

The Intelligent Use of Colour in the Office

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WHITE PAPER

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INTRODUCTION

The role of colour printing in the office environment has, for many years, been inhibited by cost of equipment as well as ongoing expense. In addition, there was a strong concern that giving colour printing access to employees would lead to abuse of the colour printing facility. When combined with the traditional prohibitive cost per page of colour printing, most companies opted for monochrome printing with colour printing being reserved for a very small, select group of functions.

Over time, though, the development of complex multifunction peripherals (MFPs), together with powerful yet easy-to-use software, has circumvented the vast majority of these concerns. An MFP that incorporates a printer, facsimile, copier and scanner can be as cost effective as buying the individual components separately. Management software can restrict expensive colour printing runs to a few senior employees. Full connectivity with intranets and the Internet, as well as full compatibility across the MFP's functions, means that benefits can then be seen in employee productivity.

Essentially, colour printing can be a great benefit to companies and, by using modern technology intelligently, costs can be easily managed. This White Paper discusses the role that colour communication can play in the office and how a colour MFP device can benefit an organisation without costs escalating out of control. The Paper draws on data from IDC's Western European Multifunction Peripherals Tracker, as well as end-user research carried out in 2002 among 300 IT managers in the UK, France and Germany.

SITUATION OVERVIEW

COLOUR COMMUNICATIONS IN THE OFFICE — THE EVOLUTION OF INPUT AND OUTPUT TECHNOLOGY

Colour has an impact on everybody's day-to-day lives. It adds clarity, aids recognition and fuels interest. Over the last few years, colour has been slowly creeping into the lives of people in the office and bringing with it the qualities mentioned above. Output technology in the office has mainly focused around the laser marking engine, as this technology can handle the volumes needed for workgroups and also has the quality expected by users of colour.

Today, businesses have the choice of devices that they can choose on the basis of speed and paper handling abilities. 2002 was the year that, IDC believes, marked the coming of age of colour in the office, with a greater variety of products and technology to choose from. Numerous printers and copiers with single pass technology were introduced and these enable colour output speed to match, or at least approach, the monochrome speed. These single pass devices generally have the ability to answer the needs of large workgroups or departments and copy shops, where large volumes of colour and monochrome output are produced.

The advent of this new technology has also caused prices to drop on colour copiers and printers based on the traditional Multipass colour laser technology. These products offer colour speeds at four times slower than the machines' monochrome capability. These devices are, therefore, having the effect of making colour output even more accessible to small workgroups and individuals in the office or indeed in the home.

That is, however, only half the story. The convergence that began between the copier and printer industry since the introduction of digital copying is gathering pace. The MFP is the result, and it has the potential to challenge the stand-alone printer through its versatility and productivity. Essentially, the MFP is a device that can copy and print and is usually, in the case of the office, attached to the network. Often, the device also comes with the ability to scan documents. This is a function which is often overlooked by businesses that usually purchase these products. The colour MFP, when used to its full ability, has the potential to be the most productive piece of hardware in the office, and it does not have to be prohibitively expensive.

