



The Worshipful Company of Information Technologists

IT—The Universal Enabler

Developments in IT offer disabled people significant work and lifestyle benefits. But the same technological advances threaten disabled people with even greater social and economic exclusion if the technology is not accessible. Meeting at the Guildhall, London, on 17 September 2003, representatives of commerce, industry, government and the IT sector were encouraged to address this paradox, considering both its moral and business implications. The conference was presented by The Worshipful Company of Information Technologists, hosted by the Lord Mayor, Alderman Gavyn Arthur, and sponsored by Barclays, with additional support from Oracle, IBM and VNU.

Conference report

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The call to action



Think beyond accessibility to technology – think of transforming other people’s lives. This was the key message which Audit Commission chairman James Strachan delivered to the IT – The Universal Enabler conference.

Strachan (above), whose own life would be “utterly miserable” without the technology to ameliorate deafness, said there was a real lack of dialogue between those who could provide transforming solutions and disabled people themselves.

In a rousing call to action, he pinpointed four key groups and outlined how they could “change the world”:

Service providers and suppliers – Accessibility and usability should be completely embedded in product design and development cycles from the beginning.

Employers – Opportunities should be grasped in making the IT infrastructure accessible from the start. Accessibility should be a mandatory requirement of procurement procedures.

Individuals, friends, families – Use the Disability Discrimination Act. Don’t expect sympathy from the government if you don’t use it.

Government – Make connections between people who can make a difference. Consider an accessible technology fund.

Strachan concluded: “Do it – for the many millions of disabled people.”

The conference in brief

Introducing the conference, AbilityNet's Web Consultancy Manager **Robin Christopherson** demonstrated how a blind person can use a computer efficiently. He also underlined the importance of enabling technology without which, he said, he would not be doing his present job – if indeed he was employed at all.

David Livermore, Chairman of the WCIT Disability Panel, said WCIT had organised the conference after recognising the appalling danger that advances in technology and development of the Internet – which had the potential to benefit people with disabilities in particular – could become increasingly exclusive and inaccessible to disabled people. Rather than a protest, his was a positive message of encouragement that solutions existed.

Stephen Timms, Minister of State in the Department of Trade and Industry, said nearly a fifth of people of working age in the UK are disabled – and disabled people are seven times more likely to be out of work and claiming benefits. However, employment of disabled people is increasing – and it could accelerate further with growing awareness of the enabling potential of information technology. The Government is committed to improving disabled people's access to digital services.

Peter Morgan, Master of the Worshipful Company of Information Technologists, explained the company's charitable purpose: To locate, mobilise and deliver resources so that those who are disadvantaged, for whatever reason, are able to share in the benefits available to society in general, through access to and use of information systems.

Tim Berners-Lee, Director of the Worldwide Web Consortium, said universality – encompassing accessibility for people with disabilities – is the underlying principle of the Web. In developing web technology, w3c had noted that web accessibility is cross-disability – it was not possible to look separately at visual impairment, deafness or learning disabilities. Organisations could justify making their websites more accessible on commercial or moral grounds – but they could not disregard people with disabilities, either in the workforce or in the customer base.

Madelyn Bryant-McIntire, Director of Microsoft's Accessible Technology Group, said there are compelling business reasons for assistive technology and accessibility features. The cost of assistive technology could be reduced if it were promoted more vigorously among people with mild impairments (38% of the population) as well as those with severe impairments (22%). An important goal was to simplify the incorporation of accessibility features in software developments. Microsoft aims to make accessibility part of the out-of-the-box experience for computer users.

Accessibility features and assistive technology will be increasingly important in maintaining productivity levels in ageing societies.

Sara Basson, Marketing and Business Development Manager at IBM's Worldwide Accessibility Centre, said IBM's goal is to have speech recognition systems as good as the human ear by 2010 – ideally it will be transparent to the user who will not need to train to use it or speak in a specific manner. Designing with disabilities in mind is often a catalyst for major inventions. For example improved access for some eventually results in improved access for all. Developments in speech recognition had enabled a university to serve disabled students more effectively – and able-bodied students had also benefitted from the new teaching practices.

Stephen Duckworth, CEO of Disability Matters, spoke of his frustration and depression after becoming disabled during a sporting accident. Technology later enabled him to complete his medical degree, an MSc and a PhD. It also helps him to run a disability consultancy and undertake charity work. He said addressing disabilities as a normal feature of everyday life for everybody will start to crack a "difficult nut". A continuing problem lies in attitudes and expectations – not only of non-disabled people, but of disabled people themselves.

Peter White, BBC Disability Correspondent, and **Bill Fine**, Senior Consultant at AbilityNet, discussed some of the hardware that enables disabled people to use computers effectively. Through a number of case studies, they illustrated how this technology transforms lives.

Roger Davis, CEO of Barclays Business Banking, said it is difficult to prove the value of "addressing the disability agenda" – but it makes a significant difference to help people in an organisation to feel good about themselves and the organisation. It is the right thing to do, and most employees believe this – but companies have a long way to go to achieve the necessary change in perception. It is also common sense in business to deliver the needs of all customers, including the elderly, the socially disadvantaged and those with disabilities.

James Strachan, Chairman of the Audit Commission, concluded the conference with a rousing call to action. A business case for accessible technology is useful for persuading "less imaginative, less inspired colleagues", but the real motivator should be the satisfaction of doing something to transform other people's lives. An accessible technology fund should be generated – paid for significantly by industry, because that sector sees the tangible benefits of promoting technology for disabled people to enlarge the workforce.

Conference feedback

The conference was attended by 199 invited delegates

34% were from the business sector

16% were from the public sector

12% were WCIT members

29% were from charity organisations

14% from the Press

5% represented the City of London

Delegates were invited to complete a feedback survey at the end of the conference

90% of respondents said the conference raised their awareness of the potential benefits of technology to disabled people.

90% said this would affect their future behaviour.

60% of respondents gave the conference content a very good rating.

55% rated presentations very good.

80% rated conference facilities highly.

Delegates' comments:

How will the conference affect your future behaviour?

- I will make some significant changes for employees and customers
- I will accelerate some real developments that I now believe to be achievable
- I will explore more actively technology solutions for problems created for disabled people
- I will try to identify areas where our organisation can improve, both internally and in discharging our public sector role
- As an employer I can see how technology allows a disabled person to play a more active part in the company
- As a disabled person I can identify ways to increase my skills and have a more active and fulfilling life.

What actions would you like to see as a result of this conference?

- Greater awareness of initiatives from government and large organisations
- More funding to enable disabled people to draw on all this progress
- The public sector can take a lead as a significant employer, to raise awareness and facilitate employment options for all
- A campaign among City employers to exceed average levels of disabled staff
- More public debate on the benefits and issues involved in applying technology to the problems of disability
- More awareness of the contribution disabled people can make to society
- Get more people to use e-signing
- A campaign to put more IT into the hands of disabled people
- Those with influence in their organisations should follow up in practical terms. I will progress within my own organisation, which I would like to see take a lead role, like Barclays.
- Turning the goodwill and good ideas into positive, non-patronising action to improve and enable all members of society to have an active role should they wish
- More companies getting behind organisations like AbilityNet to improve their coverage across the UK. WCIT members can act as champions to improve the take-up of opportunities offered by technology.

Any other comments?

- Please do not squander this progress from today – keep the momentum going. The big-name speakers need to keep talking and to assist us all as catalysts to make real improvements in society
- An inspiring conference, which was informative in bringing me up to date with technology that can assist disabled people to participate in everyday life
- As a newly disabled person it has helped inform me enormously and has demonstrated how those with significant disabilities have coped, with the aid of technological enhancements.

Robin Christopherson

Web Consultancy Manager, AbilityNet
www.abilitynet.co.uk

Opening the conference on a practical note, AbilityNet's Robin Christopherson demonstrated how technology has enabled him to overcome his own disability and enjoy a more fulfilling life as a blind person.

Robin showed how he uses a computer. The Jaws screen-reading software ran at his normal speed as he navigated through some pages on the AbilityNet website.

To the conference audience, the effect was eerily impressive, with Robin's PC reading data audibly at four times the speed of the spoken word.

He then opened an email with a link to one of the pages as an attachment.

He typed a message regarding a meeting, and pasted in directions to his office, from Word. Then he used the Windows calculator to work out the cost of some items.

In a remarkable demonstration, Robin showed that a blind screen-reader user can use a computer both quickly and efficiently.

Robin also challenged the assumption that a computer consists of a standard keyboard, mouse and screen. He showed that he could use a computer without using a mouse (as he cannot see the pointer) or a screen.

Robin said: "Without equipment like this I wouldn't be doing the job I do – in fact I would probably not be in employment at all. The vast majority of people with a vision impairment are still not in employment, not having had the opportunity that this sort of technology and an enlightened employer offers.

"If I had not been given the opportunity to work I would definitely not be the same person. I would not have the same self-esteem and self-worth. I would not have met my wife as I met her after moving to the area with work. And I would not have the two wonderful children I now have.

"This is why the technology which forms the subject and focus of this day is so important as it changes lives."



David Livermore

Chairman, WCIT Disability Panel and AbilityNet
www.wcit.org.uk

Problems of accessibility threaten to widen the gap that separates disabled people and technology. David Livermore describes the origins of the WCIT's campaign to raise awareness of this issue.

It seemed entirely appropriate for this conference to be introduced by Robin who absolutely exemplifies our theme today. By the use of technology, Robin has become an acknowledged national – indeed an international – expert in website accessibility. His value to the IT industry goes far beyond addressing the needs of those people with visual impairment to the core issue of making websites accessible for all.

The idea for this conference – IT The Universal Enabler – originated at a meeting of the Disability Panel of the Livery Company held at the offices of AbilityNet. We recognised the vast potential that IT developments could and should offer disabled people, but conversely the appalling danger that unless the critical issue of access was addressed, these same developments could exclude disabled people even more than before. We felt that we could, through the Livery Company, use the prestige of the City to mount a major campaign to raise the level of awareness of this issue. As you will hear, this is not a protest movement but essentially a very positive message of encouragement that the solutions exist today to resolve this issue.

