and sized keyboards.

ATIS4all, which took three years to build, is intended to allow visitors to browse customer reviews and join discussion forums where both end-users and professionals can exchange and share ideas and experiences.

People involved with AT can register under one of four categories: unregistered user, registered user, supporter or guru.

The project is led by Technosite, an arm of the Spanish blind charity ONCE. Other partners include big names such as Blackberry and Vodafone, while UK participants include the charity AbilityNet and the

employers' group Business Disability Forum.

"Whether you are a speech therapist, an occupational health specialist, an IT consultant or an HR manager, you will find objective, unbiased and up-to-date information on all the options in one place for the first time," says Stefan Sollinger, senior accessibility and usability consultant at AbilityNet.

"And for disabled people themselves, whether they have a vision impairment, dyslexia or physical problem making mouse use impossible, it offers a one-stop-shop for all their IT needs that is simple to navigate and comprehensive in its approach." ■

<http://bit.ly/10RueZs>

# BBC goes it alone on mobile standards

The BBC has published its own standards covering the accessibility of web content for mobiles.

The Draft Mobile Accessibility Standards and Guidelines are intended for use

by anyone involved with the design or development of mobile web and mobile web applications.

The standards address subjects that web designers and developers need to consider, including colour, movement, input access, screen-reading, text links and alternatives.

The BBC decided to write its own standards because there are no internationally accepted guidelines available for mobile accessibility.

Each standard is listed with example code for implementing in HTML, Android, and iOS and



steps for testing.

The guidelines are in draft form and developer Henny Swan (pictured) at [accessibilityteam@bbc.co.uk](mailto:accessibilityteam@bbc.co.uk) is keen that people comment on the standard.

In her blog Swan highlights some of the differences between desktop and mobile web.

"On the desktop web it is widely accepted that a contrast level of 4.5:1 is acceptable. On the mobile web, where users are on the move in changing light conditions dealing with variable levels of glare, it's questionable whether 4.5:1 is enough, so perhaps we should be aiming for something closer to 7:1," she says.

Here are some of the things editors, designers and developers should be thinking about when building accessible mobile websites and applications, according to the BBC.

## Editorial:

- Provide clear and descriptive alternatives.
- Alternatives must not describe the type of object.
- Provide unique and descriptive screen and page titles.
- Use consistent editorial across platforms.
- Localise alternatives.

## Design:

- Provide alternatives for colour conveying information.
- Provide sufficient contrast.
- Provide large enough touch areas.
- Provide visible changes of state.
- Layout supports a logical content order.

## Development:

- Provide alternatives and labels for images and objects.
- Update changes of state.
- Ensure a logical content order.
- Back buttons move users back logically one step.
- Ensure all active elements are focusable. ■

<http://bbc.in/18e0qZu>



# Minister should 'act like a statin on the NHS' over communications aids

Health minister Norman Lamb has been urged to "act like a statin in the arteries of NHS England" to free up the system for making communication aids available to those who need them.

The call came in a recent Commons debate on augmentative and assistive communication (AAC) aids.



**Lamb: training could not feasibly be provided by small-scale local services**

MP Paul Maynard, who led the debate, said the demand for communication aids was three and a half times the level currently being supplied.

In April, NHS England took on responsibility for commissioning assessments and for providing AAC aids, the first time purchasing has been done at a national level.

But MPs were concerned that NHS England's decision to use historical data about the demand for communication aids in setting future budgets might not end a "post code lottery" of provision.

"I hope that the Minister can act like a statin in the arteries of NHS England to allow what is good to occur, and for policy to be implemented in the way that I am sure everybody in the Department of Health wants it to be implemented," said Maynard.

He also questioned whether enough training was available to underpin the idea of 'hubs' of AAC experts handling complex cases supporting 'spokes' delivering less complicated support.

"The only way that the hub-and-spoke model can work effectively is if the hub can train up more people

in the spokes to deliver the more complex tools," said Maynard.

"Complexity is at the heart of the problem in the structure."

The ability to speak and communicate "is a pretty basic human right, and that it should be recognised as such", the minister pointed out.

"A key priority is therefore to ensure that commissioning arrangements for this specialised service are placed on a much more robust and equitable footing across England," said Lamb.

"NHS England is working with its clinical reference groups and area teams to identify areas where there may be inequalities and where additional resources may be required to bring about better access."

Training could not feasibly be provided by small-scale local services, he added. "Assessment and provision is needed by specialised tertiary providers with their concentration of expertise." ■

**Full debate:** <http://bit.ly/168aJe2>

## Blind cyclists take to the track in Bristol

Up to 30 blind cyclists negotiated a cycle track in Bristol last month guided by ultrasonic sensors fitted to their bikes.

Six bicycles – known as UltraBikes – have been fitted with sensors that detect obstacles in their path and provide directional feedback to their rider via vibrating buttons on either side of the handlebars.

The echo-location system is based on technology used in the UltraCane electronic white stick developed by Sound Foresight Technology. The UltraCane copies the navigational abilities of bats and featured in the recent BBC series

Miracles of Nature, presented by Richard Hammond.

The programme makers commissioned Sound Foresight Technology to fit the UltraCane technology onto a bike which was then ridden through a woodland path by a blind cyclist.

The Bristol event, called the Miracle of Science challenge, will be used to raise funds for cycling charity LifeCycle UK, which organises tandem rides for vision impaired people, among other activities.

There are no plans to make the UltraBikes available commercially, a spokesperson told *Ability*. ■

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# Naidex

SCOTLAND

The diagram illustrates the Naidex service ecosystem. At the center is a green rectangular box with the word "Naidex" in white. From this central hub, several thick green lines branch out to connect to various circular icons, each representing a different aspect of the service or its users:

- Top Left:** A green circle containing a white icon of a multi-story building.
- Top Center-Left:** An orange circle containing a white icon of a woman and a child.
- Top Center-Right:** A teal circle containing a white icon of a coin slot with a pound sterling symbol (£).
- Far Top Right:** A blue circle containing a white icon of a trash bin.
- Middle Right:** A red circle containing a white icon of a person pushing a shopping cart.
- Bottom Right:** An orange circle containing a white Wi-Fi signal icon.
- Bottom Far Right:** A blue circle containing a white icon of a person walking up stairs.
- Bottom Center:** A pink circle containing a white icon of a house.
- Bottom Left:** A purple circle containing a white icon of a hospital bed.
- Far Left:** A dark blue circle containing a white icon of a person in a wheelchair.

At the very bottom center of the diagram, there are four green silhouettes of people: two adults and two children, representing the community served by Naidex.

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# Rising awareness of audio description

Awareness of audio description on TV has almost doubled in the last five years, according to research carried out by communications regulator Ofcom.

When audio description is switched on, a TV viewer can hear a narrator describe on-screen action, body language and facial expressions for the benefit of people with visual impairments.

Audio description, which is fitted in between dialogue, is available on

10% to 20% of programming on 70 TV channels in the UK.

Most modern television receivers and set top boxes now enable audio description, but research carried out in 2008 found that only 37% of adults were aware of the service.

Ofcom asked broadcasters to co-ordinate a campaign to promote awareness of audio description amongst all UK adults – both people with visual impairments, as well as their relatives and friends, who could

help them to set up audio description.

As a result of the campaign, which appeared on television during Spring 2012, awareness among UK adults rose to 60%.

Claudio Pollack, Ofcom consumer group director, said: "Audio description is an important facility for blind or partially sighted people to enjoy TV and we're encouraged that consumers' awareness of it has increased." ■

[www.ofcom.org.uk/](http://www.ofcom.org.uk/)

# BT readies user friendly text relay for 2014

BT is developing a text relay smartphone app as part of a revamped service that will be launched in April 2014.

The app is part of BT's 'next generation' text relay service that will provide a text-to-voice and voice-to-text translation service, using human operators, and a real time, word-by-word texting service.

Instantaneous texting, which can be used to communicate either with other users or with relay operators, is vital in enabling deaf people to hold a conversation.

"The current text relay service requires a text phone and it is not very use friendly," Michael Day, BT text relay product manager, told an

Ofcom seminar on accessible apps.

"The text phones have small screens, they need a phone socket to work and switching between text and voice involves a gap."

The free app, which will be available on a wide range of smartphones, will be able to support different combinations of voice and text so that, for example, a hearing impaired person who can speak well, but not hear, will be able to see text coming in and reply using a voice channel.

The app will only be able to run on smartphones that can access the internet and support a voice call at the same time. BT will be publishing a list of phones that can do this.

The next generation relay service, which will be able to work with all telephone services, will tell a user whether an incoming call is from a text user or not.

BT plans to retain the 08001 number currently used to make a call from a textphone and the 08002 number used to call a textphone from an ordinary phone.

It will be up to phone companies, who will have to pay BT a charge, whether they offer this service.

Internet-based voice over IP phone providers are unlikely to offer the service, says Day. ■

[www.textrelay.org/](http://www.textrelay.org/)

# AbilityNet launches Look No Hands!

AbilityNet's website received 4,000 hits after the launch of its Look No Hands! campaign last month.

AbilityNet invited people to text Look132 to 70070 using their nose or their toes and make a £2 donation.

With supporters that include champion tweeter Stephen Fry and AbilityNet patron Baroness Lane-Fox, Look No Hands! aims to raise £20,000 to develop AbilityNet's free

services for disabled people including online resources, a helpline and home visits.

Although *Ability*'s intrepid reporter failed to operate his smartphone with his nose, plenty of others managed to do so.

See AbilityNet's Look No Hands! video at [www.abilitynet.org.uk/looknohands](http://www.abilitynet.org.uk/looknohands) for a demonstration of how it is done. ■



**This photograph of canoeists battling it out during London 2012 won first prize in a recent competition run by the Disabled Photographers' Society**

## Mobile phone makers dial up apps database

Mobile phone manufacturers will be publishing a list of accessibility apps for tablets and smartphones.

Developers are being invited to put forward candidates for a database of apps that enhance the accessibility of mobile devices.

A list of some 100 apps, initially, is being assembled by the Mobile Manufacturers Forum (MMF) and will go live in July.

The initiative is part of the MMF's Global Accessibility Reporting Initiative (GARI), a project designed to give consumers information about

the accessibility features of mobile phones.

The GARI database contains information on some 500 phones.

"Hundreds of developers have taken up the challenge to find solutions for making mobile phones more accessible to older people or people with disabilities and contribute to improve their daily lives," explains Sabine Lobnig of GARI.

"The new app section will allow users of GARI to search for mobile phones that accommodate specific apps.

"It can be important to know whether a certain app is compatible with VoiceOver on iOS, if the same app can be used with TalkBack on Android or if it works also on a Windows phone."

People looking for an accessible app will be able to search by keyword and by which platform the app works on, in any of 13 languages.

