



KONICA MINOLTA

REDUCING PAPER WASTE!

With pressure mounting on companies in today's business world to reduce their operating costs and impact on the environmental, sustainability is still high on the company IT agenda, despite the challenges faced in today's economy. And although interest in promoting a green IT infrastructure is growing, the impact that printing has on this environment is often overlooked. If this is left uncontrolled, it can be a huge source of waste for the company for both financial and environmental terms and the purpose of this white paper is to highlight areas of print management solutions in the market place that can benefit an organisation to start to take control of these printing costs to help reduce both the necessity to print and reduce waste because of traditional printing practices when not under any control.

What the Industry Analysts Say

A "less-paper" office based on an optimised print infrastructure can be a prime enabler for sustainability. Using intelligent print management and document workflow tools can enable organisations to significantly reduce their environmental impact while cutting costs, driving operational efficiency and improving regulatory compliance.

Despite the era of mass digital communication and the almost ubiquitous mobile device, the much-talked-about 'paperless office' remains a myth rather than reality. Printing is still central to many business processes, with much communication and documentation still conducted via a paper trail. This is highlighted in a recent **Quocirca** survey where over 60% of enterprises indicated that printing is very important or critical in supporting their business activities. Almost half of respondents said they were seeing rising levels of colour printing, driving up usage of consumables such as ink and toner as well as paper.

The following image is a snapshot of industry analyst statements following on from the various industry surveys they have undertaken with regards to facts about uncontrolled printing environments and benefits and potential savings to be made once a company has taken control of their printer and multifunctional device fleet with a print management solution.

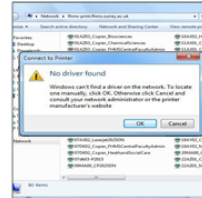
The typical unmanaged printing infrastructure has 2 users per hardcopy device (Photizo Group 2009)	The average company spends up to 6% of its revenues on document management. (InfoTrends 2009)	On average, an employee spends 7.4 hours a week searching but not finding information and reformatting data (IDC 2010)
Through MPS, printer-related carbon emissions can be reduced by up to 60% (Photizo Group 2009)	For every €1 spent on printing, another €9 is spent on burdened costs (ALL Associates Group 2012)	Average processing cost of a paper invoice across Europe is about € 30 E-Invoicing can save up to 80% of these costs (Gartner 2011)
Although 60% of companies believe their printing infrastructure to be secure, 70% have experienced one or more data breaches through printing in the preceding 2 years (Quocirca 2011)	In at least 56% of companies, there are no clear responsibilities for exchanging toners/ink (Dokulife 2012)	20% of IT help desk calls are printer-related (Quocirca 2010)
	40% of printouts are discarded within 24 hours (Newsweek 2008)	Through MPS a company can reduce printing costs by up to 30% (IDC 2009, Gartner 2010)

In a recent survey analyst firm **Quocirca** found that left uncontrolled, printing can be a huge drain, financially and environmentally. Many company's operate a fragmented print infrastructure – a disparate mix of printers, copiers and scanners with different supplies, support and maintenance requirements. This leads to escalating consumables and paper costs, and unmonitored and uncontrolled energy consumption, particularly when printers are under-utilised. On top of this, few companies have the tools to track and monitor print usage – with 55% of companies in **Quocirca's** survey indicating that they are struggling to understand their printing and copying usage.

Typical Scenes We Come Across

When visiting customers and consulting with them about their current printing practices they currently have in place and some of the barriers they have met when wanting to implement a new printing strategy the following images depict some of the scenes and examples that we come across and these are not just unique to a single company, we see this repeatedly when consulting with new customers. Working from left to right on the image below these are a few examples that crop up;