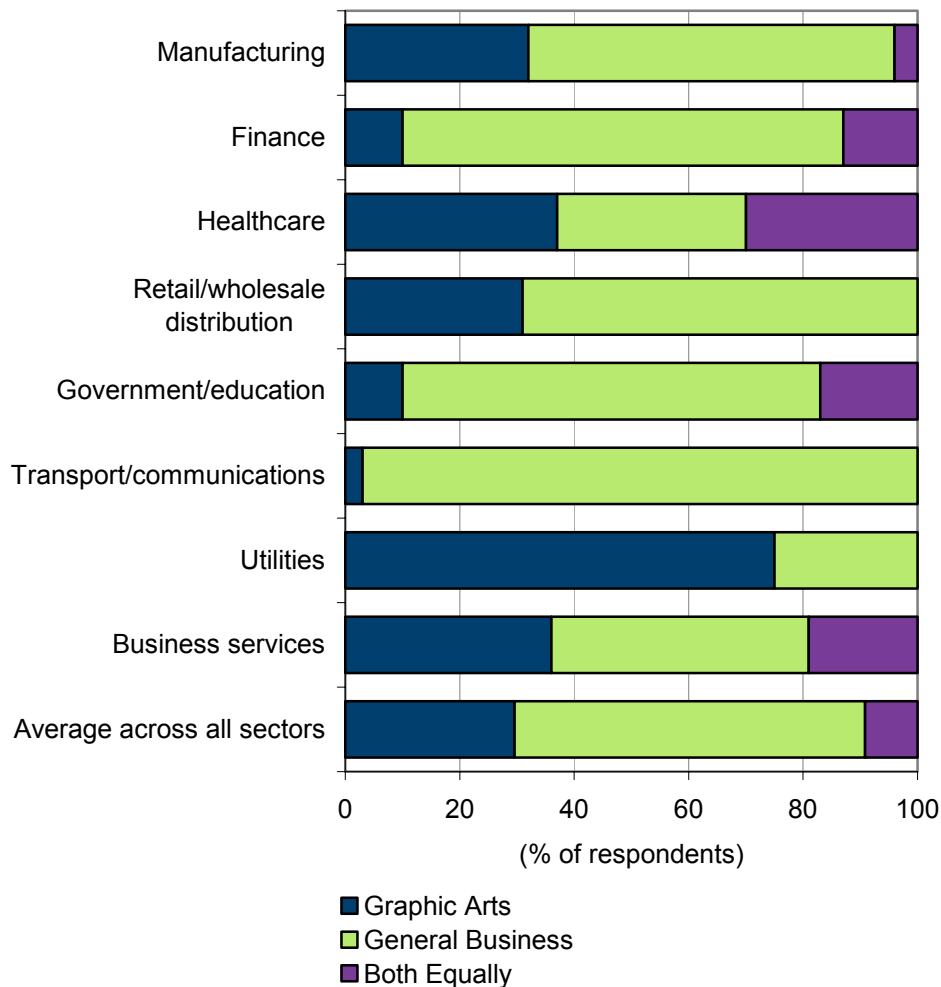
APPLICATIONS OF COLOUR IN TODAY'S OFFICE

Due to the widely perceived and often misguided belief that colour devices equal runaway expense, they have usually been purchased for specific graphic arts applications rather than general business use. Figures 1 and 2 show how colour laser printers and colour laser MFPs are being used to output documents across different industry sectors. The figures show that, across all sectors, MFPs are used more for graphic arts applications than printers. There are also a number of differences between different industry sectors. MFPs are more likely to be used in graphic arts environments due to their ability to scan, and because of their ability to input images into documents.

FIGURE 1

APPLICATIONS FOR COLOUR LASER/SOLID INK PRINTERS

Q. What percentage of the following types of output devices at your site are used primarily for graphic arts applications such as marketing collateral, primarily for general business applications such as presentations and word processing, and what percentage for both applications equally?