The launch of the apps database coincides with a makeover of the GARI website to make it more accessible. ■

<http://bit.ly/171LxJi>

## Yecco service will lighten the load of caring

A mobile iOS and Android-based app that allows a vulnerable individual to keep in touch with people via telephone and video calls, messages and a teleconference facility is in development by Yecco.



Carers will be able to use the system to manage care and

communicate more effectively with their older or more vulnerable charges.

The service, says Yecco, is intended to offer carers access to a shared calendar, a financial calculator, a secure store of personal information about a user and the ability to track an individual using a neck pendant.

They will also be able to join a forum, and access a directory of services and products via Yecco's website.

"People spend a lot of their time

as a carer bringing others up-to-date: they go into a reactive mode," Yecco chairman Alex Jadavji told *Ability* at the Naidex show.

"The Yecco social network and management tools provide complete control and peace of mind, alleviating the caregiver burden."

It has been possible to download a beta version of the app, but access is now suspended, says the company, while changes are made to produce "a more efficient web service". ■

[www.yecco.com](http://www.yecco.com)

## Charity's chair is a hit in the air

TravelChair, an aircraft seat for severely disabled children designed by children's disability charity MERU, has won an aviation industry award.

The chair, which provides postural support to children between the ages of 3 and 11, won a Crystal Cabin Award at the Aircraft Interiors Expo in Hamburg.

"When I developed the TravelChair, my sole aim was to provide a solution for disabled children to be able to travel in a

conventional airline seat," says TravelChair designer Graham Race.

"As the father of a disabled child myself, I understand the importance of air travel to access vital treatment but many children were unable to use this mode of transport as their needs on the aircraft were not being met."

The chair, manufactured by Balform, folds in half to stow in the overhead locker when not in use. ■ [www.meru.org.uk/travelchair](http://www.meru.org.uk/travelchair)



**Meru's TravelChair provides support for disabled children between the ages of three and 11**



# Accessibility loses its greatest champion

**T**ireless accessibility advocate Cynthia Waddell died earlier this year.

Waddell was a disability rights lawyer from California who was consulted by presidents and government ministers from around the world on how to ensure disabled people could use IT.

She had a major influence on Section 508 of the Americans with Disabilities Act, the ground breaking legislation that required government departments to buy accessible ICT, and she played a major role in shaping the UN Convention on Disability Rights.

Later Waddell acted as an accessibility consultant to the International Telecommunication Union, the UN body that organises communication networks around the world.

But her life could have been very different. Waddell was born with a hearing loss and did not speak at all until she was five.

Since she was a first child her parents did not realise anything was amiss for some years. When Waddell's condition was eventually recognised, her family was told that her disability would make it difficult for her to learn.

Waddell's parents decided she should learn to lip read and enter mainstream education.

Armed with two hearing aids she attended school in Los Angeles and each day for 15 years underwent speech therapy and training in lip reading after classes.

Eventually she won a place in law school. It was there that Waddell formed her lifelong passion for disability rights law and the way it is implemented.

Working at the Impact Employment Law Center, Waddell cut her teeth pursuing class actions on behalf of groups of disabled

people and setting precedents in the process.

Her career really got started with a class action law suit against the City of San Jose. Under the Americans with Disabilities Act the city was required to hire a full



**Waddell: she had a lifelong passion for disability rights law**

time compliance officer to ensure disabled people had access to refuse collection, auditoria, arenas, the city hall and so on.

But they didn't have one.

As a result San Jose, which is at the southern end of the home of high tech industry – Silicon Valley – set up a Disability Advisory Committee and appointed Waddell as its chair.

The mayor then made her Americans with Disabilities Act compliance officer for the city's airport, arenas and convention centres.

To begin with her job involved educating and training city employees and investigating complaints.

One complaint came from a blind city commissioner who pointed out that San Jose's website was not accessible. She couldn't read documents produced in pdf format.

Waddell herself was affected when the city began audio streaming council meetings: they lacked the captioning that would allow her to access them.

Determined to ensure that disabled people could be fully involved with local democracy,

Waddell wrote the first accessible web design standard for local government in 1995.

As the momentum for legislation grew, Waddell broadened her original work on websites to cover other aspects of IT – software, operating systems, internet, intranets, multimedia and hardware.

She set up the International Center for Disability Resources on the Internet (ICDRI), to increase opportunities for people with disabilities by identifying barriers to participation and promoting the universal design of technology.

"Cynthia was a tireless advocate for people with disabilities. She had the ability to analyse technical issues and distil them down so that everyone could understand them no matter what their view," commented her ICDRI colleague Michael Burks.

The Cynthia Says web accessibility testing site was named in her honour, although in typically modest fashion Waddell said it was because the site's founders wanted a female name as an alternative to the name Bobby, which had been given to the first automatic testing service.

She had immense influence on the design of accessible IT systems, often in the teeth of criticism from industry interests.

"If you let the market place determine consumer needs then disabled people would be a minority and businesses would not invest in accessibility," she said in a 2009 interview with *Ability*.

"We created a marketplace and said if businesses wanted to participate in the public sector they would have to provide accessibility. "My lifetime goal in my work as a disability rights advocate has been to understand how best to bring about systemic change to improve the quality of life for persons with disabilities." ■

# Government looks for savings in Disabled Students Allowances

Professional bodies dismiss 'superficial' review that could see computers cut from grant scheme

**A** Government review that questions whether disabled students need a grant to cover the cost of a computer has been dismissed by bodies that represent professionals who work with disabled students.

The Department of Business, Innovation and Skills (BIS), queried the need to provide equipment for disabled students, such as a computer, in a series of questions aimed at professionals involved in the £125m Disabled Students Allowances grant scheme.

The questions were posed as part of a Review of Targeted Support for Higher Education Students, which is due to be completed this autumn.

"Technological advancements have been unprecedented, which has resulted in a huge shift in the way that people conduct their everyday lives, from shopping and relaxation to working and studying," says BIS.

"There has also been a rapid expansion in the type of technology that individuals own and use on a day-to-day basis."

"It is against this background that we should review what 'extra costs' a disabled student might be required to incur, over and above the costs incurred by all students, with a specific focus on information technology equipment."

BIS is also likely to examine the need for DSAs to cover applications such as literacy support software that are available either as freeware or that could be made available by universities and colleges under a universal licence.

Some 54,000 disabled students received grants worth over £125m in the 2010/2011 academic year. IT related products and services accounted for some £50m of that expenditure.

The DSAs scheme is widely regarded as a success, opening the doors of higher education to some of the UK's most disadvantaged citizens, and enabling them to contribute to the country's economy.

Professionals working with students have reacted strongly to the suggestion that disabled students might have to provide their own computers.

Some professionals point out that while non-disabled students who cannot afford a computer can access library machines; this option is not open to many disabled students, who also need to use IT where they live.

Students commented on their difficulties accessing



**DSAs open the doors to higher education for disabled students**

technologies via shared facilities in a 2011/12 survey by EA Draffen of Southampton University.

Some 62.4% of the students with a chronic medical condition, 43.1% who had mental health issues and 67% with mobility impairments spoke about the way they managed their studies more successfully having been in receipt of DSAs.

The British Assistive Technology Association (BATA) and the National Association of Disability Professionals (NADP) described some of the questions posed by BIS as "leading and superficial".

BIS asked those involved in the Disabled Students Allowances scheme to list IT equipment that was required by all students and detail IT equipment that should continue to be regarded as additional.

But the bodies, representing members from over 1,000 organisations involved in supporting students and supplying IT, rejected the idea that any student was required to have IT equipment to study and said that disabled students needed access to equipment for different reasons to non-disabled students.

“Equipment supplied under DSA is very much a system of support; a package of IT and AT that includes course-long support with training, and is not merely a set of items,” explained BATA in its submission to BIS.

“BATA sees the equipment supplied under DSA as providing students with the means of studying anywhere, at any time, promoting independent learning, and, in combination with personal support, enabling the vast majority to study successfully and to achieve their potential.”

The Association pointed out that out of a total DSAs expenditure of £125.7m in 2010/2011, only £12.9m was accounted for by standard equipment. Similarly, standard equipment only accounted for £330 of a typical £1200 computer package.

“I feel that a move to a ‘no-DSA-computer’ environment would create a logistical nightmare for students, suppliers, assessors, disability advisors and AT trainers, and should be resisted strongly at every available opportunity,” said one DSA Needs Assessor.

NADP argued “that the savings to be gained by assuming that all students require a particular piece of IT equipment, and using this assumption as the basis for removing IT equipment from the DSAs process, would come at an extremely high cost.

“Disabled students may be placed at a severe financial disadvantage; disabled people may drop out of the DSAs system altogether, and not be fully supported on their programmes.”

Being more adaptable to advances in technology and the provision of equipment, would ultimately reduce the need to rely on support workers and reduce costs.

All the equipment that a disabled student had been assessed as needing to study effectively is ‘additional’ to

that required by the majority of students, said the NADP.

“The primary purpose of the DSAs Study Needs Assessment is to determine what constitutes an additional cost.”

The financial consequences of a more complicated assessment process may well outweigh any potential savings, the NADP concluded.

Those four controversial questions from BIS are:

- Based on your knowledge of Disabled Students’ Allowances, disabled students and the general student population, is there any IT equipment currently supplied through DSAs that you think is generally required by the majority of students entering HE?
- If you haven’t done so, please indicate what IT equipment you feel is generally required by all students.
- What types of IT equipment do you believe should continue to be regarded as additional, i.e. it is required specifically by disabled students as a result of their disability? Please refer to any evidence to support your answer.
- Is there any IT hardware or software that you feel disabled students need that they are currently unable to get?

#### Submissions to BIS can be found here:

British Assistive Technology Association

<http://bit.ly/15MAQqR>

National Association of Disability Professionals

<http://bit.ly/18QWDPq>

AMOSSHE, the Student Services Organisation

<http://bit.ly/17bnchl>

National Institute of Adult Continuing Education

<http://bit.ly/147rEwM>

British Dyslexia Association

<http://bit.ly/11ERmZP>

**The call for evidence**, which closed on May 31, is at <http://bit.ly/ZhHGWi>

#### What proportion and amount of a typical DSA AT system is represented by standard ICT equipment?

Component	Cost (£)	Total (£)	Comments
Full system (with three-years’ support)	1200	1200	All hardware, software and peripherals.
Less assistive software	-380	820	
Less warranty	-70	750	Course long warranty /maintenance / support.
Less insurance	-50	700	Specialist no excess, all risks insurance.
Less system build, delivery and installation/familiarisation	-100	600	Comprehensive ‘onestopshop’ approach.
Less assistive hardware	-160	440	£550 (44%) could be considered as standard IT equipment.
Less IT peripherals	-50	390	May be specialist keyboards / mice etc.
Less printer/scanner	-60	330	May be specialist printer/scanner for VI.
Less computer	-330	0	£330 (27%) is represented by the computer.