At this point I would like to express our thanks to our main sponsors Barclays and also for the support that we have received from IBM, Oracle, VNU and two generous private donors. It is their vision and generosity which has made this Conference possible.

This is our central theme today:

Let me state the obvious – we live in incredibly exciting times in which technology, and specifically the internet, is changing the way we do business, the way we spend our leisure, the way we teach our children – indeed every aspect of our lives. By comparison the advent of the printing press through Johann Guttenberg and William Caxton, although dramatic at the time, now seems slow and tentative.

We now have unlimited access to every conceivable kind of data. The very nature of business has been transformed at every level. Online leisure activities, sport and entertainment can often exceed in quality and immediacy the real thing. The ever-improving technology of virtual reality make armchair travel in space and time, and experience of extreme adventures, no longer the dream of science fiction writers.

All these new capabilities should offer disabled people



for the first time in history the opportunity to share the same experiences as everyone else. I dream of a new world where disability becomes an inconvenience not a major inhibitor.

However, if disabled people are denied access to this new world, through an inability to use IT, then the “gap” – far from closing – will grow still wider. Is this likely? Sadly the answer is a resounding “yes”. We know that the vast majority of disabled people do not have access to appropriate technology. We know that this is a major inhibitor in the workplace when seeking employment. What is more, many people who do not consider themselves to be disabled are having to leave work because they can not continue to use standard IT equipment.

Why is this? Is it the lack of technical solutions to meet their needs – absolutely not! You will hear today that there are now technological solutions to address even the most extreme form of disability. There is now, for example, a device available from a US company called Eyegaze where a cursor on a screen can be controlled simply by moving one’s eyes and nothing else.

Is it cost? Again absolutely not! Some technical solutions cost nothing at all and already exist in software, only needing to be activated. Some of the more sophisticated solutions can cost as much as two or three thousand pounds but are certainly not unaffordable given employer, social services or charity support.

What then? There does seem literally to be a general lack of awareness of what is now possible and lack of awareness of how to be properly assessed and equipped with the right solution.

We have assembled today an outstanding group of speakers who will address each aspect of the proposition.

Stephen Timms MP

Minister of State, Department of Trade and Industry

www.dti.gov.uk

The Government recognises the importance of IT for disabled people in the community – and among its own employees – and is working towards increasing awareness of the opportunities, says Stephen Timms MP.

Before entering the House of Commons, I was employed in the IT industry for 16 years. I enjoyed it. One of the things which has always impressed me about the industry is the belief it brings that technology can make our society better. IT, without any doubt, has a big, big part to play in tackling the social challenges which face us – and in creating a truly inclusive society.



The Department of Trade and Industry’s motto is “prosperity for all” and this must – and does – include disadvantaged people. This year, the European Year for Disabled People is making a good many of us pause and think. The Government, disability organisations, employers, academia and individuals can work together to deliver real change for disabled people. This is part of the wider picture of ensuring real inclusion for those in our society who are in danger of being left behind.

It is not only DTI, but all of Government which recognises the enormous importance that information technology has for disabled people. The opportunities it offers for improved communication – for independence, for choice – are boundless. But we must make sure that people are aware of what is available. We must raise awareness among the disabled community, and the rest of society, about the vast potential offered by accessible information technology.

People who have a disability often say that their main problems are the attitude of society and their lack of choices compared to others. IT has the potential to broaden their choices, make things fairer in their everyday lives and in work.

Work is the biggest single weapon we can deploy against social exclusion. Employment is now at record levels with almost 28 million people in work in the UK. We still have the most flexible labour market in Europe and the most diverse range of working patterns in the developed world but disabled people are still at a significant disadvantage – nearly a fifth of the people of working age in Great Britain are disabled.

Disabled people are seven times as likely as non-disabled people to be out of work and claiming benefits. However, the future is beginning to look more encouraging. I am delighted that the employment rate for disabled people has increased fairly steadily over the last five years. But none of us in Government can relax. We

want to seize the opportunities that IT enablement for disabled people can give.

IT has the potential to dramatically help increase employment prospects and the potential to be a great leveler in vast areas of our lives. Let's make sure IT works towards helping disabled people in their everyday lives.

However, we also need to understand and overcome the different obstacles encountered by individuals to ensure that it is possible for all people to benefit from all that technology has to offer. The UK is taking an important step in this direction. Our goal is to ensure that everyone who wants it has access to the Internet by 2005, and since February 2001 it has been our policy that all new or re-designed web-based services are made accessible.

At present, 47% of UK households are online and 54% of UK adults are regular Internet users. While the market has successfully delivered Internet access to most citizens, take-up among the most disadvantaged groups in society – those on low incomes, the elderly and people with disabilities – is lower. Without access to the Internet or the skills to use it confidently, these groups may face further social exclusion.

The Government is particularly committed to improving access to digital services for disabled people. We recognise that basic access to technology is a problem for many disabled people who want to use online services, and I'd like to outline a number of initiatives that are in place which seek to address this issue.

The Access to Work programme helps an increasing number of disabled people every year to start or keep a job. This individually tailored help can often mean the provision of IT equipment to meet the additional needs of a disabled person in a job.

The AbilityNet Information Advice Helpline provides free advice to those seeking help on ICT and disability issues.

UK Online Centres have been enhanced by Government establishing a kit with a range of practical equipment and assistive software to help make the internet and the centres themselves more accessible for disabled people. So far, more than 800 of these kits have been distributed among the 6,000 plus UK online centres, along with training for centre staff on how to use the equipment most effectively. The kits include adjustable trolleys, alternative keyboards, rollerball alternatives to the conventional mouse and screen reading software.

In May and June of this year the "Get Started" campaign was launched by the Office of the e-Envoy. It was aimed at encouraging new users to try out the internet. The campaign worked with a number of partners to raise awareness amongst specific groups, including with the National Library for the Blind in order to target the visually impaired.

We know that an estimated 8.6 million people in Great Britain have disabilities, but only 36% of people with disabilities have ever used the internet, compared to 60% of the overall population. The Office of the e-Envoy has produced guidelines for Government Departments on how to make websites accessible for people with disabilities.

But it is recognised that there are other barriers, often physical, which might deter people from utilising the

technology that is available.

Nearly half of the UK's disabled population are over state pensionable age. So older people make up a significant group of those we should be thinking about in 2003 – this European Year of Disabled People. We need to ensure that the Internet and the services it offers are made accessible to both older and disabled citizens – so that no one is left behind in the Information Society. And the full potential of e-inclusion is realised.

I'd like to tell you about an individual who has recently been introduced to the Internet and is benefiting from using technology. Pat is the mother of one of my officials and has developed multiple sclerosis. She is now a wheelchair user and also has a manual dexterity disability. Pat has recently invested in a home PC, giving her access to the Internet. This has opened up a whole new world of communication and inclusion for Pat, whilst at the same time assisting with her mobility. Pat is able to e-mail and communicate with her friends and family. She uses a disabled-friendly mouse and keyboard, which means Pat keeps her fingers working, which has helped improve the mobility in them that she was starting to lose. Pat is soon to become a grandmother, and the Internet has meant that she can have greater involvement in this joyous event. Pat is not readily able to get out shopping, but the internet has meant that she can purchase gifts for her eagerly awaited grandchild from the comfort of her own home.

I am sure that Pat is not alone in accessing technology to open up a whole new world. However, there is an important lesson for all policy makers – that e-inclusion means different things to different people. We must be careful to respect the diversity which the Internet represents. And the differences of the people who benefit from it.

People often want to know, and rightly, what the Department of Trade and Industry is itself doing to address the issues which we talk about in our speeches. How does the DTI do as an employer? Well our aim is not just to comply with disability discrimination legislation but to emulate the best practice so that staff with disabilities can realise their potential; so that the department can get the most out of them as employees; and so that the department's services are widely accessible to everyone irrespective of disability.

We carried out a survey for staff in the Department in 2001, a couple of years ago, to identify those with disabilities. At our HQ, 222 staff declared a disability or long term health impairment – just over 5% of the total staff. That number has now increased to about 300. As a result of the survey there are some 70 staff who benefited from recommendations for specialist IT equipment or software. We have ensured that the managed service that operates throughout the department is accessible and there have been important benefits from the use of specialist equipment and software packages following workplace assessments carried out for us by the RNIB, by AbilityNet and by Key for Learning.

We have an advisory group on disabilities set up to advise the Permanent Secretary at the Department, along with senior management and staff with disability responsibilities. We launched an action programme in

2000 which had as a key objective to ensure that IT development takes account of the needs of staff with disabilities. We were very pleased in October 2001 to become a two-tick Positive About Disabled People symbol user and we continuously monitor the commitments that we signed up to with that programme. We have a disability work strategy which will be launched by the Secretary of State, Patricia Hewitt, later this year. Patricia has a very strong personal commitment to making progress in this area and the strategy will enable us, we think, to take forward the very best practice on disability within our department.

What we have seen with technology and disability is that technology provides the opportunity to make some really important advances but conversely if we don't do enough then technology core development could make the exclusion of people with disabilities worse. There is a great deal at stake here. What I hope we can do is work together over the months ahead for the positive outcome which so clearly is within our reach, and so avoid the pitfalls which could take us so damagingly in the opposite direction.

Peter Morgan

Master, Worshipful Company of Information Technologists
www.wcit.org.uk

The WCIT highlights the important role of IT in developing the overall well-being of the City of London. And, says Peter Morgan, the company is uniquely able to offer a wide range of skills to charitable causes.

Some of you will know about the WCIT, others will not. It might be appropriate to tell you something about our company, its charitable purpose and how today's conference sits within that purpose.

We are the 100th livery company and we do feel rather good about that. We like to think of the WCIT as the company for the new millennium. We are now working on our archives so that our successors in the tradition of the livery down the centuries can find out how it all began in 1986. The City granted us a livery in 1992.

The most striking feature of our company is the relevance and vitality of our industry in the City of London in the 21st century. IT is now all-pervasive. Many of you will have bought two or three IT products in bags or pockets to this meeting today. It is the sheer scale of the industry, its impact on all aspects of city life, its importance to the maintenance and growth of the city's global position that is so impressive.

