

ROCC

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PRESS CUTTINGS

JANUARY 1996

and losing thousands of pounds in
hance, Tony Petteford came across
shing and has not looked back since.
tainly cash flow has improved and
negligible, but the most important
without doubt, improved customer
services."

Before the advent of laser printing, it was
difficult to produce on-demand printing without
compromising on quality or speed. But as laser
technology can now match offset mono quality,
people are beginning to accept that it is more
than adequate for most documents.

Microgen Demand Publishing offers a PC
based service which enables clients to send
purchase orders down the line. Updates and
amendments for existing documents can also be
transferred via data communications – a proof is
then returned to the client for approval.

The demand publishing concept provides end-
to-end publishing including all the functions of
offset and more – but using digital technology. It
can usually accept input via disks into a Media
Server or across a network via a Network Server.
Standard in-finishing equipment often includes
functions such as booklet making.

Clients can also take advantage of a range of
other services such as shrink wrapped delegate
packs. "Demand publishing has relieved us of two
very labour intensive tasks," claims Geraldine
Bromham of technical computer training

specialists, QA Training Limited. "Firstly, we no
longer have to produce endless masters for a
reprographics bureau and secondly, all the
collation of binders, pads, pens and name cards is
now done for us and the packs delivered ready for
use."

QA currently has about 150 courses held on-
line at a demand publishing company. Up to 24
courses changes per month are sent
electronically as they occur, ready for inclusion in
the next run. Around 50 course packs are
produced weekly, each for 12 – 14 delegates.

"We looked at several companies to ensure we
found one with the right experience," says
Geraldine Bromham. "We didn't want to go
through any teething problems and needed to be
up and running from day one. We have been very
pleased with the results and are enjoying the
benefits of just in time production."

Although the system currently available is
restricted to black and white, most users feel the
advantages outweigh the sacrifice of colour –
particularly as the quality of the black and white
rivals offset printing.

As demand publishing is entirely technology
enabled, it is a recent phenomenon which has
really only developed in the last three years, but
already the service is expanding to include CD-
ROM as a medium as well as paper. The ability to
produce full colour printing is another inevitable
step forward for the future.

By Mike Aldrich, Chairman,
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From Post-Room to Boardroom The Legend Returns

An enduring legend of the pre-computer world
was the growth of public institutions and private
enterprise through the dedication and skills of
longservice 'cradle to grave' employees. Before
further and higher education delivered highly
qualified and trained people into the workplace,

organisations had to train and
professionalise their own
school leavers and prepare
them for a lifetime of work in
a single organisation. The
legend of starting at the
bottom and working your way
up was pervasive.

Structural changes in the
labour market brought about
by rapid technological and
organisational change, global
markets and global
competition now suggest that
lifetime employment in a

single organisation is history and continuous job
changing, career changing and re-training has
become the norm. The days of starting as a
messenger or in the post-room and working your
way up the organisation are gone forever.

Or are they? As we leave the 20th century we
can see Paperless Plcs under development. While
there may not be any completely paperless Plcs in
the 21st century, the most fundamental changes
in white collar working since the introduction of
telephone, typewriter, adding and copying
machines at the end of the 19th century are now
underway as business makes its most serious
attempt yet to cut down on paper pushing.

Telephone, typewriter and adding machines
have been transformed by information technology.
Facsimile reproduction – from copying to
scanning to image processing has been
revolutionised. If the technologies are combined
as integrated systems – using standardised
compatible components and sub-systems – the
artifacts are now in place to reduce business
paperwork to the point of elimination for most



inter-organisation work processes. Paper will still come in to and go out of organisations but on a reducing scale given fax, Internet, electronic document interchange and other forms of communication.

We have heard it all before – for at least the last ten years. But now it is happening. Fully operational systems are producing measurable benefits. Technologies have matured and the environment in which to deploy them is far more sympathetic.

The global market has triggered fundamental revisions to the mission, markets, organisation structures and baseline operating performance measurements of many organisations. For example, in the re-structuring of the financial services industry, mergers and acquisitions

activities and even citizens' charters and compulsory competitive tendering in public services. With the bulk of the labour force in the 1990s employed in white collar activities and with technology available to

dramatically increase white collar productivity – it is hardly surprising that serious efforts are underway to go paperless.