Source: British Assistive Technology Association

# AT in the workplace

Assistive technology helps people work better and with greater motivation, says a survey by the British Assistive Technology Association.

**T**hree quarters of employees who use assistive technology (AT) say it has improved their effectiveness at work, although employers could do more to promote the use of AT, according to a survey of workers and employers commissioned by the British Assistive Technology Association (BATA).

Some 78% of those who took part in the Assistive Technology in the Workplace study said AT had improved their effectiveness at work. Other benefits included improved job satisfaction (64%), greater motivation (50%), reduced sickness absence (30%), and a higher opinion of their employer (55%).

The online survey, sponsored by assistive technology company iansyst, was conducted in 2012 by Gareth Headley of The Clear Company, specialists in inclusive recruitment. More than 8,000 organisations and employees were invited to participate in the survey, with more than 2,400 visits to the online questionnaire.

The aim of the survey was to gain a clearer picture of the use of AT in the workplace, how it is requested and how it is implemented. In 2012, there were an estimated 11m disabled people in the UK (19% of the population of 63m). The population is predicted to rise to 70m by 2030, with a greater number of people over 65, many of whom will still be working.

The majority of AT users who responded said they were not disabled: only 48% of respondents said that they had a disability. Among respondents who use AT at work, 52.3% said they were either not disabled or would rather not say.

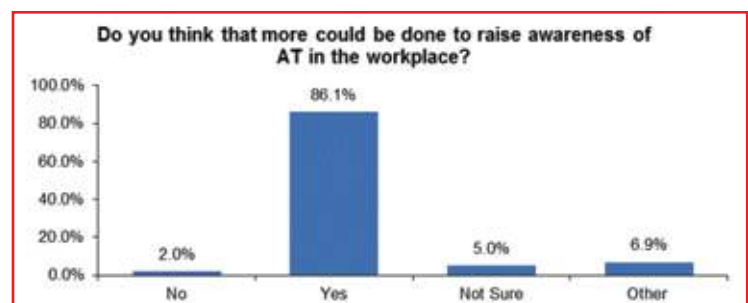
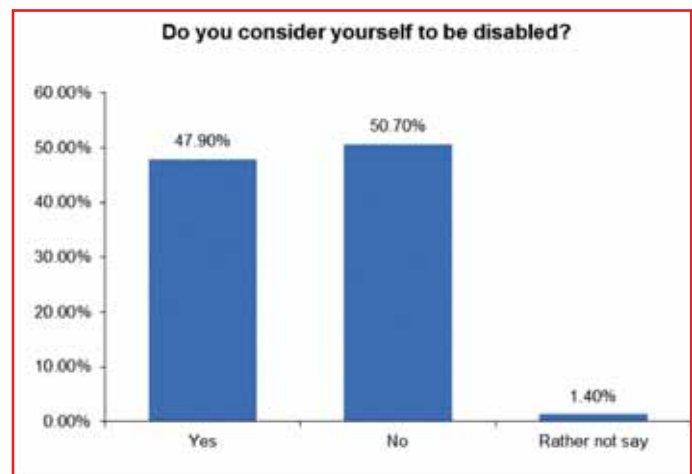
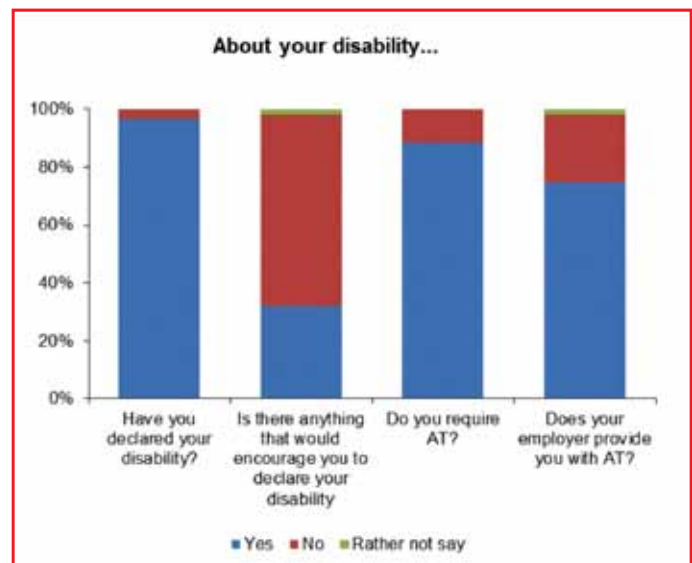
Around two thirds of employees do not know how many people have AT in their workplace. This could be simply because the figures on AT use are not known to individual employees, according to BATA, but it may also indicate that AT use is not obvious to others or that the culture encourages AT users to conceal the fact.

Since 1995, UK organisations have been required by law to make reasonable adjustments, including the provision of AT, to accommodate disabled employees and to give customers equal access to goods and services.

Although 91% of AT users said that they knew who to ask for support, if they needed it, and 88% were aware support is a legal obligation, less than 40% had a procedure in place known to managers for obtaining AT for staff. Although 75% of employers knew that provision

of AT in the workplace is a legal obligation, the rest did not know or thought that did not apply to them.

AT solutions are much more likely to be offered to employees as a result of individual requests for support than because they are embedded in the culture and





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procedures of an organisation: only 21% of employers were said by employees to be actively promoting AT.

“Despite the growing use of technology in our

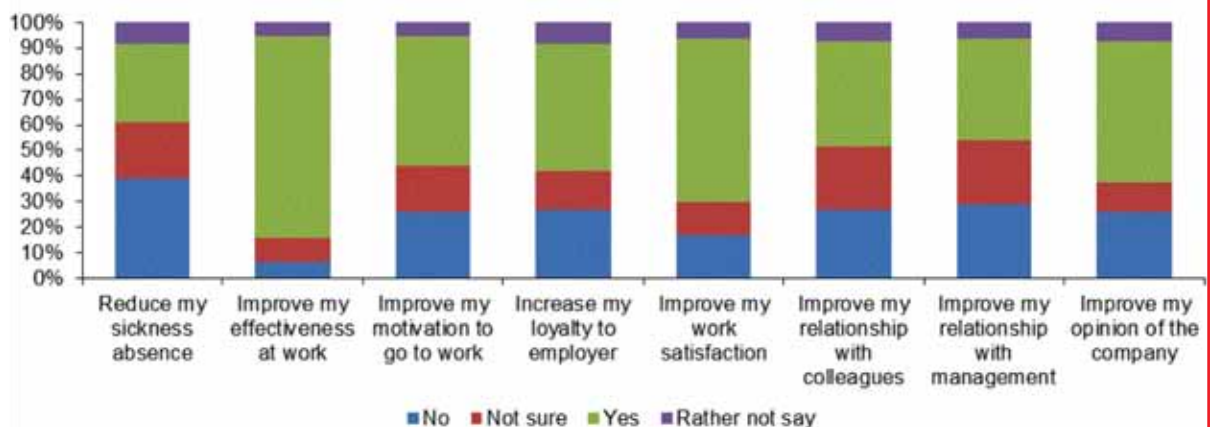
everyday lives, the general level of understanding of what AT is and how it can be used is still patchy at best,” commented Baroness Walmsley, patron of BATA, in the foreword to Assistive Technology in the Workplace.

“As this report shows, when the right AT is used, employees report high levels of satisfaction and improvements in all those areas – such as sickness absence, motivation – that employers know are key indicators of effective organisations.”

There are positive responses from those who are benefiting from using AT, but also reluctance by others to ask for AT, and a low level of impact measurement by employers on the use of AT, the report points out.

BATA executive director Barbara Phillips said, “Work needs to be done to educate and inform employees about AT and about what they are entitled to expect from an employer. But there is also more that needs to be done by AT suppliers and advisers to equip employers

**I have the use of AT in my workplace and it has helped...**



to play their part. Working with others, we need to find better ways of making objective information and advice about AT more readily available.”

The report suggests specific actions employers could take, such as doing more to identify employees whose performance could be enhanced by assistive technology, ensuring there is no discrimination against them and making sure that managers are aware of the legal requirements around AT.

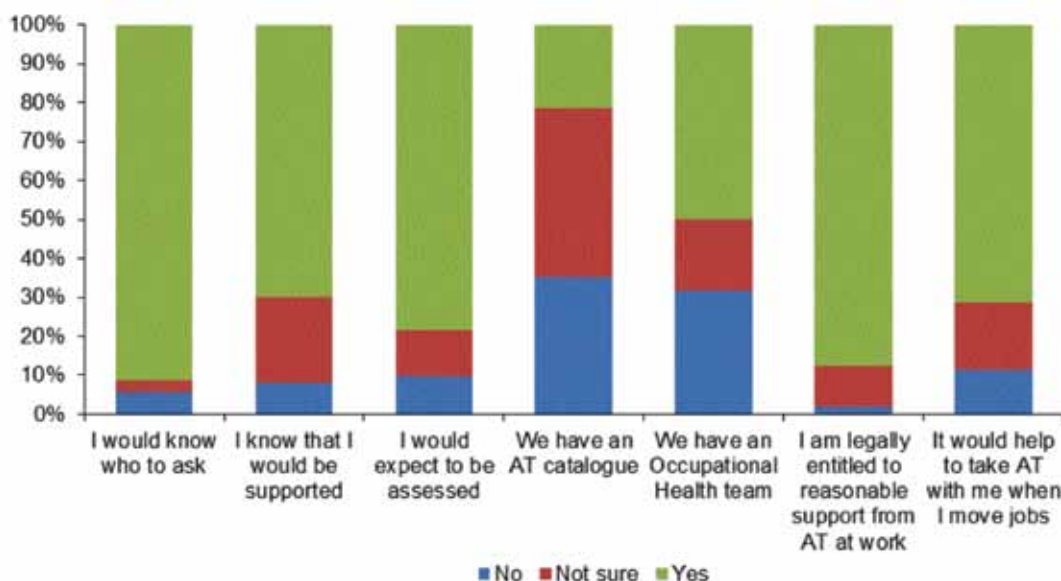
BATA chair Mark McCusker said, “To me, one of the other keys to progress is ensuring that Government and other agencies include AT in their policy documents and action plans and communicate better how effective AT can be.

“BATA is already working to increase awareness and understanding about the use of AT in education and training but if the Government was more proactive on this, more people with disabilities would be better prepared for future employment and more able to work

productively and happily in the jobs they have.”

Keeping a newly disabled person in employment has a cost benefit of at least 2.5 times an employer's investment, according to the RNIB. This is particularly true when it comes to the growing number of older employees. ■

**Please tell us how technology requests are dealt with...**



A full copy of the AT in the Workplace survey is available at <http://bit.ly/1aoUH2c>



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# Lights, camera, access!