It is these factors which make our company ultra rele-

vant. If our founders had not taken the initiative to form the WCIT one could imagine that the Corporation would have come to the industry, so central is it to the City's goals of products, standards and ethical trading, corporate responsibility and help to the needy, promotion of trade, and the collective contribution to the well-being of the City.

So what is our charitable purpose? We aim to locate, mobilise and deliver resources so that those who are disadvantaged for whatever reason, are able to share in the benefits available to society in general, through access to and use of information systems.

In most cases, IT is not an end in itself, it is a means to an end, or in the terminology of this conference, an enabler. It can help charities, both to operate more efficiently and also provide new and innovative services.

The WCIT is in the fortunate position of being able to deploy our members' skills across the whole range of charitable activity, we do not pretend that we have an understanding of specific charitable issues. However, we are able to work through charities who are expert in their particular fields to ensure their efforts are supported by the most effective use of IT.

How is this charitable programme delivered? At its heart are the expertise, resources, and networks of our members, all senior IT managers and professionals. Most of our input is not in the area of hands-on technical advice – although we do have some members conversant with the cutting edge of new technology, most of us allow some years removed from any practical technical experience. However we do have a wealth of expertise in advising organisations at a strategic level, helping not for profit organisations ensure that they make the most effective use of IT to support their charitable objectives.

Members of the company have developed a robust IT system that can be used by children in hospices and hospitals to keep in touch with friends and family, continue their education and see the latest in online entertainment. With the generous support of the Royal Masonic Trust for Girls and Boys, this has now developed into the Life Lights programme and it has been installed in more than 25 children's hospices around the UK.

The WCIT has also partnered with the Carers UK charity to develop an online resource for the millions of people who look after frail or disabled relatives and friends. The Carers' website now provides 24x7 access to advice, information and contact with other carers.

Until now the company's charitable programme has been largely achieved through the generosity of our members who have given their time, talents and resources both business and personal. Our future objective is to develop the work of our charitable trust to become the vehicle for charitable involvement across the whole IT sector. As a first step towards this ambitious goal, the company has been the catalyst for IT for Communities – a national initiative to introduce IT people wanting to volunteer their skills to charities needing IT support. To launch this project, we have worked with the British Computer Society and Business in the Community to make it an industry-wide initiative. The result has been remarkable. Within a few months we have over 1,000



registered volunteers and well over 200 projects active or completed.

Today's conference focuses on the role of information technology in enabling people with disabilities to play a full role in society. The WCIT is not putting itself forward as an expert on issues of disability and adaptive technology. Other organisations such as AbilityNet are much better placed to take on this role. However, the company is in a position to use its resources and networks to ensure that important messages are conveyed to key audiences.

As far as the IT sector itself is concerned, there is both a unique opportunity and a unique responsibility. Information technology provides the interface between individuals and a whole range of new possibilities. But it is still not clear whether the outcome will be a victory in the struggle against disability or a new technological handicap which will compound discrimination against the disabled.

The WCIT would urge members of our own industry to recognise the challenge of enabling the disabled and to respond to it with the effectiveness and commitment so characteristic of our industry and its people.

In the context of high standards, what can be more important ethically than levelling the playing fields for hundreds of thousands of people, or in terms of quality to deliver products which are truly fit for purpose by anyone regardless of disability.

In the context of corporate responsibility it is charity in the best sense of the word in that we are actually enabling people and not just giving them charitable hand-outs. Remember the old adage, give a man a fish and you feed him for a day. Teach a man to fish and you feed him for life. In the context of promoting trade, disabled people themselves, given proper access, represent an enormous market but even more important the ability to restore to or bring to the job market literally thousands of skilled employees. That must be a win-win proposition for us all.

In the context of life and well-being in the City, IT can enable the City to become a world leader in an inclusive approach to disabled people in both employment and leisure. This is the marrying of commercial advantage with a civilised approach to disadvantaged people.

Tim Berners-Lee

Director, Worldwide Web Consortium

www.w3c.com

Accessibility features high on the agenda of the Worldwide Web Consortium, says Internet pioneer Tim Berners-Lee, who urges IT companies and users to give it the same degree of prominence.

Accessibility is fundamental to the development of the web – and to its underlying aim of achieving universality.

The web is not just aimed at one application or one hardware platform. From the beginning, we wanted it to work on any sort of hardware or operating system. It works on different software – and via a range of types of network access.

The web is a space where information can be shared with closed communities or with the public. Many people, when they are new to the web, see it only as public information. But anybody who has worked in a company with an intranet knows the breadth of its capabilities.

The web is also not only a place for fun brochures and pictures, but it can also distribute massive amounts of data for computers to process. There is a vast amount of exciting information on the web – but it becomes exciting only if it has been processed by a machine and turned into something that humans can understand.

We can only program computers to access information if it is available in a machine-friendly form. There is a scale from data to documents – and the web must comprehend all of that. Of course it is also vitally important that the web is international, that it should be universal when it comes to languages – spoken and computer languages – and culture.

Access to the web by people with disabilities is therefore just part of the goal of universality.

Accessibility at w3c, the Worldwide Web Consortium, isn't just about websites. Accessibility is also about browsers, tools and media players – and the way they work or interact with devices such as screen readers, accessibility software and other assistive technology.

The web should never be a source of problems for people with disabilities. It offers new opportunities because it can deliver so many different sorts of alternative media.

It is also very important to recognise that web accessibility is cross-disability. You can't separately look at visual impairment, deafness or learning disabilities. They tend to connect. The Web Accessibility Initiative at w3c tries to stress this with organisations representing different disabilities.



When we set up the web consortium we had three domains:

- Architecture
- Technology in society
- User interface

We soon added web accessibility as the fourth domain, on a par with the others.

We try to point out to IT companies and website operators that the justification for making a website accessible can simply be a market force. Or there is an ethical justification.

Whatever the motivation you must take account of that sector of people who have disabilities, either in the workforce or in the customer base. And, of course, the number of people with disabilities will increase as the number of aged people increases.

For us at w3c the range of tasks is wide. We have, for example, a working group specifically looking at device independence.

Many early websites were designed for screens set to 800x600 and for specific browsers. We said: “No, you can’t make your website dependent on the device. The devices will change. You will end up making your website available only to people with a particular piece of software. Remember the days before the web when you really couldn’t read information from one computer on another computer!”

Now we don’t have to make that point, because people need to get at websites from their handhelds or from their phones. The importance of connections between devices, and independence and accessibility, is very clear.

Let me give an example of how web accessibility is multi-faceted.

We are using the web now in many different situations. People do not use screen readers just because they are visually impaired. These devices can also help people who are driving or operating machinery and who should not be looking at a screen.

There are many conditions under which people would prefer to use different ways of accessing the web and these are becoming much more common. People have different styles at work. Some have long attention spans. Some people have short spans. Some people like to have a small screen with them everywhere. Some like to sit down in front of a huge screen.

All these different ways of approaching information mean that accessibility becomes intimately connected with good design.

It is right that governments set standards for accessibility. The Minister earlier mentioned that the office of the e-Envoy has issued guidelines pointing to the Web Accessibility Initiative, developed by a wide international group. If everyone uses the same guidelines, people from all over the world will get the same benefits.

The problem arises if governments, or cities, or states attempt to start their standards from scratch. Then developing a website for people in different places means conflicting guidelines. We need one set of guidelines internationally, just as we need to have internationally one standard of language – HTML. Standards are good, they save time, they make things work together.

The Worldwide Web Consortium is neutral. If you are an IT company and you are using the web and are interested in where it is going, you should be a member. We are international, based in Europe, the United States and Japan. We involve a wide range of people apart from commercial members – many involved in non-profit activity, in academia and also those simply operating from their homes, who join the working groups.

Our money comes from members, from specific sponsorships and a very small amount from government sponsorship. The Web Accessibility Initiative really tries to co-ordinate. It is a meeting place for many organisations – disability groups, technologists and companies. It does not try to do everything itself. The initiative facilitates communication, aiming to produce consensus.

We have also developed materials for education and outreach, because awareness is such an important part of our work.

Our material is easy to access. There is no reason for not making your website or your software accessible. But this is not a one way street; accessibility is not produced by magic. Accessibility is achieved by people participating – and we welcome your participation in the Web Accessibility Initiative.

Madelyn Bryant-McIntire

Director, Microsoft Accessible Technology Group
www.microsoft.com/enable

With its sights firmly set on building an accessible society, Microsoft is seamlessly integrating accessibility into its software products, making it part of the out-of-the-box experience.

Microsoft is building up to our next generation operating system and as part of that process we are working on a lot of consumer research. We really want to know a lot more about people who use assistive technology and we want to understand what benefits they gain from it. We believe the power of assistive technology has been poorly understood.



In the late 1980s people started to realise what power the PC could have to change lives. Looking at people with the most severe disabilities – such as cerebral palsy, quadriplegia and blindness – we realised that if we could connect them to a PC, many of the obstacles in their lives could be removed. That initial experimentation became part of our operating system and in 1995 we put a policy in place that each of our 55,000 employees has a responsibility to accessibility.

I manage a team of 40 people inside Microsoft – our core centre of excellence on accessibility. I spend a lot of time going around reminding people about the policy and what that means.

The way ‘accessibility’ is used around the world comes from many different perspectives: ethical, business or regulatory. I am primarily looking at the business issues. I think that the power of the marketplace has the best momentum and I believe there is a compelling business reason behind this.

In a recent study, there were some really telling facts:

- About half the people with severe disabilities are unemployed
- When there is employment, household income is significantly less, \$46,000 v \$71,000 p.a. for people without any reported impairment
- Disabled people achieve only about half the rate of college graduations. For an employer like Microsoft, this makes it very difficult to find people that can become part of our workforce. Among the overall 70% who are college graduates, we have to find people who are interested in technology and have computer science degrees – and since we have a commitment to hire and retain employees with disabilities, that presents a big challenge. There is not much we can do to increase the graduation rates in college except to make technology better
- 63% of disabled people are computer users v 85%

in the population as a whole

- 5% of computer users with severe impairments use assistive technology
- Fewer than 20% of disabled people use accessibility features. So if they are using a computer, they are probably struggling – maybe they are in a wheelchair and so they don’t need anything set up specially for them. We were surprised those numbers were so low, but of course among the blind 100% are using assistive technology if they use computers. But there are many more people with difficulty communicating with their friends and family or deafness who don’t take advantage of computing.

