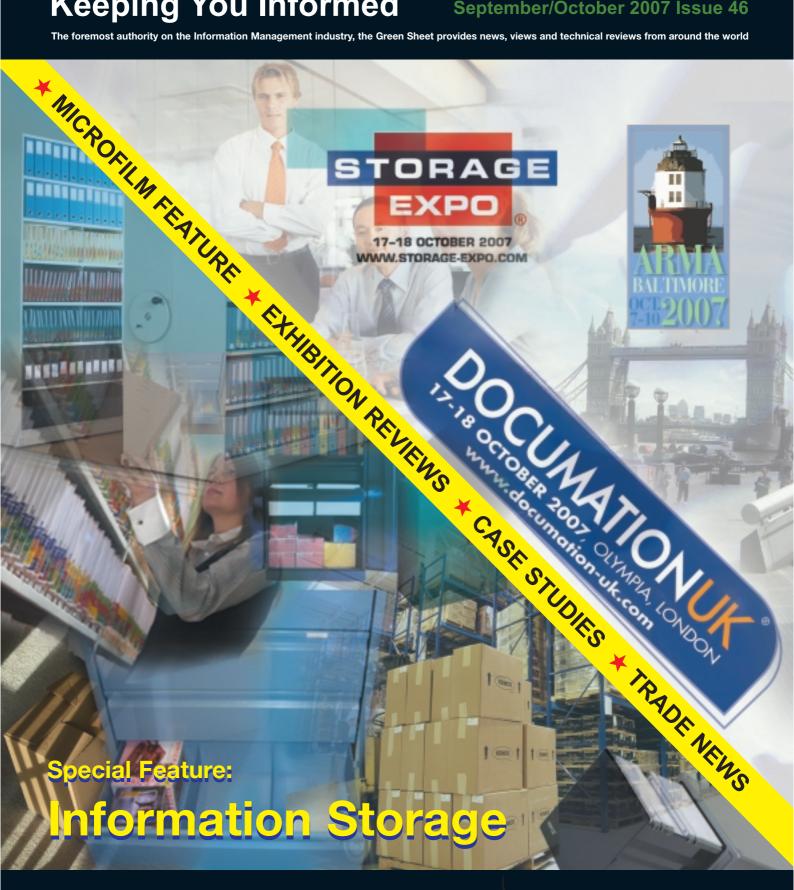
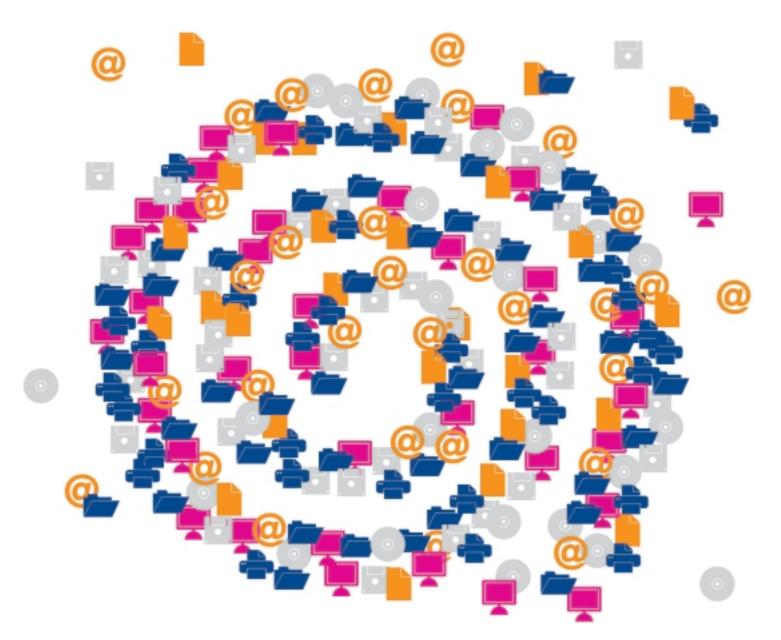
GreenSheet Keeping You Informed September/October 2007 Issue 46

The foremost authority on the Information Management industry, the Green Sheet provides news, views and technical reviews from around the world



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A Question of Storage

The secure storage of information is usually an afterthought. Data protection and accessiblity are always the first considerations, but without a good storage system none of the above would be possible.