Millions of videos online would be available to disabled people if media players were more accessible, as Go ON Gold, a campaign to get more people online, found out

**V**ideos, photographs and voice recordings now dominate the internet, but many people are not able to access the images and sounds they contain because software-based media players and the content they play are not accessible enough.

Last year over 50% of consumer internet traffic consisted of videos, according to networking company Cisco, which also forecasts that within four years nearly 70% of online activity will involve moving images.

This trend is of particular concern to Go ON Gold, a campaign to get more people online, which has used video to get its message across about the benefits of the internet. "With just a little bit of extra thought and preparation video makers can make their work available to millions of people who otherwise might be excluded," says Dan Jellinek, campaign manager.

Most online media content is generated by internet users sending each other short clips and entertainment companies delivering services such as catch-up TV and video on demand. But video is also increasingly being used by organisations to sell their products and services.

## The world of media players

Online video is accessed through media players – software with a screen and buttons that mimic those found on a physical recording device. Some players are quite complicated with features for manipulating and storing files, together with options to change the look and feel of the player itself, what is known as its skin.

The majority of video players are free and can be readily downloaded. Some are proprietary such as the BBC's Embedded Media Player, which is used to play the



Videos – from short clips of friends to blockbuster movies – will soon account for 70% of all content on the internet



broadcaster's own material; a few – often with special features – have to be paid for.

Media players can either be embedded in the code of a web page or available as a separate plug-in that may have to be downloaded first. Well-established players – such as Microsoft's Windows Media Player; iTunes and Quicktime from Apple; and RealPlayer, developed by RealNetworks – can be used either standalone or embedded in a webpage.

### Reliant on the use of a mouse

Despite the efforts of software developers, many of the over 10m disabled people in the UK, struggle to access video material through these media players; particularly those who are blind, deaf or have mobility problems that make it difficult for them to use a mouse.

Blind people cannot easily locate the whereabouts, function and status of media player controls. People who have problems using a mouse, such as users who cannot grip things with their hands, may need to use a keyboard or voice controls to operate a player.

Unless a site has a media player with built-in accessibility features that cater for these requirements and that also works with assistive software, visitors will not be able to activate the video player's play, pause, rewind, and volume buttons.

Equally those with a cognitive disability may need to read a transcript of a video to understand its content properly. People who are deaf or hard of hearing, need captions to make sense of what is said; while blind people require audio description to describe what is happening in a video.

These are only a few examples of the barriers users face if a media player is not designed to be used by everyone. However, inexpensive solutions to most of these problems are available. These include:

- Captions designed for viewers who can't hear the audio of a video. They contain descriptions of non-dialogue sound: for example, if a character in a video slams a door off-camera. Captions are not be confused with subtitles which are what viewers might expect to see while watching a foreign-language film – they are a transcription of the video's dialogue only. Closed captions are not visible until activated by a viewer, while open captions are hardcoded and are visible to all viewers. Synchronising text with speakers on screen is an important step in captioning a video file correctly.
- Sign translation for deaf people is similar to captions but with an image of a signer presenting both speech and non-speech information.
- Clean audio for hard of hearing people is a relatively recent development which takes advantage of the increased adoption of multichannel audio to separate

dialogue from other sounds and enhance it.

- Audio description for blind users. Rather than being displayed visually, audio description is usually spoken out loud by a screen reader, benefitting viewers who cannot see the video. The descriptions explain what is happening in a scene. Audio description requires skill in selecting what to describe, how to say it and fitting the description around a video's dialogue.
- Transcripts of the text in captions and audio description help people with reading difficulties to access a video.
- Accessible controls that can be accessed from screen readers, keyboards and switches. Autoplay is a particularly difficult issue for vision-impaired users because it prevents users from listening to control buttons. Accessible players should give users the option to turn this feature off, according to the Worldwide Web Consortium (W3C).
- User defined text-size and colours allow people with low vision, colour blindness or conditions such as dyslexia to adjust the appearance of a media player and the text it produces.
- Intuitive operation: the player should be easy to use and understand to help people with cognitive difficulties.

### Which media players are most accessible?

There are over 36 media players listed on Wikipedia, but to what extent are these mainstream players accessible? Most web-based media players have some support for accessibility, though extra effort is usually required to get them to work. Some browsers turn off or inhibit access to media player accessibility features.

Widely used players such as Windows Media Player, Quicktime, and RealPlayer all provide some accessibility features for web-based media content. However, not a great deal of multimedia is presented online in these formats any more, experts say. The primary formats are Flash and HTML5, in which the controls, such as buttons and links, are provided by the browser itself or via standard web controls,

"Historically, great effort was required for website authors to provide accessible media players," explains Jared Smith of WebAIM, an American organisation that campaigns for web accessibility. "Flash, which is used commonly to present multimedia, could be quite difficult for authors to create accessible media players."

That hasn't stopped developers from having a go. JW Player from LongTail Video is generally regarded as having a high level of accessibility. It is keyboard and screen reader accessible and supports captions and audio description. It can be easily placed in a web page. The software tries to deliver video content using HTML5 by default. If the browser doesn't support HTML5, it

offers the video using Flash.

In the UK, there have been a number of efforts to produce accessible media players. For example, education web design company The Workshop has produced a free player that has been used by the Canadian tax authorities, among other organisations.

## The Open University goes for accessibility

The Open University (OU) has developed a player for use with its elearning platforms. By this autumn the Media Player will be used to deliver the OU's learning materials to students. "The problem that we have been trying to solve is that the Open University has lots of websites," explains Nick Freear, web developer on the Media Player project. "And historically, the developer of each site has rolled their own media player solution, with mixed results for the OU brand: common look and feel; usability on mobiles; accessibility; and so on."

The OU's unified media player is easier to deploy and maintain than previous players. The university's development team used existing open source components where possible, including the MediaElement.js framework, an existing accessible media player. However, the OU has extended the components; for example, replacing MediaElement's default progress-bar with a keyboard accessible version.

In 2011, the UK government's Office for Disability Issues (ODI) produced a player that was once described as the most accessible player on the web, but it does not seem to be available anymore, or at least not on the ODI website.

In any case, when the Government Digital Service wanted an accessible player for the award winning gov.uk portal it opted for Nomensa's open source accessible media player. It can be downloaded free from the GitHub site. The Nomensa player provides a wrapper for content pulled in from YouTube or Vimeo, it can also play MP3, MP4 and FLV from a user's own server.

The player meets the AA level of the Worldwide Web Consortium's Web Content Accessibility Guidelines 2.0. It also provides an option to play HTML5 video. The player has a very clean design with separate buttons for

increasing, decreasing and muting volumes.

The popular YouTube player provides Flash and HTML5 options, depending on end user preferences; its player controls have some accessibility support. Vimeo also has accessibility features.

Web experts are convinced that browser-native HTML5 media player controls are the way forward and will provide an answer to most accessibility issues. HTML5 provides new commands such as <video> and <audio> which can create and label the buttons in a way that allows keyboard shortcuts to access them, and screen readers to tell the user which buttons are available.

This means a person who has a vision or mobility impairment can easily use the keyboard to start, stop and navigate around a video, and people who are vision impaired using a screen reader will also have words such as 'stop' and 'play' read out to them when the keyboard focus is on the buttons.

The HTML5 Text Track is a great step forward in making online videos more accessible. This tag makes it possible to not only add closed captions to videos, but also subtitles, descriptions, chapter markers and metadata. Over 40% of browsers now support this feature.

"As more and more web-based multimedia is shifting to HTML5, the burden is being shifted away from site authors to the web browsers. By using HTML5, the browser can provide a fully accessible media player interface,"

observes Smith of WebAIM.

But because HTML5 is still an evolving standard and both browsers and assistive technology products handle HTML5 commands in different ways, it's hard to create an accessible media player that will work for everyone. The standard has been hampered by lack of agreement as to which video formats should be supported in web browsers.

Videos are an important part of the Go ON Gold campaign to encourage more disabled people to go online. Partners in the project are encouraged to embed video interviews with paralympians, disabled users and accessibility experts in their websites. In the videos,



**Go ON Gold's Whippy: opted for the Nomensa player**

interviewees talk about their experiences with digital media.

Graeme Whippy, the web designer for Go ON Gold opted for the Nomensa player. Each video begins with a brief audio description to set the scene and provide an end message. Transcripts of the interviews are made available along with captions on screen.

Dan Jellinek, who prepared the content, said captioning was surprisingly easy. It took about half an hour to produce captions, using YouTube to find the right place on the audio.

"YouTube provides automatic captioning which uses speech recognition software to attempt to create captions. The results are never perfect and sometimes comical or useless," commented Peter Abrahams of Bloor Research. "However YouTube also provides a facility to edit the automatic captions, this is much easier than generating a caption file from scratch."

There were some issues: the Go ON Gold team found there is no accessible way of going to a full screen of YouTube. Other problems included a missing tooltip on one of the buttons: Go ON Gold suggested Nomensa made a small change to its layout.

## Choosing the right media player

What steps can a website owner take to ensure their players are accessible? We asked a number of experts for their views.

"Survey the current open source multimedia players," was Nick Freear of the OU's suggestion. "Look for recent development activity and releases, an active user community, statements about accessibility, bugs created and fixes to do with accessibility, and future-proof solutions - currently this means HTML5."

For Robin Christopherson of AbilityNet the issue was straightforward: "Basically don't use the standard players offered by video streaming services such as YouTube or Vimeo," he said. "Consider the HTML 5 player as your main default player if you can, with a fall back to a third party player if the page detects that HTML 5 is not supported."

Here are some more tips from the people we spoke to for implementing accessible media:

- Start by planning your content. Most of the work in making your video accessible will be in this area
- Aim to use native HTML5 or an HTML5-based browser, but be aware of legacy operating systems such as Windows XP which cannot access current HTML5 versions of Internet Explorer. Around one third of all browser users still use Windows XP.
- When planning your multimedia project, include development time for adding accessibility features and testing.
- If your videos will be produced by a third party supplier

insist that captions and transcripts are included if you don't have the in-house resources to produce them.

- Post transcripts – in HTML or a separate text file – of your media on your website. Including a transcript with your video and audio products will be beneficial to your users with cognitive disabilities, who may find that having a transcript aids comprehension. The bonus is that it will also help with site indexing and search engine optimisation.
- Rather than setting videos and other multimedia with sound to start playing when your web page loads, allow your users to start the media. Otherwise, the sound will interfere with content read by screen readers and refreshable Braille displays.
- Enable videos to be played in full screen or larger sizes.
- Avoid flickering or strobing effects.
- Carry out user testing and accessibility testing with a screen reader and keyboard to identify potential issues. It's important to consider the needs of users with various disabilities rather than just focusing on keyboard accessibility or screen reader accessibility.
- Be careful not to lock yourself into something that you can't upgrade and above all try to plan and design future-proof solutions.

Inaccessible videos are only one barrier to enabling more disabled people to get online, but with moving images now accounting for the majority of material moving around the worldwide web, it is becoming an increasingly significant obstacle.