- ❖ “I need my dedicated printer as I have to print confidential documents and I cannot risk members of staff finding these on the output tray”. In rare instances this is a good case to allow a member of staff to have their own personal printer, however there is a feature in print management solutions referred to as ‘secure print’ where the document will not be printed out unless the end user has authenticated at the device to release the job to print.
- ❖ “The device is awaiting an engineer and I have to re-print my document to another device”. With a print management solution installed the end user can walk to another print management controlled device and authenticate and release the print job to print utilising a feature commonly known as ‘Follow Me’ (also referred to as ‘Pull Print’, ‘Find Me’, ‘Print Roaming’, etc.).
- ❖ Seeing stacks of wasted print sat either next to the printer or on the printer. Print management will stop this from happening as only documents that are truly needed will be printed out and not left on the device.
- ❖ End users struggling with identifying the correct print driver and raising support calls with IT. With print management, those volumes of printer queues are removed and typically only one printer queue is needed with a print management solution.
- ❖ Waste bins next to printers and multifunctional devices with wasted print. Print management will dramatically reduce the need to throw printed documents away and in a lot of cases will eliminate it all together.
- ❖ Bags of printed secure waste that needs to be collected and pulped or shredded. Print management will dramatically reduce the need to throw printed documents away and in a lot of cases will eliminate it all together.
- ❖ Clusters of printing devices centrally located for ease of use as well as personal printers scattered around the office. Print management configured for secure print release through follow me will enable the company to dramatically rationalise on the expensive printer fleet as end users can make use of nearby multifunctional devices to allow end users to authenticate at the multifunctional device to release their print jobs at a lower click rate to the organisation.
- ❖ Typically staff print or photocopy documents to just file them away for future reference and in some instances these documents are stored multiple times within the office location by staff who need to have access to them. By utilising the scanning functionality of the multifunctional devices those documents instead of copying them, scan them to a file server or document management solution where all authorised staff have central access to them eliminating the need for filing cabinets and releasing valuable floor space for other activities.





How do you Start to Control Your Printing Costs

The first step is to investigate the market for a print management solution that will meet your companies printing strategy enabling staff member's easy access to multifunctional devices and printers that are strategically placed within the office. The following will cover the typical features that will enable a company to take advantage of these to start to take control of your printing environment.

Print Audit:

Most suppliers will have the ability to perform a print audit to generate reports that show where the organisation is at with its current multifunctional devices or printers to enable a bench mark to be set as a starting point where the supplier can analyse the number of devices in place, their locations and typical printing volumes to ascertain how best to rationalise the current fleet and locate them in a vicinity that is easy access for all users to visit and release print their print jobs.

Identify Print Management Solution:

The following topics will help the company identify the most appropriate solution to meet the organisation's printing requirements and once identified the next step along with the deployment of new multifunctional devices or printers is to install and configure the chosen print management solution. This enables the company to immediately lock down the multifunctional devices or printers to really start to control the company's printing costs.

♣ If we secure data here.....



♣ ...then why not here?



Authenticating at the Device:

Once the chosen print management solution is installed the devices can be locked down by either deploying what is known as an embedded print management terminal (also referred to as an embedded client) or have attached a networked print management terminal. The embedded terminal is very much like a smartphone or tablet application that is installed and once installed a user has to authenticate on the embedded terminal which communicates with the server component of the print management solution to confirm if the end user is authorised to gain access to the device. The print management solution is typically configured to map user accounts within a directory services database such as Active Directory to enable the print management solution to securely identify the end user who is attempting to access the device.

Most print management solutions offer multiple options for authenticating an end user at the device and these are;

1. Network Logon Name and Password: The embedded print management terminal will present the end user with a logon name and password field that the end user has to fill in to logon and gain access to the device.
2. PIN Code Authentication: Within most print management solutions the system has the ability to map a unique PIN Code to a user account. We have also seen this code being added to an unused field (typically the pager field) in a directory services database which is mapped to the user account held within the print management solution. This code is typically around 6 characters long and if configured the embedded print management terminal will present a PIN Code field to the end user to type in their PIN Code to logon and gain access to the device.
3. RFID ID Card / Biometric Authentication: Most multifunctional devices and printers can be fitted with authentication devices such as an RFID Card Reader or Biometric reader to enable either an



employee's ID card to be registered and mapped to their user account or their finger print to be registered and mapped to their user account. After the end user has registered their ID card or Finger print dependent on the authentication method chosen by the company the next time the end user presents their ID card to the RFID Card Reader or presents their finger to the biometric reader the print management solution confirms that they are a valid registered user and logs them on to gain access to the device.

