

**ROCC**

***MICHAEL ALDRICH***

***PRESS CUTTINGS***

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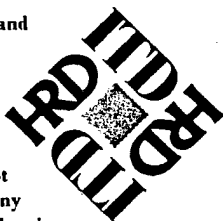
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# COMMUNIQUE

## Work Process Improvement

Most sensible managers are wary of new management fads, particularly when intensively promoted. 'Business Process Re-engineering', which has been described as the radical redesign of business processes and their operation by cross-functional teams is, on one level, a concept whose time has arrived and on another, an advertising slogan allowing some elements of the IT and consultancy industries to gloss over ill-conceived attempts at managing change.

As Peter Drucker remarked, "Look, re-engineering is new because we didn't have it as a concept before." His argument that only when something is established as a systematic discipline or organisable process does it really have an impact is an interesting example of cultural attitudes.

Drucker distinguishes between two types of re-engineering: the re-design of sub-processes, and the reconfiguration of entire processes which alter the strategic and competitive rules in an industrial or commercial sector. The use of the word 're-engineering', however, is unhelpful in that it implies a disciplined, mechanistic approach to work processes. The reality is that working with people is the key to both re-designing sub-processes and re-configuring for strategic advantage. Human behaviour, not engineering, lies at the core of business process re-engineering.

The re-design of sub-processes is better described as 'work process improvement'. Its origins lie in the areas of 'Organisation and Methods' and 'Operational Research', developed during and after the Second World War. They concerned themselves with management theories, senior/subordinate relationships, hierarchical reporting structures, and labour relations, as well as the encouragement of science-based innovation and the development of more empathetic attitudes towards change. Nowadays, work process improvement takes place within new organisations that place much emphasis on quality, productivity, innovation, empowerment of working people, teamworking, flat structures, multiple skills and cross-disciplinary working.

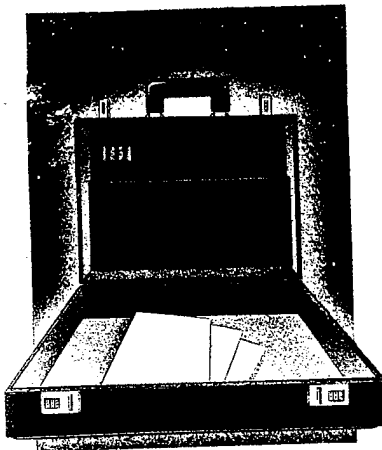
Strategic re-configuration was, and still is, much more difficult, simply because it is not just a question of processes. Strategies, cultures, infrastructure and tools are equally important, if not more so. Human resources are of paramount importance and the development of these resources to improve the quality of leadership, to create and sustain a common purpose that people can work towards, to build a culture of enterprise and opportunity, to grow by teaching and learning, to fashion ever-better working relationships and to bind people together through good communications remain supreme management challenges. The battle today is to accomplish organisational change in harmony with technological innovation, and this is an area where senior managers, armed with inadequate evaluation and review processes, often struggle to maintain control.

'Work process improvement' is about iterative change - small steps that cumulatively achieve large benefits yet are controllable, manageable, measurable and likely to succeed. The team is being used increasingly for techniques that improve administration processes through the use of new office automation technologies to reduce the movement of paper within an organisation.

Work process improvement is relatively straightforward. It begins with business analysis to gather facts and insights before formulating potential areas of improvement. The methods of analysis depend on how the particular organisation operates and behaves. The choice of people to carry out the analysis is also specific to each organisation, the sole requirement being that it is done competently within an appropriate framework of support. Finally, the identification and choice of strategies for work process improvement is intimately tied in with the characteristics of the individual organisation. Existing strategies, cultures and rules have to be considered, and people have to be involved and to be motivated to implement the changes successfully.

Thus while technology provides potential opportunities for work process improvement, these opportunities remain unrealisable until human resources organise to deliver the benefits. The technology is there to support the people and not vice versa. This is probably the secret of using technology successfully to improve work processes. It is not a new approach but it is much less risky than attempting strategic reconfiguration and most importantly, it works.

Michael Aldrich, Chairman  
ROCC Computers Ltd



# BRIEFINGS

Key issues, perspectives and practical tips for trainers by trainers. The editor welcomes contributions by readers, so if you would like to contribute, send a synopsis of your article to Colin Steed, IT TRAINING, Jubilee House, The Oaks, Ruislip, Middlesex HA4 7LF.