Redefining baseline operating performance – how to become customer-driven, defining and measuring the time to reply to a request for information, how long to take to quote for business, how to respond to a complaint, how soon to research, design and launch a new product, how quickly to respond to competition – is as much a product of ensuring business survival as it is of improving profitability. It is part of business process re-engineering at the grand level or work process improvement in the workplace or both. Delayering of management, empowerment of staff, reduction in bureaucracy and enriched information technology support are all part of these change processes.

The resulting new organisations take on not only new management structures, but also new physical shapes, often located in different premises and different locations. Many activities are location independent given the availability of low-cost, high capacity digital telecommunications. For example, an insurance company might consist of a single national postal address – say a warehouse complex on a trading estate – to which all mail is delivered. There the mail is opened, scanned and converted into images, then the paper copy date stamped and filed in the warehouse (or converted into

something less bulky if the paper record is not needed). Once scanned, the mail is pre-processed by indexers before being sent electronically anywhere in the country to be processed. The indexers examine each document, and using sophisticated processing rules, decide on the class of document, the competent authority to deal with it, routing, the standard elapsed time target for responding, the workflow process and the supervisory monitoring system to be used including compliance with regulations issues. The indexers thus record the entry of the document into the organisation and send it on its way for processing. We used to call this activity the post-room and the work was done by junior people because in the main it consisted of physically sorting the mail into batches and moving it to where it had to go.

The New Mailroom is different. The indexers are among the brightest people in the organisation. They are controlling the blood flow to the organisation. If they get it wrong, baseline operating performance cannot be achieved. The old excuse of 'organisational misadventure' is no longer acceptable or even sustainable. Organisational misadventure is terminal in today's markets.

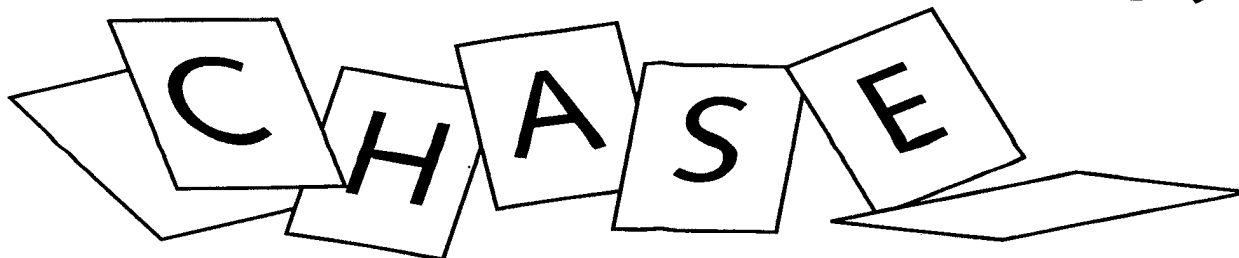
For technology providers such as ROCC Computers, there are great opportunities in the New Mailroom because of forms processing requirements. If all incoming mail is going to be scanned and electronically routed to where it is needed, this mail will include forms containing structured information for automated processing – usually transaction and/or financial data.

ROCC's SEECHECK Images software is designed to collect forms in image format (TIFF files), batch them for audit control and subsequent storage, and convert the images of the forms into computer records and fields, either through automatic character recognition or keying from the images for onward processing by accounting and administrative systems. SEECHECK Images has powerful indexation, validation and workflow features for these tasks and can work in the New Mailroom or anywhere in the organisation.

The New Mailroom may look like a warehouse, but it will be packed with high technology and bright people. These people will have in-depth knowledge and experience of how the organisation works and it is a fair wager that several of them will make the journey over time from the New Mailroom to the New Boardrooms. Working your way up in the organisation will have a new meaning and the legend will have returned.

Many activities are location independent given the availability of low-cost, high capacity digital telecommunications.

END THE PAPER



The backbone of all information processing is getting data into systems. Most is entered through the keyboard but traditional keyboard data entry is expensive. Distributing data entry has made it even more expensive, consuming vast amounts of the time of expensive clerical staff. The interactive nature of the work means that high-wage clerical and management staff - not minimum wage key entry clerks - are now inputting data.

For years document image based systems have held the promise of enormous productivity gains, yet many of the potential benefits have gone unrealised because of a critical bottleneck at the point of document capture.

Image processing and the use of electronic forms can change and improve this input process through using forms-based templates, image-based forms processing and recognition technology, and image based key data entry. This reduces labour costs, increases productivity and provides many spin-offs like electronic document management and implementation of groupware.

