

Digital TV Equipment: Vulnerable Consumer Requirements

*A Report by the Consumer Expert Group
to Government and Digital UK*

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Introduction: the importance of accessibility and usability for older and disabled people

This report examines the user needs of older and disabled people in relation to digital TV and provides solutions that would make digital TV equipment more suitable and usable for them. If these solutions are not taken into account during digital switchover, then we run the risk that older and disabled people are left behind when switchover happens. The Consumer Expert Group has put this report together to help the UK government fulfil its commitment to ensure that disabled and older people receive suitable help during switchover.

The Consumer Expert Group is not alone in highlighting how essential it is to ensure that equipment is suitable for older and disabled people. The need to design with the requirements of older and disabled people in mind is internationally recognised. For example, the European Standardisation bodies in CEN/CENELEC have published Guide 6 "Guidelines for standards developers to address the needs of older persons and persons with disabilities".¹

The Consumer Expert Group has found that accessibility is essential in relation to the specific area of digital TV. In its 2004 report "Persuasion or Compulsion? Consumers and analogue switch-off", the Consumer Expert Group pointed out that accessibility of digital equipment is a significant concern and barrier to take-up for many consumers, particularly but not confined to older and disabled viewers.²

The report also concluded that it is imperative to have specific plans in place to address the needs of low income and special needs groups to switch to digital television and that specific plans should be in place to address the needs of disabled people. This is further specified in the report as follows³:

- (1) all digital equipment should include basic access features,
- (2) accessibility issues associated with electronic programme guides and menus, remote controls and connectivity should be resolved and
- (3) the full range of access services should be available via affordable equipment.

Since the publication of the Consumer Expert Group report, the Government has announced its plans to provide assistance to older and disabled people during switchover. It has also become clear that the access issues raised by the report are not readily being resolved in the mainstream market, even though a large part of the population would benefit from easy to use and accessible equipment. The Consumer Expert Group has already in 2004 encouraged the government to promote a "design for all approach"⁴ in order to remedy this situation.

It is therefore of prime importance that the government actively gives the industry incentives to make accessible equipment by making sure that the equipment offered to vulnerable consumers during switchover is accessible and meets the needs of the older and disabled people that will receive it.

¹ CEN/CENELEC Guide 6 Guidelines for standards developers to address the needs of older persons and persons with disabilities Edition 1 / January 2002. Available on <http://www.tiresias.org/guidelines/guide6/>

² Consumer Expert Group (2004), page 36.

³ Consumer Expert Group (2004), page 6-8.

⁴ Consumer Expert Group (2004), page 36.

The new European Procurement Directives allow for accessibility to be included in public procurement tenders, hence requesting accessible products or systems could not be considered as market distortion. Given the scale of the assistance scheme, it is hoped that manufacturing industry would have a sufficient financial incentive to incorporate accessibility features in their products and that as a longer-term effect of the scheme, that these products and their features would become available to all consumers in the mainstream market.

Recently the Expert Group's terms of reference were renewed as follows:

1. To advise Government and Digital UK on:
 - the content of its planned communication with consumers to explain why the UK is switching to digital television.
 - ways of ensuring that communications reach all consumers, particularly people who are socially and geographically isolated.
 - communications for support scheme projects.
2. To assess what role CEG members and other consumer groups can undertake in communicating switchover to consumers.
3. To raise any issues that might arise for consumers in relation to the implementation of the Digital Switchover Plan.
4. To write any reports that are deemed necessary to fulfil this remit. Government and Digital UK will give due consideration to and respond to the reports and other advice received from the Consumer Expert Group.

The Consumer Expert Group welcomes the Government's intention to protect vulnerable consumers during switchover. Given our agreed remit, and specifically the 3rd and 4th aspect of our remit, the Consumer Expert Group also welcomes opportunity to advise Government at this key stage in the development of the assistance scheme for vulnerable consumers about the key features that would improve the usability and accessibility of the digital TV equipment that should be offered to vulnerable consumers.