All societies have people across a range of disability but we have created a language around disability that has really divided people into the allegedly able-bodied and the disabled. I argue that that has never been true, it will never be true and it is not true now.

The incidence of disabilities follows the normal distribution curve that any statistician or mathematician would be familiar with. Our research in the US shows:

- 40% of the people have no significant impairment.
- 22% have severe impairments
- 38% have mild impairments

Those with mild impairments could also benefit from assistive technology and accessibility features. But assistive technology is quite expensive, partly because so few people purchase it. However, if you can expand the market to where you have 60% of people using these features, then you have an enormous market. That market is there and those people are losing productivity because they already have lower wages.

The people in that middle category already have lower graduation rates from college and lower income, but we haven’t thought of them as disabled. We have ignored them. If they have a progressive disease, they move to the left, to join the disabled. In an ageing society, people move from mild to severe impairments. You might have had a vision problem all your life, that becomes blindness later on, and you may also have hearing difficulties.

So this creates a different kind of distribution curve – skewed and steeper on the left-hand side, the lower end of ability. Over time, we know that there will be far fewer people with no disability – and fewer with mild disabilities – and many more with severe disabilities.

Right now in Japan, 50% of women are over 50. By 2005, over 50% of the total population will be over 50. People who are 50+ tend to have some hearing loss and some vision loss. Accessibility features and assistive technology will be valuable to them – it will keep their productivity levels up. That is important because we all care about having a healthy economy, so we need to keep people productive.

We know that consumers lack awareness of products that can help them. One reason for this is the language we use; it tends to stigmatise. People with very severe disabilities become accustomed to this language. But there are different ways of looking at human ability. I have friends who go skiing in mid-winter in Alaska. I would not do that, I just don’t feel up to it but they love

it. They do it every year. They don't think of themselves as disabled. I don't think of them disabled. They are not, but they are completely blind.

There are many other people with individual impairments who don't think of themselves as disabled and are not. My husband has dyslexia and a brain trauma, but he also summits mountains in the middle of winter. So he doesn't have a disability, not to anyone who would look at him, but he is considered disabled.

Lack of awareness has been aided and abetted by the language that we use, which keeps people from talking about disability and accessibility in a way that is productive and effective.

Also, technologists lack awareness of what their customers need – because of the way we have talked about disability. And, in particular, people think that accessibility and systems technology are only for the people who are kind of on the hopeless side and I think that is an awful shame. We need to broaden the way we think about our customers but we also need to take out some of the specialist language that revolves around rehabilitation engineering. It is really about all users and creating an environment for all users to be successful.

There are huge challenges in trying to figure out how to build an accessible society. We need to make existing technology cheaper, easier to develop and more simple. We are in the process of doing that: at Microsoft we are seamlessly integrating accessibility into our products, removing the barrier.

Right now we have a wheelchair icon that is used for accessibility features. That clearly tells people who are not in a wheelchair: this is not for you. We struggled for a long time how to label those features, but now we have decided that the features that people need for accessibility will be found under some kind of common icon.

One of the most important things in the work of my team is to weave accessibility transparently into the developers' world so that developers actually don't need to know anything about accessibility, they get it for free. So our goal is that a developer building any kind of arbitrary application would actually be building an accessible application and they wouldn't even have to know it. That is a little simplistic and we always find cases where that breaks down, but we are achieving that goal to a great extent in the infrastructure that we are putting in the next release of the operating system.

We also want to make it much easier to build assistive technology. Many of the companies in this industry right now are based on Windows and have been with us for a long time. Many of them are also as old as the company itself so they carry all the legacy difficulties that have come as we have learned how to do this work. We are quietly reinventing some of the infrastructure that they use in partnership with them.

Our next aim is that accessibility will be part of the out-of-the-box experience. When you set up a new computer, when you install the operating system, it will ask you about yourself. It will ask you some questions that might seem a little personal, but the goal is to help you get the most out of the accessibility features and have the computer set up for you in a way that is beneficial to

you and others in your household. It's also going to be integrated into everything a developer learns so it is not just about making an infrastructure that makes it easier to do it for free, but every example, every sample, every chapter in every book will have accessibility woven into it.

We know that assistive technology and accessibility can make an enormous difference. We have a hint of it from the fact that when you look at the income of people with disabilities who use assistive technology it is effectively equal to a person without any disability at all. We really believe the gap can actually be erased by assistive technology.

Right now there is very low market penetration so all of the companies that build technologies in the specialised fields are struggling. If you imagine that they are only reaching 5% of their potential customers right now, I think we have to look at ways that we reach more people with the correct solutions.

We talk to each other a lot, in accessibility. I spend a lot of time speaking with people who also work in the field of accessibility and access for people with disabilities. But we spend very little time talking about these issues outside in the broader world, and I think that has hurt us. Now I think it is going to hurt us as a society, unless we can change it. So I say let's get going because we have a lot of work to do.

Sara Basson

Manager, Marketing and Business Development, IBM
Worldwide Accessibility Centre
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Speech technology experts at IBM are working towards voice recognition systems more efficient than the human ear, enabling able and disabled users to access personal computers from anywhere.

The human language technologies department at IBM Research has launched a project which they refer to as Superhuman Speech Recognition. Their goal basically is that speech recognition will be as good or better than human speech recognition by the year 2010.



Speech recognition is something that IBM has been working on for over 30 years. They were one of the initiators in this area long before there were any business applications to be seen – and yet it is still a problem that is being worked on. What makes it enormously appealing is that it creates a ubiquitous interface, it makes your computer something that doesn't have to be actually sitting on your desktop. Once you have a speech interface, you can be talking to any pervasive computer anywhere, any handheld device, and basically you can convert that into a fully fledged computer. It is easy to use. Arguably it requires less learning than keyboarding and therefore increases productivity.

Handheld devices are getting smaller and smaller to the point where they can fit into your back pocket – but mean finger tip size has remained constant over the last millennium, so another interface like speech clearly becomes compelling.

But speech technology is difficult because people have different accents, and different communication channels have different acoustic aspects. That seems to be something that human listeners can easily normalise and rectify, but for a dumb machine, that becomes a challenge. Styles of speech are also different. Some people speak slowly, some quickly, we speak loudly, we speak softly. All these things have acoustic ramifications which the human brain can figure out, but it makes the experience more challenging for machines.

Natural language is the technology that allows you to speak to systems in the way that we speak to one another, rather than the way that we often now interact with speech interfaces. If you call on one of these telephone based systems it is almost the same as using touch tone, it answers your question, you answer with one word, it goes on to the next question. It is a speech interface but it hasn't really made the experience more usable or more appealing.

Natural language is difficult because there is so much

domain knowledge, there is so much of our knowledge in the world that determines how we interpret a sentence. For example, "Go to the field" means one thing in a farm environment, but something else in a sports arena. Start building all of that into a computer and you see what the computer really needs now is a model of the human brain. It is more than just some little discreet technology like natural language understanding.

Another problem we have with it is people's expectations. People tend to admire computers when they do things that humans find difficult. So for example, if your calculator does long division really fast, that is impressive because perhaps you couldn't do that. Understanding speech and language is something we have all been doing since we were three years old and so our expectations for computers are very high, our tolerance for errors is very low. Our expectations have also been formed by things like Star Trek where this has been a solved problem for the last 20 years. So we coming up against some interesting challenges in terms of people's willingness to accept anything that is less than perfect.

As I have indicated before the idea is to access your application data from a car, a phone, a personal device, at home or in your office, and that the experience should be transparent. It shouldn't matter whether you are getting it from your keyboard or you are getting it through Voice. That is why so much interest and investment has gone into speech technology.

Until now I have been talking about speech recognition technology, but there is a lot of work going on in Texas speech technology as well – basically to improve the quality of synthesised speech and make it more natural sounding and pleasant to listen to.

Earlier, I mentioned the Superhuman Speech Recognition effort, and indicated that by 2010 the goal is to have a system which is as good or better than the human listener. Speech recognition in the late 1990s and early 2000s, assumes that you have a co-operative user, assumes that the user gets immediate feedback as to whether they were understood or not, and that they speak over a high bandwidth microphone. The goal as we move closer to 2010 is there is no feedback, it works across any environment, wherever you happen to be speaking, and it is transparent to the user who doesn't have to train it, the user doesn't have to speak in a specific way and so on.

Even if they don't actually meet their target, the fact that they are aspiring to such a lofty target means it is going to be a lot better in 2010, than it is today.

A very specific application which was designed for people with disabilities – specifically for deaf students – has had significant ramifications. It is the liberated learning project and it is supported by IBM's Via Voice.

It was started by St Mary's University in Halifax, Nova Scotia, which had a very simple problem. They tried to be an inclusive university, they attract a large number of students with disabilities, but given their location, it was difficult to get sign interpreters for every classroom.

So they came to IBM and said we want to use speech recognition in the classroom to create an accessible environment and with that the Netscribe project within

IBM was born. Professors lecture wearing wireless microphones, there is a computer running IBM's Via Voice speech recognition and also the Netscribe software which converts the professor's voice into an electronic text. The text appears on a screen so the students have real time captioning and after the lecture the text is edited for any recognition errors and then made available as lecture notes that are put on the web.

It evolves over time with more and more features, so now what goes on to the web are the edited lecture notes, the slides and the audio, all synchronised.

In a pilot project in 1998, designed for one deaf student, they found other students were looking at the screen as well. There were several explanations for this but suddenly what was initially conceived as something to create access for deaf and hard of hearing students had ramifications for everyone else.

