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THE ROLE OF PRINT TECHNOLOGY IN DIGITAL TRANSFORMATION:

Bridging the Gap Between Physical and Digital Workflows

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Contents

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Introduction

Digital transformation emphasizes integrating digital technologies across an organization's operations to improve process efficiency and enhance functions like the customer experience. Within a digital ecosystem, technologies commonly range from cloud computing and advanced computing to workflow automation, mobile solutions, and, increasingly, artificial intelligence (AI). Businesses also typically integrate technologies like the Internet of Things (IoT), machine learning, big data and real-time analytics, digital twins, cybersecurity tools, and robotic process automation (RPA) for digital initiatives.

Often less recognized, however, are print technologies and the role they play in digital transformation.

For digital-driven document management and workflows in particular, this can be a crucial misjudgment. Organizations don't always distinguish just how much printing devices alone can bridge the gap between outmoded physical workflows and digital workflows that increase efficiency, data security, workforce productivity, and sustainability.

This white paper examines the importance of making printing equipment more central to digital transformation efforts, the outcomes businesses can expect, and integration best practices for print strategies within a digital environment.

What Modern Printers Bring to a Digital Ecosystem

With their ability to convert physical paper documents into digital formats, today's printers and multifunction devices serve as direct gateways to digitization — the chief objective of digital transformation. Also as hubs for workflows and document management, these devices are designed for endpoint connectivity via cloud integration and wireless capabilities as well as data networks.

By making integrated print technologies and devices more prevalent in an ecosystem for digital transformation, businesses can realize several beneficial outcomes.

A Paperless Office

Due to factors like costs, environmental concerns, and the continuing trend toward digital technologies, more businesses are looking for ways to reduce their reliance on paper-based processes. A digital transformation strategy affords them that opportunity, beginning with digital document management and workflow automation.

Digital Document Management

To digitize physical documents, businesses can employ the scanning and optical character recognition (OCR) technologies now available in many printers and multifunction devices. Once scanned from a physical paper document, digital documents can be stored directly in secure cloud or document management systems for efficient and accurate archiving, searching, and retrieval. In turn, digital documents are more easily shared and accessed across departments and locations, including by remote users.

Enterprise-level document management systems such as DocuWare and Square 9 also support and simplify document capture, digital processing, and retrieval through automation, while solutions like DocuSign support e-signature capabilities within digital document workflows.

Automated Workflows

Automating and streamlining workflows is a significant step in the digital transformation process. To digitize paper-based processes, businesses can either leverage multifunction printers (MFPs) to scan documents directly into enterprise document management systems or cloud storage solutions, or turn to a workflow automation platform that performs similar functions.

Ultimately, workflow automation ensures that digital documents follow an efficient path for sharing, reviews, approvals, storage, backup, and so on. Workflows are also more secure and easier to track, accelerating safe access to critical information.

Workflow automation platforms

On the low end, some workflow automation platforms simply connect often-used business apps to help users automate repetitive tasks. For greater functionality, however, higher-end platforms automate business processes with document generation, forms, and workflows or provide visual builder tools to automate workflows that involve more complex functions. (Square 9, for example, automates end-to-end document processing, but also provides advanced OCR and machine learning to process and digitize physical information initially.)

Additionally for vendor-specific uses, platforms such as Xerox Workplace Cloud (WFC) enable businesses to build workflows without (or with

minimal) coding, while Microsoft Power Automate integrates with Microsoft 365 and other tools for enterprise automation.

In large part, most workflow automation platforms seamlessly integrate with an organization's existing systems (reducing IT and digital ecosystem complexity), and provide secure, remote digital document sharing and printing from any device.

According to professional services firm, Accenture, **76%** of a U.S. worker's tasks can be reinvented by automating repetitive tasks and augmenting higher-value activities.

Enhanced Mobile, Remote, and Hybrid Functionality via the Cloud

Especially for hybrid and remote work environments, cloud-connected printers are essential. Along with extended flexibility for businesses, these devices enable remote users to access and manage printing and scanning tasks from anywhere. Cloud-integrated printing technologies additionally allow for real-time updates, centralized control, and secure document storage. Moreover, mobile printing solutions enable users to print documents seamlessly from mobile devices, enhancing productivity from anywhere.

