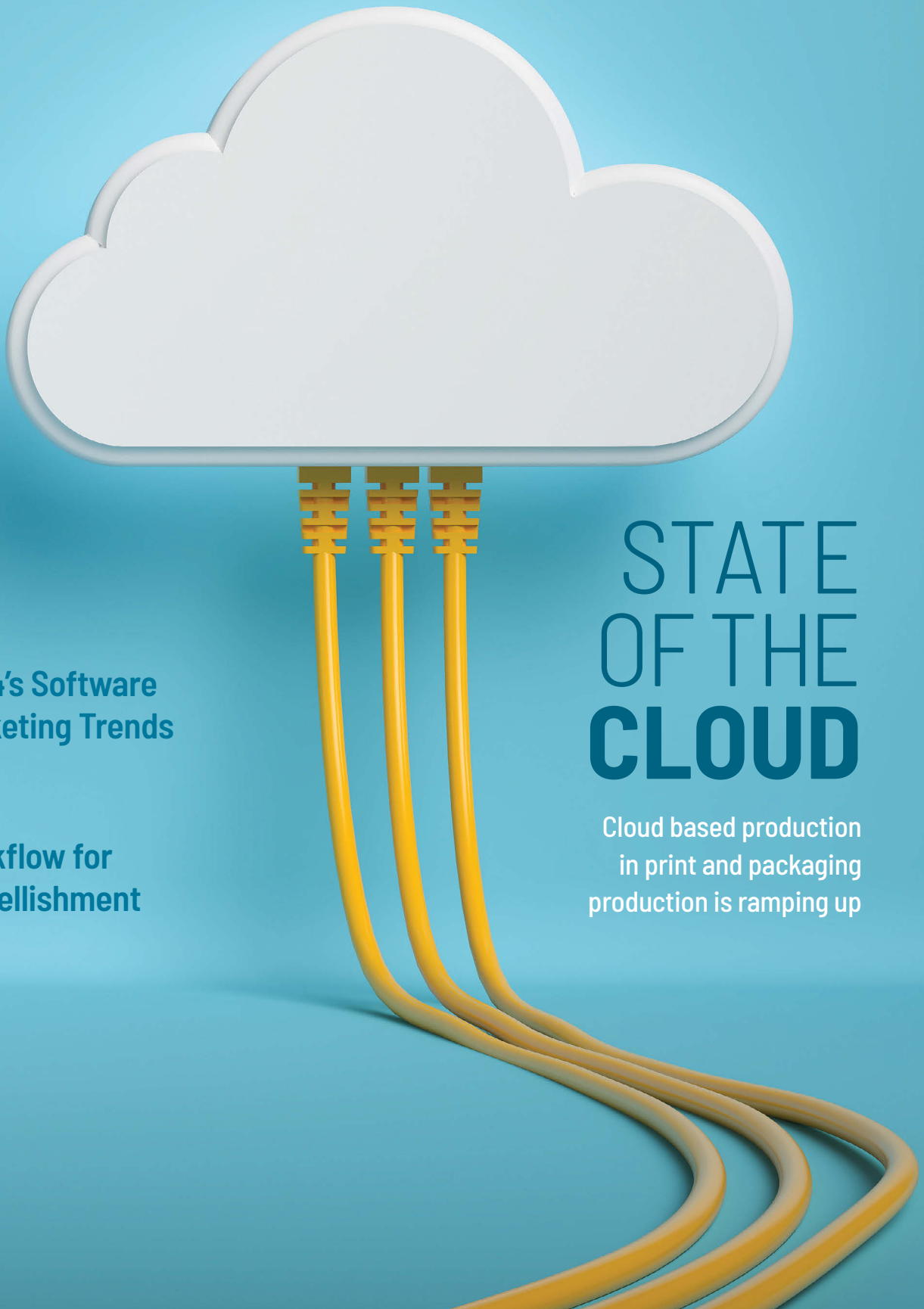
WhatTheyThink
ISSUE ONE **2024**



STATE OF THE **CLOUD**

Cloud based production in print and packaging production is ramping up

+ **2024's Software Marketing Trends**

+ **Workflow for Embellishment**

we create the future

drupa

no. 1 for printing technologies

think digital – be sustainable

Be there when the international print industry meets at drupa 2024, the world's leading trade show for printing technologies. The focus is on the two megatrends sustainability and digitization, the key drivers of global transformation. Experience how innovations are changing the industry. Benefit from top-class knowledge exchange and intensive networking.
drupa 2024 – we create the future

May 28 – June 7, 2024
Düsseldorf/Germany

www.drupa.com #drupa2024

drupa.com/blog

For show information: Messe Düsseldorf North America
Tel. (312) 781-5180 _ info@mdna.com
www.mdna.com
For hotel and travel arrangements: TTI Travel, Inc.
Tel. (866) 674-3476 _ info@ttitravel.net

Messe Düsseldorf North America

Canon
CANON SOLUTIONS AMERICA

FORGE AHEAD WITH CANON INKJET.