## MANAGING CHANGE

### Work process improvement

Most sensible managers are wary of new management fads, particularly when intensively promoted. 'Business Process Re-engineering,' which has been described as the radical redesign of business processes and their operation by cross-functional teams, is on one level a concept whose time has arrived, and on another an advertising slogan allowing some elements of the IT and consultancy industries to gloss over ill-conceived attempts at managing change.

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The reality is that working with people is the key to both redesigning sub-processes and reconfiguring for strategic advantage. Human behaviour, not engineering, lies at the core of business process re-engineering. The redesign of sub-processes is better described as 'work process improvement.' Its origins lie in the areas of 'Organisation and Methods' and 'Operational Re-

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'Work process improvement' is about iterative change - small steps that cumulatively achieve large benefits yet are controllable, manageable, measurable and likely to succeed. The term is being used increasingly for techniques that improve administration processes through the use of new office automation technologies to reduce the movement of paper within an organisation.

The paperless office is not a cost-effective proposition at this time but there are certain applications in the office that can be made paperless, either through electronic data interchange or through conversion of paper to electronic images at an early stage in the processing cycle. In recent years, a formidable array of new technologies and techniques in electronic imaging have come onto the market, delivering economic benefits and potential business improvements through better quality and shorter process cycles. These innovations continue the theme of automation replacing the more routine and repetitive tasks prevalent in bulk administrative work.

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sights before formulating potential areas of improvement. The methods of analysis depend on how the particular organisation operates and behaves. The choice of people to carry out the analysis is also specific to each organisation, the sole requirement being that it is done competently within an appropriate framework of support. Finally, the identification and choice of strategies for work process improvement is intimately tied in with the characteristics of the individual organisation. Existing strategies, cultures and rules have to be considered, and people have to be involved and to be motivated to implement the changes successfully.

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MICHAEL J ALDRICH  
is chairman of ROCC Computers Ltd

## COURSE MANUALS

### Course manual design tips

- A course manual should be a detailed guide, in plain English, of commands and concepts covered during the course. It should not be a precis of the program software manual.
- Because learning styles fall into two categories, the manual will need to appeal to both: the 'linear learner' will read the manual word by word

whereas the 'global learner' will flick through relying on pictures. To interest both styles, include a balance of graphics and text. Use screen snaps of dialogue boxes, tools, likely error messages etc.

- Always use correct terms to help build a sound knowledge of the program vocabulary.

- Quick look-up sheets are gratefully received. Discern the most frequently used commands (and the most frequently forgotten!) and include keyboard shortcuts.

- Set the notes in an appropriate font — Times is always good for body text.

- Include a large left margin to provide a binding edge which is useful for placing graphics in and supplies space for note takers.

- Finally, don't be afraid of white space on the page. Nothing can seem more daunting to a reader than an overcrowded page and nothing is more frustrating to a writer than no more room to insert extra copy.

CLAIRE GRIFFITHS

is head of graphic design at The Technology Training Centre.

## TRAINING SUPPORT

### Designing training support documents

Have you ever thought how nice it would be if your trainees understood and remembered everything the first time you explained it, so obviating the need for you to provide support material at all? However good a trainer you are, some information goes over your trainees' head; some is forgotten. When they leave the training room, you need to give them some documentation to help them to recall what they have learned, but have you ever stopped to consider the effectiveness of this documentation in the training process? Does the material ever get read, or is it filed away, only to be retrieved months later from the bottom of a drawer?

You can never be certain that trainees use the material you give them, but you can go some way towards trying to ensure that your documentation is presented in a way which invites them to use it.

Here are some useful guidelines:

- **Size and presentation:**

Decide how best to present the material and how the trainee might organise and store the material after the course. The information must be organised in a way which enables it to be retrieved easily. Start by thinking about some of the courses you have attended. You might recall the large folder which was handed to you at the end of the day, just as you were getting ready to leave, and which you couldn't fit into your briefcase. Or you might have been given odd pages of notes during the course without a folder in which to organise them?

Consider using a folder which is A5 in size, rather than the usual A4. This makes the documentation easier to use when the trainee is sitting at a PC, as it needs less desk space and it is easier to transport. If you are using ring binders, use one with a thin spine so that the size of the manual doesn't appear too daunting. This will help you to keep volume to a minimum.

Training documents should not contain a lot of detail but should refer readers to other documents such as User Guides or Reference Manuals.

To make the material memorable, time permitting, consider displaying some information in quick reference format or as a keyboard template.

