



Opening doors to Universal Access to the Media

Proposals for a European Policy for
Improving Media Access for those with Decreased Abilities,
Including the Ageing Population.
(NEM-ACCESS, February 2016)

Steps to Make Europe the World Leader in Accessibility

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Introduction

The NEM (New European Media) is a grouping of media-related organisations formed for discussions and consultations about the future of the media, and how to help influence future media development in the public and industrial interest.

NEM members' interests include encouraging systems to help those with decreased ability, including the ageing population, to gain better access to the media, by adding features such as subtitles for television, and providing guidelines for improving the readability of printed material.

Because of new technology developments and other factors, this is the time to fully consider what new policies would encourage the adoption and success of Access Services, and act upon them. For example, as the media world arranges 'personalisation' of content by creating personal profiles, Europe could pioneer a parallel 'personalisation' of an individual's media capability with personal profiles, given that we are able to define and measure the necessary parameters.

In this document, NEM members (in a sub-group NEM-ACCESS, whose members are listed below) have endeavoured to collate a list of policies they believe would improve the access situation in Europe. We request that these suggestions are considered and taken up by the appropriate European bodies. The NEM is open to provide any assistance and follow-up that might be requested. The suggested policies are given below. Organisations and alliances of those with reduced abilities are warmly welcomed to comment on the proposals.

A number of the suggestions made in this document call for accessibility tools to be included as a matter of course in content production and distribution. This will require coordinated and integrated efforts all along the value chains. Public policies can help towards achieving the objective of enhancing accessibility in Europe; but these need adequate finance, which may come from the EU or national authorities. Different funding programmes may also provide support.

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The chapters that follow suggest solutions to some of the biggest media access challenges facing Europe today.

1. Establishing EU Labeling for Access services

1.1 Background

- A. Many technologies are now available for Access Services, and advances are continually being made. New technologies will make it possible to generate certain access services automatically. For example, there are technologies for converting from text-to-speech (TTS), which can be used for generating audio subtitles. Subtitles can be produced by 're-speaking' followed by speech-to-text conversion (STT). Soon there may be speaker-independent STT to automatically generate subtitles. Automatic translations of subtitles and audio descriptions are also potentially possible. Sign language avatars are being developed, as well as automatic visual tagging, which may be a first step to automatic audio description. For the improvement of dialogue intelligibility in TV broadcasts, automatic processing engines are being developed which are being tested in the field with the goal of automatically generating a clean audio track (an audio track arranged to improve intelligibility).
- B. In the publishing industry, e-books standard and digital technologies offer new opportunities to extend and enhance the possibility of reading for people who have different kinds of visual disability. However, there is further work to be done on the mainstream and end-to-end interoperability of the publishing value chain to promote accessibility. Further actions are needed at EU level to increase and harmonise the availability of accessible e-books and digital content for 'print impaired' readers, and to improve their reading experience. In particular, innovation projects involving all the players of the value chain are needed at a European level. They range from improvements in the efficiency of content production workflows for accessibility, to development of authoring and certification tools for the creation of accessible e-reading solutions, the implementation of accessible delivery platforms, metadata on accessibility features, etc.
- C. Evidence-based criteria for the evaluation of access services can be seen as falling into two groups - quantity and quality. Existing national legislation, where it exists, has focused on the quantity of access services. This is clearly important, but assuring 'quality' also needs to be eventually included in any measures taken.
- D. Establishing evidence-based quality evaluation procedures and standards will take time. Establishing EU labelling may be a valuable first step, as suggested below.
- E. Due to the technical and also economical power of the large web companies, considerable efforts have been made in the provision of accessibility support features. Following legislation in the US, accessibility layers and features, supporting the user, who can also be the content developer and provider; have made the content more accessible. EU labelling in this field may foster awareness creation and systematic integration of accessibility features by everyone.

1.2 Policies suggested

- a. Set up or authorise an EU activity to generate a simple and readily understood set of EU labels for access services, which use different icons for each kind of access services.
- b. Following feasibility studies, recommend, in the next version of AVSMD or EU Accessibility Act, the use of the labels for access services and the use of iconography, and mechanisms for monitoring the implementation and impact of such measures. .