This document compiles a list of features and user requirements that can be incorporated in a UK specification for digital TV boxes and systems for vulnerable consumers.⁵ The specifications in this document are platform-neutral and would apply irrespectively of whether a vulnerable consumer was given a DTT, digital cable, digital satellite or internet-based receiving system for digital TV. This document draws upon the needs of people with sensory and dexterity impairments, cognitive impairments and older people as identified in user research and published work as referenced. However, care has been taken to ensure that the end products would be usable for all users, and not for a niche section of the population. In other words, this documents constitutes a "design for all" specification for digital TV receivers.

The final product(s) or systems that are to be offered to vulnerable consumers should undergo testing with the target group for the vulnerable consumer scheme, in with older and disabled users.

The systems that are offered to vulnerable consumers should also be sufficiently future-proof.⁶

⁵ It is assumed that any assistance scheme would also comprise of installation and helpline services, but these elements of the scheme are not covered in this document.

⁶ One suggestion is that a common interface slot would go some way towards this goal as explained in Stellard, G. (2003), page 32.

This report looks at eight areas that are of importance from a user perspective to achieve a "design for all" receiver system for digital TV that is appropriate for older and disabled people:

- 1. using the instructions manual and documentation**
- 2. opening the packaging and setting the system up**
- 3. using the on screen display**
- 4. receiving audio feedback of text displayed on the screen**
- 5. using the remote control**
- 6. using subtitles**
- 7. using audio description**
- 8. accessing the internet**

Unfortunately, many of the user needs that are identified under each of these headings are currently not being met by market forces, even though the proportion of older and disabled people in the population is on the increase. As switchover rapidly approaches, meeting the needs of older and disabled people with suitable equipment is a growing concern amongst members of the Consumer Expert Group.

This area is particularly important as the systems provided to vulnerable consumers under the government targeted help scheme should be fully accessible and usable for the target group of older and disabled people.

The Consumer Expert Group therefore calls on the Government and Digital UK to:

- take the user requirements and recommendations identified in this report forward in the decisions that are made about equipment that will be given to consumers under the government targeted help scheme.
- commend this report to the digital TV manufacturing industry for consideration in their production for mainstream markets.

1. Using the instructions manual and documentation

Essential:

- The instructions should be easy to read, concise and jargon-free (using plain English)⁷ and avoid technical abbreviations.
- The instructions should have comprehensive, relevant index⁸.
- The instructions should provide information about the accessibility features of the product and about access services such as subtitling and audio description⁹.
- The manual should have illustrations to complement the text to help understanding^{10,11}.
- The manual should have trouble shooting guide¹², including information about when the user needs to reboot the system.
- The standard instructions or manual should be printed in clear print (larger typeface¹³).
- These documents should also be available on audio tape and in braille.
- The installation guides should have instructions for common home connecting scenarios for common combinations of equipment^{14,15,16}.
- These documents should incorporate a clear indication of where dedicated information and support services are available¹⁷.
- On-screen information should be provided to avoid reliance on the manual¹⁸.

Desirable:

- The instructions or manual should be available in electronic text file, large print and in Daisy formats.

⁷ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

⁸ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

⁹ Consumer Expert Group (2004), page 37.

¹⁰ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

¹¹ Clarkson, J. and Keates, S (2003), page 17.

¹² Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

¹³ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

¹⁴ Consumer Expert Group (2004), page 38.

¹⁵ Klein, J., Karger, S., Sinclair, K. (2003), page 9.

¹⁶ Consumer Expert Group (2004), page 38.

¹⁷ Consumer Expert Group (2004), page 38.

¹⁸ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

2. Opening the packaging and setting the system up

Essential:

- The packaging should be easy to open for people, given the dexterity problems and sight problems users might have. It should be easy to remove the packaging for these users.
- There should be a clear notice on the packaging of how to check for digital reception.¹⁹
- At least one scart lead should be included in the packaging of the digital receiver.²⁰
- Colour-coding on the digital receiver ports corresponding to respective cables should be applied.^{21,22,23}
- External connections should be easily accessible and clearly marked.²⁴
- The on-screen set up procedures should use easy to understand language and should be available to the user after initial set up.²⁵
- All SCART leads supplied with the system should be held in place by a clip as available from mainstream stores to prevent accidental disconnection.
- A reboot button on the receiver would be valuable to people with mobility problems who might have difficulty switching the system off at the mains.