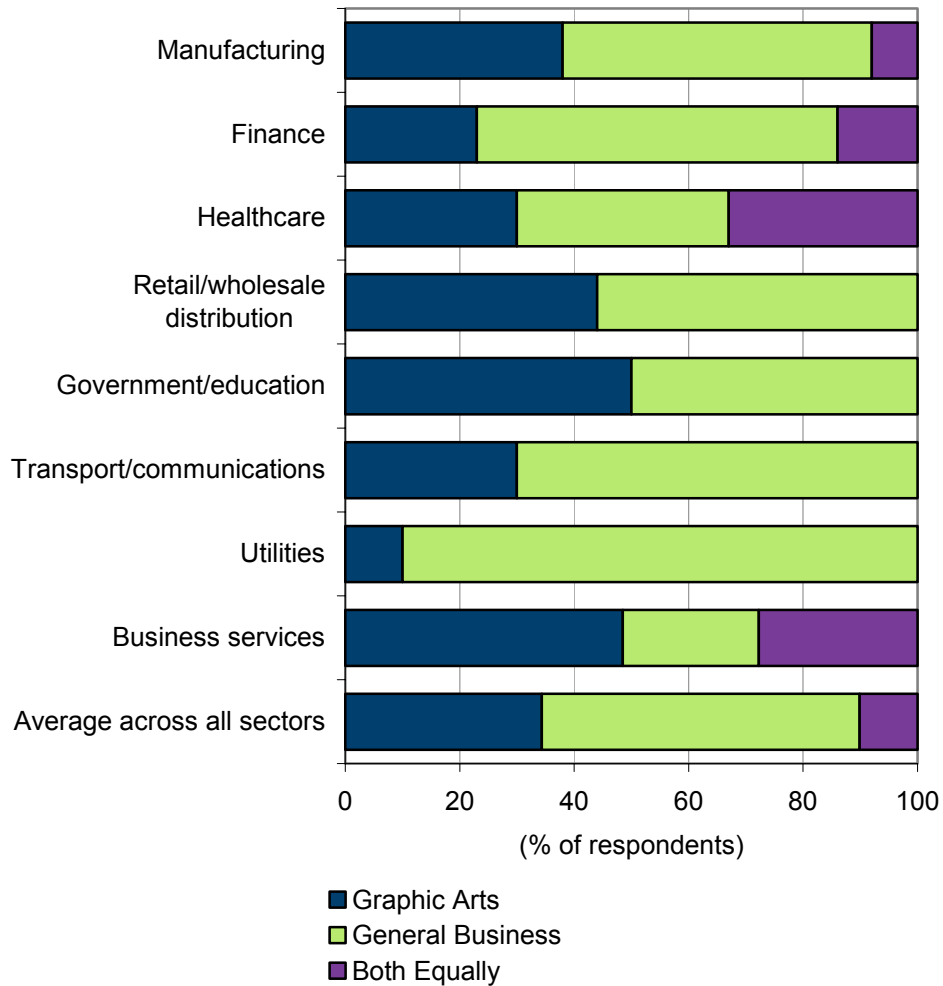
Source: IDC, 2002

A large percentage of colour devices are dedicated to the graphic arts sector, with the adoption of MFPs even higher than that of stand-alone devices. In those applications where printers are primarily employed, most processes remain labour intensive. Indeed, in many instances multiple documents are created by printing one (proof) then producing multiple copies on a stand-alone copier in-house, should one be available. Alternately, it is outsourced to a nearby copy shop or print bureau. The benefits of an MFP are many, from paper capacity and input right through to paper handling and online finishing. With a colour MFP, the need to first print a proof and then copy is negated, as is the potential requirement to outsource.

FIGURE 2

APPLICATIONS FOR COLOUR LASER COPIER PRINTERS AT SITE

Q. What percentage of the following types of output devices at your site are used primarily for graphic arts applications such as marketing collateral, primarily for general business applications such as presentations and word processing, and what percentage for both applications equally?



Source: IDC, 2002

WHY HAS COLOUR NOT HAD A BIGGER IMPACT SO FAR?