More importantly, once they started taking the lectures, editing them, posting them to a website it became apparent that quadriplegic students, students with learning disabilities who used note takers in the classroom, no longer needed note takers. As one quadriplegic student told me: the quality of notes used to vary depending on what the note taker was drinking the night before, because it was usually just another volunteer student. The quality of their notes clearly improved and the most enthusiastic participants were the students with no disabilities whatsoever who now had this wonderful multimedia set of lecture notes available to them after class or perhaps in some situations, instead of class.

This is still a pilot project at St Mary's University in Nova Scotia, but we have now brought in some dozen other universities. At this point, for the universities that participate, it's a labour of love. Also, let me not overstate what is going on here. The professors train extensively. It is not yet something that is available across the whole university, it is half a dozen or so devoted professors who volunteer to go through the experience and are willing to put up with the potential embarrassment of the occasional error that will come up on the screen. It's a joint study but I think it demonstrates a lot of promise and we are hoping that it will advance along with speech recognition advances.

Moving forward, it is critical for us to increase the accuracy and reduce the editing requirement.

We plan to customise display options. Imagine you are in a lecture and instead of needing to look at a screen which might be way off on the side, you are wearing a head-mounted device and are able to read the captioning in the eyepiece.

There is no reason why this technology cannot make any auditory environment accessible for hard of hearing, and deaf people.

Speech technologies provide pervasive access to information and that gives you the anytime, anywhere, any device advantage that you don't have with the keyboard. That pervasive access also benefits able users, for example driving a car with eyes and hands busy.

Designing with disabilities in mind is and has been historically a catalyst for major inventions. Improved access for some eventually results in improved access for all.

Stephen Duckworth

CEO, Disability Matters
www.disabilitymatters.com

After breaking his neck in a game of rugby, Stephen Duckworth went on to complete his medical studies, and later obtained an M.Sc and a Ph.D with the help of a computer. Today he runs a disability consultancy

I always get a bit worried that when I get up from my wheelchair on a stage everyone will think that I am going to start playing the organ! Well I am tone deaf and I won't. What I have been asked to do is to talk briefly about my life and how it has been touched by technology.

Before you find out about me, I would like to find out a bit about you. Can you put up your hand if you think you are normal please?

It is an interesting concept isn't it? Only one of you in this room thinks you are normal because if you look up in the dictionary the word "normal", it says appertaining to the normal belonging to the majority.

It is in this context, I think, that disabled people are thought of as being abnormal in some way. But if you consider yourself and look at the person next to you, you realise that you are actually very different. Thank goodness, some of you may be saying.

But the point is surely that it is normal to be different and if we as disabled people are different, perhaps the more different we are, the more normal we become. And if we start to address disabilities as a normal feature of everyday life for everybody then we will start to crack what is quite a difficult nut.

Today is the 22nd anniversary for me of breaking my neck. It sounds a pretty weird thing to celebrate, doesn't it. When I got to 10 years (that is 12 years ago now) – I had my accident when I was 21 – I realised I had started a journey which I now call my disability career.

When it happened it wasn't good news. It happened back on a sunny summer's day, exactly 22 years ago today, a day just like this. It was a shock to me, my family and everybody. After a few weeks or so when I was lying paralysed in hospital, I went into a state of denial. I believed at that time that I would get better.

I then went into what they call my adolescent phase where I became very frustrated and angry. Why me? It's not fair sort of stuff. And then I hit the bottom of the ditch, the trough of depression and despair. From my experience of working with other disabled people, you usually kick into that around about 6-8 months.

I think I was in that ditch for about 3 or 4 years. But then I made some experiments and reintegrated, if you like, back into the community.

The first experiment was I qualified as a doctor of



medicine, I was a medical student at Guys Hospital and I broke my neck when I was a third year student. I managed to go back and complete the course. But because of being a patient for so long, I developed a pathological hatred for doctors. So, having become one, I didn't really want to be one any more.

I then went down to Southampton where I did a Master of Science degree in rehabilitation studies, and a PhD in disability in employment, and that is where I first came across the livery companies.

There is a gentleman here today, Roger Jeffcoate, who introduced me to technology, when I couldn't even spell computer. Technology at that time was a massive object which had a 64 kilobyte memory. It sat on my lap and was actually the lynchpin that enabled me to get through my qualifications.

Then, having got these three degrees, I went down the local job centre and asked for a job. They told me I was unemployable because I was too severely disabled. So I had to set up my own business, called Disability Matters. And when I look back over those 22 years, it is important to think about what has really changed.

The brick that Roger Jeffcoate gave me that sat on my lap and had a very small memory has become much smaller. Incidentally, 1981 was the international year of disabled people, and we nicknamed that the year of the ramp, because that is about all that happened.

We have this year, the European Year of Disabled People. I hope that we can look back at it in 22 years' time and remember it for more. In between we have had the Disability Discrimination Act – an important law. It's not exactly what all disabled people wanted but the idea behind it was to create a level playing field so that reasonable adjustments would be made and disabled people could participate in society equally.

In my days of playing rugby – which is how I had my accident – I played on a lot of level playing fields, often against a howling gale, sometimes with rain and sleet driving into your face. I think that is probably where we are up to right now with disability. We may have in many areas a level playing field great for physical accessibility but the howling gale we are fighting against all the time is one of attitudes and lower expectations, not only of non-disabled people about us, but the lower expectations that disabled people have of themselves.

This weekend I had the great pleasure of my four sons playing rugby at the local club in Romsey. You might think it's a bit daft. You break your neck playing rugby and you make your four sons play the same sport. Well I can argue quite strongly that they are far more likely to break their necks on the way to the match than they are playing the game.

There are three ideas I want to share – one is to do with dependency, independency and then interdependence. First of all put up your hands if you travelled here independently today. For those of you who can't see, most people have got their hands up.

You probably built the train that you travelled on, you probably designed your own car, you probably went out to the Gulf and drilled some oil and refined it into petrol, you probably went to Kenya to get the coffee beans and milked the cow, didn't you, before you left this

morning? You think you are doing things independently – but you are not, you are massively dependent.

We are so massively dependent as human beings in this world and I think there is an assumption that disabled people through the nature of our particular impairment are more dependent. OK, I needed some help getting out of bed this morning, but you needed a million people probably to get here today and I need a million and one. What's the difference?

The difference is the assumptions of limitations that are placed on us. So rather than seeing ourselves as independent individuals I think we need to think of ourselves as being interdependent. The problem with the idea that disabled people are more dependent was the introduction in this context of the word special. In the UK it is being used in a number of different areas. Special education, special jobs, and now we have special equipment for disabled people. Well unfortunately behind that mask of apparent kindness are two things that disabled people notice.

One is a kind of patronising of disabled people and the other is the one I have mentioned before, the soft bigotry of lower expectations. That is the howling wind that we need to fight against and to do that certain things need to be in place.

I would like to ask everyone in the room who wasn't thoughtful enough to bring their own chair with them to stand up. You will realise that some of us in this room don't depend on others to seat us. Wherever we go we take our chairs. I love it when someone says Stephen take a seat, I say thank you I have already got one.

Looking at you standing there, after a period of time standing up is quite hard and difficult to do, you tend to get a little bit of pain in your lower back, feet start aching and I can promise you what your hearts and minds forget, your feet will remember. But you expect everywhere you go for someone to put a little shelf there, for you to put your backside on, don't you. You expected it here when you came today, it is something you just take for granted. The problem is that the joke is actually on all of us, because we take so much for granted. If you do anything at the end of the day take away this concept of challenging the obvious.

The other argument that often comes across is the idea that it is all going to cost so much more. I have got a good friend Susan Daniels who is a disability activist in the States. She talked about the fact that the underground system in Washington DC is fully accessible for wheelchair users which means they have elevators, or lifts in every tube station in Washington DC. If I were to propose that to the Minister who was speaking here earlier today, you know what he would say? "Well how much did that cost?"

What he doesn't realise is how much it costs to put all the elevators in there for the lazy walkers. If people are so severely able bodied we could just drill a hole, throw a rope and let them climb down. I mean nobody actually asks what everything costs for non-disabled people so why are they starting to ask how much it will cost for disabled people. It's irrelevant as far as I am concerned.

Anyway, back to my role. Success for me has been setting up my own disability consultancy 18 years ago.

There has been no better time than right here, right now to be running a disability consultancy in Great Britain.

I have seen hundreds and thousands of disabled people enabled by technology so thank you to all of you who have been working in that field. I have also been lucky in working as a sort of strategic consultant within organisations like the MOD, Foreign Office and indeed with Barclays Bank (and congratulations to Barclays not only for sponsoring this conference but also on their recent award by Business in the Community for being the best employer of disabled people in the UK).

Running my own consultancy has given me the chance to do some voluntary work so I am now involved with a charity called Enabling Trust which supports organisations like Radar and others and also as a member of the Council of the University of Southampton. I have been lucky, but I was born with a silver

spoon in my mouth and I always remember that there are a whole host of disabled people who haven't actually been able to benefit from the opportunities that I have had.

And so, what might happen over the next 10 years? David Livermore asked me to organise an interview with the Prime Minister to find out his views.

He was on holiday, and then there was an expectation that he wouldn't be able to.

However, we managed to do it and I am proud to say the whole crew of people who made the video were disabled themselves. I got a big label and stuck Producer on the back so I thought that was OK. My colleague, Mike de Veny, who is a Disability Rights commissioner – he is doing a PhD at the University of Cambridge – Peter White and me. So the three of us pitched up at No. 10 to find out what is going on...

Prime Minister, the IT revolution has transformed society. How would you expect disabled persons to have benefited?

The world is very different for IT than it was 10 years ago and it will be even more different in 10 years' time and I think for disabled people it should create more opportunities in education, employment and as customers. There is potentially a huge benefit to disabled people as with all parts of society in the IT revolution.

Would you consider it the same level of opportunity as for non-disabled people?

Absolutely, but I think what we need to do is to create an enabling environment so that disabled people are able to fulfil their role as active citizens and participate in society.

So it's a moral case really, is it morally the right thing to do?