In future, media players themselves will inevitably become more accessible as the HTML5 language becomes more widely used, but content producers will also have to play their part by ensuring that captioning, transcripts and audio description, where appropriate, are included with their videos. ■

### Some useful links:

- **Go ON Gold** – [www.go-on-gold.co.uk](http://www.go-on-gold.co.uk)
- **JW Player** – [www.longtailvideo.com/support/jw-player](http://www.longtailvideo.com/support/jw-player)
- **MediaElement.js** – <http://mediaelementjs.com> | <https://github.com/johndyer/mediaelement>
- **Nomensa** – <http://accessibility.nomensa.com/>
- **Open University** – <http://freear.org.uk/content/ou-media-player-project>
- **The Workshop video player** – [www.theworkshop.co.uk/video-player](http://www.theworkshop.co.uk/video-player)
- **UK government portal** – [www.gov.uk](http://www.gov.uk)
- **WebAIM** – <http://webaim.org/techniques/captions/mediaplayers/>

# AT – a new dimension

Paul Doyle of Hereward College talks to Allana Grant about the novel technology of 3D printing and how it could revolutionise the way assistive technology is designed

**P**eople with disabilities are often confined to using assistive equipment that is ugly, bulky and conspicuous.

While these aids function well; most manufacturers only pay lip service to aesthetic appearance.

A new technology, 3D printing, could transform the lives of assistive technology users by allowing them to become involved in designing better looking assistive technology that is both faster and cheaper to make.

I recently had the good fortune of meeting Paul Doyle, access research and development manager at Hereward College, a further education college that specialises in teaching disabled students.

Paul has many strings to his bow: he is an expert in the field of industrial electronic engineering as well as having a thorough grounding in assistive technologies.

A strong advocate of 3D printing, Paul explained

controlled or additive manufacturing methods during my previous role as an industrial maintenance engineer.

Such technologies, although expensive, were used in the rapid prototyping and manufacture of automotive components.

However, it must be said many of the technologies in the early days were reliant on the removal of materials from a blank or solid component rather than the addition of multiple layers to create a three dimensional form.

**AG: What was it about 3D printing that interested you?**

**PD:** The availability of cheap and easily programmable devices piqued my interest, especially as I have had contact over my years at Hereward with users of assistive technologies who are more akin to consumers than the usual older and generally passive recipients of assistive technologies.

Having worked with students on a number of projects – where they have built, for example, simple robots – I have become aware that there is an appetite among this community for customisation and the development of highly personalised solutions. This appetite in part can be met using innovative technologies such as 3D printing.

**AG: Could you give us an insight into how the process of 3D printing works?**

**PD:** 3D printing or additive manufacturing is a process where a three-dimensional object is built up by applying repeated layers of material in three dimensions.

The process relies on technologies that at first appearance are very much like a traditional printer in that the 'printer head' moves in two dimensions as in the case of a standard printer.

However, once the first layer of material has been deposited, the 3D printer has the capacity to move in a 3rd dimension to print on top of what it has already printed.

The materials employed in additive manufacturing can range from simple plastics, high impact plastics or polypropylene to specialised metals as in the case of jet engine turbine manufacture.



**3D Printing is being used to make parts from metal and plastic and has a big potential in assistive technology**

how it would make a concrete difference to the lives of assistive technology users and shared his plans to participate in an exciting 3D printing project.

**Allana Grant (AG): When did you first come across 3D printing?**

**Paul Doyle (PD):** I first became aware of computer-



An abstract composition of numerous 3D geometric shapes, primarily rectangular prisms and cubes, in white and red. These shapes are arranged in a dynamic, overlapping manner, creating a sense of depth and movement. The background is solid black, which makes the white and red shapes stand out prominently. The overall effect is a complex, layered structure that resembles a modern architectural or technological design.

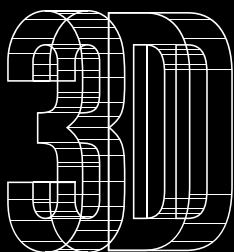
# 3D PRINT SHOW

## LONDON

7th—9th November 2013  
The Business Design Centre

## PARIS

15th—16th November 2013  
Carrousel Du Louvre



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[www.3dprintshow.com](http://www.3dprintshow.com)

**AG: Does Hereward College have a 3D printer in house?**

**PD:** No we don't have one at the college yet, but we will have one in the next couple of months.

**AG: Could you give some examples of the types of custom parts or products that have been successfully created using this technology?**

**PD:** 3D printing can be used to create prototype technologies ranging from highly specialised jet engine components to aesthetically pleasing prosthetic limb fairings.

Recently a 3D printed open source prosthetic limb has been demonstrated on the internet.

**AG: What are the advantages of 3D printing over more traditional methods of manufacturing?**

**PD:** The capacity to build 3D models and create whole and complete artefacts in this manner reduces the need for complex material skills.

In addition it is possible to manufacture a highly developed artefact without employing traditional manufacturing methods, which means that the cost of making specialist tooling for such cases is reduced significantly and the cost of the project overall is reduced.

**AG: Why do you believe that 3D printing could make a concrete difference to the lives of people using assistive technologies?**

**PD:** I believe that by enabling access to 3D printing technologies, people with disabilities will have a capacity to create solutions that meet their immediate needs (not having to wait for weeks for parts to arrive), and also be manufactured in a manner that they find aesthetically pleasing.

Having worked with users of assistive technology for 18 years I have found that many of the technologies are abandoned not because of what they fail to provide in terms of functionality, but instead how they make the user feel including how it looks to their friends and peers.

Effective use of assistive technology is very much based on an emotional transaction, whereby the individual sacrifices an emotional element in order to benefit from the functional capacity of the technology.

When the emotional sacrifice outweighs the functional benefit to the user they will often abandon the technology.

If the user is involved in the design and manufacture of at least some of the elements of their assistive technology (as in the case of 3D printing) part of the emotional transaction will have already taken place before the user actually uses the technology.

**AG: I understand that you and a group of your students will be collaborating with Warwick University to produce assistive technologies using 3D printing?**

**PD:** The project is scheduled to commence in September 2013. It is anticipated students will design and create a range of very personal assistive technologies, including components for their personal wheelchairs, as part of a project to engage young people in the areas of science technology engineering and maths (STEM).

**AG: What was the inspiration for this project?**

**PD:** The current focus for assistive technologies is on the ageing society and individuals with long-term conditions.

However, there is a significant unmet need to satisfy the requirements of younger users who are not just passive consumers but who judge assistive technologies in the same way they would the latest gadget or iPhone.

**AG: What expertise do the two institutions bring to the project?**

**PD:** Hereward College is an innovative FE College catering for students with complex needs. We have 60 residential and over 260 day students with a range of physical, sensory and cognitive abilities.

As early adopters of innovative assistive technologies, embedded in the students is a residual expertise around the design, aesthetics and ergonomics of assistive technologies that is currently untapped.

Warwick University's Warwick Manufacturing Group has expertise in 3D design and manufacture.

**AG: What are the project's aims and objectives?**

**PD:** This method of working can and will enable individuals to develop highly bespoke and cost effective solutions at a fraction of the cost of traditional assistive technologies.

Furthermore, the capacity to extend the project's scope in order to allow the development of low cost robotic solutions will help stimulate a bottom up approach to developing an assistive robotics market.

Currently many of the assistive robotics available are low production run, multi-function and correspondingly high cost solutions that sit far outside what most people would consider an economically viable cost bracket.

**AG: How do you see the future of 3D printing panning out?**

**PD:** 3D printing will change manufacturing processes across the world. I believe there will be a 3D printing shop on every high street where we can bring in broken or worn out components or indeed ideas for new components or artefacts. ■

# The bigger picture

Allana Grant zooms in on the latest developments in magnification aids

**W**ith an estimated two million people suffering from some form of sight loss in the UK, it is hardly surprising that there is a plethora of electronic and software magnification products on the market specifically geared toward improving the lives of people with low vision.

Although low vision cannot be corrected by glasses, contact lenses, through the use of medication, or by surgery, there are many options to help those with a loss of eyesight make the most of their residual vision.

They include low cost magnification apps for smartphones, desktop video magnifiers for use at home, portable video magnifiers to use on the move and software that turns a PC into a magnifier.

A video or CCTV magnifier is basically an electronic version of a glass magnifier that utilises a video camera connected to a screen to produce magnified images.

These magnifiers have several advantages over conventional magnifying glasses: most notably, the capacity to produce much higher degrees of magnification.

Users also benefit from a whole host of special features – a range of contrast modes or brightness settings – which further enhance their reading experience. Video magnifiers are categorised into three groups according to their functionality and intended use.

Desktop magnifiers, as the name would suggest, are designed for use on a work surface. Being standalone devices, they offer the greatest range of features compared to other types of magnifier.

Most models have a fixed camera positioned above a reading table which is mounted on rollers. Printed images are viewed on an integral monitor. Desktop magnifiers offer a higher degree of magnification in comparison to other, smaller electronic devices.

Contrast, magnification and colour settings can all be adjusted to suit the user's needs, making these magnifiers particularly suitable for sustained reading and viewing.

They also leave a user's hands free for writing or typing. However, such magnifiers remain very expensive



**The DaVinci 3-in-1 magnifier turns text into speech output**

and aren't available on the NHS. Desktop magnifiers are, in addition, bulky, which makes them less portable.

DaVinci 3-in-1, costing £2,634, has an outstanding array of features. DaVinci, available from Enhanced Vision, is a multipurpose magnifier with a 3-in-1 camera, HD display, and text to speech.

The HD camera can be positioned for self-viewing, desktop and distance magnification, making it ideal for performing all manner of tasks.

The 24 inch HD screen allows for up to 77 times magnification and 28 alternative viewing modes ensure contrast and brightness settings can be adjusted to achieve the best viewing experience possible. DaVinci also has an integrated text to speech function that reads text aloud.

Portable video magnifiers are intended for use on the move. They have an integrated screen which is handy for checking labels and price tags, food packaging and menus.

They are generally small enough to carry around in a bag or pocket. Users will also benefit from many of the specialist features typical of electronic magnifiers.

However, they offer limited magnification due to the physical constraints of a smaller screen. These magnifiers are, in the main, also expensive.

The Optelec Compact 5HD portable video magnifier, available to low vision users from £695, packs in a lot of great features.

It boasts a 5 inch full colour, widescreen display which allows for magnification up to 18 times and an auto focus HD camera that enables you to read text close up or from a distance of 1.2 metres.

The Optelec also has an in-built LED light, which is particularly handy in dimly lit surroundings or to eradicate glare from glossy photographs.

This magnifier has definitely been designed with ease of use and comfort in mind: large, highly visible icons help navigate menus and controls and the screen may be tilted to suit its user's posture.