Canon Solutions America believes inkjet is the path to success—both now and in the future. See how we're leading the way.

LEADING TECHNOLOGY

RESPONSIVE SERVICE

BUSINESS SUPPORT

COMMUNITY CONNECTION

Follow our lead to the future of inkjet
PPS.CSA.CANON.COM/FUTURE

PRINT BEYOND LIMITS.
877-623-4969 | PPS.CSA.CANON.COM

WhatTheyThink

MANAGING EDITOR
Richard Romano

PRODUCTION EDITOR, CONTENT DEVELOPMENT
Amy Noble

SENIOR EDITOR
Cary Sherburne

SENIOR EDITOR
David Zwang

CONTRIBUTORS
Kevin Abergel
Terry Clayton
Joanne Gore
Patrick Henry
Steve Johnson
Ryan McAbee
Pat McGrew
Carlo Ruas
Jim Russell
Heidi Tolliver-Walker

PRESIDENT
Eric Vessels

CEO
Thayer Long

CHIEF TECHNOLOGY OFFICER
Adam Dewitz

SENIOR VICE PRESIDENT, CONTENT & PROGRAMS
Julie Shaffer

CLIENT ENGAGEMENT & PROJECT COORDINATOR
Debbie Papineau

ACCOUNT EXECUTIVE
Adam Goldman

ACCOUNT EXECUTIVE
Stephanie Papp

QUESTIONS?
Comments? High fives because we're awesome?
whattheythink.com/hello

SUBSCRIPTION UPDATES
Need to subscribe? Unsubscribe? Update your contact information?
whattheythink.com/subscriptions

WhatTheyThink is the global printing industry's go-to information source with both print and digital offerings, including WhatTheyThink.com, WhatTheyThink Email Newsletters, and the WhatTheyThink magazine. Our mission is to inform, educate, and inspire the industry. We provide cogent news and analysis about trends, technologies, operations, and events in all the markets that comprise today's printing and sign industries including commercial, in-plant, mailing, finishing, sign, display, textile, industrial, finishing, labels, packaging, marketing technology, software and workflow.

WhatTheyThink (ISSN 2642-3189) (USPS 500-850) Volume 47, issue 1 is published six times per year in January/February, March/April, May/June, July/August, September/October, November/December by WTT Media, Inc., at 2038 Ford Parkway #218, Saint Paul, MN 55116. Periodicals postage paid at Saint Paul, MN and additional mailing offices. POSTMASTER: Send address changes to WhatTheyThink, 2038 Ford Parkway #218, Saint Paul, MN 55116. Subscriptions: Individual subscriptions are available without charge in the U.S. to qualified subscribers. Publisher reserves the right to reject non-qualified subscriptions. Annual subscription prices in the U.S. A $95; Canada $125 USD; all other countries $150 USD. Printed in the USA.

WELCOME TO 2024
—and the Software Issue!

Happy New Year—perhaps a bit belated by the time you read this. One issue that was barely on the radar as recently as 2022 but which exploded into the zeitgeist in 2023 is so-called "artificial intelligence" (AI), insinuating itself into virtually every aspect of society. Naturally, it is also impacting the printing industry in a variety of ways. In this issue, we look at a few aspects of AI and its potential uses for print businesses. Cary Sherburne documents some potential AI use cases, talking with Nick Benkovich, Vice President of Product Management for eProductivity Software, about how a leading software provider for the industry is approaching AI. She also spoke with Frank Pennisi, EFI's CEO, to gain insight into some of the ways a supplier to the industry might benefit from AI—which ultimately would benefit their customers.

On the marketing side, Joanne Gore looks at the wide variety of uses for AI for marketers, and how AI can be integrated with traditional marketing channels. Over in Johnson's World, Steve looks at how a flooring materials supplier has been using AI to craft its marketing and engage with customers.

A software-centric topic that has been with us for a while is the cloud ("that big, fluffy ghost that lives in our networks," per Pat McGrew) and David Zwang provides an overview of the current state of cloud software for the industry and how machine learning—a topic closely related to, and often confused with, artificial intelligence—is integrating with cloud software. Pat McGrew and Ryan McAbee look at how the cloud is transforming virtually every aspect of the print business in shops of all sizes. Pat McGrew also explains "Zero Trust" workflows—the modern approach to cloud-enabled workflow architecture—and how the changing legislative and technology landscapes demand a new approach to securing a print shop. The latest in our regular "Tales from the Database" series draws on our extensive Print Outlook Survey database to look at the extent to which print businesses have seen cloud computing as a challenge, an opportunity and a planned investment.