Print Queues:

Secure Print Queues (also referred as Secure Direct Queues) are print queues that are linked to a specific multifunctional device or printer to allow an end user to print to this device through the print queue and then go to the device, authenticate and release the job to print. Typically this print driver is configured to have a default setting to print in greyscale to partially enforce that documents are printing in greyscale rather than colour, however the end user is able to adjust the print driver setting to print a job in colour.

Traditional Print Queues these are configured where typically only one user is accessing a device which is typically a personal printer. When a user sends a print job the job prints out immediately without the need to authenticate to release the print job. Typically this print driver is configured to have a default setting to print in greyscale to partially enforce that documents are printing in greyscale rather than colour, however the end user is able to adjust the print driver setting to print a job in colour.

Follow Me Print Queue (also referred to as as 'Pull Print', 'Find Me', 'Print Roaming', etc.) is similar to the **Secure Print Queue**, however in this configuration the print job is held in a special centralised queue which all devices have access to. This means an end user can go to any device linked to this **Follow Me** queue and when the end user that sent the print job authenticates at a device the print job is listed within the embedded print management terminal screen and they can select this job to print. Typically this print driver is configured to have a default setting to print in greyscale to partially enforce that documents are printing in greyscale rather than colour, however the end user is able to adjust the print driver setting to print a job in colour. Some customers prefer to deploy two **Follow Me** print queues with (1) print driver configured as greyscale and (2) the second print driver configured as colour to make it a little easier select the appropriate queue to print in greyscale or colour rather than having the end user have to tweak the driver setting to change it to colour.

All of the print queues above are configured with special ports that allow the print management solution to track all printing activity sent and released at the print device against the authenticated end user. This tracking data is recorded into a data base for future analysis and reporting.

Host Printing: A number of organisations have CRM, ERP or other back office systems that typically batch print and traditionally cannot have activity tracked. By porting the print output through one of the above queues this printing volume can be captured and tracked and if the print stream encapsulates the end user name within the print stream the print job can be assigned if desired to that end users account.

The above queues dramatically rationalise on the print drivers deployed on the print server making IT management of the print server far easier to control and potentially an organisation could just end up with one print queue. Also by defaulting drivers to print in duplex will further help organisations save costs on paper as all print is printed out two sided.



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Printing Rules:

By implementing the print management solution, correctly rationalising on printing devices, locating them in easy to reach areas, locking the print devices down with embedded print management terminal and deploying the appropriate print queues most organisations will typically see a drop in print usage of between 5% – 15%. Some of this saving is also attributed by staff being aware that all print usage is being monitored and are such more conscientious of their own printing habits.

Maintaining or delivering further savings can be encouraged by deploying printing rules such as;

- ❖ Forcing all print jobs to be printed two sided and in greyscale which will override whatever the end user has selected in the printer driver.
- ❖ Enforcing rules based on applications that end users are printing from such as end users printing emails from Microsoft Outlook that may contain hyperlinks which would normally print in colour the print management solution can enforce that emails printed from outlook are printed in greyscale and two sided.
- ❖ Enforcing a rule based on number of pages to be printed, for example the rule could be set to trigger at 50 pages and automatically divert the print job to a device that has a lower printing cost and presenting the end user with a popup message to advise why this has been done.

Most print management solutions can also enforce rules for photocopying to ensure these are printed two sided and in greyscale also or block them from printing out because of volume of pages has hit a threshold.

Auto Purge of Print Queue:

Most print management solutions have the ability to automatically purge the print queue(s) of uncollected print jobs after specific period in time. For example the auto purge is set to 24hrs, an end user prints a document and doesn't collect the print job and 24hrs later the print job is deleted. In traditional print environments this document would have been printed and potentially just thrown in the waste bin.

Print Quota's:

Most print management solutions have the ability to assign print and copying quota's to users or groups of users such as when the quota has been reached the end user is unable to print anymore and will have to request a temporary uplift in their monthly quota through their line manager. This helps managers control how much printing their department is doing to aid promotion of better printing practices with guidance to their employees.