- **Familiarity:** Refer to your support material throughout your course so that the layout of the document and the content becomes familiar to the trainees. If you are using any single sheet handouts, incorporate them into the document as well. Trainees will be more readily prepared to use a familiar document after the course than one which is handed to them as they leave. It is important that they are able to go directly to the topic when back at their desk.

If you are issuing a number of handouts at intervals during the course, provide a suitably labelled display folder with a mini table of contents inside the front cover so that the trainee can build up his own guide to take away.

Dividers are a quick and easy way to segregate information.

- **Style:** Use a friendly, informal and supportive style. The most appropriate person for this is the second person, *you*. Talk directly to the trainee and avoid using the passive tense where possible. Active voice puts the trainee in control of steps and procedures.

Keep you sentences short. Sentences of 20 words or less are easier to read and understand. Similarly, paragraphs should not be longer than three sentences to make them easy to follow. Don't be afraid to leave plenty of white space on each page so that the page does not look cluttered.

Bearing in mind that you will explain the topics you are documenting at some length during the course, only document the main points. To keep your descriptions to a minimum, use numbered steps when reminding users of how to perform a particular task.

- **Illustrations:** Always use charts, diagrams and screen dumps in your documents. If you are training on GUIs, you will probably be showing screens as part of your presentation and these should form the main part of your handout material. Small, well-drawn and well-planned drawings or dumps enable your trainees to recall the topic much more quickly than descriptive text. This also helps to simplify and clarify the steps and operations and enables your supporting text to be brief. The appropriate use of cartoons can be effective too; you are not restrained by the more formal style of a User manual. Always try and use a graphic on the front cover of your document. This makes it easily identifiable and immediately conveys a friendly image.

- **Feedback:** Most trainers provide their trainees with a questionnaire or evaluation form, but rarely ask for any feedback on the support documentation. Obviously they are not in a position to comment at the time, but think about including a form at the back of your document, asking for their comments to be returned to you at a later stage.

SALLY EDUARDE

is a technical author.

## » NEWS BRIEFINGS

### Training Skills branches out

Training Skills, a company specialising in computer software and management training, has just started an expansion programme. With its main office in Cardiff and subsidiaries in Peterborough and Watford, it has just acquired an office in Birmingham. The Birmingham operation has been set up by Jeet Chand, who has over 12 years of management consulting experience having worked in Europe including Germany and Spain as well as the Far East including Hong Kong and Taiwan. *Further information from Jeet Chand at Training Skills on 021-643 8899.*

■ Enter 670 on enquiry card

### AS/400 trainers go national

Sierra Training Services now claims to be the largest independent AS/400 training company, with eight training centres nationwide. Whilst AS/400 training is their core business, they have a comprehensive range of courses which also cover AIX, OS/2, PC, Windows and IT skills. *Further information from Mark Walas at Sierra Training Services on (0933) 412300.*

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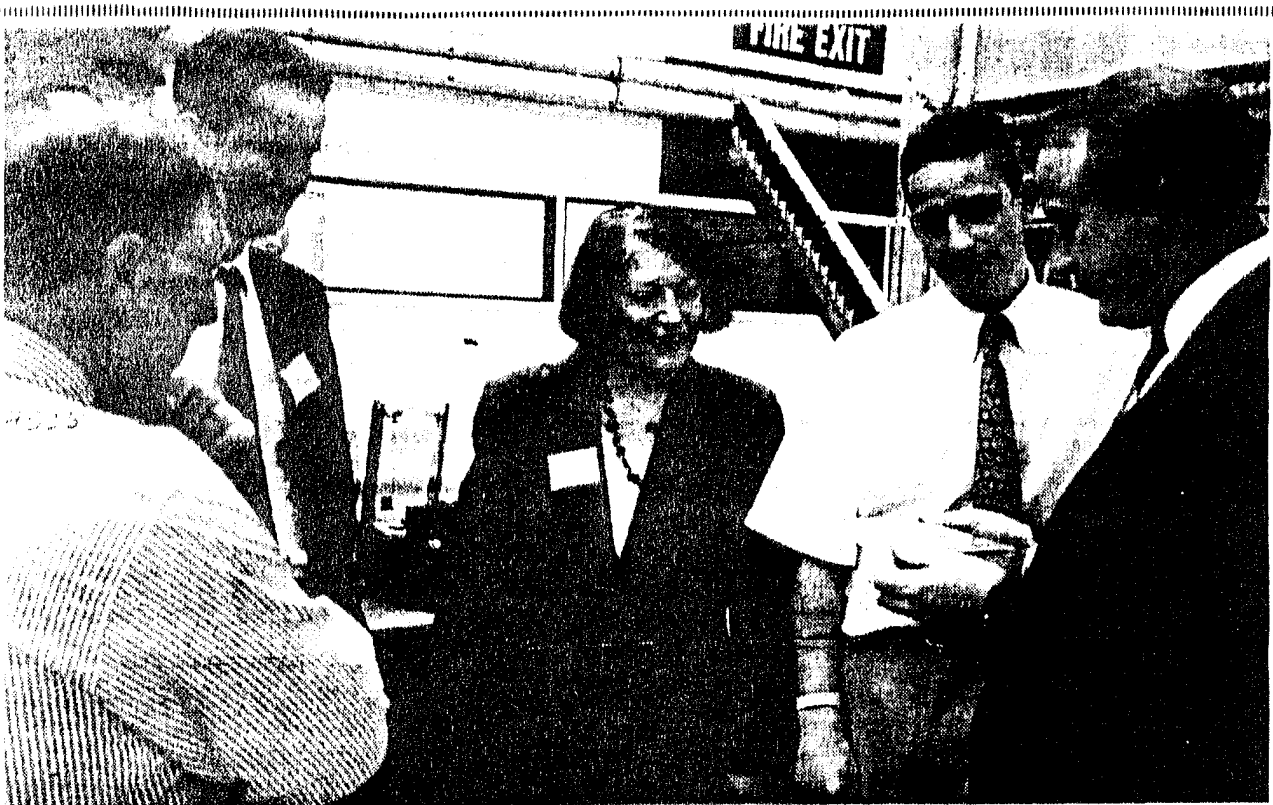
### Sequent establishes training subsidiary

