e-inclusiveness - for some or for all?

Who I am and what I do

- Born in England
- Studied at Cambridge

Who I am and what I do

- Work 50% at DR, Danish Broadcasting Corporation
- Strategic projects
Who I am and what I do

- Work 50% at DR, Danish Broadcasting Corporation
- Strategic projects
  - Open standards for metadata-driven services like PVRs (personal video recorders)
  - Access services on digital TV in Europe

Who I am and what I do

- Teaching at academic institutions
  - IT University of Copenhagen
  - University of Hong Kong
  - Murdoch University, Perth, WA
  - UNITEC, Auckland, NZ
  - INA, Paris, France

Who I am and what I do

- R&D project
  - Personal pocket media
  - NMT project
Who I am and what I do

- Teaching at academic institutions
  - IT University of Copenhagen
  - Danish Technical University
  - University of Hong Kong
  - Murdoch University, Perth, WA
  - UNITEC, Auckland, NZ
  - INA, Paris, France

Who I am and what I do

- Independent consultant

Who I am and what I do

- Independent consultant
  - Media policy & strategy
  - FAS Ireland - Training & Employment Board (Media)

Who I am and what I do

- Independent consultant
  - Games development
  - Video On Demand
1. What is the problem?
1. What is the problem?

IT is not fully accessible to all.

Some need help.

IT offers new options...
1. What is the problem?
But first, what do we mean by e-inclusiveness?

E-inclusiveness ≠ Exclusion

Source: Simeon Keates & John Clarkson. Countering design exclusion - an introduction to inclusive design.
Exclusion


47 million in the 16+ age group
i.e. 2.7% of population

Exclusion Calculator

Reach & Stretch

Impairment: Reach & Stretch

Sex: Both

Min. Age: 16

Max. Age: 102

Not applicable

Full capability

Has difficulty raising either arm above head to reach for something

Exclusion Calculator

Dexterity

Impairment: Dexterity

Sex: Both

Min. Age: 16

Max. Age: 102

Not applicable

Full capability

Has difficulty wringing out light washing or using a pair of scissors

Exclusion Calculator
## Exclusion

[View Online](http://www.eng.cam.ac.uk/inclusivedesign/index.php?section=data&page=exclusion_calc)

### Results

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Sex: Both</th>
<th>Min Age: 16</th>
<th>Max Age: 102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locomotion</td>
<td>1.233,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach &amp; Stretch</td>
<td>959,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dexterity</td>
<td>2.726,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td>448,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing</td>
<td>1,922,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual Functioning</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Exclusion</td>
<td>4,582,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Communication

- Not applicable
- Full capability

Other people have some difficulty understanding
- Has some difficulty understanding what other people say or what they mean

### Intellectual Functioning

- Cannot count well enough to handle money
- Cannot write a short letter to someone without help
- Cannot read a short newspaper article
- Often forgets the name of people in the family or friends seen regularly
- Often forgets to turn things off such as fans, washers, or taps
- Cannot remember and pass on a message correctly
- Cannot watch a half-hour TV programme all the way through and tell someone what it was about
- Often gets confused about what time of day it is
- Thoughts tend to be muddled or slow
- Often loses track of what is being said in the middle of a conversation
- Often forgets what was supposed to be doing in the middle of something

Requires full intellectual functioning capability.
Exclusion


Results

<table>
<thead>
<tr>
<th>Severity Category</th>
<th>Population Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locomotion</td>
<td>1,253,000</td>
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<tr>
<td>Reach &amp; Stretch</td>
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<tr>
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<td>Intellectual Functioning</td>
<td>188,000</td>
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<tr>
<td>Total Exclusion</td>
<td>4,768,000</td>
</tr>
</tbody>
</table>

47 million in the 16+ age group
i.e. approx. 10% of population is excluded

Exclusion Calculator

E-inclusiveness ≠ Exclusion

Different definitions of capacity and impairment from one country to the next

- USA 19%
- UK 17%
- Hong Kong 4%

E-inclusiveness: the rationale

impairment need not be equated with disability

- Human rights
  - Impairment:
    - Perception
    - Cognitive
    - Motion

- Disability:
  - Impairments that manifest themselves through deliberate or inadvertent lack of support by others
E-inclusiveness: the rationale

**Human rights**
"recognizes and respects the right of persons with disabilities to benefit from measures designed to ensure their independence, social and occupation integration and participation in the life in the community."

