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Strategic Assessment

Moving Toward More Effective Print Management

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Abstract

InfoTrends' market research indicates that the total cost of general office printing and related activities accounts for about 2% of revenues, and that total print costs, from the desktop to external print, average 6%. At the same time, print and printing technology is often treated as an afterthought—something that is usually handled on an ad hoc basis— but this is changing. As a result of the high cost of printing and recent technological advances, organizations are revisiting their printing practices to find ways to manage them more efficiently, provide higher levels of satisfaction to users, communicate more effectively, and become more cost-effective. This HP-sponsored assessment details the print management challenge and explains how HP solutions provide the answer.

For More Information

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Executive Summary

Enterprises devote substantial resources to print and related services. This is typically the result of fragmented processes. IT, procurement, line of business management, and facilities departments are unduly burdened due to this lack of centralized management. Multitudes of end-users are also subjected to inefficiency and low productivity, as the lack of print management results in ineffectual document processes and unnecessary document obsolescence, however, InfoTrends is seeing a shift in this trend. Equipment and services vendors such as HP now deliver solutions that enable enterprises to achieve cost savings, improved worker productivity, and overall efficiency through print optimization.

Optimization is an ongoing discipline. Therefore, the best approach is driven by services through which specific process and technological expertise can be leveraged to the benefit of the client.

In general, the five key steps of a successful print optimization program are as follows:

1. Assess the current state: a review of print related spending must be conducted. This assessment should include an inventory of equipment as well as actual utilization (print, copy, fax, and scan); networked and direct-connect; and dedicated labor, supplies, outside purchases, distribution, and associated system costs.
2. Create a business case for the new strategy and deployment: gain executive sponsorship; align the objectives and roles of IT, procurement, the pertinent lines of business, and other support services; and develop clear, tactical plans for managing the transition.
3. Optimize the fleet to meet cost and productivity objectives, including actual user needs for print, copy, fax, scan, and related workflow:
 - Optimize the number and types of devices for general offices and departments based on utilization and the unique printing needs of different users. This usually entails replacing an over-proliferation of personal devices and production copiers with a balance of single-function and multifunctional peripherals (MFPs). It may also involve the incorporation of more production-class color devices to reduce external printing costs.
 - Employ fewer vendors and standardize on fewer models to simplify support and procurement and to obtain more consistent services, processes, and output.
 - Upgrade to state-of-the art printing technology to maximize efficiency, reliability, ease-of-use, and management. Improve efficiency through the use of common control panels and a common driver for the fleet.
 - Integrate with the broader enterprise network infrastructure and ensure end-to-end security.
4. Implement a process for ongoing management and optimization to meet the organization's evolving needs through the collection and analysis of regular (e.g., monthly, quarterly) reports on usage, service, changes, and other related factors.
5. Engage with the vendor beyond the typical transactional vendor/client relationship which is primarily focused on price. In this role, the vendor takes on more of the ongoing print management responsibility.

Introduction

Documents are critical to the operation of almost all enterprises. Printing is a common activity that spans the enterprise from general-purpose activities to specific workflow applications such as medical or employment record processing. Printing is conducted on the desktop in the general office and in internal print centers (e.g. in-plant print shops, small copy/print sites, data center print centers) and it is also purchased externally from a wide range of pay-for-print providers. Printing activities that take place within the enterprise are ultimately part of the computing infrastructure, as printing and copying devices are network-connected within every corporate environment. Companies spend significant amounts of money on print and print-related activities. In fact, InfoTrends' market research indicates that the total cost of general office printing and related activities accounts for about 2% of revenues or funding, and that total print costs, from the desktop to external print, average 6% of revenues. At the same time, print and printing technology is often treated as an afterthought—something that is handled on an ad-hoc basis— but this is changing. As a result of the high cost of printing and recent technological advances, organizations are revisiting their printing practices to find ways to manage them more efficiently, provide higher levels of satisfaction to users, communicate more effectively, and become more cost-effective.

Obtaining a better understanding of the cost of internal and external printing and related activities such as scanning, copying, and faxing is difficult because printing has historically been handled in a fragmented manner. As a result, most companies do not completely understand how much they are actually spending on printing. Print costs can encompass more than just the spending on equipment, services, and supplies that appears on monthly billing statements. Help desks are burdened with support calls related to printing issues, and other IT resources are needed to support the print infrastructure. Poorly distributed devices, driver issues, downtime, and a lack of common user interfaces have a negative impact on user productivity. In addition, procurement departments are inundated with numerous contracts, invoices, leases, and other related documentation from multiple vendors.

As organizations have begun to digitize various business processes, thereby reducing the costs associated with those processes, printing has become an area of focus. As part of this attempt at gaining higher efficiency while cutting costs, organizations should optimize and continuously manage their printer fleets across the enterprise. To that end, the goals of many constituents in the organization—IT, procurement, and facilities—are very similar: reduce costs, provide better visibility into spend, enhance user productivity and workflow, and ultimately integrate all enterprise document processes for improved business results.

We will examine the various practices that provide effective print management when combined. The primary area of focus for this paper is the general office, but this document also touches on opportunities outside of that environment.

Optimizing the Fleet

Centralizing Control and Management of Change

In many organizations, there is no clear ownership, nor is there a definitive vision and strategy for managing print. In these organizations, there is no one person or department that is responsible for interacting and communicating with the vendor or vendors; this function can be carried out by IT, procurement, the line of business, facilities, or a combination of all four. In addition to a lack of ownership and strategic vision for print spending, organizations in this position do not order supplies in any consistent or standardized manner. As a result of these fragmented print management practices, organizations are burdened with unnecessary hard costs across the organization. They lack a holistic view of these print related costs and use manual approaches to gather information about spending, devices, utilization, uptime, and maintenance costs.

