

### Summary of Track 1 Presentations

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All speakers were necessarily concerned with some aspect of the transition from printed to electronic information. Some assumptions were explicit or implicit in most discussions. For example, the continued existence of a recognisable information chain was generally supposed. At least for the immediate future, this was seen - by most, but not all participants - as having a rather traditional structure. The chain starts with the author, who creates the information. It then passes via intermediaries (such as publishers, subscription agents and librarians) to the end-user. Another feature was the belief that electronic and printed material can be compared in a standard way. For example, a distinction can be drawn in both cases between content, presentation and handling. Moreover, these divisions apply not only to individual documents, but to the information system that provides them.

An obvious example of this picture is the electronic journal. Such journals still frequently require the intervention of the traditional intermediaries. In terms of content and presentation, current examples typically mimic traditional journals. The current electronic baseline for both the information chain and the nature of the publication is therefore the printed journal. This may irritate computer experts, but it ensures that the transition from print to electronic media occurs in a way more readily acceptable to the relevant community. At the same time, duplication is not exact. In terms of the information chain, who does what may change: for example, some of the work currently done by librarians may be transferred to end-users. Equally, the insertion of hyperlinks into an ordinary journal article affects not only its handling, but also its contents and its presentation.

An attempt is made below to combine significant themes that arose from Track 1 presentations under a series of general headings, rather than to deal with each contribution separately.

#### **Electronic versus printed information**

These two types of information are not necessarily in competition: their properties can be complementary. For example, readers find electronic information more helpful for directed reading, whereas printed information is often easier for browsing. The problem is that handling both media together is likely to be more expensive than handling either alone. Two differences relate to the quality of information and to its storage. There is still considerable uncertainty concerning how online information can best be controlled for quality and how the validation of such information can be made evident. Electronic storage looks straightforward, but is made questionable by the rapidity of change. Means must be found, into the foreseeable future, to transfer information from old hardware/software to new. Hence, some of the basic questions that seem to be fairly well resolved for printed material remain uncertain for electronic material.

### **Multimedia information**

Problems, especially those seen by publishers, are often more acute for online graphics than for text. On the one hand, images often have greater impact on readers than text does. On the other, protection of online graphics from unauthorised use and adaptation is more difficult than for text. The converse of this is that ownership of electronic rights may interfere more with future digitisation of graphical material than of text. In addition, the inputting and handling of graphics is much more complicated than the parallel activities for text. What appears to be happening is that much of this work has fallen to the lot of the author, whose work in preparing electronic publications is correspondingly increasing.

### **Amount of effort**

This last point can be taken further. Electronic publishing still requires considerable effort from everyone involved. This is particularly true of creating and maintaining the metadata environment within which the information exists. The need for appreciable human involvement means that inputting can be a costly process. For example, much effort - which means time and money - is going into electronic copyright negotiations between publishers and user-institutions. Hence, at this stage in its development, electronic publishing changes, but does not reduce, the role of human input.

### **International differences**

The most obvious feature of electronic publications is that they are dominated by the English language. The interesting question here is whether growing use of electronic media will increase further the dominance of the English language, at least in scholarly publishing, or whether the balance will change in the future. However, other, perhaps less obvious differences are equally important. The way computers and networks are being used shows some differences between countries, as do such matters as the construction of databases and methods of information retrieval. These differences can lead to variations in the way electronic publishing is implemented. There can similarly be differences in national policies which may affect negotiations (e.g. in charging for electronic publications).

### **Standards**

The overall result is that there is a growing need for new agreements on standards, in matters ranging from cataloguing (including the cataloguing of graphics) to charging for services. Perhaps the most important international difference is that the level of information technology development varies from country to country. It is therefore difficult to reach a consensus view on the standards to be applied.

### **Hybrid libraries**

With paper-based and electronic publications appearing side by side, a rapidly growing problem for libraries is how to handle a range of media simultaneously with maximum efficiency. This is exacerbated by the fact that media handling is changing with time. For example, CD-ROMs are often described as a transitional form, but for how long must libraries make arrangements for them? One advantage of a hybrid library derives, however, from this rate of change. While ways of handling electronic information are in a state of flux, the continuance of paper-based publications may contribute to the stability of the library. A transition period may also provide the time to sort out the growing diversity of agreements covering electronic publications (e.g. as regards the way they are purchased).

### **Role of intermediaries**

Buying electronic information can raise conceptual difficulties. For online information, at least, purchase does not result in the acquisition of a physical object. From the viewpoint of the institutional provider of funding, this may seem to be a defect. It certainly tends to mean that access to older material involves relying on its continued provision by the publisher.

Electronic publishing is changing the way intermediaries see their roles. For example, librarians are becoming involved in an increasing diversity for training activities, and even in activities usually associated with publishing. At the same time, traditional library duties - such as the provision of integrated information services and their financial support - though they may be altering their nature, are of continuing importance.

One of the most interesting questions here is how responsibilities will be divided between the various groups of intermediaries in the future. For example, subscription agents believe they will be in the best position to provide such services as 'one-stop shopping' for electronic journals, negotiation of site licences, or electronic warehouses. Will publishers and librarians agree with them? One hidden problem in all this is the question of who selects the information that is made available to end-users. The current tendency to package sources (such as electronic journals) together means that users may have available a number of sources they do not want, whilst a number of sources they do want are absent.

### **End-user differences**

As is well-known with printed sources, different users want different sorts of information. Though this will obviously continue with electronic information sources, there may be changes in emphasis. For example, it is often suggested that older and more senior personnel may be less committed to electronic access than their more junior colleagues. What certainly seems to be true is that subject differences will be as important in an electronic environment as they have been in a print environment.

### **Human-computer interaction**

Paradoxically, more sophisticated information provision may irritate users because of the limitations that are imposed by sophistication. For example, electronic mail is universally popular because it is flexible and user-friendly, though not sophisticated. Correspondingly, ASCII files (and also use of SMGL) allow more flexibility than is possible with formatted information. Thus, it is necessary to balance formatting against portability.

One controversial factor is the extent to which electronic information needs to be protected against unauthorised use (e.g. via encryption). Readers typically want both to access and to print material that interests them. The better protected the copy, the more tiresome they are likely to find gaining access and printing out. In a similar way, password management is likely to be a major institutional burden, if rigorously applied.

### **Summary**

Certain general points have arisen from the papers and the discussions in Track 1. These are summarised below.

- Creating and providing electronic information sources is costly in terms of money and time. Unfortunately, there is only limited co-ordination of the work involved, at present, which is resulting in appreciable duplication of effort.
- Continuing change, with increasing sophistication, emphasises the need for basic information provision to be kept simple and flexible. More sophisticated provision can be built on this for specific purposes.
- Major progress (especially in terms of the development of standard practices) cannot depend on individual initiatives. It requires negotiation and agreement between organisations.
- It would be helpful to have some agreement on conceptual models of electronic publishing which could lead to transferable guidelines. However, they are difficult to define in a constantly changing environment.
- A fundamental question is when electronic publishing will overtake print publishing in terms of importance to readers. This will clearly vary according to type of publication, subject matter and audience. It may be that the changeover will be relatively slow up to a certain stage, and then will move rapidly.

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