Desirable:

- An easily accessible audio jack socket for headphones and connection for use of home hearing loop for hearing aid users should be provided. These should be positioned at the front of the equipment to allow easy access.²⁶
- There should be a simple means of storing and retrieving individual user preferences for various members of a household.²⁷ For example user preferences could be stored on a smart card so when it is inserted into the system, it reconfigures the display according to the coding on the card.²⁸

¹⁹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

²⁰ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

²¹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

²² Klein, J., Karger, S., Sinclair, K. (2003), page 31.

²³ Clarkson, J. and Keates, S (2003), page 71.

²⁴ Stallard, G (2003), page 30.

²⁵ Stallard, G. (2003), page 29.

²⁶ Stallard, G (2003), page 30.

²⁷ Stallard, G. (2003), page 32.

²⁸ Perrera, S. (2003), page 25-32.

3. Using the on Screen Display:

Essential:

- Ensure that there is information on screen about the system status.^{29,30}
- Whenever the box or system is doing something on its own (for example scanning for new channels, getting new software over-air), it should clearly indicate on the on-screen display this process to the user to ensure that the user is not left not knowing what it is doing. The box or system should also clearly indicate to the user when it is rebooting or has frozen.
- Software upgrades should not cause the loss of existing settings (e.g. brightness, contrast etc...).
- Offer the user the possibility to tailor functionality and interface.³¹ For example the user should have the possibility to mask off the more advanced functionality which they might not wish to use regularly and to ensure that it does not add complexity during day-to-day use. (See also programmability of remote controls).
- Ensure that text on the screen is displayed using good colour contrast.³² For more detail on the most suitable colour combinations, see the work by Sue Darby.³³
- Ensure that the selected menu option is indicated on screen in different colour highlight, offering good contrast but never rely solely on colour to convey information about e.g. selected options.
- Use a typeface designed for use on television displays and typical TV viewing distances, and optimised to reduce confusion between letter shapes. Tiresias screenfont is generally recommended.³⁴
- Avoid combinations of red and green.³⁵
- Avoid pure red or white colours. Use colours with a maximum of 85% saturation.³⁶
- Provide generous inter-line spacing to minimise problems of visual tracking.³⁷
- Use clear and unambiguous menu terminology.³⁸
- Ensure that menus are intuitive for inexperienced users and give them the ability to return to the previous menu screen by using a common term such as back.³⁹ This could be accommodated by a special button on the remote control.⁴⁰
- Use consistent and predictable navigation cues⁴¹ and maximise consistency in button sequences.⁴²

²⁹ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

³⁰ Klein, J., Karger, S., Sinclair, K. (2003), page 41.

³¹ Klein, J., Karger, S., Sinclair, K. (2003), page 56. 64.

³² Consumer Expert Group (2004), page 37.

³³ Darby, S. (1997), page 30-33.

³⁴ www.tiresias.org Guidelines Television

³⁵ www.tiresias.org Guidelines Television

³⁶ www.tiresias.org Guidelines Television

³⁷ www.tiresias.org Guidelines Television

³⁸ Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

³⁹ Clarkson, J. and Keates, S (2003), page 63.

⁴⁰ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁴¹ Perrera, S. (2003), page 16.

⁴² Freeman, J., Willams, A., Harrisson, D., (2003), page 36.

- Use principles derived from good web design practice when drilling down menus.⁴³
- For pop-up menus: number the items in menus and have those numbers directly selectable, for example item 1 can be selected by pressing number 1 on the numeric keypad.⁴⁴
- Avoid the use of a time-critical user response (where the user only has a certain time to push a key before it times out).^{45,46}
- Ensure that there is direct correspondence between on-screen prompts/text and button labels on the remote control.^{47,48}
- Avoid flashing and scrolling text.⁴⁹
- Text size should be a minimum of 24 lines high on a capital 'V'⁵⁰, though being able to read text is not just about size. For example, a smaller sans serif font is usually more readable than a larger serif font. Readability is improved with extra spacing between letters (but take care to increase spacing between words in proportion), words and lines⁵¹. When choosing a font, consider its readability. Favour a sans serif font over a serif one. Tiresias⁵² is generally recommended.
- Mixed case is ideal, but when choosing one case only, then favour lower case text over upper case.⁵³
- Avoid italic, underlined, oblique, condensed or fancy fonts.⁵⁴
- Favour left-align against centred or right-align. Avoid justified paragraphs since they result in varied spacing between letters that makes them harder to read.
- Ensure that words have a clear space around them. Words immediately adjacent to symbols can be more difficult to read.⁵⁵
- Symbols used should follow internationally recognised standards (e.g. when using visual or audible symbols for access services, refer to the CENELEC standards for symbols for access services – currently under development).
- For arrows, follow the ISO7001 specification.⁵⁶
- For numbers, use Arabic numerals (1, 2, 3, 4, 5...) rather than Roman numerals (i.e., I, II, III, IV, V...).