2. Encouraging standardization and benchmarking

2.1 Background

- A. Different EU countries have developed, or are developing, their own legislation as they implement what they see as their obligations to further media accessibility. Without European coordination a fragmented EU market may develop.
- B. Standardization could reduce fragmentation and create more European market opportunities. It can reduce the cost of accessible products and services, and have a positive impact on public budgets in the long-term.
- C. Standardization will increase exports for small independent EU producers and service providers. Different national standards make it difficult and more costly to translate and adapt standards from one EU country to another.
- D. Most EU countries do not yet have specific standards, beyond some obligations on the number of hours per service. This is the right time to develop EU standards and 'quality benchmarking' before each country irreversibly finalizes different standards.
- E. While the EU is rich in cultures and languages, humans share the same basic perceptual capabilities and needs. Building on national guidelines, and without changing them, it may be possible to establish commonly accepted quality benchmarking for parameters such as subtitle colours, subtitle reading speed, subtitle latency, and the like, based on evidence.
- F. Within the framework of guidelines, IT development will make it possible for the user to customize some services e.g. subtitles size, font, reproduction speed, location on the screen, etc. all of which should be encouraged. Such customization could be automatically linked to the new concept of an individual's personal media capability profile.

2.2 Policies suggested

- a) Open a call for an EU project or projects where quality benchmarking in access services can be established, with findings tested by relevant EU demographic groups such as people with reduced abilities, the aged, and people who speak different languages.
- b) Engage different groups across the value chain in the definition of quality benchmarking in the Project: end users, user associations, producers, broadcasters, and regulators.
- c) Develop automatic tools to monitor quality based on the findings.
- d) Building on existing national labels, and without changing them, develop an EU quality mark for access services which goes beyond simple labeling.
- e) Building on existing national systems, and without changing them, establish an EU protocol/agency for independent quality monitoring.
- f) Encourage building on existing R&D projects to transform them from the innovation prototype into market ready products or applications.
- g) Open a call for an EU project to investigate whether personalization can be applied to access services as well as content itself, by evaluating and measuring personal profiles of individuals' media activity capabilities.

3. Raising Awareness by the Public and Reduced Ability Community

3.1 Background

- A. Lack of awareness to existing access services is a primary obstacle that must be overcome for media access services to be successful.

- B. The Reduced Ability community needs not only to be consulted in the process of development of access systems (the well-known maxim; “Nothing for us, without us”), but in addition the wider disabled community needs to be made aware of the services available.
- C. EU iconography should exist to identify access services on offer.
- D. No training on accessibility literacy at primary or secondary level is currently evident.

3.2 Policies suggested

- a) The EU should create an activity to prepare an accessibility literacy curriculum that would be included in the early stages of school education.
- b) The activity should encourage activities to promote accessibility such as prizes, hackathons, competitions, etc.
- c) The activity should create raising awareness EU media videos to be used by EU programmes such as <https://vimeo.com/64222807>

4. Develop Training in Access Services

4.1 Background

- A. Training on Access Services is rarely available in Europe. This includes training on understanding the options, relative merits, usefulness of different systems, and the techniques and rules of their preparation. Some courses exist, mainly at University at postgraduate level or as specialized training.
- B. This important area, particularly in view of the ageing population, is barely recognized today.
- C. No accessibility capability courses are included at undergraduate or school levels across Europe. Their existence will be crucial to turn accessibility into mainstream services, and to follow the EU Accessibility Act policy, where accessibility and language assets are created from the outset of production.
- D. Most existing courses deal with training experts on television access content creation, i.e. how to subtitle or how to create audio descriptions.
- E. There is no course or training for: cinema, technology, journalism, culture management, theatre direction, stage direction, etc.
- F. EC project `FRED at School` is an example of how to optimize resources of EU creative media, the many languages and cultures along with accessibility (<http://www.fred.fm/uk/fred-at-school/>)