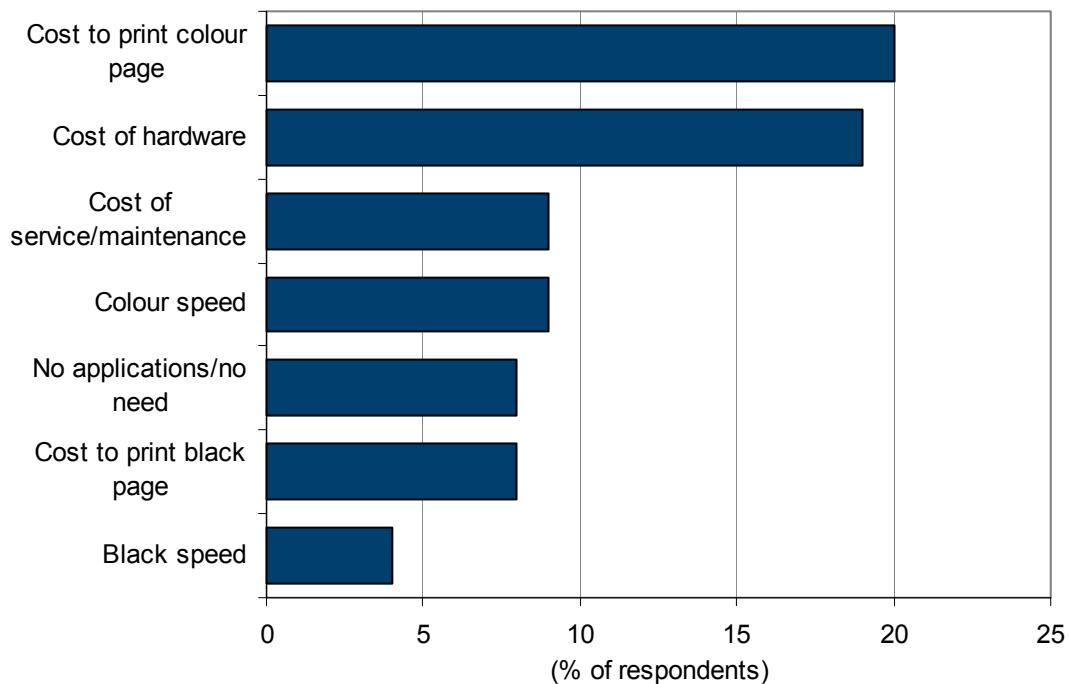
As was mentioned previously, 2002 was considered as the year that colour came of age, and this was reflected in the purchasing habits of organisations during the period. In a study of IT managers in Western Europe, IDC found that 15% of workgroup colour printers were purchased in order to replace monochrome printers. With all the benefits of colour being well documented, however, businesses have been slow to adopt this new technology and the penetration of workgroup colour devices has been relatively shallow.

Figure 3 outlines the views of Europe's IT managers on this issue. The prime barrier to adopting colour printers and MFPs is the perceived cost implication. This not only includes the cost of hardware as an initial outlay, it also covers operational costs such as printing in colour and maintenance.

FIGURE 3

MAIN BARRIERS TO ADOPTING WORKGROUP COLOUR PRINTING (ORGANISATIONS 100+ EMPLOYEES)

Q. What are the barriers to adopting colour printing at your site?



Source: IDC, 2002

Although cost remains the major inhibitor to colour adoption, it is interesting to note how prices have genuinely fallen since the mid-1990s. In 1995, an average entry-level colour page printer at four pages per minute could be purchased for \$16,000 equating to some \$4,000 per page of colour performance. In 2002, the average entry level product could be purchased for \$1,000 equating to only \$250 per page of colour performance. With the capital cost of equipment eroding we have seen the emphasis shift to cost per page, with customers seeking ever lower ongoing print costs.

Undoubtedly barriers still exist to adopting workgroup colour laser devices in the office. There are, however, other ways for colour to penetrate the office environment

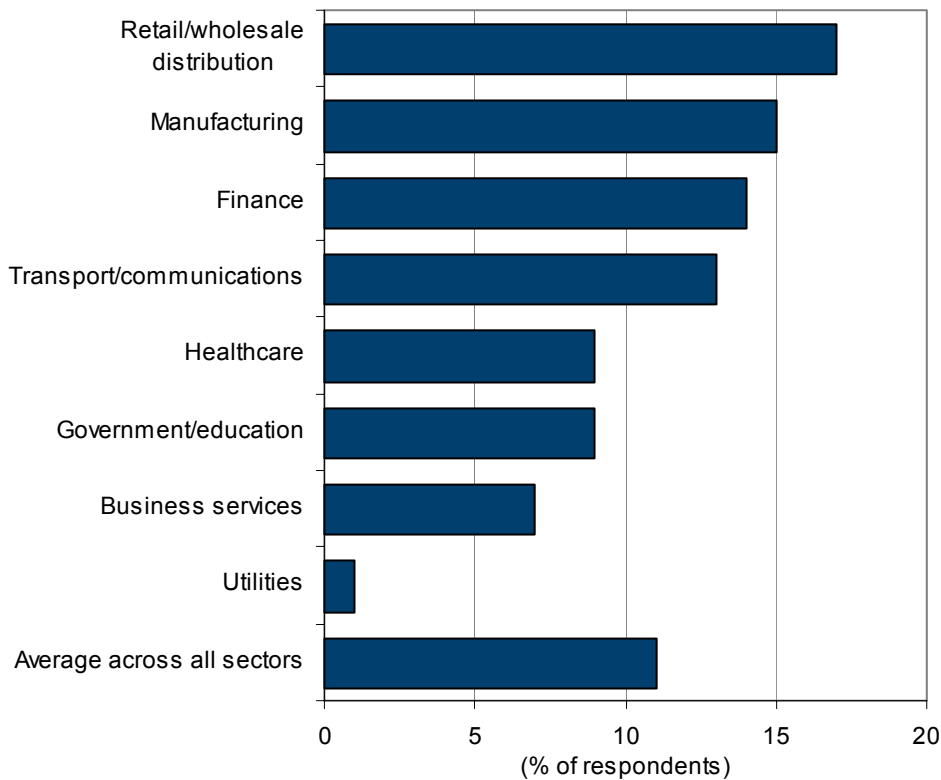
such as inkjet devices. These are relatively cheap to purchase and are often purchased by individuals for their own use.