This approach leads to inconsistencies in how vendors offer service. In this type of scenario, vendors have varying relationships with each department, facing different individuals with different needs. In addition, companies that operate in this manner generally deal with multiple vendors with different prices, service practices, and standards. This allows for little or no room for negotiating with vendors on pricing and service level agreements (SLAs).

To capitalize on the potential savings and to foster increased efficiency, organizations must first centralize ownership of the strategy. In our experience with enterprise customers, we have found a correlation between centralized roles and responsibilities and robust change management with the achievement of significant cost savings. For any optimization program to be successful, InfoTrends believes that there are several factors which must be present:

- *Executive Sponsorship*: To ensure buy-in and collaboration between departments/offices, and ultimately to enable deployment across the entire enterprise, executive sponsorship is critical. It will also help align key players across IT, procurement, document-intensive lines of business, and facilities on common processes and strategies, from vendor selection to implementation and ongoing management.
- *Program Ownership*: Whether owned directly by IT or another department in the organization, it must be clear who is responsible for ensuring that objectives are being met, making decisions about refreshing technology, interacting directly with the vendors, and evolving the program as the organization's needs continue to change.
- *Management of Change*: As with any change that involves people and processes, there will be initial resistance. The project team must develop specific strategies and tactics to cultivate approval and support. These should include:
 - Communicating the value to the organization and the benefits to end-users
 - Addressing the unique requirements of different organizational groups and the transition plan for each
 - Facilitating the migration through the use of workflow automation tools and continuous training
 - Developing accountability policies and metrics to drive and maintain the strategy

Once this plan is in place, organizations can focus on reducing the number of vendors, which will lead to the consolidation of their purchasing power and lower costs. On the service side, dealing with fewer vendors will allow for better service and control.

The Hard Cost Savings

The initial driver for optimizing and managing print is usually cost reduction. Enterprises are continuously seeking opportunities to cut costs without impacting productivity. InfoTrends' research indicates that this can be achieved by capitalizing on technological innovation to develop a standardized and balanced deployment. This deployment typically consists primarily of single-function and multifunctional general office devices that increase the number of users per device, but this type of set up also places much needed functionality closer to users.

For organizations undertaking an enterprise approach to managing print for the first time, an initial assessment usually uncovers the use of obsolete technologies, under-utilized equipment, low user-to-device ratios, and a wide range of vendors and models. These factors all contribute to high printing costs. InfoTrends' research indicates that in many organizations the utilization rates of equipment are half of the industry average, and some companies have more devices than people.

It is common that organizations can quickly realize 30% hard cost savings in the general office printing environment from increased user-to-device ratios and newer, more efficient devices and supplies. To refrain from going after these potential savings risks missing out on what some have described as the "last frontier of unrecognized IT cost savings."

Successful fleet optimizations must take into consideration factors such as which functions users require to ensure that the appropriate functionality and type of device is placed in the proper location. For example, because printing represents 60-80% of most output activity for an MFP, broad replacement of A4-size single-function printers with fewer department-class A3-size MFPs may achieve high device utilization ratios at the expense of user productivity. Successful customers have implemented a balance of single-function printers and MFPs to achieve the optimal mix of cost efficiency and user productivity.

The HP customers that we interviewed all reported a significant level of hard cost savings after the initial optimization. Two HP enterprise customers reported estimated annual hard dollar cost savings of at least \$1 million after implementing the HP solution.

Additional Benefits

Beyond these hard dollar cost savings, dramatic productivity improvements for IT, users, and even procurement and facilities are realized with effective print management. InfoTrends' research indicates that for every dollar spent on assets in the general office and personal environment, \$9.40 is spent on soft costs such as IT support and infrastructure, administration and purchasing, document production (e.g. end-user time), and document management.¹ The productivity cost of a poorly organized print fleet can therefore be damaging to an organization's bottom line. An optimized print fleet can often mean considerable productivity improvements for the end-user, IT, procurement, and facilities, ultimately helping a company move more quickly toward its strategic objectives.

¹ Goodreau, et al. *Office Document Output Assessments*. InfoTrends, Inc. 5 April 2005.

Standardizing the Print Environment in a Global Consumer Packaged Goods Enterprise

Global standardization is extraordinarily important to a global consumer packaged goods company that was interviewed by InfoTrends. When a global print contract was signed with HP several years ago, our interviewees were some of the first to take advantage of that development. There were several factors that prompted them to start using HP's services:

- Manageability and visibility of print cost and procurement were extremely important. The company wanted one place where everyone could go to order things, as well as a recognized standard that the company was certain would work with SAP or other ERP systems. According to the Enterprise Project Manager, "The payback was to understand and know the spending. Only then could we look for ways to reduce it."
- Cost reduction was a primary driver, and these savings were obtained through a combination of optimized fleet deployment, technology refreshing, and soft costs such as higher user productivity and decreased IT and help desk support needs.
- Approximately 70% of the print fleet was already HP, including service and support relationships. Above and beyond the existing penetration of devices, the Enterprise Project Manager indicated that "HP came out on top. It excelled in terms of customer service, especially related to network printing." In terms of technology, "HP was viewed as the best. This comes from durability and reliability."
- The organization recognized that print was a significant part of the existing IT infrastructure, and HP's IT services expertise in areas such as UNIX, service desk, and other outsourced services adjacent to print were considered differentiators from other vendors.

The interviewed division's Lead of ITC/Output Management explained that "optimization itself presented a chance to see not only those [print] numbers, but also the costs associated with those numbers." Where MFPs were historically deployed uniformly (by distance) across the organizations' campuses, they are currently being moved and refreshed according to print metrics such as usage or color requirements.