4.2 Policies suggested

- a) Establish a group to draft EU curricula for Reduced Ability access to media to be included in primary and secondary education.
- b) Arrange for the creation of MOOCs (Massive Open On-Line Course), and online free courses where accessibility literacy is the object of study, such as https://www.youtube.com/watch?v=24Pmmo9wKik&list=PLNJrbl_nyy9uzywoJfyDRoeKA1SalEFJ7&index=2
- c) Encourage and exploit further accessibility assets for language learning. Studies show the effectiveness of subtitles and audio description as a learning tool, from language learning to autism.
- d) Encourage projects where multi-language assets and multi-language videogames are a learning tool.

- e) Encourage use of tools to make education content multi-language and to encourage 'Media Commons' (i.e. free use of content provided it is not for profit)

5. Making access services commercially profitable

5.1 Background

- A. Finding the additional costs needed can be a critical barrier to providing access services.
- B. Access services need to be provided as a social service for persons with disabilities. To meet the cost of doing so, where they are useful and where public funds are not available, they may be considered for a commercial business opportunity.
- C. People with disabilities could be a potential market of tens of millions of citizens in Europe. They are consumers and thus could be a target for advertising. In this way, an audiovisual asset could be enjoyed by a wider audience. Commercially-funded access services may have some drawbacks - but they may be much better than no access services at all.
- D. The new graphically-improved technical tools to provide subtitles or other access aids could be an advertising resource. New ways of funding access service costs such as the sponsoring or commercial breaks could be examined where public funds are unavailable.
- E. To help profitability, content providers and broadcasters could seek less expensive ways of providing accessibility. New technologies can be explored to author access services (such as speech recognition, text to speech, avatar generation and automatic generation of a sound track with improved dialogue intelligibility) or to deliver them (e.g. second screens and HbbTV applications). The automatic generation of access services could be a mechanism to deploy in a market that has large amounts of available contents.
- F. Cost-effectiveness is also improved if accessibility is preserved in the formats used to store and to deliver the contents across the chain. The objective must always be to keep the accessibility data once the content is made accessible. If a broadcaster has made the effort to provide subtitles, audio-descriptions or other additional sound tracks for the linear emission of a certain asset, these access services must be available in later exploitation, such as web catch-up portals or multimedia HbbTV applications. To achieve this, the use of standardised formats is needed. In this way, access services will be exchangeable and interoperable, promoting a market of access services and avoiding the future and expensive authoring of an access service that had already been created.
- G. Measures for the creation and exploitation of access services should take universal design principles into account. If accessibility is considered from the beginning of the process of multimedia creation, it will be integrated in an easier and more natural way with the inherent costs drastically reduced.

5.2 Policies suggested

- a. Where public funding is not available for access services, service providers could be asked by their national administration to consider providing them commercially.
- b. Two methods to fund the services may be by acknowledged sponsorship or including advertising copy as part of the access services.
- c. Encourage dedicated projects (a 'lighthouse' project, for example) with those stakeholders from the media R&D value chain who are represented within NEM, including the creative industries, including content producers and newly advertisers (or their representatives) and market oriented innovators and economists, able to rethink the business models.