Heidi Tolliver-Walker zooms out to look at how one particular print business—Atlanta's Wise—got the most out of a print MIS implementation by developing a process for doing so and walks us through that process.

Contributor Jim Russell from New Direction Partners explains how a company's technology infrastructure is an important consideration for a potential buyer—so if you are thinking of selling your business, an upgrade may be in order.

In other topics, Cary Sherburne looks at some new developments in textiles, including Mimaki's new Neo Chromato Process that removes ink dye-sublimated onto textiles, resulting in a white textile that can then be reprinted or more easily recycled. Cary also looks at the latest news involving her favorite material—graphene—and how it is being used to remove toxic dyes from wastewater. Cary also takes a look at the negative environmental impacts of "glitter."

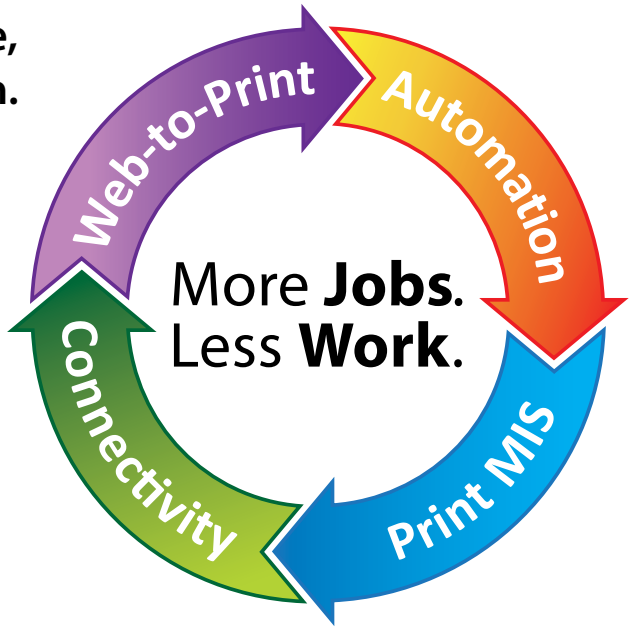
All that and more in our Software Issue. Welcome!

PressWise®

Transforming Touches Into Automation

Designed by a printer wanting a single, profitable, print management solution.

- Unlimited Customer Storefronts
- Estimating, Shipping, Invoicing
- Browser-Based
- QuickBooks Integration
- Barcoded Job Tickets & Tracking



"PressWise has completely streamlined our entire process! Profits are up, customer satisfaction is up, people love our new proofing system, and our prepress turn time is half or less."

Read more testimonials, case studies and white papers at **see.presswise.com/wp**

SmartSoft®

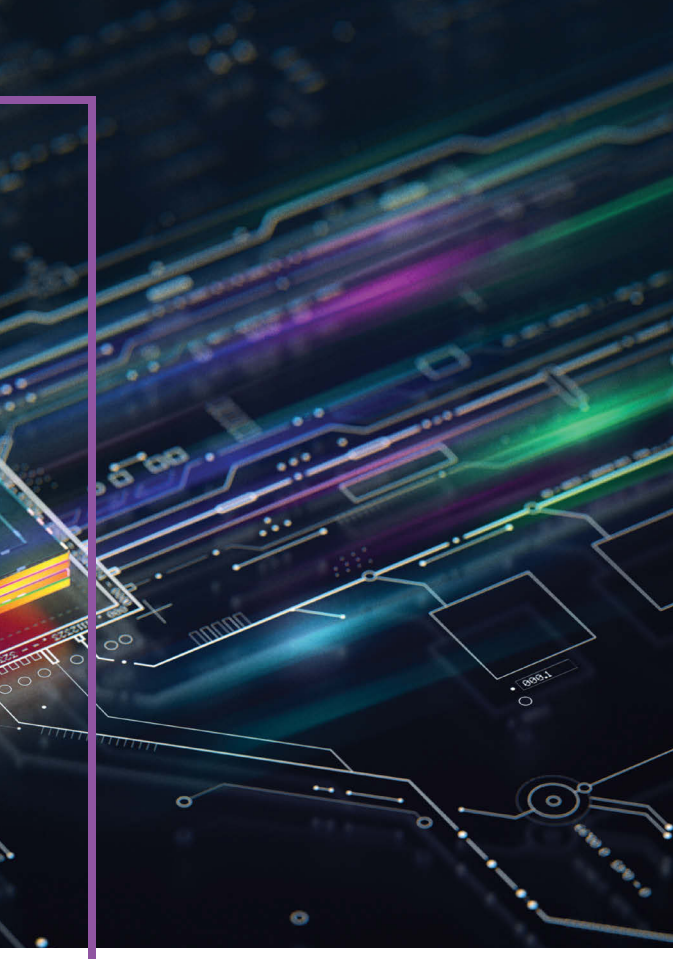
contact@smartsoftusa.com
888.227.7221 presswise.com

Contents

FEATURED ARTICLE

State of the Cloud

As the cloud rapidly emerges as a key influencing technology, the integration of business and production management solutions into cloud-based platforms has become inevitable, and things are changing fast!



twist print GO!

