As with storage media there is a diverse range of formats (e.g.Word,TIFF) in common use.The purpose of this section is not to provide a detailed or exhaustive list of current formats for different media types but to draw attention to the broader implications of file formats for their application, and implications for preservation.There are a number of excellent sources of more detailed advice on file formats and these are detailed in the further reading to the chapter.

File formats are subject to similar rapid obsolescence and evolution and the process of selection and assessment of options for preservation is largely one of risk reduction. Use of file formats which have been well documented, have undergone thorough testing and are non-proprietary and usable on different hardware and software platforms minimises the frequency of migration and reduces the risk and costs in their preservation. Similarly utilising formats which have been widely adopted minimises risk as it is more likely that migration paths will be provided by the manufacturers and a degree of "backward compatibility" will be available between versions of the file format as it evolves. It is important to note that backward compatibility is rarely maintained for more than one or two previous versions and that the "window of opportunity" to migrate is therefore relatively brief.

Although such non-proprietary formats can be selected for many resource types this is not universally the case. For many new areas and applications, e.g. Geographical Information Systems or Virtual Reality only proprietary formats are available. In such cases a crucial factor will be the export formats supported to allow data to be moved out of (or into) these proprietary environments.

It is advisable for institutions where possible to identify file formats which are preferred for archival storage and to seek deposits in that form wherever a choice of formats exist. Some institutions have also identified and distinguished between preferred, acceptable and unacceptable formats for transfer to the institution, for archival storage once in the institution's care, and formats which can be provided for users. Narrowing the range of file formats handled streamlines the management process and reduces preservation costs. It will also reduce the ongoing cost of software licences required by the institution (see also **Acquisition and Appraisal** and **Storage and Maintenance**). In considering storage and preservation it is helpful to recognise that it can be a desirable strategy to distinguish between formats (or versions) used for archiving and access on the basis of different requirements e.g. it would be appropriate to store a high resolution image as a TIFF master file (archival format), but to distribute the image as a JPEG file (access format) of smaller size for transmission over a network. It would not be appropriate to store the JPEG image as both the access and archival format because of the irretrievable data loss this would

involve.

The speed with which many file formats evolve and the degree to which even well documented standard formats can be extended by proprietary additions or modified/adapted for specific applications by users also has significant implications for preservation, and in particular for good preservation metadata and system documentation (see **Metadata and Documentation** **).**