6. Identifying the Societal Challenges Associated with Accessibility - the Context for Accessibility

6.1 Background

- A. An estimated 15% of the world's population lives with a disability. According to data compiled by Eurostat, 45 million people aged between 15 and 64 reported a disability in 2011 in the European Union, defining people with disability as "those who have a basic activity difficulty (such as seeing, hearing, walking, communicating)"¹. This figure means 14.1% of the age group.
- B. Moreover, as outlined in the NEM Vision SRIA paper², accessibility opens strong market opportunities, with 80 million disabled people throughout Europe (according the European Disability Forum) and 100 million people aged over 60 today. These figures do not include other societal accessibility challenges such as second language and migration issues. The accessibility potential is very large.
- C. The figure compiled by Eurostat does not include the elderly. Senior citizens often have a mixture of reduced abilities. This issue is particularly important due to the demographic change and population ageing. These factors are related to societal phenomena, such as inverted age pyramids, longer life expectancy, and new family models.
- D. Population ageing is a societal challenge since it may cause the current welfare facilities in the European countries to become unsustainable. This problem is made larger by the economic difficulty that some European countries are currently facing. Information and communication technologies can help to surmount these societal challenges by providing cost-effective solutions to ensure current levels of social and health assistance. The European Commission is promoting "Active Ageing" as a key policy for the social construction of a new paradigm of the ageing, to maintain the independence and quality of life of the elderly as far as possible.
- E. Accessibility is also important for the social inclusion of people with disabilities. Information, entertainment and human interaction are strongly dependant on Internet, TV and networked media in the current globalised context. Not only could the lack of accessibility deprive people with disabilities of fundamental rights such as freedom of information, but also their inclusion in a technological society. Section 12 of this document addresses the United Nations Convention on the Rights of Persons with Disabilities.
- F. Moreover, as often seen in accessibility improvements, universal accessibility is profitable for the whole society and especially for certain social groups. In this way, other disadvantaged groups may benefit from access services, for example immigrants or people who require remedial education.

6.2 Suggested Policies

- a. EU activities should be established to identify and evaluate the societal challenges of the coming years that could be helped by (universal) access services. Disabilities, ageing issues,

¹ http://ec.europa.eu/eurostat/statistics-explained/index.php/Disability_statistics_-_prevalence_and_demographics

² NEM Vision & SRIA, October 2014 <http://nem-initiative.org/wp-content/uploads/2014/10/NEMVisionSRIA-PositionPaper-2014.pdf>

- the second language and/or the maintenance of minority European languages as well as migration challenges could be considered in one or more independent studies, possibly with view to the Digital Single Market.
- b. Some of the potential studies should focus on an inventory of existing projects, services and a benchmark within each topic. We should build on existing practices, know-how, user feedback, and avoid additional costs.
 - c. The conclusions of the studies could be used to shape EU collaborative projects, and also projects joining with regions outside Europe.
 - d. The conclusion of the studies may also support the creation of an independent/European observatory of societal challenges that can be solved by digital access services.

7. Proposals for compliance with the UNCRPD for AV media

7.1 Background

- A. The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) is an international human rights instrument of the United Nations, intended to protect the rights and dignity of persons with disabilities. States who are Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that they enjoy full equality under the law. The text came into force in May 2008.
- B. Article 30.1.b. of the Convention stipulates that “States/Parties recognize the rights of persons with disabilities to take part on an equal basis with others in cultural life, and **shall take appropriate measures to ensure that persons with disabilities enjoy access to television programmes, films, theatre, and other cultural activities in accessible formats**”. We can interpret the phrase ‘other cultural activities’ to **include radio and Internet-delivered media**.
- C. An interpretation would be **that all significant television programmes, whether delivered by broadcast, Open Internet, or IPTV should be provided with (at least) subtitles for the hard of hearing, audio descriptions, and signing, and all significant radio programmes however delivered should be accompanied by text data**. In addition, adequate consumer equipment should be within reach of all users.

7.2 Policies Suggested

- a. States/Parties should develop and publish a plan for implementation. A target and target time-table is essential if the Convention is to be complied with.
- b. A practical interpretation of the Convention is as follows:
 - Signatories should gradually make available key access services of subtitles for the hard of hearing and audio descriptions for all significant television and radio programmes, over a period of the next ten years.
 - Signatories should make available over a period of the next fifteen years access services such as signing, audio rate control, clean audio and auxiliary text for radio.

8. Providing Sub-titles for Broadband video streaming

8.1 Background

- A. In Europe, subtitles are provided for a proportion of broadcast television programmes.
- B. European technology has been developed for subtitling that can be used in an IP environment.
- C. The European Commission has reported to us that the complaint most frequently made to them concerning access services is the lack of corresponding subtitles for on-line delivered video programming.

8.2 Policies Suggested

- a) Studies should be made of the possibilities and technologies for sub-titles for Internet delivered programming content.