Sequent UK has established a training subsidiary, Open Education Ltd. The move enables Sequent to make its education and training services available to a wider customer base including non-Sequent as well as Sequent customers. In addition to both generic and Sequent-specific Unix courses, Open Education offers a comprehensive Microsoft Windows NT and Windows application curriculum as well as courses in partnership with Informix, Ingres, Oracle, Sybase, Hoskyns and Comtec. *Further information from Peter Childs at Open Education on (0932) 851111.*

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## Whistlestop tour

PROSPECTIVE MEP candidate councillor Joyce Edmond-Smith went computer-crazy on a visit to Crawley this week.

For the Labour candidate stopped by ROCC Computers Ltd in Kelvin Way on a whistlestop tour of the Sussex South and Crawley Constituency.

Councillor Edmond-Smith is pictured in the electronics

manufacturing area being shown a printed circuit board by ROCC's systems integration manager Steve Apin, (far right).

Also shown from left are: ROCC Chairman Michael Aldrich, Labour MP for Kirkcaldy, Lewis Moonie, Broadfield councillor Nick Hilton and production supervisor Paul Owen.

Like a spider's web, information technology is spreading at an increasing rate through organisations as they seek to streamline business activities, maximise use of available resources and gain competitive advantage.

Since nearly all business transactions are document-based, documents represent, especially in the services sector, the physical signs of business activity. Consequently, the production of paper, the destruction of rainforests, and a company's reliance on paper-based information has become its biggest headache and its largest "hidden" investment. According to the Association for Image and Information Management, 94 per cent of all business information is in paper form and US business alone creates one trillion pages of paper per year.

In addition, today's document management systems have to deal with a complex IT environment - although some systems ignore this uncomfortable fact. It is estimated that there are over 140 million PCs in use today. This means that there is an awful lot of information stored locally, some of which is inaccessible if the PC is not linked to a lan.

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PCs have also increased the number of sources from which data is created, as well as the evolution of the compound document (e.g. through Microsoft DLL or OLE on the desktop and MS Mail integration). Today, most documents consist of data, either linked or embedded from other sources.

Unfortunately, there is no single simple definition of document management. In fact, a definition of document management (and, for that matter, workflow) seems to exist for every vendor of document management (or workflow) systems. The term "document management system" covers a broad spectrum of products from paper-based document through service-based transaction processing to electronically-generated documents, including technologies such as scanned images, data manipulation and data storage techniques.

