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Introduction

The CEC open information interchange initiative

The workshop was held at the request of the Commission of the European Communities as part of the IMPACT programme. The IMPACT programme (Information Market Policy Actions) supports the European electronic information services market. A part of the programme, OII (Open Information Interchange), aims to promote the use of information coding standards. Until recently the proportion of information held in an electronic form has been small. Estimates were that more than 95% of information was held on paper with only about 1% electronically encoded. However, the advent of CD-ROM and the growth in the networking of microcomputers has led to forecasts of a considerable growth in electronic information in the future. A recent study carried out for the CEC, "New opportunities for publishers in the information services market" (Report EUR 14925 EN), suggests that by the year 2000 10% of the publishing market could be in an electronic form. At the same time, trends in technical documentation are towards distribution in an electronic form, pushed by government initiatives such as CALS in the US and specific initiatives in aerospace and other industries.

As long as electronic information services are small scale and relatively independent, as has been the case with online databases, the need for standards for information coding is not pressing. The majority of information delivered electronically has been intended for immediate viewing on simple text-based screens or for printing offline. The current growth is aimed at a market closer to that for traditional print publishing and includes a variety of material in addition to text, in the case of multimedia extending to video and sound. The information products on sale at present, many of which are reference works such as encyclopaedias or training manuals, use colour pictures extensively and support complex interactions between the user and the electronic document. The present state of the market is that the platforms on which the information products may be viewed are not standardised to any great degree. Although the number of basic platforms is not great (IBM and Apple PCs, UNIX workstations and special purpose machines such as CD-I), they come in many varieties, with little or no standardisation of the software required to play back and manipulate the information. The speed at which new innovations in hardware and the related software are brought to the market suggest that this situation is unlikely to change in the near future.

The user of information, whether at the workplace or in the home, is used to buying information on paper and using it freely in different situations and for as long as needed. Offices are full of filing cabinets with information stretching back over a number of years. In many cases these documents will ultimately be archived for legal and other reference reasons. Technical manuals need to be available for at least the lifetime of the product they document. If electronic information products are to succeed in supplanting paper products, even partially, they need to be usable in the same flexible and time-independent way as their paper counterparts. For this to happen the information must be easily exchangeable between applications, platforms and over time. As the platforms and software are going to change, the solution must lie in standardising the form in which the information is stored and exchanged. If this is managed successfully, then the information will be usable on the new platforms that will become available as the market evolves. One would like to see a situation similar to that with music recordings, where the changes in technology from paper rolls to plastic disks and magnetic tape to laser-based CD-audio have not prevented recordings from being re-issued in the new medium. The audio analogy should not be pushed too far, but it is noteworthy that the standardisation of the exchange formats did not prevent the manufacturers of playing devices from developing and selling a range of equipment with enormous variations in technology. The early 78 rpm disks from the 1900s intended for purely mechanical playback systems are still playable on the most sophisticated electronic decks of the 1990s, and have only been superceded fully by CD technology. From an information point of view, the recordings of outstanding singers such as Caruso are still in demand and are not made obsolete by later recordings by different artists. Comparative reviews of different recordings of the same work often cite recordings from 30 to 40 years earlier as the best and the timeless nature of great work is reflected in the catalogues of the recording companies.

In an age of digitisation for electronic archiving and distribution, the information content will only be preserved if the information coding used is known to the programmes used to recover the information. If the user is to be able to buy devices to read and use the information in an open market and to preserve his investment in the information over time, the information coding must be independent of the media and the software used to access it. OII sets out to promote awareness and use of the standards necessary to achieve this independence. To a large extent the standards either exist or are under development. The OII initiative is using two main methods to spread awareness: publication and workshops. The present workshop is focused on the new standardisation areas of multimedia and hypermedia. The principal difficulty with multimedia is to ensure that all the different content types have standards for their encoding. A secondary difficulty is to ensure that where specific media-dependent characteristics are required, notably at present compression to meet bandwidth restrictions, the transformations are standardised so that proprietary solutions do not negate other standardisation efforts. Hypermedia, the generation of links in the information that enable the user to access the information by different paths, is a new facet of authoring that arises from the capabilities that the addition of the computer to reading systems has introduced.

This linkage is as much a part of the electronic information product as other structural aspects such as the division of a book into chapters and paragraphs or the addition of emphasis through bold, italic or coloured typefaces.

There are a number of new standards under development for the description and encoding of multimedia and hypermedia aspects of documents. Additions to the existing structure coding standards, SGML and ODA, exist (HyTime) or are under development (HyperODA). Standards for delivery of multimedia/hypermedia and their built-in user interactions are under development (MHEG, SMSL). Extensions to content standards to handle compression exist (JPEG) or are under development (JBIG, MPEG). The OII team at the CEC felt that this was an area where there was insufficient public awareness of the standards being developed and a lack of discussion between the standards developers and their potential users (software developers, information providers, authors). The workshop was initiated to provide a forum for the standards makers to present their ideas and how they see the standards being used in the production of multimedia products, and for users to discuss with them the evolution of new standards. The workshop was also intended to cover some of the work in ISO and elsewhere on modelling of the general area of multimedia/hypermedia, in particular the ISO multimedia/hypermedia model and framework, that should help to clarify the relationships between the different standards under development. Further workshops focusing on other aspects of coding standards will be held in the future.

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