Tim Nixon - Editor

Information Storage, which is one of our featured items this issue, covers a multitude of media and, therefore, systems.

Clearly if your information is in digital format it requires a totally different storage system from if it is in analogue form.

Analogue

Analogue can, itself, be divided between micrographics and paper based. There is still, to this day, more information kept on paper than on any other media type. So much for the "paperless office" dream.

Cabinets are the obvious choice for the 'inhouse' storage of analogue data, with manufacturers offering a wide selection of prices, styles and sophistication. The storage systems need to be able to boast certain standards, which cover security, protection, from both natural and maninduced disasters, plus ease of accessibility and retrieval.

The latest designs from the cabinet manufacturers are all attempting to give as much storage space as possible but with a smaller footprint than ever, because office space is at such a premium.

With this thought in mind many organisations are now turning to their bureaux to, not only to film or scan their documentation, but also to store it for them. This is particularly useful when the information is rarely called for but has to be there "just in case".

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PPA

Green Sheet MEDIA is a member of the Periodical Publishers Association. All material © Green Sheet MEDIA 2007 (except where otherwise indicated) The storage units usually take the shape of warehouses, though there are some which are utilising old salt mines, giving natural protection from the elements.

Digital

On the digital front it is far less space sensitive as, obviously, digital data takes up far less space. Instant access and retrieval is also possible if the right system is selected.

Disaster recovery should be less of a problem too, as back-up is relatively easy and economical to achieve - thus ensuring that all your important company information is kept at at least two different locations.

Many bureaux are now offering their clients "on-line" storage. This way the customer has only to log on to the relevant website, identify themselves, give the agreed password and have instant access to all of their company files. Security clearly has to be quite stringent if this approach is taken as, otherwise, the customer's confidential data could be wide open to compromise.

Anyone wanting to learn more about information storage in all its guises shoul visit Dovcumation UK at Olympia, October 17-18, particularly as Storage Expo is running alongside. Visitors will have the opportunity to compare the most comprehensive range of data storage solutions from all leading suppliers. ■

Any comments: tim@greensheetmedia.com

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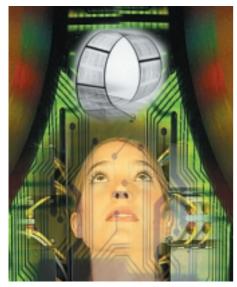
in this issue



ADVERTISERS' INDEX

Avanquest19
DICOM Technologies
Fujitsu Europe11
Genus Group5, 25
Inotec
MicroVue
nextScan9

OITUK	0
Scanning Resources	26
Solar Imaging	2
SunRise Imaging	.8
Wicks & Wilson	32
Zeutschel	23



Introduction

Whether we were in business or still at school, most of us around today became aware of microfilm from our first contact with Ian Fleming's James Bond stories.

The tiny Minox* type camera was usually the capture method, and somehow Q's department always managed to get great results despite apparent camera shake, poor or non-existent lighting, bullets flying, and the fact that 007 had to go through Hell (and often High Water too) to get the films back to base for processing. Then, of course, there was the more specialist microfilm called the microdot.

*Est. 1937 and owned by Leica since 1994.

These days microfilm is much easier to work with. As a (very) mature industry that is the way it should be. After all, microfilm has a long, long history. In fact the concept of military use predates Bond by many years and goes back to the Siege of Paris.

First Military Use

The Siege of Paris took place during the Franco-Prussian War of 1870–71. The only way for the provincial government in Tours to communicate with Paris was by pigeon post and, as the pigeons could not carry paper dispatches, the Tours government turned to microfilm.