With personal and general office deployment underway, substantial savings have already been noticed:

- Optimized deployment, device consolidation, and a reduction in single-function devices realized significant gains; it was not uncommon to see a fax machine next to a standalone copier and standalone printer, with a 1:9 device-to-user ratio. The target is now 10 or 11 users to each device.
- Consolidating the number of vendors used in the print fleet and deeply integrating HP's support teams with its own reduced the technical difficulties that the company had with the help desk.
- User productivity soft costs were lessened by the reduced downtime as well as the consistency of devices and device interfaces (control panels, drivers) across the global organization's divisions.
- As new, more efficient print technologies (such as HP MFPs with Edgeline Technology and document workflow solutions) are introduced into the print environment, additional hard and soft cost savings are projected. With respect to sales offices (which are printing thousands of pages in color), this company estimates that "a product like Edgeline would cut those printing costs in half."

Global and local visibility of internal print costs was made possible with ongoing HP Web Jetadmin utilization reports as well as enterprise-integrated ordering interfaces and processes. Departmental charge-backs allowed segments of the global organization to better understand and optimize print budgets: "It would create a standard cost across all the boards... give us one base charge instead of having individual locations get their own toner and source technicians for the printers."

At the time of our conversations, approximately 1,200 printers were associated with the interviewed division, and all of the 650 qualified printers were under contract with HP.

The Impact on IT

A poorly managed internal print fleet can have a negative impact on an organization's bottom line, and it can also place a burden on other departments that support the printing infrastructure. A primary consideration is the drain on IT resources for supporting the print environment. For example, consider previous InfoTrends' assessments that revealed substantial IT support savings from taking a common print driver approach with the HP Universal Print Driver (UPD). Following 2006 interviews with several UPD customers, InfoTrends cites the most prominent benefits revealed:²

- **Reduction in print servers:** Moving away from a multi-driver environment and consolidating print queues reduces the number of print servers required by an IT infrastructure. For one Fortune 1000 company, these benefits amounted to over \$1 million in annual savings.
- **Reduction in help desk and IT support costs:** By providing a more consistent user interface across devices and locations, organizations note a lower number of print-related help desk and IT job tickets. The universality of the driver promotes faster troubleshooting and maintenance, saving an estimated 5,500 hours in annual IT support for an organization with 22 full time IT engineers.
- **Reduction in costs to add new sites, devices, and functionality:** UPD scans for new devices and capabilities, populating them dynamically in the driver's user interface. The burden on IT is thereby substantially reduced by the simplicity of a single-driver approach. A 40,000-user organization interviewed by InfoTrends realized 886 hours in IT support savings.
- **Reduction in costs to certify and deploy print drivers:** UPD essentially nullifies the need for certification and deployment of new print drivers (in a single-vendor print environment). This 40,000+-user organization reported a 99% reduction in these efforts.
- **Increased user satisfaction and productivity:** With user interface consistency across locations and devices, UPD users noted a lower reliance on help desk and IT personnel. More consistent access to advanced functionality such as duplexing, input selection, two-sided printing, and stapling also improves user satisfaction.

This assessment only reflected the common driver aspect of print fleet optimization, but it speaks to the benefits of standardization overall. Similar types of cost savings can be expected from centrally optimizing and managing the entire print fleet:

- One new, more efficient single-function or multifunctional device can replace several older, more costly ones; not only does this provide hard cost savings on equipment, but it also dramatically decreases the burden on IT and the help desk by reducing the fleet size and the number of models being maintained.
- Users are provided with a common interface for printing, reducing the need for training and support calls.

² Duek, et al. *One Driver to Rule Them All: The Universal Print Driver*. InfoTrends, Inc. 15 November 2006.

- IT and help desk personnel are supported by a central, remote interface for deploying, maintaining, and tracking print devices and software, decreasing on-site support costs.

As a result, where reputable vendors can provide specialized, outsourced print management services, IT personnel can use their time for more strategic projects.

Although the savings are hard to quantify for many organizations, the help desk and IT resources required to support print inside the organization are likely better used in other areas, especially when third-party specialists can be contracted at similar costs. As help desk and field technician salaries average \$80,875 and \$62,000, respectively,³ the cost savings are significant, and most organizations we work with have identified many other more pressing issues that this staff could be addressing.

The Impact on Users

Perhaps even more difficult to quantify is the increased productivity of end-users that results from print optimization. End-users are generally unaware of how much time they spend tracking down, re-printing, and queuing jobs; learning out how to use different devices; installing drivers; and resolving print issues. Most organizations do not conduct comprehensive cost analyses, but arguably all of them are aware of such hits to user productivity. Highly centralized deployments (heavy on production-level copiers or printers) are a burden to user productivity, while deployments that are overly decentralized with little or no standardization are a burden to the productivity of IT, procurement, and facilities. A balanced deployment of single-function and multifunctional devices across all print environments can enable the end-user to perform his or her duties efficiently, while alleviating much of the burden on the departments that support print. Furthermore, standardization involving common tools, fewer vendors, and fewer devices with common drivers and control panels greatly increase ease-of-use for end-users. Finally, future productivity gains can be enhanced by choosing intuitive, easy-to-use devices that enable users to incorporate new workflows such as scan-to-e-mail and/or scan-to-workflow.

The Impact on Procurement

With a successful print optimization initiative, procurement has fewer vendors to manage, as well as fewer contracts, invoices, and billing. Procurement departments gain additional leverage with the vendors(s) through centrally monitoring costs and spending, as well as volume purchasing, which they can accomplish because the printing infrastructure has been standardized and is integrated with the enterprise's network. They are also better able to track aggregated spending on print related hardware, services, and supplies, and to understand the impact of initiatives in terms of net cost savings. Furthermore, if the deployment is properly balanced (in terms of optimizing utilization and user productivity), the organization will see greater adherence to purchasing standards.