Increased Security and Compliance

Healthcare, finance, insurance and other regulated industries face rigorous requirements for document handling and retention to safeguard patient (HIPAA), customer, and other types of personally identifiable information (PII). Newer printing devices equipped with security features like user authentication, encrypted data transmissions, secure release printing, and other protection controls help ensure compliance with these requirements while mitigating the risk of unauthorized access and data breaches. Making security oriented printing devices central to a digital framework further enables organizations to establish document audit trails to prove compliance.

AI-Driven Print Management, Automation, and Predictive Maintenance

Office printing equipment continues to incorporate AI capabilities for intelligent document recognition, workflow automation, and even predictive maintenance. Already, these innovations are allowing organizations to position integrated printing devices more firmly in their digital transformation strategies, and will continue to do so.

For print workflows, AI-based printers can automate tasks such as document sorting, scanning, and even color correction, reducing manual input and human errors. For instance, Xerox's AltaLink B8200 Series devices utilize AI to suggest document processing improvements based on usage patterns to increase efficiency and improve output.

Similarly to prevent failures in new HP printers and devices, the company's AI-generated Predictive Maintenance feature alerts organizations to potential equipment malfunctions before they happen. To minimize downtime and improve reliability, this type of predictive maintenance has long been associated with IoT solutions such as wheel and tire sensors for commercial trucks and mining equipment, maintenance sensors in medical equipment, and even solutions to monitor a building's HVAC systems to predict failures and optimize maintenance schedules.

Unconventional IoT Devices

Long viewed as peripheral, one-dimensional output appliances tethered to a network, printers and MFPs have matured into sophisticated IoT devices pivotal to a digital ecosystem. For organizations in the midst of digital transformation, this lets them move from simply "managing printers" to integrating a broader lineup of IoT devices to support their digital mission.

Improved Sustainability

As businesses prioritize environmental responsibility, modern printers are being designed to support green initiatives more strongly. Features such as energy-efficient modes, eco-friendly consumables, and paper-saving digital technologies align printing equipment with sustainable business practices as well as digital transformation initiatives.

A Path to Managed Print Services and Ecosystem Optimization

As the need for end-to-end digital transformation solutions grows, many managed print services (MPS) providers are now incorporating services such as cloud solutions, predictive maintenance, and advanced analytics into their offerings. (Predictive maintenance is particularly helpful for printers not inherently equipped with such features.) These measures enable businesses to optimize both their print environment and digital ecosystem, while passing the IT responsibilities of printing devices to a dedicated provider.

In a recent report from Quocirca Research, **72%** of U.S. IT decision makers said the cloud is a top-line benefit of their MPS contract.

Integrating Printing Technologies into a Digital Transformation Environment

With printing technologies bridging the gap between physical and digital workflows for digital transformation, tightly integrating printing, document management, and automated workflow solutions within a digital ecosystem is crucial. The following checklist provides guidelines to help maximize such integration.

Assess Current Print Infrastructure

Start by evaluating your organization's current printing environment.

- ✓ **Audit printing equipment inventory:** Identify all printers, scanners, copiers, and multifunction devices, including model versions, features, and install dates.
- ✓ **Verify usage patterns:** Determine and analyze print volumes, types of documents printed, and usage rates (by department, organizationally, monthly, annually, etc.)
- ✓ **Perform a thorough cost analysis:** Confirm operational costs for paper, toner, energy consumption, maintenance, and other outlays.

Align Print Strategy with Business Objectives

Within the digital transformation framework, ensure that your print strategy aligns with business objectives such as:

- ✓ **Security:** Newer printing devices provide security controls like user authentication and encrypted data transmissions, which lends both to protecting sensitive data and meeting applicable compliance requirements.

- ✓ **Mobility:** Most printing equipment is now designed to support cloud integration, remote access, and mobile printing, enabling users to work from anywhere.
- ✓ **Sustainability:** Reduce paper usage via digital alternatives.