Using a microphotography unit evacuated from Paris before the siege, clerks in Tours photographed paper dispatches and compressed them to microfilm. This was then carried by homing pigeons into Paris and projected by magic lantern so clerks could copy the dispatches onto paper.

The first recorded commercial example of microfilm was in 1839, when a 160x reduction Daguerrotype plate was created by London born John Benjamin Dancer.

This innovation was only 4 years after Britain's William Henry Fox-Talbot had perfected the first permanent image using photography.

Although John H. Morrow opened the first (American) commercial microfilm laboratory in 1864, it was not until later

MICROFILM - Revival or Survival

By John Baker - Executive Editor, Green Sheet MEDIA

that century that the commercial use of microfilm really took of. It was further developed (*no pun intended. - Ed.*) and popularised by Kodak at the end of the 19th century, when in 1889, George Eastman (founder of Kodak) began the manufacture of nitrocellulose film.

SURVIVAL?

The Old Lady Microfilm is knocking on a bit now. She has had a few nips and tucks, a good few blood transfusions, and a lot of plastic surgery on the way. However she always gets up off the operating table with a new lease of life and another decade or so in view.

At the risk of a few of us coming over all misty-eyed, some of the key microfilm milestones over the past few decades worth mentioning are:

THE WARS

Franco Prussian War and WWI (1914 - 1918)

Microfilm was used to photograph letters and documents which were then couriered by pigeon and re-constituted at the other end.

WWII

V-mail (presumably meaning Victory Mail) used the same process as above.

1970's

СОМ

Computer Output Microfilm - COM. At that time the output of computer-generated information presented major problems, printout involved slow line printers using bulky continuous stationery (extra copies were usually provided using multi-part sets and the fourth copy was frequently illegible).

Rapid COM printout to microfiche enabled the production of unlimited copies and low cost distribution. This resulted in the almost universal replacement of paper for parts and service information in the motor and aviation industries and the distribution of microfiche of customer account details from central processing units to bank branches.

СІМ

Computer Input Microfilm or microfilm to digital data. The exact date cannot be verified, but GSM understands that the original (experimental) concept was used by the US Navy to send personnel records to ships around the world from the Pentagon. This was due to the long lead time that they experienced when sailors were transferred from one ship to another. The microfilm contained data ready for input into a computer which considerably speeded up the process. (These days I guess you would scan the microfilm and OCR the results thus avoiding keystroking.- Exec. Ed.)

1980's

Blip coding

A Blip is an optical mark read by a sensor to tell the reader / reader-printer where it was in the film, with the option of small, medium or large blips to represent 'book', 'chapter' and 'page'.

Computer Aided Retrieval (CAR)

Where a PC was linked to a reader, and once the user found the document details in a database, and following a prompt to place the correct film number into the reader, the reader then transported the film to the document position using the blip described above.

1990's

Writing from digital file to film

This process involves transferring digital document image files to microfilm media. (But remember that COM was with us in the 1970's as an alternative to massive printouts of alphanumeric data). This method of long-term storage, being independent from PC technology, has given the IT industry a real kick in the posterior, it has finally closed the gap in the cradle-to-grave life cycle of documents however they are created.

Sadly, microfilm is now being referred to by some as a 'sunset industry', although many companies are only now discovering microfilm for the first time, and beginning to use it after recognising its unique value as a serious long term storage repository.

Another key aspect of microfilm is that it has been acceptable as evidence in court a lot longer than digital image files. It is also less easily tampered with in comparison to digital files.

REVIVAL?

The modern day revival of the microfilm industry (*Yes it IS a revival. Exec. Ed.*) is due partly to this closure of the gap in the document life cycle and partly to the potential longevity of storage without image degeneration. Suddenly companies have the ability to not only scan their documents, but also to commit the digital version of that document to microfilm which is stated to be archivally permanent from anything between 100 and 500 years.