Article 26 of the Charter of Fundamental Rights of the European Union.

**Assistive and Inclusive:**
- BBC offering subtitles on 100% of their television programmes.
- Benefits the deaf and hard of hearing.

**Assistive and Inclusive:**
- Signing outside peak viewing.

**Assistive:**
- Programmes for people with impairments well away from prime time.

**Assistive:**
A programme about skiing for the blind.
E-inclusiveness: the rationale

- Human rights
- Demographics
  - Populations are aging
  - "Baby boomers"
  - Makes economic sense to ensure elderly are independent for as long as possible

The Business Case
- Legal requirements
- Corporate Social Responsibility
- Costs & employees
- Markets

1. What is the problem?
   Conclusions

   - There are a number of legal, ethical and economic reasons for working towards e-inclusiveness

2. How can we be more inclusive?
   The case of digital TV

   1. What are the problems people have when accessing digital TV?
   2. What are their causes?
   3. What options do we have in the short and medium term?
   4. What would it take to get widespread adoption of access services?
2. How can we be more inclusive?

The case of digital TV

<table>
<thead>
<tr>
<th>Access issues with digital television</th>
<th>estimate (% of population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Finds it difficult/impossible to hear the audio of TV programmes</td>
<td>1.8%</td>
</tr>
<tr>
<td>2. Finds it difficult/impossible to hear/understand speech in another tongue</td>
<td>2.3%</td>
</tr>
<tr>
<td>3. Sometimes finds it difficult to hear/understand speech in another tongue</td>
<td>2.3%</td>
</tr>
<tr>
<td>4. Finds it difficult/impossible to understand speech in a foreign language</td>
<td>No figures</td>
</tr>
<tr>
<td>5. Finds it difficult/impossible to see the visual component of a TV programme</td>
<td>0.7%</td>
</tr>
<tr>
<td>6. Unfamiliar with remote controls and interface conventions of digital television services STBs</td>
<td>10.9%</td>
</tr>
<tr>
<td>7. Finds it difficult to make use of access services such as subtitles (SSR) or Audio Description</td>
<td>0.4%</td>
</tr>
<tr>
<td>8. Finds it difficult to switch gaze from screen to remote control device</td>
<td>3.4%</td>
</tr>
<tr>
<td>9. Finds it difficult to interpret subtitles of another language including EPGs</td>
<td>3.4%</td>
</tr>
<tr>
<td>10. Finds it difficult/impossible to use the television receiver using a remote control device</td>
<td>10.9%</td>
</tr>
<tr>
<td>11. Finds it difficult/impossible to set up and configure TV set or Set Top Box</td>
<td>10.9%</td>
</tr>
</tbody>
</table>


The switch from analogue to digital will be largely complete in 2012

The political vision of Digital TV after analogue shut-off

Our view of analogue shut-off
2. How can we be more inclusive?  
The case of digital TV

<table>
<thead>
<tr>
<th>Stakeholders see things from their own perspective</th>
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</table>

- **Production of access service**
- **Production of metadata**

**Trade associations**

**Broadcasters**

**Trade associations**

**Software & Equipment Suppliers**

**Software & Equipment Suppliers**

**CE Manufacturers**

**Consumer Bodies/Disability associations**

**Regulators and legislators**

---

Sunset solutions

Sunrise solutions
3. The options in the short to medium term

Access services and the platforms they are delivered on have a finite life.

1st generation MPEG 2 solutions (DVB-T, DVB-S, DVB-C)
3. The options in the short to medium term

Some solutions are coming to the end of their useful lives. Others are just emerging.

1st generation

MPEG 2 solutions (DVB-T, DVB-S, DVB-C)

Great solution! But the service cannot scale up

Picture in picture (as part of picture or overlay) needs to be reconsidered

Teletext is no longer appropriate on flat panel displays needs to be replaced by DVB-subtitles/Digital Text & requires some kind of API
3. The options in the short to medium term

Others are just emerging.

**Ugly Duckling and Tiger Cub**

- **Tiger Cub**
  - Different
  - Cuddly and sweet at first
  - Represents a threat when it grows up!

- **Ugly Duckling**
  - Different
  - Disliked at first
  - Has a great future ahead!