Scanners and readers with OCR software are fast improving in reliability and form the point of entry for much data, especially that which is forms based. Trevor Clarke, chief executive of systems and services provider PCL points out that there is a huge difference between systems which simply scan and electronically photograph data, and those which intelligently read the data and allow the data to be managed and manipulated. He says, 'Straightforward scanning presents no problems, but OCR (Optical Character Recognition) technology is still evolving.' Many vendors claim 98% accuracy, but Clarke dispute this and says that anything from 25 to 80% is more likely.

He says, 'Claims for accuracy drop quickly when the original being scanned is handwritten. Originals which are typed, with clear characters and good contrast, can achieve high reliability rates but, for example, we are currently involved with a project to OCR scan old criminal records and

The move from paper to electronic data storage has been hampered by resistant office culture and unreliable technology. We ask whether either are changing for the better and the paperless office is at all nearer.

many are smudged or barely legible.'

Clarke says that often a combination of electronic OCR and manual data entry is the best route. He says, 'If you compare the cost and reliability of OCR with keying in, the OCR comes out in front. It is common to do a first pass electronically followed by a second keyboard entry. Some companies will just scan certain documents that will not have to be manipulated and just need to be read occasionally, and OCR the rest.'

According to Harvey Spencer, a consultant specialising in providing technical support for document management, forms-based information is the foundation of most business transactions, or could be. 'Electronic forms processing is the core of imaging,' he says. 'Imaging is just one part of the process,' he adds, 'but forms processing allows you to automate far more data than by simply scanning it.'

A typical data entry department can get 11,500 keystrokes per hour per operator, but they are not perfect and require a verification check. In many cases, particularly when the data is presented in a predefined form format, key-input operators can be eliminated entirely.

But Spencer points out that there is a difference between image data entry and image indexing. 'Document management systems are designed to manage the capture, flow and retrieval of paper and other documents,' he says. In these systems the 'transaction' is the image, and the index is the 'vehicle' to retrieve it. The effectiveness of the retrieval system is tied to a combination of

index accuracy and the intelligence of the retrieval software. In other words, the index can be less than 100% accurate if the retrieval search algorithms are intelligent enough to assume the correct fields. Data entry systems where is transaction is the data demands 100% accuracy. In this scenario, the image is the vehicle to improve key entry speeds, and it can be less than perfect as long as the data fields are legible.

Data entry will be required for paper-based data received from external sources that cannot easily be captured indirectly. Typically this is the data received by accounting and control systems and consists of a mixture of numeric and alphabetic information.

Image skew is a problem in document imaging. Hand placed documents and automatic feeder mechanisms normally create 1 to 3% skew due to incorrect placement or slight variations in the speed that the rollers pull the paper through the machines, and it does not take much skew to make an OCR reader fail. Typically, 5% causes failure and 2 or 3% will cause inaccuracies.

But software is now emerging, such as Dynamic Image De-Skew, wonderfully named by its developers Sequoia Data, which provides the capability in an application or toolkit to de-skew as much as 20%. In addition, the latest software can correct badly registered images. This process complements skew correction, improves OCR accuracy and enables accurate zone location and lift. Image enhancement software can cure other

problems like upside down and sideways scans, block backgrounds on microfilm scans and sparse dot matrix prints.

At the other end of the spectrum are products such as ImageNow from C-Cat, which allows users to store documents electronically exactly as they appear in paper form, greatly reducing the amount of space needed for documentation storage and providing fast, easy filing and retrieval. It will scan documents at any time while the application is running, and automatically indexes the data even when it is drawn from different platforms and across different environments.


Another problem now overcome is integrating the wide range of image file formats on the market and resolution

standards in use within imaging systems. Software like Imager Utilities from Advent Imaging solves the problem for integrators who need to convert file formats used by different systems or alter the contents in some way.

Mark Ruport of Optika Imaging Systems believes that imaging has now advanced to the point where it cannot be ignored because of the competitive advantage it offers. He says, 'There are a number of factors which are rapidly converging that will ensure that imaging, workflow and document management become as commonplace as a word processor.'

Ruport attributes the imminent growth of imaging to three factors. He says, 'First 'ordinary' PCs are now so powerful that they

are capable of being the basis of systems that can handle thousands of documents per hour and be a platform for mission critical applications. Secondly large amounts of bandwidth is already installed in LANs and this can enable complex images to be delivered at speed. Thirdly, storage capacities have been increasing in dramatic orders of magnitude, allowing images to be stored comfortably.