TV video magnifiers plug into a television set via a SCART cable and tend to be the cheapest option. They usually replicate a computer mouse in design, with a small camera at the base of the magnifier.

Users can choose from models with a black and white or colour camera, or high or low magnification. Magnification levels will however depend on the size of the TV.

Costing just £300, the TV-Eye is an economic alternative to other, larger, more expensive electronic magnifiers. It is capable of magnification up to 12 times and has integral adjustable lighting.

A range of colour and contrast settings – including colour, grey scale and black and white – make reading and writing more pleasurable.

Pamtrad should be commended for designing a device that is both simple to utilise and compact. Plug it in to a TV and get started. Controls are large and have been kept to a minimum. The TV-Eye is unobtrusive, folding away for convenient storage.



**Pamtrad's  
£500  
PC-Eye  
camera  
and  
desktop  
software**

The company recently launched its £500 PC-Eye portable electronic magnifier. This versatile two-in-one system connects to a PC as well as to a television; enabling a user to surf the net, read newspapers, fill out forms and watch their favourite DVD with relative ease.

Screen magnification software provides a cheaper solution for many users with low vision. The software interfaces with a PC's graphical output to produce magnified screen content including applications and web material.

High contrast modes, different viewing modes, text smoothing and mouse customisation are just a few of the specialist features typical to screen magnifiers.

Additionally, these magnifiers take up no physical space. One disadvantage, however, is that they only usually magnify the contents of a computer screen, rather than objects in the real world.

ZoomText magnifier Version 10, from Sight and Sound in the UK, is available from £375. The program enlarges and enhances the quality of everything on a computer screen, making it easier to use.

ZoomText offers magnification up to 36 times: including fractional increments. Its xFont technology

allows users to view text in high-definition that's easy to read even at the highest levels of magnification.

Smooth, bold and condense settings are adjusted so that the thickness and spacing of text suit a user.

In addition, a user can choose from eight zoom windows to magnify a specific part of the screen. Battling with minuscule text and images should be consigned to history.

A user's reading experience should be further improved using ZoomText's colour features that include colour dyes (screen and text in two shades of a single colour), two-colour modes and replacement of problem colours.

Navigating documents, menus, applications and the web is also made much easier with ZoomText's locators and size and colour enhancements.

Additionally, Version 10 includes an impressive camera function – use a webcam to magnify objects on the computer screen.

The third alternative, and by far the most cost effective low vision aid, is a magnification app purchased from the App Store or Google play. Aside from being extremely cheap, these apps are ideal for those who feel conspicuous using magnifiers in public.

This solution is perfect for use on the move. Due to the slim, light design of phones and tablets these days; portability certainly isn't an issue.

Unfortunately, a user can only achieve a limited level of magnification due to the size of the phone or tablet's screen. Apps are also unsuitable for long distance magnification or for users who cannot focus a camera.

Magnifying Glass with Light by Falcon in Motion is a free app that is taking US markets by storm. Simple gestures and a user friendly interface mean that you can turn an iPhone into an illuminated magnifier.

With up to 5 times magnification, it is particularly useful for reading tiny print on medicine bottles or menus. Other stand-out features include an in-built light which automatically comes on in dim surroundings and a capture image feature.

As you will see from this guide; electronic magnification aids, which will allow people with low vision to live and work with a greater degree of independence, are plentiful.

However, consult the NHS for a low vision assessment to find out your particular needs before purchasing a magnifier. ■

#### **For further information:**

- DaVinci – <http://bit.ly/16GApyb>
- TV-Eye – <http://bit.ly/11PSdaa>
- PC-Eye – <http://bit.ly/11UiwZj>
- ZoomText – <http://bit.ly/11PSkCJ>
- Magnifying Glass with Light – <http://bit.ly/15R2yQK>
- Optelec Compact 5HD – <http://bit.ly/18mEmMz>



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# Talking in class

## Dyslexic pupils at Belvoir High School use CapturaTalk software to overcome literacy difficulties

**F**or the past year pupils at Belvoir High School in Leicestershire who have difficulty reading and writing have been involved in a trial of assistive technology that allows them to take a photo of a piece of text and have it read aloud.

Using tablets running software called CapturaTalk for Android, supplied by assistive technology company iansyst, year eight students have been improving their literacy levels.

They use the software to take pictures of text, which are digitised using optical character recognition (OCR) technology, and then the words are read back to them.

Belvoir High School is a specialist science school catering for 623 students from 11-16 years old. The school was awarded an 'outstanding' report from Ofsted in 2010 for progress from year seven through to Year 11.

The school is keen to maintain standards as well as cater for each individual child's learning requirements.

Studies suggest that in dyslexic people, the connections between different language areas of the brain do not work as efficiently as they should.

And there is evidence that many dyslexic people have strengths and abilities in tasks that involve creative, auditory and visually-based thinking.

"The offer of being in the trial was too good to refuse. I wanted to see how new technology could support, engage and inspire pupils with some degree of learning difficulty, especially dyslexia," Helen Bett, head of inclusion at the school, told *Ability*.

Six tablets were allocated to a group of year eight pupils. They were given some initial training but were keen to discover things themselves.

Helen Bett noticed the improvement in self-esteem, confidence and motivation of the group, particularly the girls, in a very short period of time. She says CapturaTalk enabled the children to work with texts that might at first

sight seem too advanced for them.

Pupils with dyslexia, who may require access to reading materials in a certain font size, colour or need to listen to it read aloud, were quickly able to convert web pages, course books and word documents into their preferred format.

They were encouraged to take them into all lessons and use the voice-activated software and text-to-speech. All teachers were also shown the tablets and asked to encourage pupils to use them for literacy-based tasks.

The school found that CapturaTalk was really good for research as the talking browser enabled learners to hear any web page read aloud.

The text could then be copied and used as the basis for extended writing. The predictive text feature within the Android operating system also proved to be a hit with the learners as it was a feature that they were already familiar with from their own mobile phones.

Another four machines were reserved for a group of year seven pupils with greater learning difficulties. This was not successful as they found the tablets too difficult to use,

even with supervision.

There were few problems on the trial, although pupils had to be stopped playing games because they were using up battery charge too quickly. The school put a software lock on the devices to prevent further misuse.

CapturaTalk is already getting wider use in the school: Helen Bett has loaned a device to a very dyslexic year 13 student. "He has a greater maturity than the younger pupils and also greater IT skills and has used it responsibly," she said.

"He has used the device widely in writing up his A level work and has been able to swap files between his tablet and his computer because he has used a memory stick."

Some schools are using the translation and voice feedback service in CapturaTalk to translate information about the school into lots of different languages for families who do not speak English.

One student at Belvoir commented, "I liked the way that CapturaTalk translated text into Spanish for me and then it read it back." ■



**CapturaTalk synchronises colour highlighting of words or sentences as they are read aloud**

# Wheelchairs that keep on rolling

It may seem that there is little room for innovation in wheelchair design, but manufacturers are still squeezing extra performance out of their products.

One area that is crucial in wheelchair design is how far it will roll, which is dictated by a chair's weight, the quality of its wheel bearings and its geometry.

The configuration of the wheels is an important factor in overcoming rolling resistance. A larger distance between rear wheels and castors decreases the pressure on the castors, making it roll easier.

At this year's Mobility Roadshow in Telford, German firm Ottobock launched a new rigid frame wheelchair called the Ventus, which the company claims can roll further than rival chairs.

"The frame, footrests and side panels are built

from ultra-light aluminium, helping to keep weight to a minimum at approximately 8kg," says Simon Tempest, Ottobock's mobility solutions manager.

"What's really important is the Ventus will roll further. It may be 2kg heavier than the competition, but it will let you go further."

Ottobock drew on its experience with three earlier rigid chairs to improve the Ventus. It is possible to make over 100 adjustments to the chair to gain optimum performance.

Unlike folding models, rigid chairs provide a firmer ride and can be either custom made or adjustable. Over 100 adjustments are possible on the Ventus which also comes in 14 colours. ■

[www.ottobock.co.uk](http://www.ottobock.co.uk)



## Trabasack dresses in Harris Tweed

Few products at the Mobility Roadshow were as stylish as the latest Trabasack bag, which sports Harris Tweed trimmings.

The Trabasack Max bag has a lightweight desk surface built into one side and a bean bag cushion on the other.

The bean bag enables the Trabasack Max to sit securely on lumpy surfaces such as its user's knees, enabling them to work,

play or even eat lunch.

At the show there was a lot of interest in Trabasack's Curve Connect, a 'lapdesk' bag designed to hold sensory toys, communication aids and other equipment when working with children with additional needs.

The Curve Connect bag is curved to fit around a child's waist, and has a bean bag insert, to provide stability while the lap tray is in use on a child's knee.

The flat side of the Curve Connect is velcro-receptive, which means you can use the sticky-back hook tapes provided to attach almost any item to the tray without fear of the item falling off or getting lost.

You cut the desired length of hook tape to size and stick it to the back of a child's favourite toy, book or communication aid.

For attaching larger items, especially those that need to be held at a specific angle, Trabasack has come up with Media Mount.

Basically a soft roll that can wrap around remote controls, switches and iPads – Media Mount provides the best angle for using touch screen technology.

The Media Mount features a velcro strip along one side to ensure it stays firmly attached to the Connect tray surface.

Also included in a £44.95 offer bundle is the Trabasack Non-Slip Mat – a durable PVC cover for the Curve Connect that helps to keep the lap desk clean and dry.

<http://communicationaids.info/> ■

## Sit up, it's the Slouch Mat

The Slouch Mat is another take on the idea of using a bean bag to provide a stable base for working with IT.

On one side the mat has a bean bag base with raised grip dots that enable it to mould itself to uneven surfaces. On the other it has a flat, oval mat for mice and other control devices.

Originally designed as a mouse mat for armchair surfers, Slouch Mat was promoted at the Mobility

Roadshow for use by disabled people.

"This ergonomic mouse mat is a great computer aid for the disabled," says the company. "It can be used virtually anywhere – even on narrow surfaces such as the arm of a wheelchair." ■

[www.slouchmat.co.uk](http://www.slouchmat.co.uk)





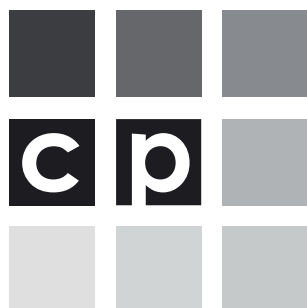


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## LAPD – Lewisham Association of People with Disabilities

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# Read&Write Gold revamped for Windows 8

Texthelp has introduced a revamped version of its Read&Write gold literacy support software for desktop systems.

The company has given the software a fresh look based on the Windows 8 operating system and added improved voices and browser support.

Changes in Read&Write Gold

include improved text-to-speech voices with Nuance Vocalizer expressive male and female voices and the addition of Voice Note, so users can create and embed recorded voice notes within a Word document or save as a .wav file.