On the subject of archival permanence, the marketing data tells you that microfilm is good for 500 years of archival permanence. It is not such a bold statement as you may think. The film referred to has been certified by leading manufacturers on the basis of solid

research and not their marketing executives. Obviously none of us will be around to check if it fades after 500 years, and there must be some form of artificial aging process by which degradation of the film can be measured.

With microfilm having been in commercial production for over 100 years, the key film manufacturers are sending out a clear message to the digital document industry around the world in declaring 500 years of permanence. Computer manufacturers could never agree that level of permanence for their technology. At least not at present. Perhaps once computing as we know it is as old as microfilm, that might change.

From the business perspective, the thought process must be that microfilm is a medium to be used alongside traditional EDM solutions instead of being in opposition to it as it has been in the past.

The major manufacturers are all keen to continue their involvement with the microfilm industry. Indeed there are whispers in the industry that some companies are poised with new consumables and equipment to further enhance the success of the microfilm industry.

As a major part of the research for this article, the author interviewed several major companies involved in the manufacturing sector of the microfilm industry, and asked them questions regarding their plans for microfilm involvement in the years to come. Kodak, Agfa, Ilford and MicroVue all came back with positive plans for the perpetuation of products and materials.

THE FUTURE

There are many possible paths which microfilm might follow. Historically however, microfilm seems to work in the exact opposite way to electricity in that it usually follows the path of MOST resistance.

But perhaps that is part of its secret. Not only is microfilm by its very nature, a robust and mature medium, but it does not require sophisticated computer technology to read it. This makes it extremely versatile and durable. Certainly more versatile and durable than any currently available hi-tech 'long-term' storage solution on the market.

Think about how technology has changed since the IBM PC began to revolutionise the corporate office in 1981, and almost instantly followed in 1982 by start-up upstart Compaq. With PC advances and storage media capacity increases there is always room for redundancy.

Remember PC Storage?

Remember we have progressed from 5.25" floppies holding the operating system (OS), to DVD-ROMS with over 8Gb of data in 25 years.

Microfilm needs no OS, has standard storage capacities dictated by the reduction ratio of the recording medium, and apart from that, has had few real changes in technology apart from recently where digital devices now convert image files into conventional film.

Perhaps the future of microfilm might even lie with organic computing combined with high capacity disk storage. Offering parts free processing linked to Terabyte capacity storage, the computer of the future might simply wrap itself around the microfilm medium and perform all of the messy processing and duplication tasks as well as keeping digital records of documents managed.

It's all very 'Arthur C Clarke', yet they probably laughed at him when he spoke the about inventing digital communications satellite, and look where that has progressed to in the 62 years since he published the idea of orbiting geostationery lumps of electronics!

Comments, correspondence, emails and general feedback welcome. johnbaker@greensheetmedia.com

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Comment from Agfa



6

Microfilm is by far the best analogue medium for the long-term storage of different kinds of data. Nowadays, national archives and libraries are the most important customers for these products. All kinds of documents from mediaeval writings to yesterday's newspaper are recorded and copied onto film. As microfilm archiving is warranted for accuracy and permanence up to 500 years, it is a very cost effective and secure way of storing source documents.

On top of that, microfilm is technologically independent. These days, "short-term" archives on digital media are also being copied on to film for long-term storage purposes, without the worry about future compatible hard- and software. Agfa are therefore convinced that, unless a true alternative is found, there will probably always be a demand for microfilm.

Although the volume of microfilm usage has reduced considerably, Agfa see that decline flattening out the industry levels to what they call "the hard core of microfilm users."

At present Agfa are working on specific microfilm related projects, (e.g. environmentally-friendly products,) but unfortunately our interview was too early for them to commit to any specific information. (*Watch this space - Ed*)

When Agfa was still producing photo film (Agfa sold this activity at the end of 2004) the production of microfilm and photo film was organised completely independently. The photo film was made in its Leverkusen plant (Germany), whereas microfilm is still being produced in the Belgian HQ at Mortsel.