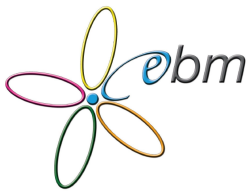
Print and Copying Cost Tables:

To help understand the true cost of printing within an organisation print management solutions have the ability to create pricing tables associated with printing and copying based on the printing devices click charges, paper size, paperweight, paper type, etc. which after each print or copy job has completed and tracked in the database a cost is associated to this job. This can help departmental heads or finance run periodic reports to help understand how much printing has cost the business on a daily, weekly, monthly, quarterly or annual basis.

Billing Codes / Departmental Codes:

Some companies may want to attribute printing and copying activity to either a billing code or departmental code to identify how much each department is spending on printing and copying or for example how much printing or copying has been assigned to a project. Typically end users either select or enter the billing code at the time they select file / print when a popup screen appears or at the embedded print management terminal for the authenticated end user to select the appropriate code to the print or copying job. As previously mentioned all print and copying tracking data is stored within the reporting database, with billing codes enabled this data is also stored in the tracking and reporting database to enable future reports to be run based on billing or departmental codes.

Please Note: Most print management solutions are also able to track scanning and faxing usage performed on the multifunctional device and stores this in the tracking and reporting database to enable future reports to be run.



Printing from Mobile Devices / Tablets (BYOD):

One of the latest features to be added to print management solutions is the ability for end users to print to the Follow Me queues from a smartphone or tablet device enabling the user to go to the multifunctional device or printer and after authenticating release the job to print.

Please Note: Some print management solutions utilise a 3rd party application integrated with the print management solution to provide the mobile print functionality whereas other solutions have developed this functionality into the core print management solution. Be aware that the 3rd party applications will add additional cost to the overall solution without necessarily adding additional benefit.

Scanning Options:

Many of the print management solutions have added the ability to scan documents utilising single sign-on technology because the end user once authenticated by the print management system is known by the solution which can incorporate the end user email address or home folder enabling the end user to perform one click scanning back to their own mail box or home folder.

It may be also possible dependent on the solution to scan documents to other internal mailbox's by performing type ahead searches on the global address book or other scan profiles could be configured to scan to network file shares.

This scanning functionality is typically provided within the embedded print management terminal under a sub menu feature for scanning to make it more intuitive for the end user to follow whilst other solutions integrate with the multifunctional devices native scan features.

The Embedded Print Management Terminal:

The embedded print management terminals vary from solution developer to developer with a varying degree of functionality built into the terminal. It is important for the customer to ensure the features you require is available within the solutions embedded terminal and at bare minimum the end user is able to access a list of print jobs to perform;

- ❖ Select job info button to identify details about the print job attributes such as paper size, colour / mono, simplex / duplex, cost, etc.
- ❖ Ability to select one print job or multiple print jobs to either print or delete them.
- ❖ Ability to select all and print.

Follow Me Printing – Branch Offices:

We previously mentioned that within an office if all of the devices are linked to the print management solutions follow me print queue that an end user can send a job to print and then visit any of those devices to authenticate and select the job to print.

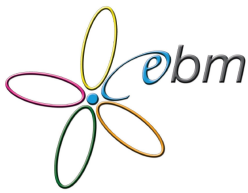
For companies with multiple branch offices connected via a WAN network infrastructure the same can be done for this type of infrastructure. For instance, I am working in the Glasgow office and have to attend a meeting in the London office. In the Glasgow office I send my job to print. I then travel to the London office and authenticate at the device and can see my print job listed which I print out.

Reporting:

As previously mentioned the print management solutions will track on printers all printing activity and on multifunctional devices most solutions have the ability to track printing, copying, scanning and faxing.