This is reflected in a recent survey of over 2,000 companies by the Cranfield Imaging and Document Management User Group. The survey suggested that organisations were deferring spending money on

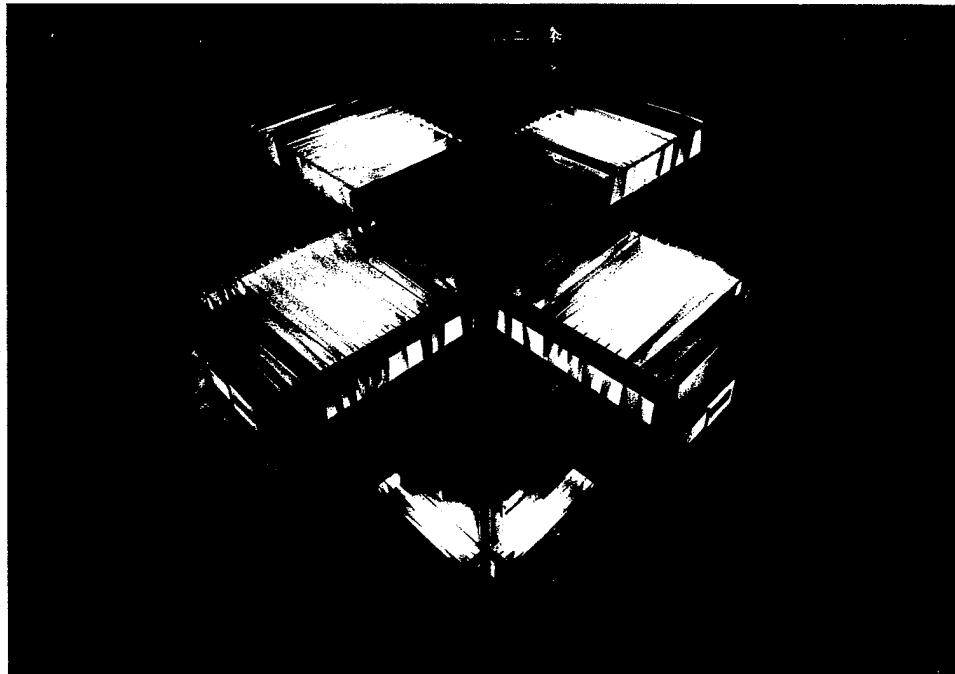
Whatever happened to the paperless office? After 10 years, document management technology should be everywhere. Surrounded by piles of press releases, Ken Mann asks why document management is only now fulfilling its potential

*See copy on page 80.*

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- London -

*MAY 1994*

# PAPER PAPER



# EVERYWHERE

## GETTING BACK TO BASICS

Document management has to be distinguished from related processes such as document imaging and document searching and retrieval. Document image processing (DIP) involves scanning documents into a computer. Once scanned, documents can be converted using optical character recognition (OCR) into ASCII format for searching and retrieval.

Document management is a complex mix of technologies covering aspects such as DIP, image-enabling applications, why and when a document was created, records management, document versioning and control, text retrieval and the almost wholly neglected security aspects of moving pieces of digital paper around.

If you are considering a client/server or distributed document management system, the impact on your network should not be underestimated. If you require sub-10 second response time, the user will need access to at least 2Mbps bandwidth for each document page. For a wan application, this will result in punitive leased line costs. While a lan seems the better bet for document management applications, segment off these heavy users if the lan is being used for other applications.

document management systems until the market matures. Although a company may have a document management strategy, the systems still have to be implemented.

The Cranfield survey showed about 24 per cent were already using document image processing (DIP) and 26 per cent were using document management systems. But few understood what workflow was.

Document management can be divided into two segments: back office systems and front office systems. The back-office system is the most well-defined area, with market share divided between a few specialist companies and highly-dependent on the hardware-specific system. The typical back-office system primarily deals with documents already created, in circulation and in a defined format such as reports, faxes and letters.

The origin of these documents may be unknown and they are handled through DIP systems, which focus on the storage and retrieval of information. These systems tend to be expensive with large storage and processing requirements for a small number of users.

The front-office document management market can be considered part of the larger office automation market. Information is created electronically. Its progress needs to be monitored and to be easily accessible, with identification of origin a key factor in the management process.

This market can be further refined into three information formats: paper-based (including faxes), online information, and desktop applications such as wordprocessing, spreadsheets and email.

Mike Ball, senior manager at Hoskyns defends the split between large and small systems. "It is a case of horses for courses. PC lans are best for small applications, while large applications - applications with 200 or more workstations - require large-scale solutions."

Just to be different, the Gartner Group has classified document management by application into six categories: ad hoc, application-specific, transaction processing, general office and document access and control, document manufacturing and assembly, and work management and

process automation. Rather optimistically, Gartner predicts that 95 per cent of users will have a minimum of 50 per cent of all documents stored electronically by 1996, resulting in a potential market size for document management of about £1 billion.

