



Alternative Solutions for Storing, Archiving and Preserving Newspaper Collections: the National Library of South Africa's Recent Experience

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In terms of South African legal deposit legislation, the National Library of South Africa (NLSA) keeps at least one paper copy of each newspaper that is published in South Africa. The collections at the Cape Town campus consist of over 36,000 bound volumes of newspapers. As in other parts of the world, microfilming has been the most common format for preservation copying at the NLSA. Over the years a total of 348 current and historic newspaper titles were filmed by way of in-house operations. Many more current newspapers are produced commercially by microform service bureaus, of which copies are purchased for use in the reading rooms of the library.

Microfilming has a long history of use in libraries and is likely to remain in the near future despite the challenge of digital storage media. Microfilm still appears to be a cost-effective format and compatible long-term storage medium. A major advantage is the long-term stability of film, with a life expectancy of over 500 years if appropriate processing standards, storage conditions and handling procedures are observed.

However, preservation microfilming is an extremely complex activity requiring skilled operators and expensive, specialized equipment. It is not simply a matter of mounting a camera on a desk and snapping pictures. Operators must be well trained. Filming requires attention to correct lighting, exposure and adjustment of the camera system. The film must be constantly checked for quality and images clarity. Not all commercially available microfilms are produced in compliance with archival standards.

One weakness of the microfilm medium has always been machine dependent access and difficulty of use. Few libraries provide top-quality readers and reader-printers. Users still prefer using the original print copies of newspapers.

The development of digital imaging technology on the other hand enabled further reformatting of documents that were filmed for preservation purposes, namely digital scanning from microfilm. The microfilm images could now be viewed from any computer screen. Further processing by way of optical character recognition provided opportunities for full-text indexing and improved search capabilities.

But the original paper copies could be scanned as well. Why then microfilm first or microfilm at all? What would be the best option: to film or to scan? What would be the best alternative for storing, archiving and preserving newspaper collections today?

Newspaper collections have been microfilmed for years. Those microfilms can be reformatted again to a digital medium. It is also possible to skip the microfilm process and to scan straight from the original copies. In both cases we would end up with digital documents: from newsprint to digital copy.

Paper => film => digital
Paper => digital

This process makes perfect sense for historic newspaper collections. You would always start with the paper copy. However, current newspapers that are printed on paper and delivered to your doorstep are actually produced and printed by means of modern computerized systems. A digital copy exists before it is printed. The same digital signals (printstream) that are used to produce a print copy can be converted into electronic formats such as TIFF and PDF. In the early 80s there were already predictions that these developments, combined with web-based publishing on the Internet, would lead to full-blown electronic publishing: making printed newspapers obsolete (De Beer et al, 1998: 497).

If digital was the end of all preservation requirements, then the solution would surely be to copy all newspaper print files directly from the desktop to a digital repository, cutting out the print copy or microfilm edition all together. Why would you scan microfilm or print editions if a source in digital form already exists?

However, apparently there is currently a growing demand for computer-output-microfilm. Why?

For the following reasons:

- Risks involved with loss of data integrity.
- Problems with surviving technology obsolescence.
- High costs of media refreshes and format migrations.

It is well known that digital data storage technology is highly susceptible to corruption by intrusion, viruses and human error. Even in tightly controlled operations, back-up tapes can go astray. Hardware and software become obsolete. Migration is expensive and the risks of transcription errors are many.

Microfilm is still a viable medium for archiving purposes. In the business environment most companies have a combination of paper and electronic documents, and are required by legislation and customer service requirements to secure the availability of the documents for the duration of their lifecycle. In comparison to modern information media, microfilm has the advantage that no fundamental technical transformation of the content takes place. Microfilm-based archives are not easily altered and are 'technology independent' when it becomes necessary to recover or reproduce stored documents. The analogue-stored information is directly accessible, with relative little effort. Microfilm can be easily and economically created, duplicated and distributed. For these reasons, recording information on 'eye-readable' formats, such as microfilm, is rapidly gaining in popularity.

Both Kodak and Fujifilm developed digital-to-film archiving systems in recent years. Kodak's i9600 Series Archive Writer is based on ISO/ANSI standards using 16mm high-quality microfilm (Kodak, 2007). The documents can afterwards be automatically searched and re-digitized for online access and retrieval. Fujifilm's AR-1000 Document Archive System, introduced in Japan in 2004, records digital documents on 16mm roll film as well. According to IMA (2006) the Fujifilm AR-1000 is fast, easy to use and maintain and produces higher resolution film than competing microfilm archiving systems. It has special features that enable the reproduction of large format drawings and maps. The first customer to adopt this technology is a large private medical record service bureau (EDCO Group) that scans and archives more than one million documents per day for hospitals in the US. According to EDCO the film output was sharper and more consistent than they had expected (Fujifilm Press Center, 2006). There are apparently a number of European manufacturers of 16, 35 and 105mm digital to analogue archive writers manufactured by Zeuschel, Microbox and SMA (Varendorff, 2006).

Within this context the National Library of South Africa decided to investigate means of producing microfilm directly from newspaper printstream. Thus adding another reformatting strategy namely from digital to film. In summary we would then have the following options for newspaper reformatting:

- Paper to film (mostly older newspapers)
- Film to digital (from good quality film)
- Paper to digital (cut out microfilm)
- Digital to film (ignore the paper copy)

Early in 2006 an opportunity presented itself to do a test run. Two partners were interested to participate namely Metrofile and Media24. The purpose of the project would be to test computer-output-microfilm from original newspaper printstream at the National Library of South Africa.

Metrofile is a South African market leader in the management of paper records and electronic repositories. The NLSA has a long-standing working relationship with Metrofile. The newspaper collections of the NLSA are presently stored and managed off-

site at warehouse facilities provided by Metrofile. Metrofile converts large volumes of paper documents to analogue or digital format.

Media24 is one of South Africa's largest publishing groups with interests in newspapers, magazines, book publishing, printing plants and distribution companies. With a daily circulation of about 800 000 Media24's dailies account for a large portion of the South African national newspaper circulation figures.

Die Burger, published by Media24, is a typical example of a newspaper that is printed by way of electronic desktop means. Die Burger is the biggest daily newspaper in the Western Cape. Separate editions are published for the Western and Eastern Cape. Die Burger is at the forefront of technological developments with its daily internet edition, electronic archiving on the internet and electronic page make-up. Die Burger is microfilmed at the NLSA. A proportion of the costs of microfilming are shared with Die Burger. One set on microfilm is supplied to Die Burger.

It was agreed that Die Burger would provide the printstream of one of its newspapers in PDF format to Metrofile. Metrofile would then produce the computer-output-microfilm and supply to the NLSA for testing. The first test was done on a Kodak digital-to-film Archive Writer at Metrofile. The result was presented on 16mm microfilm. Unfortunately parts of the text were out of focus and thus not legible. The PDF files were then sent to the US for reproduction on 35mm microfilm with good results.

Due to the limited availability of digital-to-microfilm archiving equipment in South Africa at the time of testing, only two tests were done. The project however displayed the possibilities and willingness of the partners involved. It seems that 16mm microfilm is not yet suitable for the digital-to-film reproduction of large format documents such as newspapers. The results on 35mm microfilm looked promising. Further research will be done taking into account other service providers as well.

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