³ Duek, et al. *One Driver to Rule Them All: The Universal Print Driver*. InfoTrends, Inc. 15 November 2006.

Sustaining Optimization

Once a more effective deployment has been established, an ongoing solution for monitoring and managing print is required to sustain optimization and thereby enable continued cost savings and productivity benefits. Continuous monitoring empowers organizations to make informed decisions about print spend and to identify areas that need attention and improvement. It is common for vendors to periodically report on usage, service calls, uptime, user satisfaction, and other issues.

Some of the key benefits of continuous monitoring include:

- Appropriate adjustments to the deployment can be identified and made with intelligent reporting from fleet management tools. Device utilization—by user, group, and application—can be centrally and remotely monitored, helping organizations identify devices that are over or under capacity and right-size to lower costs and improve productivity.
- With detailed insights into usage, organizations are able to develop policies in areas such as color control and duplexing.
- Trends and forecasts for services and supplies enable more efficient purchasing and technology refresh planning.
- Contracts can be structured to provide scalability if the organization grows or diminishes during the contract period.
- Spending can be tracked and allocated to departments, shifting the burden of cost containment to the users and enabling them to make decisions about the print they require with a better understanding of the costs and benefits.
- Security is enhanced with the ability to monitor and audit what is being done, and by whom, at the device level. Best-practice fleet management tools enable the organization to enforce security policies across the entire fleet, including the ability to immediately detect new devices and automate the implementation of security settings.
- Regular, detailed reporting provides the ability to track print fleet assets throughout their lifecycles, mitigating the risk of compliance violations for regulations such as Sarbanes-Oxley.
- A reduction in the need for on-site support with proactive notification of upcoming service and support issues, as well as remote problem resolution tools that enable higher uptime and assured productivity.

In addition, ongoing management of the environment lays the foundation for the integration of print into digital workflows for core business process improvement (i.e. reducing document cycle times or producing more relevant customer communications).

Printing Is Part of the Computing Infrastructure

Print is increasingly being viewed as the part of the enterprise network infrastructure that provides an output service for computing. Scanners, printers, and MFPs can be considered the on- and off-ramps for many digital processes and applications. The internal print environment is directly integrated into the enterprise network and applications. If printing is a speed bump within those processes, the enterprise application as a whole is less effective. Therefore, the needs of networked print environments, especially in enterprise contexts, lie primarily in the realm of IT, which manages computer resources and provides services to the user community. Our interviews with HP customers reflected this belief, as they indicate that procurement and facilities departments take less responsibility for the print environment after fleet optimization strategies have been implemented.

The Importance of Strong IT and Networking Expertise

Deep networking expertise is critical in optimizing and managing a fleet of internal devices. We consistently hear about the importance of this in our engagements with customers. One HP customer that we interviewed emphasized that networking capabilities are critical in selecting the right vendor partner. We recommend that enterprises seek solutions that provide the following networking attributes:

- Seamless integration into the existing IT environment; compatibility with the latest network operating systems, protocols, and security systems
- The ability to add or replace printers without disrupting workflow
- Simple driver and firmware updates across an entire fleet of devices
- Support for legacy environments
- Industry-leading security and management tools that provide increased visibility and control of the environment
- A flexible and robust driver management solution
- A consistent, simple install experience for networked devices that can be performed remotely

The core elements of optimizing and managing a general office print and copy fleet only underscore the need for IT to lead or play a significant role. To this end, consider the following:

- The hardware, software, security, and management involved in printers, scanners, MFPs, and the servers necessary to support the fleet are technically complex.
- Enterprise needs and vendor solutions to capture, store, manage, and deliver content are converging. Devices must be deployed with consideration for business workflows.
- With the increase in regulatory compliance and risk management requirements, security (at the device and network level) is critical. IT must ensure that only authorized users have access to documents, information, and devices on the network.
- IT has considerable experience with strategic programs regarding server, storage, and database consolidation and virtualization. IT can optimize print in the same way that it has optimized these other aspects of the network environment.

- Adding new capabilities to meet user demands is a core function of IT, which must develop the network environment to provide the greatest utility to business users. Such capabilities may include document workflows, distributed capture strategies, and departmental or enterprise content management, although this could include functionality as simple as “scan-to-e-mail.”
- To maintain optimization, IT must scale the infrastructure as the organization evolves.

HP: Lessons Learned from Its Own Deployment

Within HP’s own organization, “as much as 4% of revenue was tied up in print costs,” according to Larry Welch, Vice President of the Corporate Administration & Shared Services Program Office. “We had cheaper access to some of these supplies – yet we spent more money on it!” Mr. Welch explained that the source of the problem was a lack of print cost visibility. Welch stated, “You have to keep in mind that these print costs are buried in things like marketing expenses, training expenses, and production expenses.” In HP’s case, its recent merger with Compaq and other smaller acquisitions also left a large number of devices abandoned or hidden between the cracks. HP saw as many as ten to twelve different manufacturers of printing equipment inside its sites.

The Office Print Initiative was one of several projects designed to optimize HP’s print fleet, but more important was the overarching strategy behind such projects. “It was a tremendous opportunity to improve employee productivity and employee efficiency... not just take costs out, but make it a better environment.” A strategic assessment of several pilot sites was conducted, and HP’s print management solutions were deployed with a 3-tiered purpose:

- Optimizing the infrastructure by consolidating devices as well as refreshing technology and the print fleet on a cyclical basis as HP’s organizational structure continued to evolve.
- Managing the environment through ongoing monitoring of, and standardized processes and interfaces for, devices and their supplies. Solutions such as HP Web Jetadmin enable a centralized view of HP’s print infrastructure.
- Improving workflows by placing needed functionality closer to end-users; namely scan to e-mail, fax, and folder. Advanced workflow functionality (for business process automation) and integration with document management systems are further examples of such integration.