Since documents are everywhere, document management should have universal potential. However, potential users of document management systems can be characterised.

Companies with a "time-to-market" philosophy, with a short lifecycle product and which produce and use large amounts of documented information, require substantial clerical and administrative resources. Examples of such companies include law firms, large engineering companies, financial institutions, the public sector, engineering and construction and pharmaceutical companies.

The immediate benefits of a document management system are time and money. Staff productivity is improved through highly-structured clerical activities gaining between 20 to 40 per cent. Storage space is freed through the elimination of file cabinets and money saved through a reduction in searching for lost files. It is estimated that three per cent of all documents are misfiled, with the average cost of retrieval of about £75, translating to £2.25 per document retrieved. Photocopying costs are also reduced, since documents are copied between seven and 19 times. Document management also improves cashflow through processing documents such as invoices.

But it's not as easy as that. Bruce Siddle, marketing support manager Northern Europe for XSoft explains: "Most people are hesitant over the cost of DIP hardware/software. In Central London, you can justify DIP systems on financial grounds - the cost per square metre of office space occupied by filing cabinets or the need to retain a historical image of a document. Document management is only now moving out of the ghetto into the general marketplace. In most situations, document management is difficult to justify in terms of document manipulation. The best intangible justification is improved customer service

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## DOCUMENT MANAGEMENT

through ease of access to information across a network."

The cost of implementing a document management system is generally thought to be recouped in the first year of operation. Thereafter, further intangible benefits accrue as cost savings. "Tangible benefits of document management are the savings in storage space, time and a reduction in personnel costs. Document management also gives less tangible benefits such as improved customer support and quicker retrieval of relevant information," says Ball.

With its background in large proprietary systems, document management is a relatively standards-free area and relevant standards can be easily counted on the fingers of one hand. All are severely restricted in scope, except for the ambitions of the Shamrock Alliance.

The only ratified ISO commercial standards for compound documents are SGML (standard generalised markup language) and ODA (open document architecture). Proprietary standards vying for industry acceptance include Microsoft's OLE 2, the OpenDoc Consortium's OpenDoc and the Shamrock Alliance's efforts.

The recently formed Shamrock Alliance's first attempt at an industry standard is ELS. SGML and the ODA are rather narrowly defined standards, addressing only the content and format-

## DOWNIZING THE DOCUMENT MOUNTAIN

After extensive evaluation of document management systems, Nottinghamshire County Council decided on the PC lan-based SoftSolutions 4.0. A pilot project began in December 1993 within the IT team and this is expected to roll out to the wider user community during this year.

The need for more effective document management was first identified by a quality audit conducted 18 months ago. Mark Springthorpe, IT quality assurance manager for the County Council identifies the problem: "We are a large organisation which means there is lots of information, but it is not easy to get hold of. The challenge for suppliers was to make this information work for us more efficiently."

On performance and cost grounds, SoftSolutions was easily justified. "The functionality of SoftSolutions was far greater. In particular, the capability to retain documents in their original file format was a real bonus," according to Springthorpe. "The software cost was the smallest part of our investment, which also involved some improvements to our network infrastructure, a new file server with UPS and some large monitors for our test and demo machines."

Within Nottinghamshire County Council, SoftSolutions runs on Windows PCs and gives users access to a wide range of file formats. The files are stored on a high-performance NetWare server capable of duplexing the disk drives for increased reliability.

ting of documents and not how they are managed throughout their lifecycle.

For example, WordPerfect's Intellitag provides two-way conversion between WordPerfect Documents and SGML, and its WordPerfect Exchange will support the ODA standard format and WordPerfect document exchange. The ODA Consortium, formed by Bull,

DEC, ICL, SNI and Unisys in 1991, promotes flexible document interchange across platforms, gateways and software.

The OpenDoc Consortium, whose members include IBM, Apple, Sun, WordPerfect, and Taligent, are building an alternative to Microsoft's OLE for cross-platform compound documents called OpenDoc. Currently, OpenDoc is

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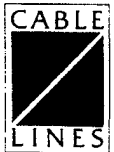
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## DOCUMENT MANAGEMENT

based on Symantec's Bedrock development framework, which is available only on Windows and Macintosh. However, OpenDoc is to be extended to UNIX, IBM Workplace OS and OS/2.