Figure 4 depicts a view of how workgroup inkjet devices are purchased across different company sectors.

FIGURE 4

THE PURCHASE OF WORKGROUP VS SINGLE USER INKJET PRINTERS

Q. What percentage of your inkjet printers purchased in the past 12 months were for workgroups as opposed to single users?



Source: IDC, 2002

The average percentage of inkjet devices purchased for workgroups is only 11%, which means that the rest are purchased for single users. This highlights the need that individuals have for colour. However, placing a number of relatively low cost inkjet printers on individual desks can lead to the IT department losing control of the devices and increasing the department's support workload through having to maintain a number of distributed machines. This can also result in the cost of consumables going unchecked.

This can cause huge problems in the ongoing relationships between users, IT support and finance. The relative cost of running several colour inkjets versus the more efficient colour MFP is highly disturbing to your educated IT/MIS manager; however, in most businesses these costs go unchecked as supply costs are "hidden" when purchased through petty cash or general office costs. The employment of a colour MFP not only affords enhanced functionality, performance and control to the users — but it also allows effective cost management and "tracking" and with the addition of smart solutions software, such tasks as cost allocation, job ticketing and monitoring.

DOES THE COLOUR LASER MFP NOW RENDER THESE BARRIERS INVALID?

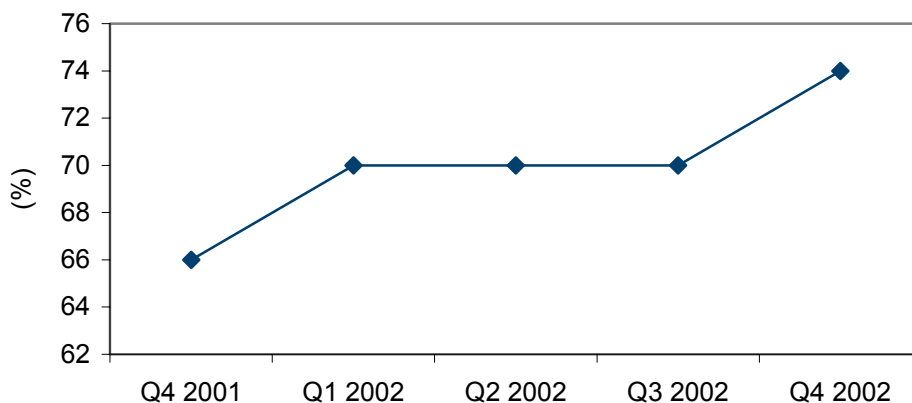
The great advantage of workgroup devices is that, to be shared, they have to be networked. This results in the IT department "owning" the machines, and where the intelligent use of colour begins.

As mentioned earlier, workgroup colour printers are beginning to replace workgroup monochrome printers. Colour copiers, too, are increasingly being networked. The capital cost of purchasing a stand-alone colour copier is made a great deal more palatable once the device can be used for other functions such as network printing and network scanning. Furthermore, once the MFP is considered as an integral part of the IT infrastructure the device can then fulfil its true potential and become a part of the company's document workflow strategy.

