

ANALYSIS

MONEY-SAVING AUTOMATION IN PREPRESS AND FINISHING

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Introduction

Technology continues to transform the printing industry from its artisan roots into a custom manufacturing industry. While technology enables more opportunities, more applications, and a wider geographical area to reach customers, it also presents challenges. The ability to produce an ever-wider range of offerings with multiple printing technologies also brings a higher number of production workflow processes and overhead.

Traditional production processes are not suitable for today's print manufacturing environments, resulting in additional, costly touchpoints. Many print service providers (PSPs) have streamlined their high-touch, manual processes to support today's higher number of orders produced using a wider range of printing equipment. Some PSPs continue to struggle with modernizing their processes and workflow. Workflow automation has been a key requirement to make this transition and will remain important as the industry makes the next transition from custom manufacturing to smart print manufacturing (SPM).

The growth and intelligent use of data will ultimately enable varying levels of autonomous print production, but this is still years away. Today's PSPs must focus on increasing their levels of automation because it is a foundational prerequisite to SPM. This analysis will review areas where PSPs have implemented automation in prepress, finishing, and shipping—along with their resulting benefits. Note that most of the findings from this report are based on Keypoint Intelligence's 2021 North American Software Investment Outlook.

Automation Enables Growth

Ongoing changes in the printing industry continue to stress production processes and workflows. The increase in digitally driven on-demand printing, combined with the flexibility of online ordering, has greatly increased the number of print orders—often at lower print volumes—that a PSP must manage and produce. The average number of monthly print jobs surpassed 6,000 for North American PSPs in 2021, which equates to about 200 per day. As such, it should come as no surprise that nearly half of North American PSPs reported that dealing with a high number of small jobs is a primary challenge for their current workflow.

In previous years, PSPs sought to reduce costs and improve efficiencies (which also requires a focus on workflow automation). In 2020, roughly 60% of North American printers saw cost reduction and efficiency as a key component of their business strategy. Efforts to control costs while improving automation have increased since the start of the pandemic.

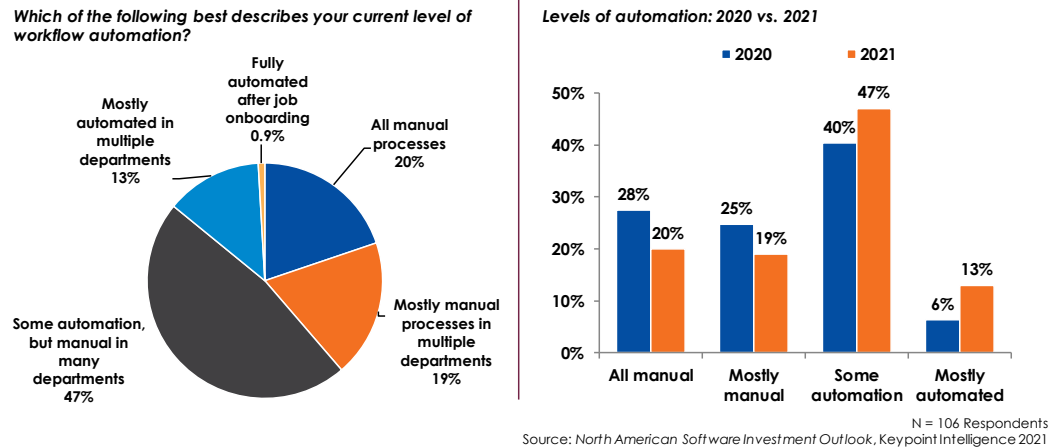
In relation to past years, PSPs are reporting higher levels of automation in their workflows. This increase is likely due to multi-year digital transformation¹ initiatives that were

¹ PSPs may not always use the term "digital transformation"; they might instead consider it process optimization and automation.



accelerated during the pandemic. Companies suddenly found time for their employees to focus on neglected projects rather than daily production demands.

Figure 1: PSPs' Levels of Automation



The resources put toward increasing the levels of automation are a positive for those PSPs that will have compounding effects going forward. Automation matters, and more automation generally correlates to a higher potential for growth.