The Future of Microfilm

We asked Agfa what they thought the future was for microfilm, particularly as many consider the medium to be a dead industry. Agfa replied, "People also said that magnetic tape and vinyl records would be dead with the introduction of cassettes and CD's. And how long has it been since we were told that the paperless office was just round the corner?

Instead of classifying microfilm as 'old technology' one should look at its specific benefits, its cost competitiveness and its longevity or durability. Each application has its specific requirements and each solution its own advantages (and disadvantages for that matter). These are the elements that should define which technology is the most appropriate one to use."

For more information visit: www.agfa.com

Comment from Kodak



Microfilm continues to be a viable archive medium that is today employed in a number of vertical d i s c i p l i n e s , including financial,

legal and government. As a medium it offers economical, efficient and safe multi decade storage that complements digital systems for long term record retention.

Offering one of the broadest portfolios of microfilm products available worldwide, Kodak are committed to do what is right for its business, in terms of participating in markets that offer profitability and growth. This is a duty they uphold to their customers, and shareholders alike.

For the future, they see opportunities in making efforts to simplify the interface between digital and film as being one of the key developments. They also believe that other vendors will continue to make it easier to convert digital images to film and to scan film back to digital.

As a measure of Kodak's commitment to the microfilm industry, it is worth noting that their microfilm film products are currently produced in the newest and most sophisticated coating facility that Kodak operates.

What of the Future?

We asked Kodak to comment on how they saw the future of microfilm panning out. Their reply was "The issue of how digital information is going to be preserved for

needs future generations further discussion throughout the industry. Microfilm is recognised industry wide as the one storage medium that does not require "migration" as digital standards change. As such, it is a viable product that can complement digital information systems. While digital systems offer great features in areas of document retrieval and distribution, some face challenges in retaining digital documents in an unalterable form for future reference. At Kodak, we believe that technologies can be married to offer the best customer solution based on specific needs and business processes."

For more information visit: www.kodak.com

Comment from Ilford

ILFORD

ILFORD microfilm has been used since 1967 in (as we say in the information management industry) "analogue" systems.

Now, with the new laser exposure devices in the Eternity 105 or the Archive Laser from MicroArchive Systems, as well as with the OP 500 from Zeutschel, ILFORD film can really demonstrate how well it performs.

The low speed of the colour microfilm is no longer an issue. In fact ILFORD also sees

the possibility that both photographers and amateurs alike will save and store their most important digital photos on ILFORD film.

When asked about current projects, they were keen to tell us that there are further projects ongoing like "Bits on Film". Which means you can store pure digital data (Bits) directly onto microfilm.

The Future of Microfilm

We also asked ILFORD what their view was on the future of microfilm. They replied, "ILFORD Micrographic film will see a remarkable increase in sales throughout the next few years, as this is the only easy to use, long-term stable, archiving media in the market."

They further commented, "Until an alternative, easy to use, cheap, long-term (up to 500 years) stable media has been developed, we should see a great future for colour microfilm for more than 10 years. It is also worth noting that the film is cheap and a one-time investment. With digital storage, the constantly changing medium (floppy disc, CD, DVD, flash memory etc.) means that the files need to be migrated every 5 years to preserve their integrity and accessibility. Hence an ongoing cost that is not necessary for microfilm."

For more information visit: www.ilford.com

Micrographics – A Dying Industry??

The demise of micrographics may have been predicted years ago. Many eulogized this technology whose principles have been known for over 150 years, calling it outdated and old-fashioned. There were those who offered to dig the graves, and yet others that even volunteered to lie down in them. Yet, micrographics has refused to die.

Despite the wonders and the relevance of digital storage, microfilm continues to be a viable storage medium as it is dependable, no matter what technological changes have since occurred. Many governments and companies are discovering that the media being used to carry their precious information into the future is turning out to be far from eternal, and choose hybrid solutions which also incorporate microfilm as the safest, simplest and leastexpensive method for long-term storage of information. Libraries, archives and research centres embrace microfilm to assure that their legacies remain available also for future generations.