Some 150 subject-specific word banks are included with the software which also has better support

for Google Chrome and Firefox: Read&Write Gold features can be used directly from the toolbar within Chrome and Firefox.

The literacy suite also supports Google Docs (in Chrome only) and sports enhancements to Spell Checker, Speech Maker and Scanning. ■

[www.texthelp.com](http://www.texthelp.com)

## Free software from Sensory App House

The Sensory App House has developed a series of six free iPhone and iPad apps for people with sensory disabilities.

The gesture control apps are designed to help younger children and people with a learning disability to develop a greater sense of 'cause and effect' through sound and visual stimuli.

Sensory App House describes the apps as follows:

■ iMeba starts with an animated blob-like spot that can be multiplied by each touch with one finger or

several. Shapes can be developed, shrinking and reshaping. Touch each of the round buttons around the edge and all sorts of sounds are heard and shapes appear constantly changing.

■ Electra is like a constant shimmering lightning bolt that you can touch to make a zapping noise and then use gestures to change its shape and make more sounds.

■ Magma literally starts with a magma blob in bright yellow to orange but once touched moves, splits and causes two different sounds to emanate as a result of

the gestures used.

■ CineFx uses the camera of the iPhone or iPad and changes anything that is viewed to some great fun views from floating bubbles to a square face or bulging one.

■ FotoFrez has many more views via the camera – turn it on yourself and you will look like some awful monster ever changing and causing many a fright or giggle.

■ Just Touch is another app without sound that can be made to look like a kaleidoscope. ■

[www.sensoryapphouse.com](http://www.sensoryapphouse.com)

## 'Eye-free' smartphone launched in US

The first mobile smartphone for blind and visually impaired people in the US has been launched by Odin Mobile and Project RAY.

Odin Mobile, a new mobile phone service for blind people, will be selling the \$300 Ray Huawei Vision smartphone supported by an accessible website and a call centre.

Project Ray is a two year Israeli government-backed research programme to develop software for flat touch-screen phones that could be easily operated by a blind person.

Most blind and visually impaired



users traditionally rely on an array of specialty devices, each with a unique user interface, which makes them difficult to use and prohibitively expensive, say the developers.

Features of what Odin Mobile describes as America's first full mobile service include:

■ Odin Mobile's telephone service including voice, text and data, with customized 'eye-free' setup and services.

■ Smartphone developed by Project RAY especially for the blind, including 'eye-free' operation and

built-in apps and content.

■ Multiple built-in services for the blind and visually impaired within a single device – including voice calls, email, messaging contact list services, calendar, GPS, WEB remote assistance, voice recorder, panic and emergency services, colour identification, pictures transcription and banknote recognition.

■ Communication and lifestyle services such as book and magazine subscriptions built into the off-the-shelf device.

■ Operating system and user interface specially developed for eye-free operation including single gesture access to frequently used numbers and functions. ■

# Automatic fall detector for elderly people

Telehealthcare company Tunstall has launched a fall detection alarm that automatically calls for help when its wearer falls.

The iVi pendant alarm, which is manufactured in the UK, could save hundreds of lives a year and the NHS millions of pounds, claims the company.

The automatic pendant contains a detection algorithm that reacts to changes in barometric pressure, acceleration and orientation and works out whether a fall has taken place.

It is likely to replace tens of thousands of the 1.7m red button telecare pendants currently in

use in the UK.

The alarm wirelessly connects

with a base station in the home of the person using the system. Once a fall is detected, the base station automatically dials the response centre.

An operator uses a loudspeaker in the home unit to talk to the person and arrange help, or call the emergency services if they are unable to raise a response.

To date, manual alarms have depended on the person to press the button, but research from the National Institute for Clinical and Healthcare Excellence (NICE) reveals that many elderly and frail people with alarms thought they had pressed the button when they had not.

Others could not reach their alarm or do not see any advantage in having a pendant. Some are confused about what to press, or when.

Falls are the leading cause of mortality resulting from injury in

people aged above 75 in the UK and a major cause of disability.

Some 14,000 people die annually in the UK as a result of an osteoporotic hip fracture, according to NICE.

More than 400,000 older people in England attend A&E departments following a fall. Age UK estimates one-in-three people over the age of 65 suffer a fall each year, costing the NHS an estimated £4.6m a day, or £1.67 billion a year.

The waterproof, lightweight pendant is also the only device automatically to notify a telecare response centre if it has not registered movement for a period of time, suggesting that the person has not worn it.

The iVi pendant can be ordered through a Local Authority, or direct from Tunstall, as part of a monitoring service. ■

[www.tunstall.co.uk](http://www.tunstall.co.uk)



## Portset solutions set wheelchair users free

Portset has developed two interfaces that replace cables with wireless Bluetooth links to connect devices used by students with special education needs.

The interfaces connect switches, keyboards, joysticks and mice to computers or other equipment via a radio transceiver connected to the fixed systems.

Students who use wheelchairs have to connect their devices to fixed equipment in classrooms, offices or workshops. They usually need a helper to carry out this task and to disconnect them, so that they can move around.

The Portset USB to Bluetooth converter enables existing USB devices to become wireless, while

the Portset Bluetooth 4 Switch device takes up to four standard SEN switch inputs but without the need for a USB connection.

Treloars, National Star and Chailey Heritage colleges have all successfully trialled the new system. ■

[www.portset.co.uk/category/sen-products](http://www.portset.co.uk/category/sen-products)

## Claro's apps help communication

ClaroCom and ClaroCom Pro are new apps from Claro Software designed for AAC (Augmentative and Alternative Communication), available on iOS for iPad or iPhone.

An AAC app helps to replace speech or assist writing for those with impairments in the production or

comprehension of spoken or written language.

ClaroCom has a user interface appropriate for users who face challenges with social communication and helps AAC users to communicate with people outside their family in a variety of

social situations.

ClaroCom Pro adds editing, privacy and communication features to the high-quality speech, user-editable phrases, and word prediction found in ClaroCom.

ClaroCom is available via the Apple App Store and is free for a limited time only. ■

[www.claroapps.com](http://www.claroapps.com)



# Tobii Technology's eye gaze aid is a turn on

People who need help to communicate can now access augmentative and alternative (AAC) systems without assistance, says Swedish eye tracking firm Tobii Technology.

AAC devices are used to generate speech and text – sometimes with the aid of symbols – as well as to control household appliances such as TVs and telephones.

Tobii's latest I-Series of eye controlled communication devices can be switched on and off by staring at them. The feature is called Wake-On-Gaze and Sleep-On-Gaze.

Putting the devices to sleep during periods of inactivity significantly prolongs battery life and enhances accessibility, says the company.

"People want to live 24/7. They don't want to have to call a carer to

turn on a device," explains Hector Minto, Tobii's UK sales manager. "With the new Tobii system a user can go to sleep and wake up in the night and switch it on without any help."

Designed for people with conditions such as Lou Gehrig's disease (ALS), autism, Rett syndrome, cerebral palsy and muscular dystrophy, the I-Series has a number of features that, according to Minto, make it a "quality device".

Last year Tobii demonstrated improved eye gaze technology that allows users to zoom in on objects on screen to make eye selection more precise.

The I-Series devices come in two versions – a portable one with a 12" touch screen and a 15" version for users who want to display more

detailed computer applications on-screen.

Extended battery life means the I-Series can work for nine hours, while Bluetooth technology similar to that found in executive cars has been used to connect devices to the machines.

Both versions have an integral wedge-shaped stand, so they can be used standing up for eye applications and lying flat for touchscreen use.

Infrared eye tracking cameras are incorporated into the body of the machines at the front and back and their screens are protected by tough 'Gorilla glass'.

Social media applications such as Skype and Facebook also run on the class one medical devices, which are available to some users on the NHS. ■

[www.tobii.com/i-series](http://www.tobii.com/i-series)

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## Returning veterans are to be offered Buddy app

Military personnel returning from Afghanistan with mental health issues, such as post-traumatic stress disorder, will be using an app called Buddy as part of their therapy.

Buddy, developed by the Military Veterans' Improving Access to Psychological Therapies service, enables therapists to keep in contact with their clients via SMS messaging.

The app, which is said to

dramatically improve attendance at therapy sessions, enables patients to set goals for themselves and receive reminders from their therapist.

Buddy also allows patients to keep a diary of their mood; an important part of therapy. Up until now the diaries have been written on paper.

The award-winning service is

currently being used by 92 ex-service personnel in the North West, with another 500 users returning from Afghanistan expected to take up the app in the next six months.

"Buddy allows the user and therapist to collaborate to set goals and agree timely SMS reminders to prompt the user," says Military Veterans. ■

[www.buddyapp.org](http://www.buddyapp.org)

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## International association champions accessibility

Leading figures in accessible IT have set up a group called the International Association of Accessibility Professionals (IAAP).

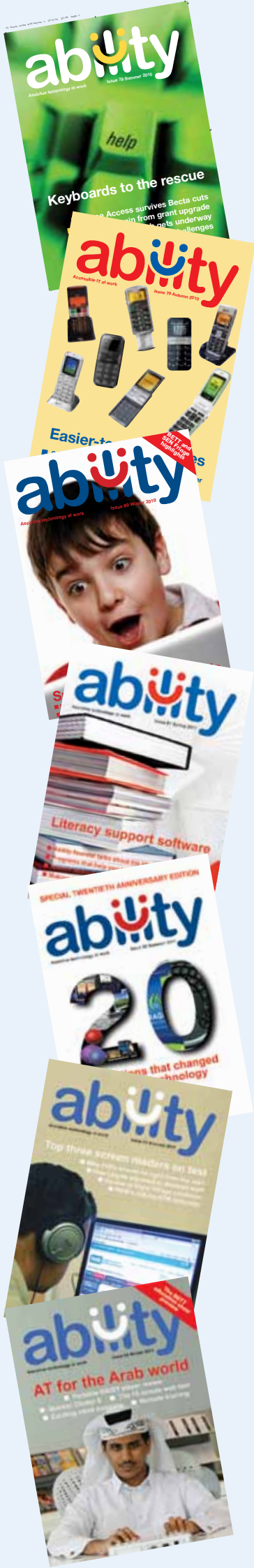
The lobbying organisation has seven founding members: AbilityNet, Adobe Systems, Ai Squared, Avepoint, AT&T, IBM, Interactive Accessibility, Microsoft, Nomensa,

SSB BART Group and The Paciello Group.

It is chaired by Microsoft's accessibility guru Rob Sinclair, with Nigel Lewis of the UK charity AbilityNet as vice chair. Rob Barrett of Lloyds Banking Group is also a member of the organisation's interim board.

The mission of the IAAP is to "define, promote and improve the accessibility profession globally through networking, education and certification in order to enable the creation of accessible products, content and services". ■

Email [info@accessprofessional.org](mailto:info@accessprofessional.org) for further information.



