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Conference interpreting with information and communication technologies - experiences from the European Commission DG Interpretation

1 Introduction

In the European Commission, the Directorate General for Interpretation, DG SCIC, is in charge of providing interpretation and conference services to most of the European Institutions, including the Commission, the Council, the Committee of the Regions and the Economic and Social Committee. This task has become considerably more challenging with the recent addition of 12 new Member States and a total of 23 different languages that have increased, on the one hand, the geographical distances and, on the other hand, linguistic and cultural diversity.

DG SCIC is the largest interpreting service in the world. In 2010 more than 140,000 interpreter days were provided for nearly 12,000 meetings (about 60 meetings a day; 700 interpreters a day).

SCIC's key mission is to support multilingual communication and consequently to facilitate a transparent, efficient and democratic EU decision-making process by providing:

- quality conference interpretation services;
- support to interpretation training programmes targeted at staff interpreters, universities and students;
- an effective conference organisation for Directorates General and departments of the Commission;
- new technological solutions for multilingual communication (videoconferencing, web streaming, internet chat facilities,) and daily technical support to the Commission's meetings and conference facilities

The European Union has always considered multilingualism to be an important issue and DG SCIC has been a major player supporting the freedom of using different languages. In addition, the Commission has renewed its commitment to communicating with Europe's citizens.

Information and Communication technologies (ICTs) help to improve transparency both in European Institutions and at national government level. They foster multilingual communication and can play a key role in bringing EU institutions closer to citizens, business and national and local administration.

Conferences, workshops and debates, held in European Institution premises or elsewhere, as well as general information, can be accessible to virtually all interested stakeholders. ICTs can contribute to the Lisbon strategy of boosting overall economic performance by creating new services and new job opportunities. They can also be used to preserve, promote and provide access to European diversity and cultural heritage.

New information and communication tools can create additional and richer communication opportunities. However they require open-mindedness and an ability to

change one's approach to communication. The right tool should be carefully selected to match the corresponding communication objective. By either complementing or offering more adequate alternatives to traditional meetings and other communication means, they can increase productivity, reduce governance costs and contribute to environmental protection by diminishing travel emissions.

For all these reasons, DG SCIC is investigating, testing and exploiting ICTs, combining them in different platforms for multilingual communication, which is fully compliant with ISO standards and the good professional practices applicable to conference interpretation.

DG SCIC shares its experience and know-how with other Directorates and institutions to foster e-Governance.

At present, DG SCIC is managing and combining different ICT tools to provide a package of services such as:

- A) Multilingual on-line Internet "chats": a real-time written discussion on the web between distant participants choosing to join a discussion on a given issue using their own language.
- B) Multilingual Videoconferences: a discussion in which participants at different locations can see and hear each other as though they were together in one place.
- C) Multilingual live Web streaming: broadcasting live images and encoded sound on a digital media (intranet or Internet).
- D) Interactive Virtual Conferences with interpretation: any combination of two or more of the above.
- E) Multilingual Video-on-Demand: delivering recorded images and sound of original and interpreted interventions on a digital medium (intranet or Internet).
- F) Dubbing and subtitling in all EU languages with a web based application (both for producing the clip and watching it).
- G) Conferences web portal broadcasting both live and recorded events
- H) Speech repository: an e-learning web portal with a collection of thousands of selected speeches and a software virtual booth tool to train interpreters

The technological developments in the area of the videoconferences with simultaneous interpretation are of particular interest in tackling multilingual issues in the context of legal proceedings.

This document is a contribution to the International Symposium "Videoconference and Remote Interpreting in Legal Proceedings" (London 17th-19th February 2011) as part of the AVIDICUS project.

2 Videoconference with interpretation: Technical background

Videoconferencing equipment commonly on the market is linked via ISDN lines (H.320 standard) or via IP connections (H.323 standard); sound frequency bandwidth is normally limited to 7.5 kHz because of the audio compression algorithm used (usually G.722), but some old installations limit bandwidth to 3.4 kHz (G.711, telephone bandwidth). Video resolution is far below SD television quality, with a low and inconstant frame rate, error frames ("pixelisation") and no "constant" lip synchronization (video-audio frame rate). Regarding audio requirements stated in interpretation standards, the 100 - 12.500 Hz minimal bandwidth is not available in most of the current

audio codecs, and compression level and other digital encoding parameters are generally unsatisfactory.

Furthermore videoconferences frequently link standard offices unsuitable for this purpose, or have a poor set-up, which means sound reverberation, ceiling lighting, simple omni directional microphones integrated in the table, etc.

DG Interpretation receives an increasing number of requests to provide videoconferences with simultaneous interpretation. Since it is also responsible for the management of the technical infrastructure of about 40 meeting rooms, the DG interpretation has for several years been looking for appropriate videoconferencing equipment that would provide adequate sound and image quality for a very specific and demanding task: simultaneous interpretation.

Conference interpreting is not merely a question of repeating words or phrases in another language, or a matter of code switching. It is a highly complex activity that requires the interpreter to simultaneously listen, analyze, comprehend, translate, edit and reproduce a speaker's speech in real time, while looking at the speaker to observe the non-verbal signals of his (her) message, as well as the reactions s/he arouses among the recipients of that message. Not only is the content of the text unrevealed as the interpreter proceeds, but the speaker's underlying intention may also remain obscure, since perceiving it requires larger chunks of text than are available in real-time oral delivery.