It is a moral case, also important for business and efficiency reasons. There are nine million disabled people in the UK, they spend over £50 billion a year and there are one million unemployed disabled people who would like to earn a living rather than be dependent on benefits, so the possibilities here are tremendous if we can harness the technology effectively.

So what is the government doing to make this happen?

I am sure my colleague, Stephen Timms will have explained the many programmes we are investing in this year which is the European

The Rt Hon Tony Blair MP

Prime Minister

Video interview with Peter White

Year of Disabled People. In addition to that it is about leadership and about partnership.

Leadership?

Well leadership in the sense the government is a large employer, we need to take a lead by employing more disabled people, particularly in senior positions using appropriate adaptive technology.

If I can give you an example, GCHQ is currently relocating to a new head office in Cheltenham. Over the past two years we have been working in partnership with disabled members of staff to ensure accessibility to the new building.

Not only this but we have also been working in partnership with AbilityNet which is a specialist organisation that advises on accessibility to information communications technology and they have looked at absolutely everything from input and output devices to software solutions and the whole information systems process, so as a result of us using our powers as an employer, we have been able to give a lead and we have been able to work in partnership with disabled members of staff and with outside organisations in order to bring about a change in their working environment.

Is this just about large organisations then?

Well I think it is about individuals too. I know a young woman called Mieta Patel who has cerebral palsy which meant she couldn't

speak or use her arms and communicated by pointing at a board with her foot. She was given a computer and keyboard which she could use with her toes and that completely transformed her ability to communicate. Now, that is the type of opportunity that IT can offer disabled people, otherwise she wouldn't be working at all. She has got tremendous ability and now she has got the opportunity to fulfil her potential.

So how do you see this developing, in ten years time for example?

Well I have always believed that a good measure of a just and fair society is how we respect and give life chances to our disabled citizens.

In the UK we have done a great deal but there is much more to do. There are still far too many disabled people who fall down the abyss if you like, caused in part by the judicial divide.

So we the government, and indeed the business sector need to work hard to close the gap. Anything less will not only be economically foolish but morally indefensible. And that is why this conference, IT – The Universal Enabler, is so important.

Prime Minister, thank you very much.

Thank you.

Peter White

Disability Correspondent, BBC
www.bbc.co.uk/radio4/factual/intouch

in conversation with

Bill Fine

Senior Consultant, AbilityNet
www.abilitynet.co.uk

Peter White: I am very pleased with that video because it now means that I am able to say “As I was saying to the Prime Minister only the other day” which is a very useful line.

I know there is at least one government minister here today and there indeed may be other government involvement. I suspect they may be feeling slightly worried at the moment because, as you know, they have at various times been concerned about the numbers of disabled people, possibly because of the benefits implications, but of course after Robin and Stephen today everyone is going to be queueing up – it’s such fun being disabled, you are all going to be down there, queueing up for your go!

Bill Fine and I are going to be talking about the practicalities of some of the things that you have been talking about today but I do feel a bit of an imposter. I feel a little bit like King Herod put in charge of the toddlers playgroup! Until about three years ago, because of the job I do, I was resisting the computer revolution.

And in that period I was worried because we work in an area as broadcasters, where time is absolutely of the essence and things can change very quickly. I was actually rather worried about turning over my life, my scripts, my programmes to a machine which can lose them all down a great hole in an abyss in the twinkling of an eye, or the swish of a guide dog’s tail. I find that a very frightening thing to do, and I put it off. But of course because everyone else, because the organisation I work for, the BBC, and all other broadcasting organisations and practically every other organisation in the world was using this technology, if I wanted to compete, and I wanted to stay in the game I had to knuckle down and learn it.

I want to reinforce that this kind of equipment isn’t just about jobs and becoming more competitive, but it is also about our lives as well. I just want to pull out one bit of equipment.

This is something called Brailite. It’s a little computer and the point is that it is a Braille word processing machine that enables me to do all the things you can do on a word processor.

The other thing is that Braille books – which are scarce, extremely difficult and slow to produce and ex-



tremely bulky – can now be translated and given to people by this equipment simply by downloading them from a disk. There are about six books in that little machine. I can now do what most other people can do, which is carry around books, novels, reports that are important for me to read: all that has become possible as a result of this.

Steven has told you that there are lots of powerful solutions available now. They are not always known about.

Bill Fine is with me from AbilityNet. Bill, you work on identifying these solutions all the time and you are going to give us some examples – give us one to start.

Bill Fine: This is a lady I met. Many years ago it seems now, she had such severe arm and hand pain that she was unable to handle the school uniforms for her children, to do buttons and zips. She had been off work when I met her for eight months. She now types, 10 years later, for British Aerospace faster than she ever typed before. She is using this extraordinary looking keyboard. I

was asked at lunchtime why it looks so extraordinary and I said to the lady who asked: because so do you! God seems very inconveniently to have given you fingers of different lengths so they don’t end in a straight line. The design of a standard keyboard is a design for the computer manufacturer. Hands aren’t that shape, but this keyboard is. You have two sort of concave dishes of keys, one for left hand one for right, and with a bit of effort with learning. She learned to use something which changed the physiology of computer input completely so that the things that hurt were being bypassed. She says she now types faster than ever before and is completely pain free.

Peter White: It’s a bit like “Will I be able to play the violin after the accident? Well that’s good because I couldn’t play one before.”

There are a number of keyboards that sort of do the same thing.

Bill Fine: This is a picture of a chap using an even more extraordinary shaped keyboard, a chap called Andrew Tabard. Here is the keyboard, this is a left-hand only touch typing keyboard so it has one dish of keys on the left hand side, and then control keys, etc. Just like dishes. If you leave your hands in a relaxed position on your laps that is the shape which the finger tips are in – rather soothing. This was a young man who last worked for a shipbuilding company, who lost his right arm in a road traffic accident and went into pain and depression, from which this silly piece of kit rescued him. Again he was able to type faster than ever before and to remove the source of pain and to regain his feeling that he could contribute - this keyboard costs about £295. It wasn’t the first thought that since he had lost one hand some-



one ought to be looking about how he used that other hand comfortably and efficiently.

Let me tell you about someone else who used the free solution, a lady called Lesley Williams who has Multiple Sclerosis. She was working for a small print company as an administrator – using the computer effectively, her symptoms not causing that to be overly difficult. Then as she feared, as she knew it would, the symptoms began to affect her computer use more and more until she said she could no longer control the keyboard. Feeling she was letting her colleagues down, she left work. Two years later she saw an article about us in a magazine and we got the opportunity to meet her.

We did the same as we did for Andrew, basically. We used the accessibility options, part of Windows to tune her keyboard, to tune her mouse, to make the reaction speeds of those devices the reaction speed she wished. For instance she would put her finger on a key and get more than one.

That happened because the computer inadequately understood the speed at which you are comfortable using a keyboard. The solution that gave her error free keyboarding was free and had been on her computer all the time and it was too late. Self confidence and self image change in hours and weeks. She had been kindly and sensitively treated by her GP, her neurologist, her physiotherapist, her occupational therapist, the Benefits Agency, social services, the employment service, her computer supplier, her employer and her husband. But at no time had anybody said Lesley, it is not your problem. The solution was free. It was not an issue of cost.

Peter White: So it is often people knowing the right thing, having the right information. You wanted to tell us about Michelle?

Bill Fine: It's always nice to talk about people you have met very recently. Michelle also has Multiple Sclerosis. Her story is that she left school at 17, joined a small Midlands engineering company and worked on making parts for rucksacks and tent pegs. The MS eventually took away her ability to do that, after 14 years working for the same company. But the company, a small family business, liked and admired her so much that there was never any choice about what they were going to do: they moved her into the office to work with the four or five people already there and gave her a computer and some computer based jobs to do, which she did very slowly.

Very slowly for four years, then through a series of events, she came to ask Access to Work if her computer use could be evaluated. When Michelle wanted to use the mouse or keyboard, what she did was turn herself and lean back so she could brace the heel of her hand against the desk, stiffening her elbow, in an attempt to stop the tremor. It didn't stop the tremor. If she was lucky when she hit the switch she would get something.

There was never any question of them firing her. We ended up with two bits of kit – an alternative mouse, a piece of adaptive technology with the big hand guard – she was able to lay her hand on the hand guard and move the whole of her hand and arm and as long as we made it go at the right speed, the mouse pointer moved slowly

and accurately to where she wanted. It has a kind of tennis ball in the middle, a mouse just has a ball on the bottom. This has ball on top. It is transforming.

Peter White: So your point would be, there isn't a lack of solutions, there is a lack of awareness. How do we breach this problem?

Bill Fine: Whatever brought you here, whatever professional role brought you here, you are someone's cousin or neighbour. Your cousin has dyslexia, your neighbour returns from hospital after a stroke with one arm not working as well as it used to. Let's tell people from the ground up, let's start to make it obvious that if the keyboard goes faster than you want it to, it is the computer's fault. If double clicking is faster than you would like, it is the computer's fault.

Richard Hodges is a gentleman who would tell you something else. This man was fighting to run a property management company: very intelligent, legally trained. He had reached the point where they keyboard was next to impossible and he is now using voice recognition plus a smaller than normal keyboard. Voice recognition with a microphone on a stalk because he doesn't have the physical ability to put the headset on and take it off again.

Peter White: So other than the WCIT having a big conference with very important people, what are the most effective things we can do to make these ideas into common currency?

Bill Fine: I think we need to head for a complete revolution of computing culture. If you go into the average big office where you see a computer, what you appear to see is an environment designed for right-handed touch typists whose fingers are all the same length and whose arms emerge from the centre of their chest. This is a standard keyboard designed in 1873 to slow down the user. Not only is this what you give each other but what you give your kids. So they can pursue dubious thing of national curriculum IT. Six-year-old kids are using this, they haven't got 25 years of experience with layout designed to slow them down.

What I would love to see is a computing environment in which it is equally obvious that the computer is relishing and enjoying and responding to the needs and preferences of each individual user in what appears on the screen, what they touch with hands and how they sit and work. But we won't get there for a while so we have to think of other things to do.