Lastly, he adds, when these factors are added to the cultural and organisational changes that are taking place within leading corporations where information is increasingly shared by workgroups separated by oceans rather than partition walls, then the case for the rapid growth in imaging becomes really persuasive. 

Michael Aldrich, chairman of ROCC Computers, wonders if imaging will ever achieve widespread acceptance

The IT industry has long had its fads and fashions. In the early 1980s the idea of the paperless office took a firm grip on the imagination of everyone with experience of handling paper. From the paperless office concept came the office automation strategy, out of which came word processing, e-mail, spreadsheets, greatly improved copiers and - ironically - more paper!

Document image processing (DIP) is a hangover from the paperless office concept. As a commercial technology, it only became a realistic option in the early 1990s when low-cost scanning and cheap videodisc storage coincided with cheap, powerful 32-bit microprocessors, compression techniques to reduce the number of bits in each document, and wired networks to move the images of documents around for processing.

The beginning of the 1990s also brought economic recession and much business heart-searching about step-function changes in administrative cost structures for securing survival and future prosperity. DIP was well positioned to offer a technological 'quick fix' for many business administrative problems. And yet DIP did not take off to become a ubiquitous mass-market presence as had happened with word processing. Unravelling the reasons for this failure is not easy, but it may be instructive.

There is no doubt that the technology available for scanning, storing, retrieving, managing and routing documents is impressive. Some of it may have been fragile

five years ago but it has matured well. The early products were expensive and not always easy to use, but in this respect they did not differ from previous new technologies. There have to be other reasons for the slow take-up.

Conceptually, DIP must have represented a Holy Grail for institutions growing weary of the excesses of their paper-driven processes and procedures. In principle, DIP could have been the medium for opening the vast doorways to improved thinking, scanning and printing the paper images with the hardware that was available then. They could be moved around electronically and, as a result, paper trails would be wheeled out to the junkyard and we would all live happily thereafter.

Unfortunately, this did not happen. The sharper buyers did their sums and found that investment in DIP could not be cost-justified. The wiser buyers, who understood the human dimensions of existing paper-driven systems, realised that the sociological implications were much more challenging than the technological innovations. The wiser buyers recognised that the conceptual approach of DIP was best suited to greenfield projects. Existing operations needed an iterative change process. Gradually, therefore, harsh reality overtook the concept and the dreams.

But DIP, while experiencing distinct lack of success as a solution in its own right, was to have a second chance. This came about when a simple law concerning automation was elevated to the status of a religion. The law stated that the key to automation is not to

automatically what you are doing, but to try to look out what you should be doing and automate that. The religion became known as business process re-engineering (BPR), and numerous organisations underwent total systems treatment to find out what they were doing and why they were doing it.

As teams of inquisitors roamed far and wide through these organisations, they found much evidence of strange, irrelevant, outdated work processes but, more importantly, they found no infrastructure to permit self-assessment of systems and procedures. Much that was inefficient was inefficient because management and supervisors were not focused on appropriate efficiency goals and metrics. They had no mechanisms for continuous improvement and so their systems decayed.

Where there were over-riding, narrow reasons sanctioned from the top-down, BPR led to deep structural changes in organisations. Mostly, however, BPR turned out to involve fashionable but nonetheless welcome improvements to existing work processes.

In this context, BPR and DIP were well-suited bedfellows. Conceptually, DIP could provide the technology to change a business process. Many organisations attempted this, and many organisations failed. In general, the cause of failure was not the technology, it was in the human dimensions of using this technology.

The technologists did not understand the human dimensions. It seemed perfectly rational, for example, to look at three departments that were involved in processing documents and to devise a single computer system and a single department to replace them. Only gradually did managers discover that cross-functional integration, to borrow a term from social science, is actually one of the most difficult management tasks to implement.

Document image processing

Seeking the Holy Grail

Michael J. Aldrich,

Chairman, ROCC Computers Ltd.

The IT industry has long had its fads and fashions. In the early 1980s the idea of the paperless office took a firm grip on the imagination of everyone with experience of handling paper. From the paperless office concept came the office automation strategy, out of which came word processing, e-mail, spreadsheets, greatly improved copiers and – ironically – more paper!