Upgrade to Smart Devices

Because legacy printers generally lack the capabilities required for modern workflows, consider upgrading older-model printers to:

- ✓ **Multifunction printers (MFPs):** Combine printing, scanning, copying, and faxing, supported via networks, cloud integration, or both.
- ✓ **Cloud-enabled devices:** Allow direct scan-to-cloud and print-from-cloud functionality using solutions like Google Drive, SharePoint, or OneDrive.
- ✓ **AI-driven printing equipment:** Print technology continues to incorporate AI capabilities for things like intelligent document recognition, workflow automation, and even predictive maintenance.
- ✓ **IoT-ready printing devices:** As printers and MFPs have matured into sophisticated IoT devices, organizations can proactively manage them, monitor their performance, and perform predictive maintenance using analytics and remote support, just as with more traditional IoT components.

Integrate with Document Management and Workflow Systems

Connect printers with document management systems (DMS) and automated workflow platforms to enhance efficiency.

- ✓ **Automated data capture:** Scan documents directly into pre-configured DMS folders using optical character recognition (OCR) and indexing.
- ✓ **Automated digital workflows:** Replace manual processes for document reviews and approvals with easily tracked automated routing and electronic signatures. Workflow automation also provides a digital path for document storage and backup.
- ✓ **Enhanced searchability:** Employ OCR to make scanned documents more searchable and speed access and retrieval.

Implement Secure Print Solutions

As vulnerable endpoints (largely due to human error), printing devices can give hackers an opening to networks, servers, email accounts, and, ultimately, sensitive data. Printers should therefore include security measures such as:

- ✓ **User authentication:** Require PIN codes, ID badges, or mobile authentication to release print jobs.
- ✓ **Print auditing:** Track user and departmental activity to ensure accountability and identify abuse or data theft.
- ✓ **Data protection:** Encrypt print data in transit and at rest; also regularly update firmware and software.

Train Staff & Promote Culture Change

Digital transformation is as much about people and culture as it is about technology, including printers. At the user level, continually educate your workforce through functions including:

- ✓ **Training programs:** Regularly educate staff on secure printing habits, document management, new workflows, and other areas of the digitization process.
- ✓ **Change management:** Encourage adoption among staff by communicating the benefits of digital transformation and providing attentive user support.
- ✓ **Continuous improvement:** Gather and analyze feedback from users as well as leadership and iterate to refine digital processes and tools.

Embrace Managed Print Services (MPS)

Partnering with an MPS provider can actually accelerate digital transformation by way of:

- ✓ **Centralized print management:** In managing an organization's print services overall, an MPS provider offers visibility and control over the entire print environment, including across multiple locations.
- ✓ **Predictive maintenance:** While many newer printers designed for AI and IoT provide predictive maintenance capabilities individually, most MPS providers offer remote diagnostics and advanced analytics for all printing devices throughout a digital ecosystem. MPS providers further prevent downtime with proactive supply replenishment for the printing equipment they manage.
- ✓ **Cost optimization:** The pay-per-use print services models from most MPS providers let organizations effectively reduce waste and align costs with printer usage.

Conclusion

In the ecosystem for digital transformation, printing equipment isn't always fully recognized as a key component for digitizing operations and processes. To the contrary, modern printing devices serve as a bridge between inefficient physical workflows and digital workflows that increase efficiency as well as data security, workforce productivity, and sustainability. Businesses should therefore recognize printing devices and technologies as being strategically critical gateways to "going digital" — and should make them more central to digital transformation initiatives overall.

Bridge Your Digital Gap Today.

Your digital transformation isn't complete until you integrate your physical and digital workflows. The experts at Visual Edge IT are ready to help.

Contact us today to schedule a **comprehensive assessment** of your print infrastructure. We'll map your current usage patterns, pinpoint areas for improvement , and build a strategy to enhance security , automate workflows , and optimize costs. Ready to buy or lease new imaging hardware? Visual Edge IT can help with that too.

Schedule Your Assessment Now.

About Visual Edge IT™, Inc.

Visual Edge IT, Inc. (VEIT) specializes in managed IT services, security, cloud computing, and print/copy solutions. Visual Edge IT™ is backed by more than 20 years of technology knowhow and a national network of expert engineers. The company is headquartered in North Canton, OH, USA. For more information, visit www.visualedgeit.com.