Formed in February 1994, a new industry standards group, composed of users and suppliers, the Shamrock Document Management Coalition, is tackling the high ground of document management in the form of its enterprise document management (EDM) architecture. Initially created from a loose grouping code-named Shamrock, coalition founders include systems vendors (AT&T Global Information Solutions, IBM and HP), Microsoft from the PC world, systems integrators (EDS and Andersen Consulting), Sybase as the only database vendor, several document management specialists (Adobe, Wang, Saros, ViewStar, Interleaf) and heavy users of document management systems (Aetna Casualty & Life, Coca-Cola, Merck).

Are standards in an immature market a good thing? SoftCore's marketing manager, Praj Patel, warns: "The whole area of document management is moving quickly. Standards put forward by companies with 'old' technology will slow innovation to the detriment of users. The bigger players have their own self-interest at heart and hidden agendas by exerting influence on standards. Unless there is sufficient user



**Praj Patel, SoftCore's marketing manager: "Standards put forward by companies with 'old' technology will slow innovation to the detriment of users."**

uncontroversial area, so an ELS as an initial standard is hardly a shock. However, a previous library services standard, CCM, failed because it was only implemented by a limited number of companies."

Meanwhile, Siddie reminisces: "In the past we developed our own technology - now we sit back and adhere to emerging standards. A weakness of XSoft's GlobalView is its lack of APIs, which

interest and momentum behind Shamrock, it is just another standards body which has to prove itself."

Shamrock's first act has been to adopt the proprietary Saros Mezzanine as its enterprise library services (ELS) and the ELS APIs as a standard. But Delphi's VP European operations, Andrew Logan remains unimpressed: "Library services is generally considered a dull,

Shamrock may fill. But a couple of genuine standards for document imaging would be useful."

Filenet, IBM and Wang became market leaders by providing standalone high-end turnkey document capture, storage and retrieval solutions. But the market has changed with a vengeance. Today's document management solution is more likely to be based on a mix of PCs, lans or Unix boxes capable of controlling and tracking the flow of imaged documents and wordprocessor documents, email, spreadsheet and CAD/CAM throughout an organisation.

Sadly for these once major players, the large scale document management market is suffering from recession. According to Dataquest, less than 8000 document imaging systems were sold worldwide in 1992, of which almost 70 per cent were single-user systems. To get into the top five DIP, all a vendor had to do was sell 150 systems.

IBM's mainframe and AS/400-based ImagePlus system dominates the large-scale multiuser end with 46 per cent market share and a large installed base of 1,000 systems. But its lack of a Unix-based solution is a weakness and IBM expects a sharp drop to 25 per cent of its market share in 1994. As a stopgap, IBM is using Dorotech in the UK to promote its software on RS/6000s. And Filenet has signed a marketing deal with IBM to sell its software on IBM Unix boxes.

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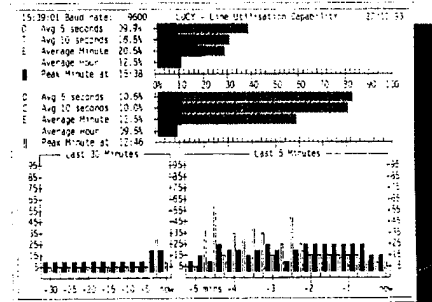
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## DOCUMENT MANAGEMENT

Wang, number three in terms of DIP market share, is back in profit. In tandem with the switch away from its proprietary Wang/VS system to the Open/Image software on RS/6000 and HP9000, Wang has evolved a business approach from DIP called business process management (BPM) which encapsulates classic re-engineering techniques and aims to help businesses make the transition to new ways of working. As Wang has found, the problem with DIP is that it is mainly a solution looking for an application. The real trick is to implement in situations where it will be really useful.

In a study during 1991 and 1992, consultancy Nolan & Nolan looked at 600 major imaging projects costing between £650,000 and £1 million each. They found only 17 per cent of the projects had a positive impact on business, 81 per cent said the implementation had hit major problems and two per cent said they had experienced a negative impact. And over half the managers in charge of these projects lost their jobs shortly afterwards.

"While large scale systems have been implemented, the promised savings haven't materialised", says Hoskyns' Ball. And now it's payback time.

With BPM, Wang has jumped on the business processing re-engineering bandwagon or, to be more kind, refocused its image processing system to escape difficulties in its traditional DIP market, where its products have largely failed to produce large scale business benefits which reflect large-scale price tags.

As has ROCC, which has called its strategy document processing re-engineering (DPR). The strategy is grandly described by ROCC's chairman, Michael Aldrich: "The DPR strategy is tangible recognition of the importance of image intensive information processing in the 21st century and a milestone in the progression from older types of information systems to the multimedia systems of the next decade." Apparently DPR exists to enable users to achieve the targeted benefits of document processing.