Mr. Welch emphasized that a key success factor was a robust change management process, including senior executive sponsorship. The project team had to justify up-front IT expenditures with a detailed business case of projected savings. To sell the solution and drive the project within HP, a substantial assessment had to take place: “Our idea was to roll it out through the company, because it was so obvious. We had to step back and say, ‘no...let’s pilot it, let’s prove it, and let’s learn from it, and then let’s roll it out.’” The strategy succeeded as hard costs became quantified in the initial pilots, and (other than the first few deployments) “this was completely self-funded.”

HP approached management buy-in and user adoption obstacles using a proactive approach: The framework was to “inform, educate, address concerns, reinforce, and then involve.” The first step was particularly important, especially given that “They were simply unaware... they viewed the toner and paper supplies as being free.” Once users became aware of the real costs of printing, selling the solution to individual departments became easier.

HP pilots resulted in cost reductions and greater user productivity:

- The total cost of ownership has been reduced by 40% - 50%, with a 54% reduction in the number of devices deployed.
- Initial reactions to printer consolidation and a move toward networked print environments indicate that user satisfaction has increased almost 94% (according to Mr. Welch).
- Deployment of the HP Universal Print Driver made the user experience more consistent, increased satisfaction, and reduced support costs for refreshing and maintaining the print fleet as well as for print-related user support.
- Supplies waste has been lowered considerably thanks to more consistent printing and management.

HP’s own offerings enabled successful optimization, ongoing management, and streamlined workflow. Importantly, learning from HP’s own internal implementation process feeds its ongoing development of imaging and printing devices, services, and software.

Beyond Optimizing the Office Print Fleet

Document Workflow

We have discussed how optimizing and managing the office, while initially a cost-cutting exercise, provides significant improvements in the efficiency of IT, end-users, and procurement. Looking beyond the devices, enterprises can dramatically accelerate business results when they focus on streamlining document workflows. Overall business efficiency improvements that impact the top line are ultimately what corporate managers are focused on, and they can be derived from improved workflows.

Consider the business impact of implementing an automated document management solution for a centralized loan processing workflow. These workflows are very paper intensive, involving multiple documents and requiring these documents to be not only printed but shared and stored. These documents usually require multiple copies for various entities. The use of scanning and document management technologies allows for electronic storage and filing, as well as automatic routing, and they eliminate the need for physical storage of multiple hard copies. Using an MFP or digital sender that is integrated with a digital document management system enables efficiencies that are otherwise unattainable within a standard, paper-only workflow.

Once a loan process is complete, the paperwork can be scanned, thereby allowing the document to be stored digitally for future reference. Each loan is assigned a bar-code, which is then used to identify the set of documents for easy access and automated filing functions and routing. Loan processes, whether they are conducted through banks, mortgage brokers, or car dealerships, also tend to be distributed functions; however, with the use of standard MFPs and a centralized repository, these processes can be managed and accessed by multiple individuals in different locations for a variety of purposes, eliminating time and expense.

Production and External Print

Optimizing the fleet and improving workflows does not stop within the office. HP has found that there are typically much larger expenditures in production printing (internal copy centers, production printing, and direct mail operations) and external printing (packaging, collateral, merchandizing, and advertising). HP's own internal assessment found that of the total addressable spend for all printing, the general office only represented 56%, with production and external printing accounting for 18% and 26% respectively. InfoTrends' research, including work performed by ALL Associates Group, indicates that for organizations in the U.S. with over 500 employees, the total spending on production print in 2005 was \$68 billion dollars (this excludes some functions such as packaging and specialty printing), while this same group spent \$20 billion on asset costs in the general office and personal environment (these costs include hardware costs, toner & inks, paper, click-charges, service and maintenance, power, telephone charges, etc.). As mentioned above, the full cost is much higher. This broader view of print, which includes workflows for all internal and external print production and goes beyond cost savings and worker efficiency, presents an opportunity to significantly accelerate top- and bottom-line results.

HP has key partners that extend capabilities beyond the office and into production and external print environments. These alliances provide HP's top enterprise customers with a one-stop, single point of contact for their entire document output requirements. With an integrated approach to managing print

throughout the enterprise, HP provides enterprises with visibility of and control over the total cost of ownership for all of their document supply chains. This approach eliminates competition among multiple vendors over different deployments based upon where they derive the majority of their revenues (i.e. general office vs. production). When working with a partner that has overall responsibility, this contention is eliminated and jobs are printed in the most effective method for the organization.

University Hospitals: A 5-year Strategic Vision

University Hospitals—formerly University Hospitals Health System—is one of the largest health systems in the Cleveland area. The company has a 5-year strategic plan called Vision 2010, which centers on personalized patient care, personalized patient experiences, and gaining a competitive advantage. A cornerstone to Vision 2010 is the electronic health record, with digital document management being a preparatory step toward achieving that vision. To monitor costs and begin the movement toward the vision, University Hospitals (UH) contracted with HP to provide print management services. As a part of this initiative, UH was preparing its IT infrastructure for the next generation of healthcare, using technology to enable its clinicians and doctors to spend more time with patients.

This project was ultimately a cost-cutting initiative, but as Deputy Chief Information Officer Michael Kelly elaborated, “implicit was the need to provide an environment in which professionals could focus on their passion of dealing with other stuff...this was a mechanism by which we could provide a high level of customer satisfaction.” Through this HP solution, UH expects to save \$1 million per year over a three-year period. More important for the business, however, were the interrelated technologies that had to be addressed in the environment: a fleet of over 450 MFPs was being prepared for direct integration with clinical applications and other technologies. According to Mr. Kelly, “Right out of the gate we were going to get cost savings, but we really wanted a print and imaging solution that would help us with workflow in the future. We believe that HP can take us there.”