At the same time, all is not positive—nearly 40% of North American PSPs have mostly manual processes or a complete lack of automation. There are several barriers for automation, but one of the most common threats is job onboarding.

Job Onboarding Threatens Automation

Unfortunately, job onboarding remains a significant challenge to automation. PSPs are more likely to offer their customers high-touch methods for placing orders, including phone, e-mail, and direct sales. These methods have several challenges, including:

- ◆ Increased labor costs to receive orders due to the additional client interaction required for receiving and transposing critical details.
- ◆ The need to re-key information into a print MIS solution or similar software, which can increase the potential for errors when quoting the order and further downstream automation.
- ◆ More reliance on the talent of the print shop employee to turn unstructured information into the details required for production.

Building a flexible, structured, and digitized job onboarding process is critical for all PSPs. The best job onboarding methods allow ease-of-use and round-the-clock access for customers while also capturing the critical details required to quote and ultimately produce the job. The digitally captured details can then be used as a starting point to



onboard the job and automate the remaining production tasks. The goal is to remove physical touchpoints, minimize the likelihood for errors, and save costs through automation.

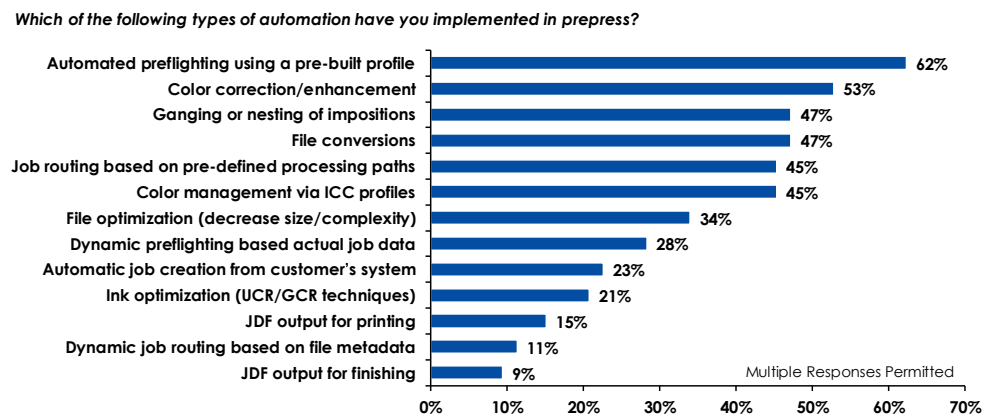
Over half of North American PSPs (57%) offered an online form for their customers to place orders. While this is better than e-mail, it requires the same re-keying of information into the subsequent workflow steps. PSPs must transition from high-touch, time-consuming methods that capture the customer's order request to software solutions that digitize the process, thus enabling further automation.

Money-Saving Automation for PSPs

Prepress Automation

Given that there are many steps to produce any printed product in an end-to-end workflow, which tasks should be prioritized for automation? The Figure below shows the top workflow areas where PSPs added automation.

Figure 2: Automation Methods in Prepress



N = 53 Respondents who are Prepress Managers/Operators or Production Managers and use prepress automation
Source: North American Software Investment Outlook, Keypoint Intelligence 2021

Arguably, all workflow automation can have positive benefits for the PSP. If this is the case, then why is the adoption rate relatively low for about half of the automation methods? There are generally three key areas that contribute to the success of any automation project:

- ♦ **Change management within the organization:** Change requires the future state vision to be set and clearly communicated throughout the business. It is equally important that there is an executable plan and internal project manager to ensure its success.
- ♦ **Technical changes and integration:** Adding automation to a workflow typically requires processes to be changed and likely requires integration of two or more software solutions for seamless data exchange. The technical implementation is often outsourced as a professional services project to third party integrators or software vendors, but the PSP must still be involved for a successful completion.