⁴³ Clarkson, J. and Keates, S (2003), page 63.

⁴⁴ Clarkson, J. and Keates, S (2003), page 76.

⁴⁵ W3C guidelines see website <http://www.w3.org/WAI/>

⁴⁶ Klein, J., Karger, S., Sinclair, K. (2003), page 35, 42.

⁴⁷ Freeman, J., Willams, A., Harrison, D., (2003), page 36.

⁴⁸ Clarkson, J. and Keates, S (2003), page 72.

⁴⁹ W3C web accessibility guidelines available on

⁵⁰ For fonts destined for use in UK digital television, font size is defined in terms of the maximum height in TV picture lines of a capital V. The height should be measured from the half-height of the upper most portion of illuminated character detail to the half-height of the lower most portion. Peter Barker, June Fraser, Sign Design Guide, Royal National Institute for the Blind.

⁵¹ Barker, P. and Fraser, J., page 51.

⁵² Silver J H, Gill J M, Sharville C, Slater J & Martin M: A New Font for Digital Television Subtitles. May 1998. For more information about Tiresias fonts See also www.tiresias.org/fonts

⁵³ Studies have shown that lower case text is easier to read than upper case because their ascenders and descenders make distinctive and memorable images.

⁵⁴ Barker, P. and Fraser, J., page 43.

⁵⁵ Here is an `$example¶` of that.

⁵⁶ See also Barker, P. and Fraser, J., page 38-40 on arrow design and use.

Desirable:

- Allow the user to select the size of the on-screen font. However limit this to the visible image to avoid that text would be lost or cut off for the viewer.
- Allow the user to choose from a range of font styles.
- Offer the user to choose from a range of good contrast colour combinations, but at minimum light on dark background⁵⁷, and the reverse.⁵⁸

⁵⁷ Stallard, G. (2003), page 37.

⁵⁸ Perrera, S. (2003), page 15, 52.

4. Receiving audio feedback of text displayed on the screen:

Essential:

- Provide speech output of text displayed on the screen^{59,60} for static text such as the TV settings, but also for text that changes and is part of the broadcast stream such as channel identification, programme name, programme length.
- Provide speech feedback of interactive elements through speaking the highlighted choices and numbers entered.⁶¹
- Provide feedback or instant response when a command has been activated.⁶²

Desirable:

- Provide the ability to change the volume, speed and pitch of the speech output for text displayed on screen.^{63,64}

⁵⁹ Perrera, S. (2003), page, 45, 55.

⁶⁰ Consumer Expert Group (2004), page 37.

⁶¹ Perrera, S. (2003), page 55.

⁶² Perrera, S. (2003), page 16.

⁶³ Perrera, S. (2003), page 55.

⁶⁴ Perrera, S. (2003), page 55.

5. Using the remote control

Essential:

- The remote control should have clear visual markings.⁶⁵
- Any text and symbols on the remote buttons should be large enough to be clear, legible and contrasted to the colour of the keys or background.^{66,67}
- The labelling on remote control buttons should be durable and not rub off.⁶⁸
- Labels should be clear and intuitive and standardised, e.g. a standard abbreviation "I" for information. There should be clarity about what options such as "exit" or "save" on the remote mean.⁶⁹
- The control should have large buttons^{70,71} that are well separated⁷². The space between buttons should be at least 50% of the width of the button.⁷³
- The buttons should be logically grouped and spaced for easy manipulation.⁷⁴ Spaces between groups of buttons that relate to the same function should be greater than the spaces within the groups.⁷⁵ For example, number keys relate to a same function and should be set aside from neighbouring keys such as programme up and down.
- Keys should be tactually discernible. Therefore keys should be raised or have raised edges.⁷⁶
- There should be a raised marking on the number 5 key on the numeric pad.^{77,78}
- Keys should have distinct shapes or texture to help distinguish between functions.^{79,80,81} Tactile indications should use international standards such as ES 201 384 "Human Factors telecommunication keypads and keyboards – tactile identifiers".⁸²