Moreover, HP’s previous experience in deploying healthcare technologies and its flexibility in subcontracting service to existing UH relationships were considered benefits. In the end, UH believes that this reduced the risks and enabled UH to feel more comfortable with choosing HP.

UH’s strategic plan for its print fleet was focused on several areas:

- UH’s device consolidation and fleet optimization needs were directly tied to its business processes, which had to be a prime consideration over simple usage metrics. UH was trying to fit a fax machine, a copier, a printer, and a scanner into an emergency room or a nursing station, and had too much equipment taking up too much valuable space. Nevertheless, the technology had to be located where the clinical care was provided.
- With government regulations quickly mounting for electronic health records, UH was preparing its infrastructure for connectivity with workflow and records management systems. Digitization of paper records was high on the list of strategic priorities, and the implementation of a self-service invoicing system—Mark View 170—is one example of such innovation. “Healthcare, especially physicians’ offices, is so dependent on faxing,” and UH’s enterprise fax strategy aimed at consolidating these devices and improving the user experience relevant to the service.
- Like the other organizations interviewed by InfoTrends, UH needed more visibility of and accountability for its print costs. Mr. Kelly explained that IT would see the costs for the repair bills, but that this was not necessarily the case for end-users: “those costs were never real to them... they just bought the printer and the toner. Now that they’re really paying for their department’s printing, there has definitely been a change in behavior and a drop in the number of pages that we print.”
- Throughout the project, the goal to improve customer satisfaction was set and achieved. Mr. Kelly stated, “In 2001 we were at 39% satisfied or very satisfied, but this had risen to 86% by 2006. If I laid that across our investment in technology, the curves would have a very similar slope to them as we continue to invest in people and technology.”

HP's Approach

As mentioned earlier, our discussions with HP customers indicated that prior to implementing HP Managed Print Services, printing equipment purchasing and deployment had evolved from individual departmental and geographic needs. As a result, the management of these fleets was highly fragmented. Having taken advantage of HP's Managed Print Services helped them assess, optimize, and manage their infrastructures, and these companies now enjoy the benefits of an optimized infrastructure and are able to look toward greater improvements in workflows beyond the general office.

Throughout our interviews, all participants emphasized different aspects of HP's solution as the reasons why they chose HP over other options available in the market. Attributes such as globally consistent services, industry-leading networking, and a flexible, phased approach were among the highlights. Nevertheless, all of the reasons mentioned fall into three general categories:

- Best-in-class technology (hardware and software)
- IT leadership and breadth of services
- Trusted partner

Edgeline

Previous InfoTrends literature has discussed the potential impact of HP's Edgeline technology,¹ and we were not surprised to find that all of our interviewees had considered this technology in their managed service contracts with HP. Edgeline has primarily been used in retail photo printing environments; however, it has also recently been introduced in high-volume office printing, and industrial printing should follow shortly.

The single biggest improvement in HP's Edgeline offering is the introduction of page-wide printhead arrays. In addition to providing faster print speeds (i.e., there is no need to move printheads across a page), these arrays arguably decrease the total cost of ownership (TCO) of such printers, especially when used in an MFP context. HP claims that these printheads allow for more up-time and less maintenance, as an immobile printhead is arguably less likely to require maintenance than a traditional inkjet printhead that may make several passes over each line of a page. Many of our interviewees responded positively to Edgeline in the context of substantially faster print speeds and TCO savings.

Edgeline technology will be influential on the success of HP's Managed Print Services for several reasons:

- Edgeline will greatly complement HP's current product portfolio, providing a high-speed and low-cost print solution for high-volume office environments.
- Customers will be able to provide color printing without the heavy cost burden associated with using the same device for monochrome jobs.
- Customers under contract with HP will be able to take advantage of these innovations as part of their fleet optimization programs. More importantly, these units will be a part of the balanced deployment that HP offers, which is based on monitoring and managing print usage, bottlenecks, and evolving organizational needs.
- As an MFP, Edgeline will give HP print customers the opportunity to replace high-cost, toner-based copiers and printers with a single, more efficient device.

Organizations seeking a partner that can provide best-of-breed technologies today and in the future should consider the improvements in HP's product offerings.

Best-in-Class Technology

As one of the premier vendors in print and an industry pioneer in network printing and print management innovation, HP offers a comprehensive and integrated set of solutions for the enterprise networked print environment. The broad, flexible device and service capabilities of HP's Managed Print Services offering testify that print is intrinsically part of the enterprise network infrastructure. Most organizations—per our interviews—are already familiar with (and utilize) HP's hardware offerings, including:

- Single-function and multifunctional black & white and color devices
- Ink and laser-based devices
- Personal and networked devices
- General office and department-level devices
- Capture hardware such as digital senders and MFPs
- Jetdirect networking cards

HP also offers a set of software for managing the enterprise print environment, including:

- HP Web Jetadmin management software for remote fleet deployment, problem resolution, and proactive management and reporting
- The HP Universal Print Driver, the industry's only "one print driver solution" for the entire HP print fleet, which can lead to substantially easier print management as well as cost savings.
- The HP Output Server solution, a platform for streamlining enterprise document production not limited to routing, queuing, conversion, security, and output monitoring.
- HP Digital Sending Software, for scan-to-e-mail, fax, and folder workflows

HP's Universal Print Driver

A single-driver replacement for HP PCL5, PCL 6, and postscript emulation printers, HP's Universal Print Driver (UPD) reduces the time and money spent on qualifying and deploying multiple drivers, reduces help desk calls, and improves users' printing success. It also provides a consistent user interface for printing, regardless of device type or user location. By applying a single-driver model to enterprise print infrastructures, an organization realizes cost-cutting and productivity-driving returns.