## Keep abreast of the latest developments in IT for disabled people: get *Ability* Magazine

### Subscription rates for *Ability* magazine and monthly email newsletter 2013

A subscription to *Ability* now includes a monthly email newsletter that supplements the quarterly magazine with more up-to-date news of new products and trends in accessible and assistive technology.

For subscribers there are two options: a personal subscription and an institutional subscription.

1. The institutional subscription comprises five copies of each print edition of *Ability* magazine per year and a licence to distribute an ebook edition (PDF and HTML versions supplied) and a monthly email newsletter. The annual subscription fee is £175 (members of National Association of Disability Practitioners £157.50).

2. The personal subscription consists of either a print or ebook edition (PDF and HTML) and a monthly email newsletter. The annual subscription fee is £65 (members of National Association of Disability Practitioners £58.50).

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# Diary of events

## QUEEN ALEXANDRA COLLEGE SIGHT VILLAGE, BIRMINGHAM

16-17 July

### New Bingley Hall, Birmingham

Sight Village is the leading exhibition for people who are blind or partially-sighted and for professionals supporting and advising visually impaired people and for all businesses and other organisations wishing better to meet the needs of their vision impaired customers. *Ability* will be filing a special report from this year's event, which includes seminars from Sight and Sound Technology, New College Worcester and Freedom Scientific.

**Fees:** None

#### For further information:

Tel: 0121 428 5050, email: [sv@qac.ac.uk](mailto:sv@qac.ac.uk) or visit [www.qac.ac.uk/sightvillage](http://www.qac.ac.uk/sightvillage)

## INTERNATIONAL CONFERENCE ON USING NEW TECHNOLOGIES FOR INCLUSIVE LEARNING

28 August

### Caledonian University, Glasgow

This is the first international conference organised by the Enable Network for ICT Learning for Disabled People. The conference will be organised into the following four tracks:

- Tablets and mobile technologies
- Game based learning
- International and European projects
- Free and open source learning

**Fees:** Not available at press time.

#### For further information:

visit <http://is.gd/E7zbJx>

## COMMUNICATION MATTERS NATIONAL CONFERENCE

15-17 September

### University of Leeds

The Communication Matters National augmentative and alternative communication (AAC) conference is the UK's leading annual AAC event, with a diverse programme of plenaries, presentations and exhibition held over two-and-a-half days. The conference provides a unique forum to meet and exchange information with representatives from all disciplines associated with AAC.

**Fees:** Two nights residential full rate £440, £385 if booked before July 31. One night residential £385 or £330, Non-residential £325 or £270. Subsidised places for people who use AAC and their carers.

#### For further information:

Tel: 0845 456 8211, email: [admin@communicationmatters.org.uk](mailto:admin@communicationmatters.org.uk) or visit [www.communicationmatters.org.uk](http://www.communicationmatters.org.uk)

## SIGHT VILLAGE MANCHESTER

24 September

### Renaissance Marriott Hotel

Each July thousands of visitors travel to Birmingham to find out at first hand the latest technology, products and support services available to people who are blind or partially-sighted. Now those further north get their own exhibition at which to catch-up with the latest in technology for people who are vision impaired.

**Fees:** None

#### For further information:

Tel: 0121 428 5050, email: [sv@qac.ac.uk](mailto:sv@qac.ac.uk) or visit [www.qac.ac.uk/sightvillage](http://www.qac.ac.uk/sightvillage)

## DISABILITY NORTH EXHIBITION (DNEX)

25-26 September

### Newcastle Racecourse

Disability North promotes social inclusion, independence and choice for disabled and older people in the North East of England and Cumbria. DNEX showcases suppliers of digital technology, aids and adaptations for independent living and accessible leisure facilities.

**Fees:** Free

#### For further information:

Tel: 0191 284 0480, text: 18001 0191 284 0480, email: [events@disabilitynorth.org.uk](mailto:events@disabilitynorth.org.uk) or visit [www.disabilitynorth.org.uk](http://www.disabilitynorth.org.uk)

## REHACARE INTERNATIONAL

25-28 September

### Dusseldorf Exhibition Centre, Germany

Rehacare promises everything for making life easier for persons with special needs and requiring care. Over 650 exhibitors from 32 countries will provide an overview of assistive technologies for independent living in five fully booked exhibition halls. A congress, numerous themed areas and information events enable visitors to gather information on the latest trends in rehabilitation, care and growing old.

**Fees:** Online, €7; onsite, €12; disabled visitors, €7 (both online and onsite).

#### For further information:

Tel: +49 (0)211/4560 – 984 or visit [www.rehacare.com](http://www.rehacare.com)

## E-ACCESS 13

17 October

### 1 Victoria Street, Westminster

This conference has been rescheduled from June this year. Speakers include Ed Vaizey MP, Minister for Culture, Communications and Creative Industries; Simon Stevens, the leading Disability Consultant and Campaigner and E.A. Draffan, Research Fellow, Web and Internet Science, University of Southampton, on whether open source software is up to the job yet of helping with accessibility.

**Fees:** To be confirmed

#### For further information:

visit <http://bit.ly/13onNxs>

## Contacts

### Ability magazine

Editorial, advertising and other enquiries: [john.lamb@abilitymagazine.org.uk](mailto:john.lamb@abilitymagazine.org.uk) [www.abilitymagazine.org.uk](http://www.abilitymagazine.org.uk)

### AbilityNet

Charity advising disabled people, employers and others on assistive IT. 0800 269545 [www.abilitynet.org.uk](http://www.abilitynet.org.uk)

### GOV.UK

Government site with help on employment, training, education, financial support, transport, rights and other issues for disabled people. [www.gov.uk](http://www.gov.uk)

### Business Disability Forum

Claims to be the world's leading employers' organization focused on disability as it affects business, including recruitment and retention of disabled staff and serving disabled customers. [www.businessdisabilityforum.org.uk](http://www.businessdisabilityforum.org.uk)

### Emptech

A database that provides information resources on assistive technologies, which are designed to help those with specific disabilities work and study. Emptech includes product descriptions, links to manufacturers, suppliers' addresses, as well as other related resources. [www.emptech.info](http://www.emptech.info)

### IT Can Help

Volunteers offering disabled people free local help with computers. 0800 269545 [www.itcanhelp.org.uk](http://www.itcanhelp.org.uk)

### Leonard Cheshire

Disability care charity providing support services for people with physical disabilities and learning difficulties. 020 3242 0200 [www.lcdisability.org](http://www.lcdisability.org)

### Shaw Trust

Charity that champions the abilities of disabled people, enabling over 60,000 people per year experiencing all types of disability to make the most of their skills, abilities and employment opportunities. 01225 716300 [www.shaw-trust.org.uk](http://www.shaw-trust.org.uk)

### Suitability

Services to help employers fill vacancies and disabled people to get jobs. Part of charity Leonard Cheshire Disability. 0845 671 7173 [www.lcdsuitability.org.uk](http://www.lcdsuitability.org.uk)

### Remploy

Employment services for disabled people and employers, plus other business services, including IT equipment recycling. [www.remploy.co.uk](http://www.remploy.co.uk)

### U Can Do IT

A charity that provides computer training for blind, deaf and disabled people in their own homes. 020 7730 7766 [www.ucandoit.org.uk](http://www.ucandoit.org.uk)



# Cut the crap

Kevin Carey decides web accessibility comes from focusing on the customer

**R**ecently, all the usual suspects gathered at the Google Campus in London to celebrate the 20th anniversary of the World Wide Web. My train from Paris was late so I came in part way through a lively discussion.

Now you might think that 'lively' is a complimentary term but in this case I was appalled. The subject under discussion was whether usability is a necessary attribute of web design.

My riposte at the top level was that this is not a question that would be asked in the air traffic control or food business. What enterprise is it that wants to communicate or sell that isn't bothered whether its customers can understand what they are being told and buys what they are being sold?

In a private discussion afterwards Sturgeon's Law – 'Nothing is always absolutely so' – was put to me.

Theodore Sturgeon, a science fiction writer (1918-1985), opined in 1951 that 90% of science fiction books were crud and this was soon transposed into a general law about everything.

Thus, as 90% of everything is crap, then why complain if this applies to the web?

Everyone reading this is absolute proof that the proposition is bogus. None of us would be here if 90% of air traffic control, let alone processed food, were crap.

I was told that we must expect rubbish on the web as a natural consequence of freedom of speech.

In practice we would not want to apply the same design criteria to an individual as to a government

department so we should abandon the theory of universality. As somebody at the Google gathering pointed out, we have to educate every generation of designers so our work is never done.

It is time to put an end to this palpably expensive and futile soap opera.



**Kevin Carey is Chair of RNIB ([www.rnib.org.uk](http://www.rnib.org.uk)), and Director of humanITy ([www.humanity.org.uk](http://www.humanity.org.uk))**

The plain facts of our situation are that the percentage of websites that meet appropriate task completion criteria is falling.

We know from the recent revelations about corporate taxation that major companies won't do anything unless the consequences of breaking the law are more costly than complying. It's a straightforward calculation about shareholder value.

Which brings me to the next point: during the discussion there was quite a lot of defensive rhetoric about the cost of making websites 'accessible', but nobody seemed to know what the cost was and how that might relate to market share.

The moral I draw from that passage of play is that we need to grasp the economics of our case and be less self-obsessed with our moral right.

The third point, which was not raised in the discussion but which is central to understanding market share, is that the technological paradigm at the centre of the discussion was the use of screen readers to access the web via a PC.

Only a tiny minority of blind people use that package either because they are well off or are in receipt of equipment from Access to Work, whereas the big issues are all around 'smart' phone access.

This is particularly so for those with learning and cognitive impairments who don't require a great deal of investment in special features but do require complete client side control to customise content.

It's difficult to draw a neat and tidy conclusion: fighting a legal case to the finish is difficult without the capacity for class action; charities prefer moralists to economists; and, contrary to what they say of themselves, paradigm shifts aren't the natural territory of techies.

But there is one unifying point from which we should all start, which will overthrow our prejudices, hurl us out of our comfort zone, disrupt our moribund strategies, re-calibrate our activities and re-direct our resources, and that is customer focus.

The rhetoric is easy but shifting a bureaucracy from the introvert to the extrovert is tough. Unless we do that all the rest, as Sturgeon might have said, is crap. ■

Queen Alexandra College

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# sight village

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**16th & 17th July**

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**Manchester**  
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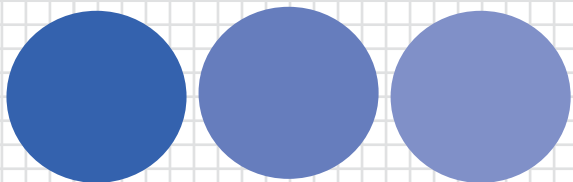
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