⁶⁵ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

⁶⁶ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

⁶⁷ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁶⁸ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁶⁹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁷⁰ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

⁷¹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁷² Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

⁷³ www.tiresias.org Guidelines Television

⁷⁴ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁷⁵ Darby, S. (1997), page 63.

⁷⁶ Darby, S. (1997), page 63.

⁷⁷ Darby, S. (1997), page 63.

⁷⁸ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁷⁹ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

⁸⁰ www.tiresias.org Guidelines Television

⁸¹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁸² Stallard, G. (2003), page 34.

- Provide the user with the option to directly access subtitles and audio description from a dedicated button on the remote control rather than requiring people go through complex menu structure.^{83,84,85,86,87} This button should allow users to select or deselect the service and the user should be able to find out easily from the system whether the service is on or off.
- Provide feedback when a remote control key is pressed^{88,89}: this should be audible feedback (e.g. clicks or beeps) from the system or set-top box to indicate the pressing of keys (especially if screen response is slow)⁹⁰ and visual feedback from the system to indicate that the user request has been received, for example the illumination of a LED.⁹¹
- When letters, numbers or figures on keys are used on a remote, it should be done as follows: in sans serif, bold, dark on light background or light on dark background. The labelling of keys should be done in the maximum print size possible to ensure it is readable.⁹²
- The buttons should be placed in an intuitive position for single handed operation. The remote should be comfortable to hold and be used by either left hand or right hand.^{93,94}
- The handset should be coated in an easy grip, non-slippery textured material.^{95,96,97}
- The directional properties of the infra-red beam should be wide so that they work from any angle to ensure that someone with manual dexterity does not lose signal.^{98,99}
- The remote control should be stable if placed on a flat surface.¹⁰⁰
- There should not be any redundant buttons on the remote handset.¹⁰¹
- Basic functionality buttons should also be included on the digital receiver to remove full reliance on the remote control.¹⁰²
- Access to the battery compartment of the remote should be straightforward without compromising the safety of small children.¹⁰³
- A multifunctional remote control that can also control the basic functions for other devices such as volume up or down, channel up or down is preferable.¹⁰⁴ This would reduce the need for 2 remote

⁸³ Consumer Expert Group (2004), page 37.

⁸⁴ Freeman, J., Willams, A., Harrisson, D., (2003), page 35-36.

⁸⁵ Clarkson, J. and Keates, S (2003), page 70.

⁸⁶ Klein, J., Karger, S., Sinclair, K. (2003), page 49.

⁸⁷ Consumer Expert Group (2004), page 37.

⁸⁸ Klein, J., Karger, S., Sinclair, K. (2003), page 55.

⁸⁹ Clarkson, J. and Keates, S (2003), page 17.

⁹⁰ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17, 54. See also Darby, S. (1997), page 64.

⁹¹ Stallard, G. (2003), page 34.

⁹² Darby, S. (1997), page 64.

⁹³ www.tiresias.org Guidelines Television

⁹⁴ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁹⁵ www.tiresias.org Guidelines Television

⁹⁶ Stallard, G. (2003)

⁹⁷ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

⁹⁸ www.tiresias.org Guidelines Television

⁹⁹ Stallard, G. (2003), page 35.

¹⁰⁰ www.tiresias.org Guidelines Television

¹⁰¹ Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

¹⁰² Freeman, J., Willams, A., Harrisson, D., (2003), page 35.

¹⁰³ Clarkson, J. and Keates, S (2003), page 17.