---

3. The options in the short to medium term

**Mature services - how long is their useful life?**

1st generation

**MPEG 2 solutions (DVB-T, DVB-S, DVB-C)**

---

2nd generation

**MPEG 4 solutions (2nd generation DVB)**

**Hybrid DVB + IP solutions**

**IPTV, P2P IP, B2H (?) solutions**

---

3. The options in the short to medium term

**Spotting Ugly Ducklings for the medium term**

---

3. The options in the short to medium term

**When do we switch?**
3. The options in the short to medium term
Spotting Ugly Ducklings for the medium term
Three success criteria:

- Documented value for end users
- Support for technological solution
- Sustainable business model

All criteria need to be met
4. Promoting e-inclusiveness

**Interviews with each of the stakeholders**

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**Identify areas of consensus**

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**Identify areas of good practice**

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**Which issues have to be addressed when?**

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### 4. Promoting e-inclusiveness

**A generic maturity model**

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**Problems > causes > options > implications of each**

**Production**
- TV channel
- TV service
- Contribution
- Transmission
- Reception
- Use
- Viewer

**Distribution**
- TV display device (vision + audio)

**Access**
- TV receiver and decoder
4. Promoting e-inclusiveness

Production | TV channel | TV service | Contribution | Transmission | Reception | Use | Viewer
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| Aggregation of programmes, access services and metadata into TV channel, playout of TV channel |
| Aggregation of TV channels into TV service |
| Contribution of service to transmission network |
| Distribution of service via transmission network |
| TV display device (vision + audio) |
| Remote Control Device |
| Information about TV and access services |

**About the consortium**
- Brunel
- DR
- RBB
- Red Bee Media
- IRT
- TVC
- IRT
- RAI
- UAB

**TABLE OF CONTENTS**

1. OVERVIEW OF THE CONVENTION AND ITS DISPOSITIONS COVERING ICTS
2. DEMOGRAPHICS AND STATISTICAL ANALYSIS OF THE WORLDWIDE INSTALLED BASE OF ICT DEVICES AND TELECOMMUNICATIONS SERVICES
3. BACKGROUND ON ICT ACCESSIBILITY ISSUES
4. PURPOSES OF ICTS – FUNCTIONAL AND SOCIAL ASPECTS
5. PLATFORM INDEPENDENT ACCESSIBILITY PRINCIPLES
6. BASE ICT ACCESSIBILITY PRINCIPLES
7. STANDARDS

**TOOLKIT FOR POLICY MAKERS**

ON E-ACCESSIBILITY & SERVICE NEEDS FOR PERSONS WITH DISABILITIES

As of 7.17.08
As Review by G3ict Toolkit Project
Participants or Advisors:

**ITU**

**W3C**

**G3ict**

**WORLD WIDE WEB CONSORTIUM**
4. Promoting e-inclusiveness

4.4 Television
4.4.1 Closed captioning, sub-titling and sign language
4.4.1.2 Definitions
4.4.1.2 Solutions adopted by countries from around the world
4.4.1.3 Features most desired by persons with disabilities
4.4.1.4 Economic considerations
4.4.1.5 Applicable standards
4.4.1.6 Sample of regulations
4.4.2 Video description services
4.4.2.1 Definitions
4.4.2.2 Solutions adopted by countries from around the world
4.4.2.3 Economic considerations
4.4.2.4 Analysis of results
4.4.2.5 Sample of regulations
4.4.3 New developments in TV broadcasting
4.4.3.1 Transition from analog to digital television, opportunities for new services for persons with disabilities
4.4.3.2 IPTV accessibility standards
4.4.3.3 Video on the Internet
4.4.3.4 Sample of regulations

4.5 Remote consoles
4.5.1 Accessibility features available from remote console manufacturers
4.5.2 Accessibility features most desired by persons with disabilities
4.5.3 Examples and analysis of results
4.5.4 Applicable standards
4.5.5 Likely technological evolution
4.5.6 Sample of regulations

World Wide Web: W3C Accessibility Initiative

- Web Standards from the W3C: http://www.w3.org/WAI/
- Web Accessibility Initiative (WAI): http://www.w3.org/WAI/
- Recent developments in speech synthesis: http://www.w3.org/TR/2008/REC-speech-synthesis11-20081107/
- Recent developments in speech recognition:
  - Pronunciation Lexicon Specification (PLS) Version 1.0: http://www.w3.org/TR/2008/REC-pronunciation-lexicon-20081014/
Worst case scenario for access services on 1st and 2nd generation digital TV!

Contact particulars

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D: +45 35 20 83 66

Thank you!