MicroVue Products, a small company in a small country, has refused to surrender! While some manufacturers have discontinued production of their microfilm readers, MicroVue continues to manufacture a full range of models, both for 16mm and 35mm microfilm. MicroVue's range of XL-16 motorised readers include the simplest model for manual threading of open-spool film, as well as models for automatic loading of 3M cartridges or ANSI clips, with or without an electronic blip counter.



MicroVue's desktop RF-35 motorised rollfilm viewer for 16mm/35mm film offers a solution for libraries and engineering applications, and its flagship reader, the Gideon 1000 Library Researcher, has been chosen time and time again as the preferred reader in national and major libraries and archives and can be found in more than 40 countries throughout the world. While originally manufactured both at S-T Imaging in the US and at MicroVue Products, the Gideon 1000 and the manual version, the Gideon 900, are exclusively manufactured and marketed today by MicroVue Products.

But MicroVue has not stopped there. With their long-term relationship, MicroVue Products has proven to S-T Imaging its high quality standards and its noteworthy customer service. In return, S-T Imaging has transferred to MicroVue Products the production of its UC-6E microfilm carriers for Minolta and Canon reader, printer and scanner systems as well as the carrier for the ST200 Digital Microfilm Scanner. The proprietors of MicroVue have also branched out and opened a sister company, Sheletron Ltd., that manufactures and markets digital display systems using MicroVue's vast knowledge of electronics, production abilities and quality management system.

For further information visit: www.microvue.co.il, www.sheletron.com or www.stimaging.com



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The value of microfilm has been impacted in several major areas by the development of more effective alternatives. Where rapid access to information stored at multiple locations is a vital factor, such as the handling of customer enquiries, electronic document management is clearly superior to anything microfilm can offer. COM once provided an inexpensive alternative to the distribution of inconvenient and weighty continuous stationery, but on-line systems have replaced the need for this activity.

Secure storage remains as the major area where film still has the edge. This is not just because of the estimated 500 year life of the media, it is due to the fact that every aspect of microfilm is fully covered by international standards and - what is more important – those standards are respected and observed by all suppliers of hardware, materials and services.

Comment from Gerald Baker

Senior Partner, G G Baker & Associates

For many years I served as the Chairman of the Microfilm Association of Great Britain which had strong links with its founders in the library and academic field. Long-term preservation was of major interest and I was urged to participate in all aspects of standardisation, eventually serving for over ten years as Chairman of the committees responsible for the production and update of British and International micrographic standards.

Because so many leading figures in the industry were willing to give up a substantial amount of their time to attending meetings to agree acceptable micrographic standards, we now have interchangeable media, recommended processing and storage methods and fully compatible hardware. Long-life film would by itself be worthless for archival applications if media dimensions and related reading and printout equipment changed every few years, but that is, in effect, what has been happening with the electronic and optical storage alternatives, Standardisation must not stifle development, but users can be certain that any future micrographic hardware will be able to generate or display existing microformats with changes limited to improved efficiency and ease of use.

Much of my present work relates to electronic document management, but I am sufficiently in touch with micrographics to see quite a bright future for the technology if it is used within its obvious limitations. Much progress has already been made in bridging micrographic and electronic systems through film scanners and archivers, the typical quality of images on film has been substantially improved over the years and colour microfilm seems to be an area of potential growth.

The industry has now consolidated sufficiently to compensate for the loss of some previously lucrative applications. The remaining suppliers should have an adequate market, mainly composed of archival applications and the servicing of many thousands of existing systems which do not justify a change to electronic storage. Although there will be far fewer new start-ups, microfilm is still well able to handle many existing installations. Where a major investment has already been made in a microfilm system it is often more economic to maintain it than replace it with an electronic alternative, especially if film is considered a more appropriate medium for long-term retention.

For more information please email Gerald Baker at: ggbaker@ctv.es

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