¹⁰⁴ Clarkson, J. and Keates, S (2003), page 17.

controls when using a Freeview box connected to an analogue TV, a problem that was identified as causing confusion, reliance on having to remember which remote is which and it also requires increased cognitive, visual and dextrous abilities to operate 2 remotes.¹⁰⁵

Desirable:

- Provide the user with the possibility to choose from a selection of remote control interfaces – including one with only a few buttons that covers the basic and necessary functions.¹⁰⁶
- The above can also be achieved on a single remote control by ensuring that frequently used buttons such as volume and channel controls are exposed, whilst buttons that are used less frequently are hidden under a sliding façade.¹⁰⁷ This gives users the ability to decrease the number of functions they actively use.¹⁰⁸
- Provide pre-programmable buttons for frequent functions.¹⁰⁹
- Ensure that there is uniformity of buttons between remote controls – for example the “On”, “Off” and “mute” button should be placed in a similar place to a standard remote so that people who can operate one system will know where the basic buttons are on another.
- Provide the user with voice controlled remote control functions, preferably by using normal language.^{110,111}

¹⁰⁵ Klein, J., Karger, S., Sinclair, K. (2003), page 40.

¹⁰⁶ Darby, S. (1997), page 64.

¹⁰⁷ www.tiresias.org Guidelines Television

¹⁰⁸ Perrera, S. (2003), page 56.

¹⁰⁹ Gill, J. (2001) as quoted in Perrera, S. (2003), page 17.

¹¹⁰ Perrera, S. (2003), page 45, 55.

¹¹¹ Stallard, G. (2003), page 30.

6. Using subtitles:

Essential:

- Provide the user with the option to select the display of subtitles.¹¹² The subtitles should appear to the user on his/her TV screen in the manner broadcast, i.e. they should maintain the appearance on screen, the speed, the background and foreground colour. This should be thoroughly tested given current problems that lead to text corruption with some set-top boxes under certain conditions.
- Give the user the possibility to always have subtitles on rather than having to activate them again each time a channel is changed.^{113,114}

Desirable:

- The user should have the option to change the size of subtitles¹¹⁵ where this is technically feasible.¹¹⁶ Size changes should always be constrained to the limits of the visible image to avoid that text would be lost for the viewer.
- The user should be able to select or be provided with a clean audio channel which provides an alternative mix of spoken dialogue and music/effects suitable for hard of hearing people.¹¹⁷
- The number of people who will want to be able to access talking subtitles or braille subtitles is very small and they might require specially developed assistive technology rather than a mainstream piece of equipment.¹¹⁸

¹¹² Stallard, G (2003), page 31.

¹¹³ Klein, J., Karger, S., Sinclair, K. (2003), page 41, 49.

¹¹⁴ Stallard, G. (2003), page 36.

¹¹⁵ Perrera, S. (2003), page 52

¹¹⁶ One must taken into account that DVB subtitles are broadcast as bitmaps and therefore not easily customisable in terms of font face and type as opposed to subtitles delivered as ASCII text that allow for easy customisation. However technical PC-based solutions that allow users to manipulate images might be developed in the future.

¹¹⁷ www.tiresias.org: Guidelines Television

¹¹⁸ For example in the US it is possible to read subtitles in braille via a system consisting of a video recorder, an IBM compatible PC and a closed caption-to-braille computer card. This is used with the person's existing TeleBraille machine to display closed captioning in braille.

7. Using audio description:

Essential:

- Provide the user with the option to listen to audio description.^{119,120} This means providing users with audio description the way the service is intended, i.e. so that the listener can hear the audio description and the original soundtrack at the same time. In the case of DTT, this means that the receiver has to have the capacity to mix both signals. In the case of satellite and cable provision, the signal is broadcast mixed which means no special equipment is needed for its reception.¹²¹ This service will grow in relevance as life expectancy has significantly increased and the number of people in older age groups is rising. The changes of sight loss increase with age: the chance of sight loss is one in 12 for people over the age of 60 going up to one in five for people over 75.¹²² In addition, 40% of sighted population would also find this feature useful.¹²³
- Give users the possibility to always have the audio description on rather than having to activate it again each time a channel is changed.¹²⁴

Desirable:

- Provide a headphone socket and second audio channel for the output of the audio description channel for receiver-mixed audio description.¹²⁵

¹¹⁹ Perrera, S. (2003), page 54.

¹²⁰ Perrera, S. (2003), page 52.