9. Using sub-titles to assist integration of immigrants

9.1 Background

- A. Europe is seeing unprecedented levels of immigration
- B. Immigrants need to understand local languages and culture in order to successfully integrate into a new community.
- C. By providing subtitled versions of the local television content in the major immigrant languages, immigrants may be able to more quickly assimilate the local customs and languages.

9.2 Policies Suggested

- a) Following trials, national broadcasters could be asked to provide subtitles for their major content in the language of the larger immigrant groups.

10. Raising awareness for dialogue intelligibility as an Access Service

10.1 Background

- A. Dialogue intelligibility for TV programs is crucial, especially for hearing impaired and elderly people. There are various reasons³ why these user groups rate the intelligibility of TV programs as inadequate.
- B. User groups throughout Europe request better intelligibility for TV programs. Service providers do not widely address this problem.
- C. Ideally solutions would reflect the large diversity in hearing impairments and allow a certain degree of personalisation.

³ Results of an online survey on dialogue intelligibility of TV productions for the hard of hearing), IRT / RBB March 2015, http://www.schwerhoerigen-netz.de/RATGEBER/RUNDFUNK-FERNSEHEN/PDF/erg1_umfrage.pdf (results for all participants), http://www.schwerhoerigen-netz.de/RATGEBER/RUNDFUNK-FERNSEHEN/PDF/erg2_umfrage.pdf (results for participants wearing a hearing aid) (both documents in German only)

- D. Automatic and low-cost solutions to generate an “enhanced intelligibility” track could support awareness.

10.2 Policies Suggested

- a) Consider the creation of a label (unless already created) for dialogue intelligibility as an Access Service
- b) Set up or authorise an EU activity to generate a simple and easily understandable set of EU labels for access services
- c) Encourage service providers to embrace dialogue intelligibility as part of their service, and when required to change their workflows (development of guidelines) and implement appropriate technological solutions.
- d) Set up development programs to further develop and test solutions that allow (automatic) realisation of enhanced dialogue intelligibility with high quality.

11. A new frontier for access systems.

11.1 Background

- A. The creation of new channels of communication with our new digital environment is a very interesting research area. These new channels will help greatly the people, especially people with disabilities, to communicate with their environment.
- B. The base for the creation of these new channels is the (bio)signals created by our organism in response to various external (or internal) stimuli. Careful study of these responses could provide us with patterns, which can be used in order to facilitate people’s interaction with their environment.
- C. In this direction, Brain Computer Interface (BCI) systems are able to provide us with new channels of communication by making use of brain electrical signals.
- D. Also, eye tracking systems are useful to predict user intentions based on gaze.
- E. Furthermore, the combination of brain signals and gaze will further assist people to take control of their external environment, especially in the case where the conventional means are inadequate for them.
- F. However, there is a lack of tools for media management and authoring using the above communication channels. The ultimate goal of these tools should be the complete replication of conventional ways (e.g. mouse and keyboard) for media management and authoring with new interaction means, relying on brain signals and eye-gaze.

11.2 Suggestions

- a) :Develop a simple and easily understandable set of labels (i.e. interaction paradigms) for media management and authoring. This set of labels must be produced by taking into account the distinguishable brain patterns (BCI commands) (i.e. the creation of a universal dictionary of patterns) (**Policies 1.2**)
- b) Develop (and further research) effective and robust algorithms recognizing the aforementioned brain patterns (and also investigate the possibility of including new patterns into the dictionary) (**Policies 2.2**)

- c) Raise awareness about these services in the general public and especially the disabled community, by adopting the basic ideas into daily life activities such as gaming and recreation (**Policies 3.3**)
- d) The creation of standards related to BCI systems and media authoring and management. These standards should contain information about how brain signals must be acquired, what brain signals are appropriated for each task, etc.
- e) Encourage the construction of tools where media authoring and management is related with a recreational task.
- f) The use of brain patterns avoids problems related to the ability to speak the native language and quickly assimilate the local customs. (**Policies 9.2**)