HP's Universal Print Driver offers several advantages over the multi-driver environment of other vendors:

- **Expansive compatibility:** With support for PCL5, PCL6, and levels 2 and 3 postscript emulation, UPD supports the majority of HP's monochrome and color printers, MFPs, and digital copiers.
- **Consistent user interface:** Supports end-user productivity as well as IT / help desk print support for all jobs and across all compatible devices. Advanced features including duplexing, input selection, finishing options, and stapling are all accessible from a single, familiar dialog box.
- **Device Management:** Capabilities are embedded in a Managed Printing Administrator tool, providing users with a centralized, drillable view of all UPD-compatible printers. Integration with HP Web Jetadmin via Managed Print Lists allows substantially faster device configuration.
- **Security and Permissions:** Handled using Managed Print Policies, UPD offers granular, evolving security for devices as well as permissions for device-specific functionality (e.g., color usage).
- **Remote printing:** This optional feature supports the modern, mobile workforce, which may require printing from varying on-site and off-site locations.
- **New device and capability discovery:** This optional feature eases IT costs by dynamically adjusting the user interface (as well as the print management interface) to reflect the most current network devices and their respective capabilities.

Particularly in the modern office environment that includes mobile users and third party consultants, taking a universal print driver approach can offer substantial returns. Evolving organizations will want to consider UPD for simplifying their print infrastructures, cutting print management and support costs, and improving user experiences.

IT Leadership and a Breadth of Services

HP's strong IT expertise and breadth of services in network printing, streamlining workflows, and output management services are critical for organizations moving toward refining print as a strategic process of their organizations.

HP's Web Jetadmin

Another of HP's innovative and enterprise-class print management solutions, HP Web Jetadmin is a powerful and easy-to-use fleet management software solution for remotely and securely installing, configuring, maintaining, and monitoring a fleet of HP and non-HP PC-direct-connected printers and MFPs via a Microsoft Windows desktop.

HP Web Jetadmin enables ongoing fleet management across the spectrum of enterprise needs:

- **Deployment:** Including remote installation, configuration, auto-grouping, and batch firmware upgrades as well as driver pre-configuration which enables administrators to control specific printer functions like color printing or duplexing.
- **Problem Resolution:** Including remote, real-time, interactive diagnostics of jobs, printers, or groups of printers, as well remote printer reset and test page printing. Offering context-specific help, HP Web Jetadmin connects users to troubleshooting tools on HP.com including online support specialists to help resolve problems.
- **Proactive Management:** Including configurable service and supplies e-mail alerts as well as detailed discovery for networked and PC-direct-connected devices. Supplies management and ordering capabilities include direct links for automated reordering through HP Sure Supply (in some regions). Interviewees from all organizations noted that prior to implementing HP's solution, such ordering was completed in an ad-hoc and fragmented manner by administrative, procurement, and facilities personnel.
- **Security:** Including batch configuration of security features, controlled administrator access to support functions, NT authentication, support for Secure Socket Layer (SSL), and Simple Network Management Protocol (SNMP) v3.0.
- **Reporting and Optimization:** Including advanced usage as well as trend and forecast reporting to maintain optimization over time. This is perhaps the greatest strategic advantage enabled by HP Web Jetadmin—namely visibility and control of the print fleet to maintain optimization over time. Auto-discovery features provide easy visibility to and facilitate the location of all devices on the network. HP Web Jetadmin can determine device usage by device, group, user, and application, enabling asset utilization tracking and adjustments. It tracks and reports the usage of color, duplexing, and more to help control unnecessary costs. It provides trend reports for hardware usage and service, as well as supplies forecasts by group, fleet, and supplies type, helping organizations anticipate ongoing needs.

Additionally, HP Web Jetadmin can be integrated with HP's and virtually all third-party enterprise IT applications. As the need to more deeply connect print with the enterprise IT infrastructure for seamless management develops, such integration capabilities will become increasingly important.

As discussed earlier, IT personnel are playing a more active role in managing print, and HP's expertise in this area is a testament to the fact that print is not a standalone capability in many organizations. Requiring direct integration into the network, print services must be provided by those who are familiar with the enterprise architecture, and by those who understand the complexity of the products and services involved.

The impact that printing devices have on a network is significant. Just as there are file transmissions sent from computer to computer, files also travel securely from computers to printing devices. Not only does managing this flow of information require strong knowledge of printing and computing workflows, but it also necessitates knowledge of how these two components are related.

HP offers its IT expertise in several ways. HP pioneered in network printing over 15 years ago and has been a leader in this space with embedded networking, as well as solutions like Jetdirect and Web Jetadmin. HP Managed Print Services include device identification and discovery, installation, support, user training, and device monitoring. These services provide continuous monitoring of the print environment for ongoing refinement.

Beyond balanced deployment and monitoring, HP supports greater network integration with other enterprise-class technologies and security by leveraging its IT services experience adjacent to print and capture technologies. Document workflows for capture and user authentication (security) are examples of the services that HP can provide.

A Trusted Partner

For a vendor to be considered a partner to its customers, it must be flexible, accountable, and proactive - ultimately delivering high value for the unique needs of an individual organization. HP is one vendor that is reaching this goal, not only through its hardware, software, and services offerings, but also through its overall approach.

With an understanding of print's role across the enterprise, HP helps customers assess, plan, deploy, and manage an optimized fleet of equipment under a contract that flexibly addresses an organization's immediate and long-term needs. Even within multi-vendor print environments, HP provides services and support for managing an entire print fleet. HP Managed Print Services also offers the flexibility of working with a company's existing service partners and ensures that customers have innovative, leading edge products as HP proactively adds, moves, or replaces devices as needs change.