Document image processing (DIP) is a hangover from the paperless office concept. As a commercial technology, it only became a realistic option in the early 1990s when low cost scanning and cheap videodisc storage coincided with cheap, powerful 32-bit microprocessors, compression techniques to reduce the number of bits in each document and wired networks to move the images of documents around for processing.

Business heart-searching

The early 1990s also brought economic recession and much business heart-searching about changes in administration to secure survival and future prosperity. DIP was well positioned to offer a technological 'quick fix' for many business administrative problems yet DIP did not take off to become a ubiquitous presence like word processing.

The technology now available for scanning, storing, retrieving, managing and routing documents is impressive. Early products were expensive and difficult to use but in this respect they did not differ from previous new technologies. There had to be other reasons for the slow take-up.

Conceptually, DIP must have resembled a Holy Grail for institutions groaning under their paper-driven processes and procedures. In principle, DIP could begin in the mailroom by opening the mail, then proceed to registering, batching, scanning and routing the paper. Images would be harder to lose, tear and wrinkle than paper. They could be moved around electronically and, as a result, paper trol-

leys would be wheeled out to the junkyard and we would all live happily ever after.

Cost justifying

Unfortunately, this did not happen. The sharper buyers did their sums and found that investment in DIP could not be cost-justified. The costs of hardware and software, often proprietary and difficult to integrate into the Windows-based PC environment, were high. Changing DIP application software was slow, costly and specialised but removing the reactive flexibility of non-automated systems increased the cost of the service provided to internal and external customers. Overall, therefore, the systems were unable to meet the usual investment payback demands of eighteen months or less.

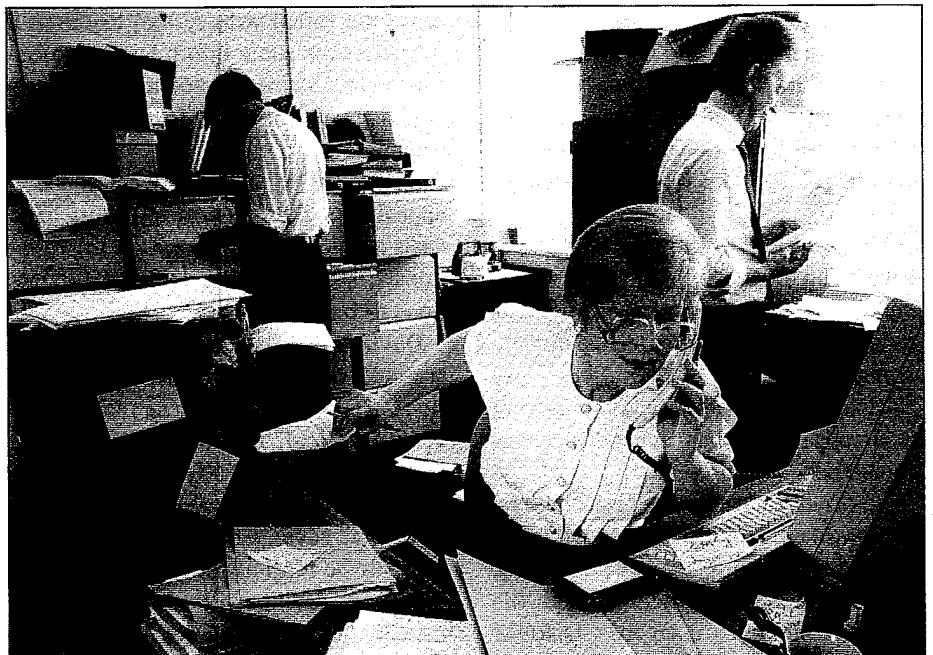
Sociological implications

The wiser buyers realised that the sociological implications were much more challenging than the technological innovations. Staff were used to handling pa-

per documents, discussing their content with colleagues, keeping them in 'pending' trays while they considered what to do with them and even taking them home to work on them. Paper was reassuring but electronic screens were ephemeral.

To make the new systems work, new work practices, new work groupings, new supervisory activities and new measurement techniques would need to be introduced – and staff would need training and reassurance. To make the effort worthwhile the benefits for everyone would need to be clear and easily attainable. Staff would need to support both the technological innovations and the changes needed to make these innovations work.