Madelyn talked about the things that are available in the operating system and will increasingly be. I suspect there are people working for companies where the control panel of Windows is excluded from the desktop of your employees. They have had taken away from them all the accessibility options that are free that Madelyn told you about. Why? Because if you give people the options, they will fiddle! That might make IT support a bit more difficult.

Peter White: I would just like to leave you with the

thought, that all these systems we have seen, as wonderful as they are, aren't making disabled people clever. They are bringing out the cleverness and resourcefulness we already had. Robin was clever before he had a computer, Steven was quite clever before he had a computer!

I present a programme called You and Yours which is a live hour-long programme each day. You have lots of people with computers typing all their material in a shared area. The idea of that shared area is that you get one coherent script that everyone can amend so that at 12.04 when we say hello and welcome to You and Yours, we've all got the same thing

.Only, one person actually isn't integrated when I am presenting and that is me. It is too complex for me to get on the shared area. At the moment I don't have the confidence in that system to be able to change things quickly enough from my computer to their computer.

So on a day when I am presenting, I am still producing a Braille script on a very old fashioned piece of American kit. (I almost brought it today but it is too heavy, I couldn't lift it).

One particular Monday, the script was in the shared area and then suddenly about 11.45 things began to go wrong. Somehow the script was completed, but when we needed copies of the script quickly, the photocopier broke down. When we tried to copy the script on to the computer it crashed.

By this stage, the sighted producer and I are down in the room waiting to produce the programme. She hasn't got a script but I do. I have a script with bumps on. They finally get the script at about 12.03, they rush from the 6th floor, but the lifts have broken down, they have to go down eight floors.

It is 12.04, it is time for You and Yours with Peter White and Winifred Robinson, but only Peter White has the script.

I did have a script, I did have the opening item. We did the introduction, we got into the opening item, I did the interview and at the end of the interview, a little voice came on my head phones and said "thank God you are blind!"

Amen to that.

Roger Davis

CEO, Barclays Business Banking
www.business.barclays.co.uk

With its sights set firmly on the top of the banking league in all respects, Barclays is vigorously addressing the needs of disabled employees and customers.

Barclays don't have a spreadsheet that says you make more money by running a business if people feel they are doing something to address the equality and disability agenda. There is no particular rule of thumb that consultants can give you that can prove to you absolutely at the bottom line that this is the right thing to do – but it makes such a difference when you just do it.



It makes a difference to help people in the organisation feel good about themselves and feel good about the organisation. Banks are not particularly well-loved these days in this country – by their customers (something that we absolutely need to address) or by their employees who sometimes feel that corporate social responsibility has gone missing from the agenda.

If we can get the sense of community and responsibility back on to the agenda, it so powerfully makes people believe in the organisation and the values that it stands for. There may have been a period in British corporate life when that was no longer fashionable. I think many of us believe that that period is not yet entirely behind us. But the difference it makes with an organisation is palpable and I will share with you some examples.

There is a chap who works for me called Mike Newman. Mike is a local business manager (LBM), in Manchester where he has a portfolio of business customers. He is totally blind. Now not only does Mike run an extremely successful customer portfolio, but he has also just broken the world land speed record for driving a car on his own at 148 mph. Someone said you probably need to be blind to be brave enough to do that.

We are immensely proud of Mike, Mike doesn't make more or any less money than any other LBM. Mike is a symbol to the people who work with him of what he achieves as an individual. He has been with us all his working life, he runs a customer portfolio just like anyone else, he has someone to help him do it, to input various data, that's fine. What Mike demonstrates is a passion and a commitment to what he believes is inspirational. He is not a senior person in the bank, he doesn't sit on the boards and committees that I do, he doesn't get to come and speak – or he didn't before he became a world record holder – on occasions like this. What he brings to the people at Barclays who know him, is inspirational – and that you can't value.

I've met Mike several times. I couldn't go up the day of his record because I was abroad, but I rang him the

next day and said: “What are you going to do next, Mike?” He said: “I’m thinking, not sure yet but I’ll do something.” I stupidly said: “Well if you need any help, give me a call.”

He was on the phone the following week: “I do need a bit of help. Could you buy the car?”

He told me that 148 mph had been easier than he thought, and actually the next logical target would be 200 mph. He needed the car to travel round the country on promotional tours for the new attempt, at the same time raising money for Guide Dogs for the Blind.

I rang him back the next day with the news that we would buy the car.

What I love about Mike is here is a guy who does things I can’t even imagine doing every day – and yet he said: “I am so grateful not only that you are buying it but that it took you one day to decide, because Barclays didn’t used to be like that. Ringing you and asking you for the money was actually more frightening than breaking the record.”

Now there is a humility in there that I personally find inspirational and that is why we need more Mikes, and that is why we have to do a better job to encourage them.

There is another guy, Andy Summers, who joined Barclays in 1989, at a relatively junior grade – visually impaired, but he had never told anyone. He got through the interviews and he spent a number of years as his sight deteriorated, going off to private rooms, corridors, lavatories, with a magnifying glass to try and catch up on the reading that he was unable to do but absolutely knew would be the end of his career, or so he thought if he was ever to admit it.

He then got to the stage where it was impossible really to keep up with the workload so he would take most of it home and do it there. As a result of the launch of our E&D agenda, Andy decided he would test Barclays to see if they were serious. So he went to his line manager and explained his problem. Now, two years on, he has all of the equipment he could possibly need to do his job, he has it at his desk at work, he has it at home, he has a mobile magnification set, the beginnings of the technology you have heard about today.

He said: “That’s fine and I’m really pleased I have got that and I have won the promotion to senior credit manager I always aspired to but knew I would never get. But it has actually changed my life because I now work in an organisation which allows me to feel valued and allows me to deal with my disability. My golf handicap has gone down to 11.”

When I first met him to hear about his story, I couldn’t quite make the link between all of this and the golf handicap, and Andy helped me with the link. He said: “I started golf 12 years ago but I had to play with a family member because obviously I didn’t know where the ball had gone and I couldn’t walk around the course properly. I could only see a few feet and I was too embarrassed to admit it so I could only go with a family member. Now I play golf with binoculars. People look at me a bit strangely but I can follow the flight of the ball with most clubs.

“The reason I had the courage and the self-belief to

take those binoculars out on to the golf course two years ago was because of the way I felt valued at work.”

The final example was literally a few weeks ago, I went up to a call centre where I met Tim Cook who had just joined us from another company. I sat down with him as he was about to take a call. But as luck would have it, he has the chief executive of business banking sat next to him with headphones on and he gets a call from the customer from hell!

Now I know we are not supposed to say we have any customers like that but very occasionally we do. This guy had turned being unreasonable into an art form. But Tim was patient and understanding. I would have hurled the headphones across the room after about five minutes but Tim was fantastic. When he finished I said: “You are really positive about things which is great.” Tim said: “I came to Barclays. I didn’t like my previous employer because I was always a burden. I’ve got cerebral palsy. I need a wheelchair. I can’t work with the same equipment as other people can. The thing that has just really changed my view of what I contribute is this: there is a small car park outside this office with marked spaces. The space that I have for my car is the MD’s space by the door because that is what the people here gave me when I came.”

The people in that organisation now view Tim as an inspiration, they don’t view inspiration as an adjunct to the bottom line. They don’t view Tim as someone they sort of help because it is sort of politically correct, they view him as an inspiration and they are proud of the fact that they have found a way to make him an absolutely full and valued member of the workforce. So that is why we do it and we have so much more to do.

There are approximately 400 registered disabled people in the Barclays workforce in the UK, a workforce of some 60,000. I am told that 15% of the total workforce in the UK are disabled, but we employ less than 1%.

In fact interestingly we probably employ more than that in my own business – the Business Bank. We employ 9,500 people, there are 57 who are registered with us as disabled. Yet when we send out the employee opinion survey more than twice that number anonymously put down that they suffer from a disability.

So we have a long way to go to change the perception of those people. We are making a start and the reason we do it is because we know it is absolutely the right thing to do. There isn’t a person in our organisation now who doesn’t sort of believe it but we have a huge amount to do before we begin to get where we need to be. That is not just for our own people, that is also for our customers.

Two years ago, when I took over as CEO of the business bank, we were as we are now in the heart of the planning round, a nightmare for any businessman large or small. You can never balance the numbers and there are always areas that people go to first for savings: it’s normally training, marketing and two years ago it was the budget for disability access in our branches. This year it is not even up for debate, we will spend £9 million and twice that next year. Partly because of the government, we have to get this done by October 2004 – and that was a good stick to prod us with.

It's only the start but we are looking at an enormous pool of wealth and value. You know all these statistics better than I. This isn't altruism, just pure business common sense. We have to take more seriously our ability to deliver what all of our customers need. They may be old, socially disadvantaged or disabled – it really doesn't matter. We are not going to be the number one bank in the UK in the eyes of our customer base unless we are seen to be doing a better job than we have been. We believe we are making a start.

It is important that everyone here realises that this is firmly on the business agenda. Would I even have been invited to speak at a conference like this five years ago? Would this conference have existed? The answer is no we wouldn't. But we are doing it now and we are acutely conscious of how much more we have to do.

James Strachan

Chairman, Audit Commission

www.audit-commission.gov.uk

A rousing call to action on accessible technology with guidelines for key players from government and employers to service providers and individuals, from a man who has overcome disability to achieve high public office.

I will start by telling you a little bit why, without a shadow of doubt, my life would be utterly miserable without technology. I couldn't begin to do any of the things I do – and I will tell you a few examples.

I don't know how you got up this morning, possibly your beloved brought you breakfast in bed and gave you a nice kiss. I got up – not because my beloved wouldn't do that, but because she wasn't there – with a volcanic eruption in my pillow which is called a shake-awake alarm clock. I can assure you I would have never made it to a million meetings without that tiny little piece of kit.

I wouldn't have got the phone message that someone tried to get to me before I went to the office were it not for this little phone in my pocket. It is not only a phone – it receives and sends faxes, emails and text messages. It is an absolute godsend. But it is actually a leveller of the playing fields for me and for many other deaf people.