¹²¹ Recently DTT products have come onto the market that receive the audio description signal but do not mix it with the original soundtrack. This is of no benefit at all to the end user and products of this type should not be considered as delivering audio description.

¹²² Northern, A. (editor) (2003) See Change: improving the way health and social care organisations provide services for older people with sight problems, RNIB, page 4.

¹²³ McKivragan, G. (1995), page 1.

¹²⁴ Stallard, G. (2003), page 36.

¹²⁵ Darby, S. ((1998), page 24-25.

8. Accessing the internet:

- Provide a system that also gives access to the internet.

Only about 18% of over 65s have ever used the internet compared with 62% of all adults. As more information and services are made available exclusively online, there are real risks that older people will lose out and become more excluded from the changes in society.

There is a wide range of evidence about the importance of technology to help deliver Government's goals of tackling social exclusion amongst older and disabled groups. The recent Social Exclusion Unit Report "inclusion through innovation"¹²⁶ highlighted the potential that Information and Communication Technologies (ICT) have to improve service delivery and quality of life for the most excluded groups, and argues that effective use of ICT is key to addressing exclusion and meeting complex needs.¹²⁷

Digital TV clearly has the potential to offer access to the internet and other digital interactive services. With a set top box or system which offers the potential of internet access, it could provide a tool to tackle the digital exclusion faced by most older people.

¹²⁶ ODPM Social Exclusion Unit Report "Inclusion through Innovation" <http://www.socialexclusionunit.gov.uk/page.asp?id=583>

¹²⁷ In the introduction of the report, Jim Murphy MP argued that "all too often the vital role that ICT can play in transforming the lives of excluded people is overlooked, dismissed or little understood... ICT can be an enormously powerful tool for transforming not just the lives of the mainstream, but also of those who are on the margins of society. Excluded people will readily take up the opportunities presented by ICT. If effectively applied, technology can reconnect the excluded, empower and enhance their opportunities and improve the delivery of tailored services to meet their needs."

The membership of the Consumer Expert Group at the time of writing this report:

Leen Petré, Royal National Institute of the Blind, Chair

David Sinclair, Help the Aged, Vice-Chair

Alison Hopkins, National Consumer Council

Len Coulthard and Eunice Walker, Action with communities in Rural England

Gerry Stallard, Hearing Concern/RNID

Mark Morris, RNID

Gretel Jones, Age Concern

Katie Hanson and Roy Staines, Sense

Tony Herbert, Citizen Advice

Vincent Porter, Voice of the Listener and Viewer

Ruth Myers, TAG

Georgia Klein, Ofcom Consumer Panel

Barry Hobbs, Wireless for the Bedridden

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List of research reports used

Barker, P. and Fraser, J. Sign design guide: a guide to inclusive signage. JMU and the Sign Design Society.

Clarkson, J. and Keates, S. (2003). *Investigating the inclusivity of digital set-top box receivers*. Annex E in:

Klein, J., Karger, S., Sinclair, K. (2003). *Digital Television for All – A report on usability and accessible design*. Cambridge: Generics Group.

Consumer Expert Group (October 2004), *Persuasion or compulsion? Consumers and analogue switch-off*. London: DCMS.

Darby, S. (1997) *Enhancing the accessibility of digital television for visually impaired people*. London: Independent Living Support Group.

Darby, S. (1998), *The audio description audience and its needs: considerations for service design for people with serious sight problems and other related impairments*. RNIB.

Freeman, J., Williams, A. and Harrison, D. (2003). *Easy TV 2002 research report*, ITC and Consumer's Association.

Klein, J., Karger, S., Sinclair, K. (2003). *Digital Television for All – A report on usability and accessible design*. Cambridge: Generics Group.

McKivragan, G. (May 1995), *Audetel potential among the general population*. BBC Broadcasting Research.

Perrera, S. (April 2003), *Interactive Digital Television Services for people with low vision*, London: RNIB Scientific Research Unit.

Stallard, G. (2003), *Standardisation requirements for access to digital TV and interactive services by disabled people*. CENELEC Report based on the mandate to the European Standards Bodies for Standardisation in the fields of information and communications technologies for disabled and elderly people.

Tiresias website www.tiresias.org Guidelines Television.