The smart buyers recognised that the conceptual approach to DIP was best suited to 'green field projects' with no cultural heritage and no inhibiting legacy infrastructure and where the applications could be designed from the start to make best use of the new technologies. Fresh starts would also enable more technology to be used, particularly in the area of au-



With a few exceptions, the paperless office is no nearer realisation than it was a decade ago. Photo: ROCC Computers

Case Study: Intrum Justitia

Intrum Justitia Ltd., based in Stratford-upon-Avon, is the UK's largest debt recovery agency and part of the Europe-wide Intrum Justitia group. The company has recently ordered an automated debt processing system from ROCC Computers.

ROCC is providing Intrum Justitia with a SeeCheck system that will scan debt collection documents, recognise the information on them, assemble this for further processing and archive the documents onto optical discs. Any handwritten information that cannot be recognised by SeeCheck's 'electronic eye' will be keyed into the system using SeeCheck's image data capture facilities.

The new system is expected to produce significant gains in the speed and accuracy of the debt recovery process, and to result in substantial cost savings which will allow Intrum Justitia to recoup its initial investment rapidly.

The system hardware includes an image server, two Pentium-based optical recognition stations, two high-speed double-sided document scanners, an optical drive, two optical jukeboxes and fifteen PCs.

of performance. Above all, they had no mechanisms for continuous improvement, whereby strategy, culture, infrastructure, tools and processes are periodically reviewed and new plans implemented. Thus their systems (and often their businesses) were in a state of advanced decay.

Where there were overwhelming commercial arguments, sanctioned from the boardroom, BPR led to deep structural changes in organisations. Mostly, however, BPR turned out to involve fashionable and innovative but nonetheless welcome improvements to existing work processes.

In this context, BPR and DIP were well-suited bedfellows. Conceptually, DIP could provide the technology to change a business process. For example, storing documents on optical disc can revolutionise information access within an organisation, improving efficiency and customer service by several orders of magnitude.

But while many organisations attempted to implement DIP as a route to BPR, many others failed. In general, the cause of failure was, as so often happens, failure related to the human dimensions of using the technology.

Company cultures

The technologists did not consider factors such as company cultures and staff attitudes. Only gradually did managers discover that cross-functional integration is one of the most difficult management tasks to implement. So where does all this leave DIP? Take-up of the technology has

been less than expected although this is no reflection on its capabilities. With a few notable exceptions the paperless office is no nearer than it was a decade ago. On the other hand, many useful lessons have been learnt and it is perhaps time to put them into practice more widely.

One discovery is that DIP systems work best when implemented within one existing department and under one departmental manager. In this context accountability is straightforward and the systems can be scoped, costed, controlled and monitored.

Secondly, to demonstrate the cost-effectiveness of DIP, existing costs must be identified. Unless an organisation is performing activity-based costing, it is often hard to cost an existing activity and, therefore, difficult if not impossible to cost-justify an alternative such as DIP. Activity-based costing in turn depends on an organised workflow.

Thirdly, to make commercial sense of DIP, the use of imaging and document management systems has to be segmented and cost-effective solutions applied to each segment.

Forms and documents

The two largest segments are forms and documents. A form is a document containing data that has to be processed in a predetermined way. Its purpose is to capture data accurately, cheaply and quickly. The information recorded in a document, on the other hand, may include data to be processed or may require some action to

be taken, if only storage or discard.

Obviously, if documents can be standardised, rationalised and simplified, and then turned into forms, they can be processed by automated systems rather than manual systems, particularly if the processor can design the form. This possibility explains the growth in interest in automated recognition systems such as ROCC's new SeeCheck Recognition and in storage technologies such as optical disc. Volume forms can be processed in office 'factory' environments and the software is simpler than DIP software.

However, document processing (as distinct from forms processing) is a clerical function and manual intervention can be minimised but not eliminated. Although procedures and the flow of work can be standardised and rationalised, the recipient has no control over the format or contents of a document received. DIP systems are, therefore, bespoke to particular applications and their software design is generally complex. They embody the unique approach of an individual organisation dealing with its customers and correspondents and they can play a key role at the heart of service industries dealing in finance, insurance, travel and government.

DIP technology, properly focused and sensibly implemented, provides organisations with the business administration improvements they most actively seek – improvements in service, productivity and accuracy.

To work well, however, DIP should use technology appropriate to the application, should avoid prematurely radical administrative change and should have a simple focus. Three examples in differing industry areas are provided by Republic National Bank of New York, Sedgemoor District Council and Intrum Justitia (see below).