I don't actually know that I exist in a philosophical sense until I have got a pair of hearing aids in, because I hear absolutely zip. But when I put them in, because of the extraordinary power now achievable through digital technology, I can actually hear my own voice. I can avoid screaming at you or whispering to you I hope, and I feel alive. That in itself is terribly important, but also it enables me to lip read at the margin that little bit better.

At this point I haven't even left my flat.

I go out, I see technology everywhere now, railway

stations, bus stops, all those nightmare stories where you haven't the faintest idea what is going on in the station because they have changed the platforms and you kept observing large numbers of people moving from one to another but nobody is particularly interested in helping you. Well it's there in text now at the railway stations.

Could I chair the Audit Commission without technology? Absolutely not. I wouldn't stand a hope in hell. In a large meeting the value of having speech-to-text transcription which is verbatim transcribing every word that I am saying. I can easily function in a board meeting with that machine.

I used to jokingly say that I used to be a 50-a-day man. About two or three years ago I really cured the problem by becoming a 100-a-day man, and of course I am talking about text again. Even in the few minutes I have been speaking to you, a rather pleasant little sensation on my inside leg has just told me that my PA is trying to get me once again!

So its not just those deaf people, or deaf people like me. If you are deaf, reliant more on British sign language than you are on lip speaking, there are a whole number of problems. Many of them are solved now through computer graphics. Instead of always having people signing on television you can actually use computer graphics, avatars – virtual humans – to be, for example, constantly on during the weather forecast. Through very clever programming, those avatars can in fact sign in verbatim synch with the presenter what actually the weather forecast will be.

More and more we will see that used in just the same way that when you go to a museum, and you have an audio tour, you could very easily get a Palm with a small avatar signing you a description of the exhibits.

Severely disabled people could also soon actually use their mind to move around, because researchers are developing a wheelchair that can be steered by brainpower. Users wear an electrode blind skullcap which actually reads electric activity on the surface of the head. I am sure you have seen or heard of blind people now being able to actually navigate through the streets of London by satellite.

Every one of you probably uses a mobile and even if you are calling someone in the next door room, you are actually calling them through a satellite in space. It is no different and linked to that satellite up in space, what is called the Bectar tracker system, tells blind and partially sighted users which road they are walking down, which shops and buildings are near them. In fact, without overegging the idea, there will be a point when you can walk into Sainsburys and Sainsburys will tell you much more about the store special offers that are actually on that day.

The list is very long – as long as the imagination, the dreams, the determination of the people who work in the technology business, indeed in the IT industry.

I think the government talks seriously about people being socially excluded if you don't actually have access to the internet, and soon "the information poor" will be used to describe people who don't have access to Broadband. Internet has actually been hugely liberating for a number of disabled people, but particularly from per-



sonal experience, deaf people. Of course, in some ways technology doesn't always work for you, I will give you an example of this. Today, if my partner wants to go and see a film, I would say "only if it is a foreign film with subtitles." But actually subtitles were there for English language films until *The Jazz Singer* in 1926. I have been struggling to get them back into the cinema ever since. Technology doesn't always blow a fair wind in the direction of disabled people.

I can give you another example – today you cannot buy a video cassette recorder that enables you to record subtitles. Astonishing! The subtitles are on television but you cannot record them any more. Just because a group of people in a few companies decide that really that is not an interesting market, not big enough. But so often when you probe people on this, the cost of that minor adjustment is absolute peanuts in terms of the scale of mass production involved.

I will give you one other example, I have a real fear that in 10-20 years' time personally I may be scouring the equivalent of Tottenham Court Road for old early 21st century computers which were totally text-based because the whole world will have moved on. And everything will be voice activated and this charming reincarnation of Howl will be speaking to you from your computer screen.

So there is a very good series of reasons for having a conference like this, of creating a dialogue between, if you like, those who can provide completely transforming solutions to disabled people and the disabled people themselves. And it is terribly important not just for those two groups but all the players involved, including employers. We can cite all sorts of interesting examples of inspirational disabled people, but I have found Roger Davis rather inspirational. In fact if there were more Rogers, hugely greater numbers of disabled people would benefit from some of the technology we are talking about because he realises that (a) there is an asset – dare I use the word – to be exploited, in a positive sense, to actually harness all that value that exists within the pool of disabled people in this country who are not being employed to the limits of their capabilities and (b) he realises that a really key lubricant to achieve that is technology.

Money. There are nine million disabled people. They've £50 billion to spend. If you are looking at it in market terms that is a huge number of people.

Of course that over-exaggerates the case because within that group there are a number of different subsets – but this is a vast group of people. I think the business case is very easy to make, but I don't actually think the business case, however easily made, is the most persuasive one.

The Law. This is the law these days. This isn't some quaint add-on extra that you think about disabled people. This is actually the Law as enshrined in the Disability Discrimination Act. And I think that fact, slowly but surely, is making massive inroads on business perception.

There are people who are actually driven by compliance with the law. I really don't care, it's the result that matters. But it is important that more and more people

actually know that it is the law. You cannot legally discriminate against disabled people in a significant way in Britain in 2003.

I sometimes think how we followed the American government in this because they moved into this mode earlier than we did. In the States from June, two years ago, all US government workplaces had to be accessible to disabled people – not only physically, but also in the virtual world. It's mandatory for all computer hardware and software and websites to be usable by the 140,000 or so disabled federal employees. Now that's a very ambitious law, but it has revolutionised a huge number of people's lives.

It is those kinds of stimuli that we need to think about as we refine and improve disability legislation in this country. How actually can we change the world? Here are some messages for four key groups.

The first group are the service providers and the suppliers.

Accessibility and usability should be completely embedded in the design and development cycle from the beginning. I remember being struck heavily when mobile phones first came out that nobody even bothered to ask do these things cause interference with a hearing aid? There are two million NHS hearing aid patients there are many more private users. Nobody could deny that was a huge market. The cost of making the change would be absolutely zero.

So very often this is not about huge sums of money it's just about forethought – just an attitude of mind. Set up user panels. People are very free in giving you the advice that you need to understand what technology would transform their particular life or lives. There are many large charities who can act as a very helpful filter. Use the existing design standards that actually provide guidance to make products and services accessible to all.

What about employers?

We are looking at a flexible, increasingly IT-intensive workplace which will provide opportunities for making the IT infrastructure accessible from the start. And it should be standard practice to think about it up ahead and not discover after the event that "if only we'd thought about disabled people look what the benefits would have been".

And the second point to employers is that procurement procedures in the organisation should include full accessibility as a mandatory requirement for all technology that is used. Never forget that a diverse workforce will help you better understand the needs of your customers. Certainly, my longstanding employer in the City, Merrill Lynch, was way ahead of the game in understanding this. You could feel the bewildering array of different types of people which would very often match the types of people we were trying to sell our services to. It gave us an immense edge.

The third group is individuals, friends, families

I think it was George Bernard Shaw who said that progress actually depends on the unreasonable man. We have the DDA – the problem is we don't use it enough. I'm never quite sure why. But we won't get much sympathy from government if we are not seen to be using it and if all we clamour for is another refinement, another

thing we want.

So it's terribly important that you understand what the law is at the moment and you maximise the value and the benefit of that. It's not easy, it takes some work, but there are plenty of people in the form of disability organisations who can help you use it. Technology is a subset of that. Don't accept inaccessible products and services. Shop around. Find the ones that are most accessible and slowly, hopefully the message will get through to those companies that don't think positively about it. They'd better do something, otherwise they are going to start losing significant market share.

Last but most important, in some ways, the government.

And I'm delighted to see here today in front of me Maria Eagle, Minister for Disabled People, who, from a position of having come quite new to some of the issues that we face in the world of disability, has become a very strong advocate for disabled people. And Stephen Timms, equally very interested in the whole areas of disability from one of his previous jobs in government and also a man who used to work in IT.

So what actually do we need from government? Well, when I was talking with some of my colleagues in the charity sector one or two said we should recommend a new task force. Those of you who know me, probably know what I said to them. But, on the other hand, whether it's a task force, a group of people, three or four meetings chaired by one minister or two – I don't care what the device is, that's for a subsequent discussion with government. Everyone can see that there is a huge win to be had here. Many of the building blocks are actually just sitting there, staring us in the face. It just requires people to make connections – some of the connections that I have just described.

Of course money is helpful, too, and I think it would be good if we could get some grouping of people under a governmental auspice to look at the idea of an accessible technology fund, funded significantly by industry.

This is not based on industry's altruism but because they should really see the tangible benefits of promoting the notion of technology for disabled people to produce more and more active members of the workforce in their particular organisation.

There are other vehicles that we could use in terms of awards, a "kite mark" scheme and so on but these are details. The real issue is the need to mesh people together. I would just leave this challenge to the minister: Can we have a further discussion about how we might find the right format to bring the various people around the table to harness this technology?

I'm going to finish with a quote from one of my favourite heroes. It was T.E. Lawrence who said, very inspirationally: "All men dream but not equally. Those who dream by night in the dusty recesses of their minds awake at the dawn to find that it was all vanity. But the dreamers by day, they are the dangerous men, for they may act out their dream with open eyes to make it possible".

In the development of technology we have seen some astonishing dreams come true because people have acted out those dreams with open eyes.

My challenge to everyone here is to ask you to make real a slightly different kind of dream. Think about not just the accessibility of technology – think of yourselves as transforming other people's lives. It's very much up to you. Don't just sit there being fascinated by all this high technology and then go home and hope that somebody else actually chooses to act.

Although there is a business case I don't think that's why you should do it. I think the feeling that you will get when you go home at the weekend and you have actually done some things in all your individual walks of life that will transform other people's lives – that's a far more powerful reason for doing things. Have the business case in your back pocket to persuade your less imaginative, less inspired colleagues, but do it for that reason, and do it for the many million disabled people.

Useful points of contact

www.disability.gov.uk – *Disability Unit, Department for Work and Pensions*

www.drc-gb.org – *Disability Rights Commission*

www.dfes.gov.uk – *Department for Education and Skills*

www.dph.gov.uk – *Department of Health*

www.dwp.gov.uk – *Department for Work and Pensions*

www.abilitynet.org.uk – *AbilityNet*