The new wave of document management systems are commoditised mainstream software packages based around PCs and PC lans. Players in this brave new market include Keyfile, Greengage, SoftCore, XSoft, Uniplex and Watermark.

Commenting generally, Patel states: "In the past, the large investment required for a document management system locked the vendor to the customer and vice-versa. PC lan vendors do not have the historical baggage and an installed base as a drag on innovation. We solve specific departmental problems rather than tackle large enterprise-wide systems. We look at 20-50 users rather than 20,000 using our systems."

SoftCore ArchIS enables users to import, store retrieve and output documents including text, computer files, images (black and white or colour), slides, X-rays, digitised video directly to the Macintosh or Windows desktop.

XSoft, a division of Xerox, has devel-



**Bruce Siddie, XSoft's marketing support manager, Northern Europe: "Document management is only now moving out of the ghetto into the general marketplace."**

oped its GlobalView document management software for Xerox, Sun, IBM RS/6000 and PC platforms. "In the 1990s, the trend towards PCs will accelerate as PC price/performance improves to the point where 95 per cent of all document management systems will be PC-based. Which peevies me a little, being a Unix workstation man," Siddie comments.

Uniplex is expected to ship its Unix-based document management for onGO, its enterprise management strategy, in the third quarter of this year.

Although a PC-based system, PaperClip is a case of history recurring. PaperClip is positioned as a cost-effective document imaging solution with high-end features and ease of use.

From ESP, the Watermark Image Server is slightly out of the mainstream, being based on Windows NT Advanced Server rather than Novell NetWare, but at an affordable price of £2,599 for 25 users and £299 for a single user client. For some reason, Colin Bastable, general manager of ESP's workgroup enabling division, stoutly compares the product against the old guard of proprietary systems for rather than the new wave of shrinkwrapped products.

Prices for document management systems vary widely with little clustering around price points. There seems to be no "typical" price for a document management system, although the arrival of PC lan and Unix-based systems has forced prices down in the larger systems as a competitive response.

The £7,000 and under of PC and lan-based systems makes the traditional high-end vendors look expensive. According to BIS Strategic Decisions, the trend is inexorably downwards. The cost per seat was about £25,000 in 1989; last year, it dropped to below £20,000; and by 1997, predicts BIS, it will be about £15,000.

Ball agrees: "Prices are coming down as the industry moves towards open systems. Both IBM and Wang are coming up with Unix-based systems. In addition, for individual projects, prices are quite negotiable downwards by another 10 to 20 per cent because open systems are still relatively new technology."

Image-Gen costs £10,000 for single-user system while Micro Dynamic's Mars system costs £5,000 and Keyfile, £595 for a single user, £10,850 for a five-user networked system. Keyfile has about 15,000 users worldwide, Mars has 5,000. Data

General's AV Image costs £450 per user, which compares itself against systems costing £5,000. Similarly comparing itself against £50,000 systems, SoftCore's ArchIS File costs £2,500 for a single user version and £15,000 for a 20 user version. With Dec, SoftCore is also jointly integrating ArchIS into Dec's Network Application Services client/server environment.

William Zastrow, VP of Data General's imaging and office systems division claims that software vendors have placed historically high prices on software because of the length of time it takes to sell a system. He avers DG's pricing is along the same lines as any mainstream business software package.

Document management packages are generally weak on security but have strong editing facilities, especially those derived from a DIP history.

Ball counsels: "Make sure the security facilities are there. Most systems are as secure as the old paper records. Password protection, user logs, audit trails and WORM (write-once, read-many) optical devices provide a level of security." But this merely records a security breach.

Some document management systems have powerful editing facilities. This means an electronic document can be easily faked by integrating details from multiple sources. Suppose you scan in a bank director's signature from one source, a letter giving an excellent credit rating and place them together on the bank's headed paper. This produces, to all intents and purposes, a genuine document which can then be used to support a fraudulent loan. Just as well we can trust banks to look after our money.

This is particularly relevant for financial institutions - a honeypot for document management systems. The two IRA terrorist bombs in the City in St Mary Axe in 1992 and Bishopsgate in 1993 resulted in large amounts of paper being thrown through shattered windows. Documents picked up by the police were shredded.

Use of a DIP system could have minimised the shower of terrorist confetti. However, once a document is scanned into a central office system, it can be made electronically available to bank branches over the branch office network. Consequently, any disruption to the branch network will have a serious adverse effect on customer service and sales support.

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