Thus while DIP is not a Holy Grail, in the right circumstances it is both useful and necessary. As hitherto expensive DIP products increasingly become low-cost commodities, skilled implementations of new systems will deliver significant benefits to many organisations. ●

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tomated recognition of data and information, using newly designed documents.

DIP and BPR

The first DIP systems precipitated a confrontation between concepts and dreams and workplace realities. Everyone wanted DIP but for the majority the only available option was an iterative change process that could be financially justified and assimilated by the organisation. Few could afford the 'green field' approach.

The outcome was that DIP experienced distinct lack of success as a solution in its own right.

However, it was to have a second chance. A simple law concerning automation was elevated to the status of a religion. The law stated that the key to automation is not to automate what you are doing but to try to find out what you should be doing and automate that. This meant carrying out a rigorous self-analysis and, where existing processes did not pull their weight in contributing to the company's business objectives, designing new ones that would. The religion became known as business process re-engineering (BPR) and numerous organisations underwent total submersion treatment to find out what they were doing and why they were doing it.

As teams of inquisitors found much evidence of strange, irrelevant, outdated work processes. This was particularly true of traditional organisations that had departmental structures for processing work in a serial fashion, each department handling a certain aspect of every transaction then passing it on to the next department. Using this approach, one company took six weeks to process loan applications that its competitors handled in ten days.

Serial processing passed transactions through different management jurisdictions, queued and delayed the throughput of work – and frequently lost items in the process. There was duplication because of imprecise boundaries between one department and the next and conflict between departments when something went wrong. A common feature was no infrastructure to permit self-assessment of systems and procedures and no mission to create satisfied internal and external customers.

Much inefficiency was because management and supervisors were not focused on appropriate efficiency and effectiveness goals and had no realistic measures

Case Study: Sedgemoor District Council

Sedgemoor District Council is located in Somerset, between Bristol and Exeter. In common with many other local authorities, it operates a central mainframe computer which deals with all its revenue collection systems. These have included the community charge and, more recently, the council tax.

Having completed the changeover from the community charge to the council tax in 1993, Sedgemoor found itself with an outstanding requirement. It still had a large amount of information relating to the community charge. This information was not needed for day-to-day use but had to be kept for reference purposes.

The traditional approach would have been to transfer all the details onto microfiche but the authority wanted a more flexible system which would support simultaneous access by two or more people. The best solution appeared to be a computerised archiving system that would link up to its PC network so that community charge information could be accessed from any desktop as required.

Sedgemoor implemented the RIO (ROCC Image Organiser) Coldstore optical storage system. With this system files can be accessed using any one of several specifications such as address, name or reference number. The data can be accessed from any PC on the network with up to four concurrent users. The indexed information held on disc can be searched within seconds, and storage costs are reduced considerably by comparison with paper printouts and microfiche.

Case Study: Republic National Bank of New York

The London branch of the Republic National Bank of New York (RNB NY) is one of the top ten UK foreign exchange banks. By 1990 this branch, like many other banks, was becoming increasingly concerned about the volume of transaction-related paperwork which it was having to store.

At about the same time, the first computerised document imaging products were introduced. Dissatisfied with the slowness, inefficiency and expense of microfiche, RNB NY decided to implement a document processing solution and opted for ROCC Computers' OSCAR (Optical Storage Control Archive and Retrieval) solution.

Using OSCAR, data from the IBM-based general banking system could be downloaded directly onto the PC network, while foreign exchange trading data from the DEC VAX mainframe was transferred to the same network by tape. Users could then access from their PCs all the records that were stored on the laser disc storage jukebox.

RNB NY found that the OSCAR system, installed in 1992, significantly reduced costs and increased efficiency. However, the bank's requirements continued to evolve, while the technology involved in image processing matured. In order to match these needs, RNB NY recently implemented ROCC's SeeCheck Print Presentation system which is based around a Motorola processor and uses the Unix operating system.

Print Presentation has several important advantages over the old OSCAR system. It is much faster and incorporates considerably more flexibility. Its capacity to divide the archived data into small databases covering specific areas is combined with an in-built search facility within reports. These properties allow information to be accessed much more quickly than before, further improving efficiency and customer service. Also, Print Presentation's laser disc architecture allows a much greater degree of data compression, so that far more information is now accessible.