Figure 5 shows how the connectivity rate for colour copiers has been increasing in Western Europe over the last five quarters. The percentage of copiers which have been sold with network connectivity has increased from 66% in the later half of 2001 to 74% in the same period 2002. This figure is set to carry on increasing as more vendors such as Canon and Xerox offer their machines with network connectivity capability as standard and businesses realise the benefits of adding a colour copier to the network.

FIGURE 5

AVERAGE COLOUR COPIER CONNECTIVITY RATES, WESTERN EUROPE, 2001–2002



Source: IDC, 2003

In Figure 3, speed was one of the barriers to adoption of workgroup colour. The advent of single pass technology has allowed centralised departmental colour machines to offer colour and monochrome output at speeds of 30+ pages per minute, fulfilling the needs of a large number of users and, therefore, distributing the cost. Multipass, or fourpass, devices are now reducing in price quite dramatically. This allows smaller workgroups to adopt colour, which was previously thought too expensive.

IDC believes that, if implementation is planned and document workflow of an organisation is considered, then introducing a colour MFP into an office environment can meaningfully add to the productivity of a company without the cost spiralling out of control.

The benefits are summarised below:

- ☒ **The IT function maintains control.** It is apparent that colour is being used in the office by the amount of inkjet devices that are present. If colour is implemented in a network situation then control remains with the IT department.

The vendors offering such devices are aware of the fear which organisations have over the possibility of runaway costs. In response, they have developed simple software packages for colour MFP devices that allow the IT department to control the use of the machine. Colour prints can be tracked and billed back to the relevant user or department. Each individual worker, department, location and terminal has a specific identification allowing full monitoring and control in the use of the IT infrastructure.

Controls can even be implemented to limit the time of day colour is allowed to be used and can disable the function on certain days such as bank holidays and weekends. Through the use of Document Accounting software, the billing of individuals or departments for their usage is also possible. This helps to keep a control of cost and maintains a sense of responsibility over the use of the machine.

Software and management solutions allow MFPs to be effectively used as a monochrome device through default settings. Therefore, while each individual may have access to a specific device, the IT department or management can restrict each individual's use of colour as well as the quantities or times of the day that the individual can use the machine. The advent of software packages that allow the IT department to monitor and control use has removed this key concern of abuse of colour in the office, which is a reason given by some companies for their slow adoption of colour.

- ☒ **File processing is handled efficiently.** Colour documents inherently have larger file sizes than monochrome. This is often a concern as increased network traffic can have a detrimental effect on speed and stability. However, the majority of today's colour MFPs come with powerful inherent processors that can process data quickly and efficiently, while new technology, dubbed "RIP while print", allows the machine to continue to process or rasterise incoming data while the document is being printed.

Network scanning and file transfers are also efficient due to compression techniques that are employed before a file is distributed across the network. Another new technology, which is present on many high-end printers and MFPs, is an integral hard disk. This allows for frequently used forms or documents to be stored centrally on the device and accessed through walking up to the MFP and choosing the required document.

The integral hard disk also has the advantage of being able to apply "scan once, print many" technology. This is useful if a document needs to be scanned for multiple copies, then instead of leaving the scanned original on the glass plate, it can be removed as the original is scanned to the hard disk and copies are produced from memory, thus ensuring a high copy quality.

- ☒ **Consolidation of functions into one device.** One of the major benefits inherent to all MFPs is their ability to consolidate a number of functions into one device. This has the effect of reducing inventory, which saves valuable office space and also reduces the number of machines that the IT department has to support and administer under maintenance contracts. The initial cost of an MFP may be higher than a single function machine, but this overriding cost is quickly overcome when the buyer adds up the individual costs of a single function copier, a printer, a scanner and a facsimile.

These individual devices also have their own specific upgrades and options that are found only once on the MFP. The benefit of this is that upgrades and options are cheaper and simpler to manage. In terms of using a number of functions on the same task, the commonality of the software avoids the inherent problems that arise from using a number of separate products with limited software compatibility.