When working in remote videoconferencing situations, interpreters must therefore rely on high quality images, synchronised with the sound, which make it possible to distinguish facial expressions and gestures of speakers and participants as well as and variations in the voice clearly.

3 Looking for solutions

DG SCIC has been monitoring videoconferencing equipment available on the market since 1998. As no plug and play system compliant with interpreting requirements was found, suitable components or sub systems from different vendors were combined and tested by the technical units of the Directorate General until a satisfactory result was obtained.

In order to comply with technical standards applicable to remote interpreting, the coding equipment must ensure a high sound and image quality and a perfect audio-video synchronization (lip-sync is essential).

Only broadcast-level codecs (e.g. MPEG-2 or MPEG-4) and isochronous connections or IP connections with maximum level of quality of service can currently provide the minimal requirements in order to make possible the interpretation of interventions from remotely connected participants. However, some improvements are underway thanks to larger bandwidth network connections, more efficient compression algorithms and the fact that telecommunication providers can now offer high quality services.

These high quality requirements are only necessary one way, i.e. to send image and sound to the place where interpreters are. Images from the main event and the interpretation provided can be conveyed to remote places using common codecs and conventional ISDN links (obviously, lip synchronization is not necessary when transmitting interpreted audio).

Tests conducted in 2005, 2006 and 2007 with interpreters were crucial in defining an appropriate technical set-up that has been designed, implemented and used for videoconferences with simultaneous interpretation which are fully compliant with interpretation standards.

The tests showed that it is possible to perform this particular type of remote interpretation without breaching the CODE for the use of new technologies in interpretation, ISO 2603 or other related standards applicable to interpretation.

It is necessary to use an IP network connection that guarantees the delivery of the audio/video stream in real time (in the strict sense of the term).

Using H.264 it is possible to reduce the total bandwidth required to less than 1.5 Mbps for a talking heads in SD quality, thus considerably increasing the possibility of making such connections via public networks.

The set-up permits both a terrestrial transmission, over IP or satellite links and requires quasi-broadcast level cameras, high quality microphones, appropriate lighting, etc. Minimum technical requirements have been established (see annex 1)

The system has been successfully implemented on different occasions such as:

- Participation of a European Commissioner in a TV debate organised by the TV channel "France3". The Commissioner participated from a television studio in European Commission premises in Brussels while the other participants and the journalist were in Paris; the Commissioner spoke in English and was interpreted in Paris by France3 interpreters. The videoconferencing link was via satellite and the codec was MPEG-2.
- From a TV studio in Bratislava, a European Commissioner participated in a meeting held in Brussels that gathered 600 participants in a former Brewery, with interpretation provided from Brussels to both ends.
- During the European Union Sustainable Energy Week, an interpreted videoconference in several languages was organised between a conference venue in Grenoble and a meeting room in Brussels, where interpretation was provided for both venues.
- During the "Europe for Citizens" Forum, an interpreted videoconference was organised between the Commission Press Room in Brussels and a conference venue in Rhodes.
- Two European Commission staff forums have been organised with videoconferences between Brussels, Luxemburg and Ispra, allowing a multilingual communication between President Barroso and Commission staff. Interpretation was provided in 3 languages from Brussels to and from all participants.

The system is permanently available between Commission meeting rooms in Brussels, Luxembourg and Grange (Dublin), with fixed installations, allowing simultaneous interpretation from and to every location in 4 languages (expandable by adding a blade to the encoder per additional 4 languages).

The set-up used has been validated by senior interpreters designated by the interpreters' representatives.

However, the assessment is based on a specific brand and codec implementation, as well as specific audio and lighting conditions, and a subjective assessment by interpreters. In addition, current standards regarding technical requirements applicable to conference equipment only contain analogue audio bandwidth requirements and do

not cover new technologies and devices widely in use nowadays in meetings or conferences. In particular, they do not contain any requirements for digital video and audio sources, nor for real-time video and audio signals transmitted over non-isochronous networks.

The next step has been to look for an objective evaluation method updated to cover digital equipment. To this end, DG Interpretation commissioned from the Fraunhofer Institut in Berlin a study on the "Definition of an objective evaluation method for assessing the minimal quality of digital video and audio sources required to provide simultaneous interpretation". The purpose of the study was to:

- a) assess minimum quality levels of audio and video signals and of audio-video synchronization for the provision of simultaneous interpretation. This is needed when interpreters are working from an audiovisual support (i.e. images coming from the meeting room or from any remote location, and projected on a meeting room screen or displayed in a monitor in the interpretation booth)
- b) establish objective, measurable parameters to allow simultaneous interpretation of digitally encoded images and sound, irrespective of brand, codec algorithm or codec implementation, etc. coming either from the meeting room itself or from any remote location;
(see annex 2)

In addition to videoconference, remote interpretation has been thoroughly investigated since the year 2000. Tests have been done in 2001 and 2003 with different scenarios and configurations, with more than 60 conference interpreters.

In 2005, remote interpretation was provided in 22 languages during a Summit of European Heads of State and Government in Hampton Court (see technical report in annex 3).

Technical guidelines have been drafted, based on the acquired experience (see annex 4).

