Connected TV: new opportunities for the accessibility

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Connected TV

- Connected TV / Hybrid TV / HBB
- Receivers able to play content coming from both a broadcast network and Internet
- Enormous opportunities to provide new multimedia content and services
Connected TV

Broadcasting network

Broadcast channel

Terminal

Broadband channel

IP Network

Broadcast channel

Connected TV service

Broadcaster

Access services server

Enhanced/additional content server

Synchronization module and network interface

Terminal
Accessibility

- 80 million Europeans have a disability, according to the EDF (European Disability Forum)
- The number of elderly people is increasing all over the world, especially in Europe

How can we take advantage of the Connected TV to make the AV content more accessible?
Making the TV accessible

Using Internet to provide the access services in a personalized way
Making the TV accessible

- Flexibility for the integration of new services and content
- Broadband, always-on channel
- Service personalization
- Access services on demand
- Saving bitrate in the broadcast network for the TV operator
Making the TV accessible

• Social and market application: millions of users with disabilities that are consumers, too
• Importance of TV for social integration
• Good example of *Networked Electronic Media*
Subtitle example (DTT)

Isabel II de Inglaterra cumple hoy 82 años.
Signing example
Access services

• Objective: making up for the part of the audio visual message that cannot be perceived, depending on the disability

• According to the “EBU report on access services” (2004):
  – Subtitling
  – Spoken subtitling
  – Audio description
  – Signing
### Access services

- **How much bitrate can be saved in the broadcast channel?**

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<th>Bitrate</th>
<th>Technical tool</th>
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<tbody>
<tr>
<td>Subtitling</td>
<td>~30 kbps</td>
<td>DVB-SUB</td>
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<tr>
<td>Audio description</td>
<td>192 kbps</td>
<td>Audio channel</td>
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<tr>
<td>Signing</td>
<td>~400 kbps</td>
<td>Video channel</td>
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</tbody>
</table>

(If signing could be provided by means of an independent video channel in the broadcast network)
Access services quotas

- Laws in many countries are setting quotas for accessibility services
- *Audio visual communication general Law* (2010), Spain. Quotas from 2013

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<th>Access service</th>
<th>Public operators</th>
<th>Private operators</th>
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<tbody>
<tr>
<td>Subtitling</td>
<td>90%</td>
<td>75%</td>
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<tr>
<td>Audio description</td>
<td>10 hours/week</td>
<td>2 hours/week</td>
</tr>
<tr>
<td>Signing</td>
<td>10 hours/week</td>
<td>2 hours/week</td>
</tr>
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</table>
Access services quotas

What about fulfilling these requirements by means of Internet?

• Additional feature related to personalization: closed/elective implementations of the services are possible
Some pending challenges

• Some access services have very strict requirements about synchronization (e.g., audio description)

• Multimedia content delivered via broadband channel (e.g., catch-up app) should be accessible, too
Some pending challenges

• Two different market models have arisen for the Connected TV:
  – A model controlled by the TV set manufacturer, characterized by proprietary specifications. “Walled gardens”
  – A model that allows the TV operator to keep the control

• A standard is needed to ensure interoperability between interactive content, broadcast services and TV sets
And more opportunities

- Providing new services on the TV set for people with disabilities by means of Internet, and not just access services for the broadcast content
And more opportunities

- INLADIS project. Developed by the Indra-Fundación Adecco Chair in UPM
- Tools to make easier the work integration of people with disabilities
- Developed on HbbTV for Connected TV
Bienvenidos al portal de INLADIS

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**CURSOS** 1  **OFERTAS** 2  **FORO** 3  **INFORMACIÓN** 4
## Inladis project

### OFERTAS

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Conclusions

• Internet has already arrived at TV
• How can we take advantage of the Connected TV to make easier the life of the people with disabilities?
Thank you very much for your attention!