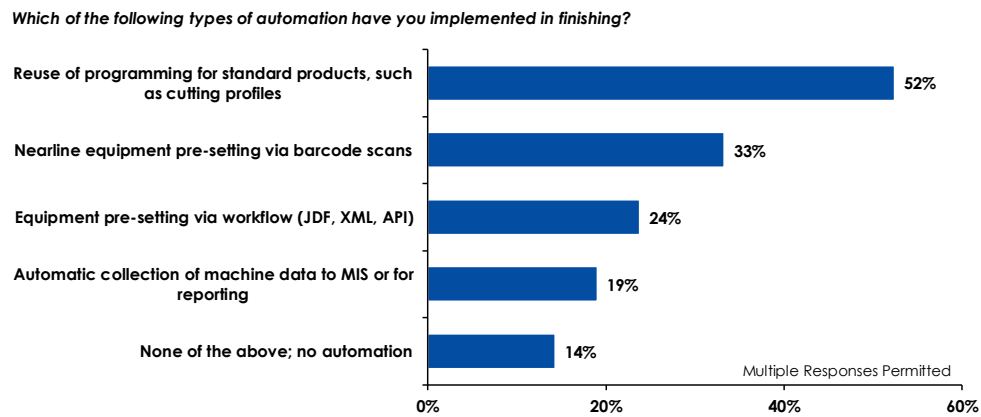
- ♦ **Time and costs:** Having a plan and project manager means that cost and time can be monitored and controlled. In what remains a challenge for many PSPs, the project must be technically functioning and completed before it can generate a return on investment.

Finishing Automation

The finishing department can be a challenging area to implement automation. It is the one part of print production where the equipment's useful life can be much longer, reducing technology refresh cycles. The lack of equipment turnover means that the mix of finishing equipment lacks the latest technological enhancements to the point where some may not even have network capabilities for connectivity.

Nevertheless, respondents did have at least some finishing equipment capable of automation and a high percentage of PSPs were using available automation features. The reuse of programming and machine settings were the most used method (52%) to speed up finishing tasks. The use of these settings can greatly speed up repetitive tasks of repeat or standard print jobs, especially for guillotine cutting where many cuts are required. Nearly a quarter of respondents were using job definition format (JDF) data to preset the finishing equipment. Those not using JDF to preset equipment commonly cite the complexity and cost to implement, but also that some tasks at the finishing equipment still needed operator intervention (lessening the overall benefit to JDF-driven automation).

Figure 3: Automation Methods in Finishing



N = 21 Respondents who are Prepress Managers/Operators or Production Managers and use finishing automation
 Source: North American Software Investment Outlook, Keypoint Intelligence 2021

Although robotics is rarely used for finishing automation today, we expect higher adoption over the coming decade for several reasons. The total cost of ownership is declining and is now within range of mid-sized and large PSPs. The cost of the equipment is lower along with the environmental conditions and programming needed to make the machines work. Most examples in the printing industry have focused on automating material movements to and from the printing equipment and (to a lesser extent) in fulfillment operations. With lower costs, more use cases will arrive to augment or replace direct human interaction in



the printing process—generating an effect similar to what was seen in automobile manufacturing.

Opinion

The industry, along with the world, encountered many new uncertainties and challenges in 2020. Yet through all of this change, many PSPs effectively used time that would have normally been spent on the concerns of day-to-day print production to improve their operations by increasing automation. This is the first measurable shift since we started collecting this data four years ago and speaks to the pandemic's acceleration of digital transformation within businesses.

The increased levels of automation are a positive indicator that some PSPs will be ready for the next shift in automation that enables smart print manufacturing. There is a progressive order before PSPs can reach semi-to-fully autonomous printing by the end of this decade. First, the right processes must be streamlined to the minimal amount required to do the work. Second, any process that can be automated should be. Third, advanced technologies must be applied when available to bring intelligence (augmented and artificial) across the entire print manufacturing ecosystem and value chain.

PSPs that increase their levels of automation now are likely to reap disproportionate rewards in the future. This is because reaching the finish line requires thousands of incremental steps; true automation simply cannot be achieved in one giant leap.

opinion



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