Throughout our interviews, customers emphasized that in addition to taking responsibility for optimizing and maintaining their print fleets, HP is a valued business partner.

- One interviewee discussed HP's in-depth quarterly reviews, emphasizing that they were truly high-value, offering not only detailed reporting and analysis, but also identifying new opportunities and providing recommendations for process and workflow improvements that drive deeper business efficiencies.
- One HP customer emphasized the significant level of accountability that HP carries. His view was that vendors will always comply with service level agreements, but that HP took it to another level by delivering service beyond the parameters of the SLAs.

- One interviewee discussed how HP Managed Print Services was a key enabler in attaining higher levels of operating efficiency.
- Another described how HP’s centralized fleet management allowed a single employee to manage print and the relationship with HP on a service level for the entire global enterprise.

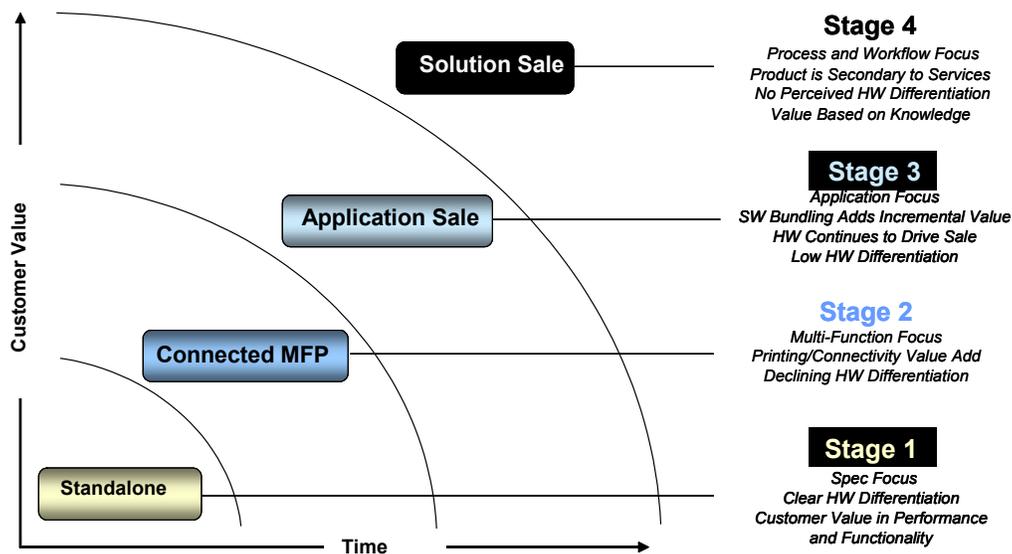
As we have covered this market for some time, InfoTrends has developed a view of how the market is evolving. The evolution of the enterprise starts with standalone devices with a high focus on equipment specifications as well as performance and functionality. Many organizations remain at this level and tend to purchase devices from a vendor.

The second stage of evolution is to implement network connected single-function and multifunctional peripherals. In this stage, network connectivity plays a more important role and the partnership between the organization and the vendor is generally tighter. Most of the market is currently at this stage.

In the third stage, the focus shifts to meeting the requirements of specific applications and uses. Software is bundled with hardware, and there is typically less hardware differential. The result is that organizations must rely on their vendor, which is now more of a partner, to provide solutions tuned to their requirements.

The final evolutionary step is a solutions approach. The value primarily stems from the process and workflow as well as the knowledge that the partner can provide to the organization. HP has demonstrated that it can work at all the various levels. The value to clients is that they can access higher level expertise as needed and HP can work with a client as it climbs the evolutionary ladder.

Figure 1: Market Evolution



Conclusion

Optimized print management is a requirement for organizations that want to improve productivity while reducing costs. Our interviews with organizations that have undertaken a print optimization effort with HP revealed a great deal about how printing resource management is handled in large organizations. Regardless of the type of environment or industry, significant cost savings can be realized by optimizing the print/copy fleet and tackling print from the desktop to the print shop. The goal of these efforts is to provide a balanced deployment that offers the right types and number of devices in the right places to achieve the best utilization and productivity possible. Typically, this means reducing the number of vendors, existing devices, and leases that exist, as well as eliminating rogue purchasing. All of this saves money.

The goal, however, reaches beyond cost savings. That is only the tip of the iceberg. It is also about providing improved, more consistent printing and imaging services to users and more efficient document processes that can drive revenue, increase employee satisfaction, and provide more efficiency to the organization. Ultimately, a better-managed print environment enables further automation of business processes with workflow solutions. When managed effectively, this strategy results in higher levels of productivity and sustainable competitive differentiation.

The goal does not stop with the initial optimization effort. Businesses change over time, especially in today's fast-paced market. Technological innovation continues in almost all areas related to print regardless of environment. New market demands that require higher levels of automation and performance dictate that a company be prepared to respond and adapt as necessary. For a company to be agile and capable of responding to changing needs, it must understand how technology is intertwined and used within business processes. Printing is a part of that equation.

Altogether, we have uncovered a number of factors that are required to successfully optimize, manage, and maintain a corporate print infrastructure, one of which is choosing the right partner. The partner must deliver appropriate and reliable technology in addition to providing tools and services that support the initiative from end to end, enabling the enterprise to focus on its primary business objectives. The partner must also be prepared to address the broader print landscape.

HP recognizes that print is not just about the devices. The company has demonstrated its leadership in delivering innovative and relevant technologies. HP has solid expertise in networking and the broader enterprise IT framework. These capabilities, together with flexible, globally consistent service and support uniquely enable HP to optimize the infrastructure, manage the environment, and improve workflows for today's enterprises.

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