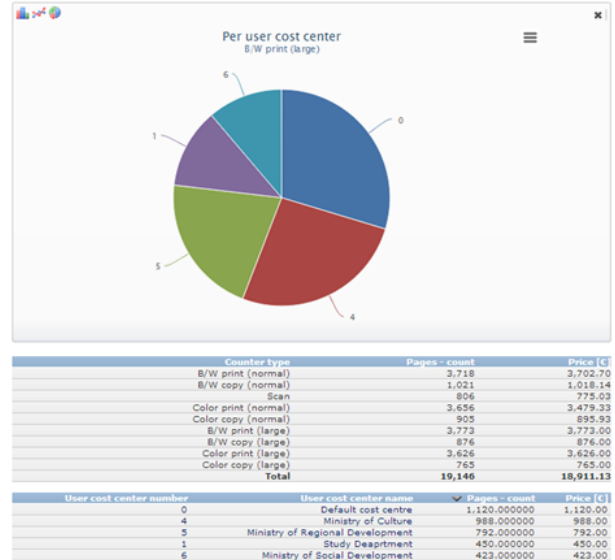
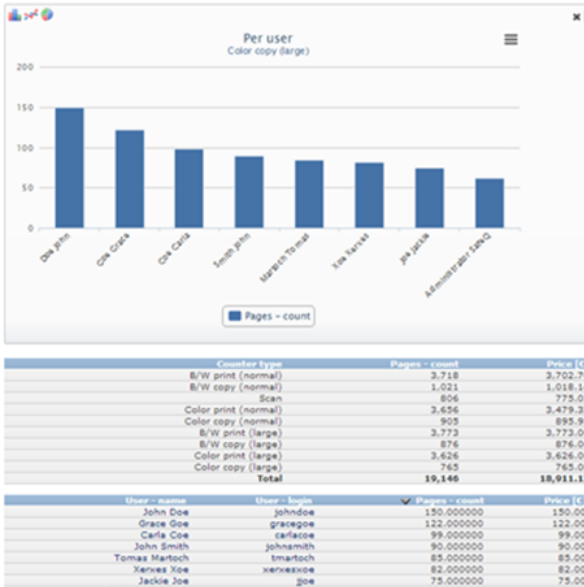
Some multifunctional devices allow printing from USB thumb drives and some solutions allow these USB ports to be controlled and locked and if printing is allowed then these documents are also tracked.

All tracked data including billing code or departmental code data if selected is stored within the reporting database assigned against the authenticated user enabling reports to be run in the future to identify who printed, copied, scanned or faxed what, when and on what device.



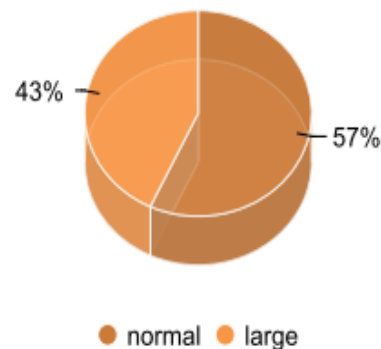
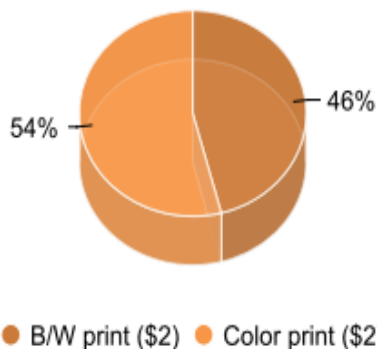
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Authorised users are able to access the print management solutions reporting engine to run reports manually where they can typically select standard reports or in some instances select desired reporting objects to create a custom report which can be exported typically in different formats such as PDF or CSV.



Most solutions can be configured to send out periodic reports via email to nominated staff such as finance director to enable them to analyse the printing spend of a specific period in time. In the same way it could also be possible to configure periodic reports to be sent to upper management to enable printing spend to be analysed and appropriate actions taken to encourage reduction in printing or copying.

	Small size (normal)		Large size (large)		Total*	
	Pages	Price	Pages	Price	Pages	Price
Paper	1,271	€ 1,365.10	931	€ 1,187.00	3,133	€ 2,552.10
Average duplex usage [%]	15.634837%	-	14.746573%	-	15.334484%	-
Average BW jobs	62.131353%	-	14.400694%	-	61.315880%	-
Average pages per job	2.850849	-	1.701214	-	2.837834	-



In addition to the above reports some print management solutions enable green environmental reports to be generated to show how much CO2, water, trees, and electricity have been saved during a specified period.