- ☒ **"RIP while print" controllers and "scan once, print many" technology ensures that colour documents and processing, which can be slower to process than monochrome documents, minimises the impact on network traffic.** More advanced colour printing technologies are enabling sophisticated print jobs to be carried out in-house, at convenient times and with minimal interference to the IT network. Today's RIP technology allows the print job to start printing before the entire job has been uploaded to the printer. This helps to prevent the traditional backlogs that are common in older colour devices. The technology also allows several print jobs to be selected, stored and managed using one piece of management software. No longer does one print job have to be completed before another can be downloaded.

The finishing, input and paper handling options of modern MFPs allow for many types of print and/or copy jobs to be sent to the machine in a short period of time. The "scan once, print many" allows the MFP to store print jobs either on hard disk drives or embedded memory. This allows the user to access the print job directly from the MFP, or an individual PC/server, without the need to traditionally send the job over the IT network. The benefits include minimised traffic and interference with other users.

- ☒ **The full benefits of document distribution can be fully utilised on today's colour MFP.** No longer does the individual have to manually ensure that each document for distribution has been sent to the recipient or recipients. The traditional method of "print and distribute" is being replaced by the "distribute and print" method, aided largely by the increasing use of both simple and sophisticated document distribution methods that can be found on the MFP.

Today, a document that needs to be distributed to one or multiple locations does not even have to be scanned. Documents are created at source and uploaded onto networks, servers and indeed to individual MFPs, and are then ready for access. A document created on one side of the world in, for example, Sydney can be ready and waiting at the recipients MFP or terminal upon arrival at work in London. Depending on the size and nature of document, this can be already printed, ready and waiting or simply accessed through a secure password ready to print.

The amount and scale of document management in today's office environment is only limited by the IT infrastructure and knowledge. The development of the Internet, intranet and email has led to the decline in the need for the traditional methods of transferring documents, such as facsimile and postal services. The latter is often used as a back up once an original has been delivered electronically.

Modern colour MFPs have a variety of optional software, including OCR and workflow management programs, that allows a document created at one source to be made available at thousands of locations overnight. When combined with storage and document management capabilities, the individual documents can be catalogued and stored ready for use by any individual within the IT infrastructure. Document amendments on a central database can additionally be controlled by one source and accessed by thousands. Therefore, the need for costly warehousing and physical paper storage is reduced.

CONCLUSION

We have seen how colour communication has evolved and how colour is been used in today's office. The key area, which IDC believes is the future of colour communication, is the sensible use of colour. Colour printing will always carry a price premium over monochrome; however, we have seen in this paper how the costs can be kept under control. Furthermore, if the scanning needs of a workgroup can be incorporated into the device, then the sum of an MFP's cost benefits can also be greater than the expense of its individual functions. The stand-alone colour laser printer will also have a place in the office of the future, as not every department or workgroup will need access to the functions of an MFP. IDC envisages the sales and deployment of colour MFPs within the organisation as incremental, complementing a distributed colour printer capability whilst negating the need for non-network connect, low-end desktop colour and inkjet devices.

The important point to note is that modern colour MFPs are designed to fully exploit the benefits of a network and have done away with issues surrounding connectivity and fragility of function that impeded its early take up.

The purchase and ownership of a colour laser MFP will ultimately end up within the domain of the IT manager, as it will be connected to the network. However, the convergence of the copier and printer, and the addition of colour to an organisation, can result in the purchasing process experiencing a similar degree of convergence between a number of stakeholders. There may be a number of individuals who need to work together to resolve how a MFP is going to be of value to the business. These individuals may well include the IT manager, the office or facilities manager and in some cases, the information officer or finance manager. It is vital that the different stakeholders communicate effectively in order for the true value and productivity of an MFP to be realised. The sales approach by vendors in this market is also developing into more of a consultative selling approach. Rather than selling a box that is used to output a document, vendors today are more likely to assess the document workflow and offer a solution that will see colour deployed intelligently across the organisation.

IDC believes the colour laser MFP is, indeed, a real product for here and now, offering ease of use, time and cost savings to the user as the demand for more complex workflows and applications grows.

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