The first end-to-end Print MIS for small print shops.

Streamlined workflow for print shops

Send estimates, job ticketing, online payments, and more!

Zero onboarding

$400/mo

GET VIDEO DEMO HERE

www.twistsoftware.com/go

*Up to 7 users. You can learn more about pricing at www.twistsoftware.com/pricing. Sales Tax will be extra if applicable.

edge INDY

dscoop | hp

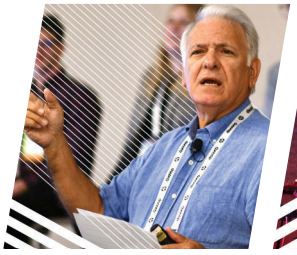
The HP Industrial worldwide Drupa portfolio reveal.

Get the first look at the newest technology from Dscoop partners and HP before it is shown at Drupa.

Fuel Your Future!

MARCH 24-27, 2024

We're taking the successful Edge Conference formula and adding a turbo boost for our visit to the racing capital of the world. Experience inspiring keynotes, focused education, networking and the epic Dscoop party.



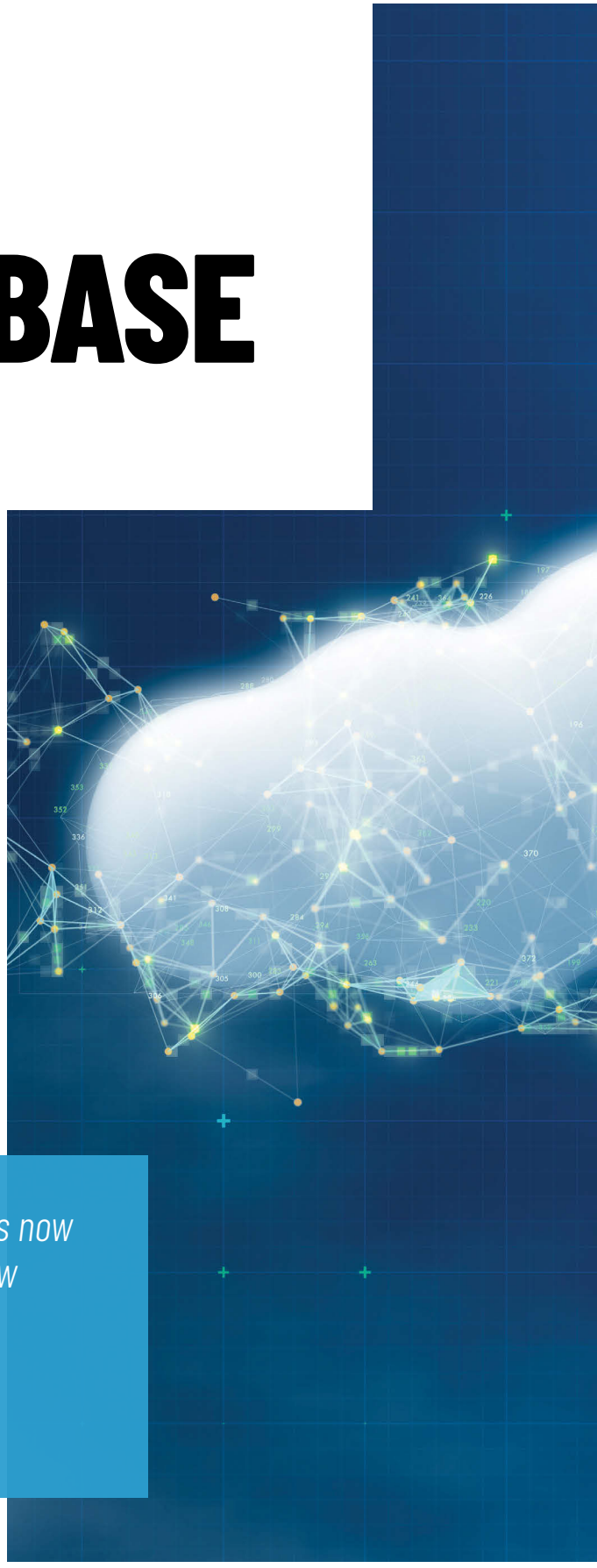
MORE INFO AND REGISTER

DscoopEdge.com

TALES FROM THE DATABASE

Looking at the Cloud from Both Sides

BY RICHARD ROMANO

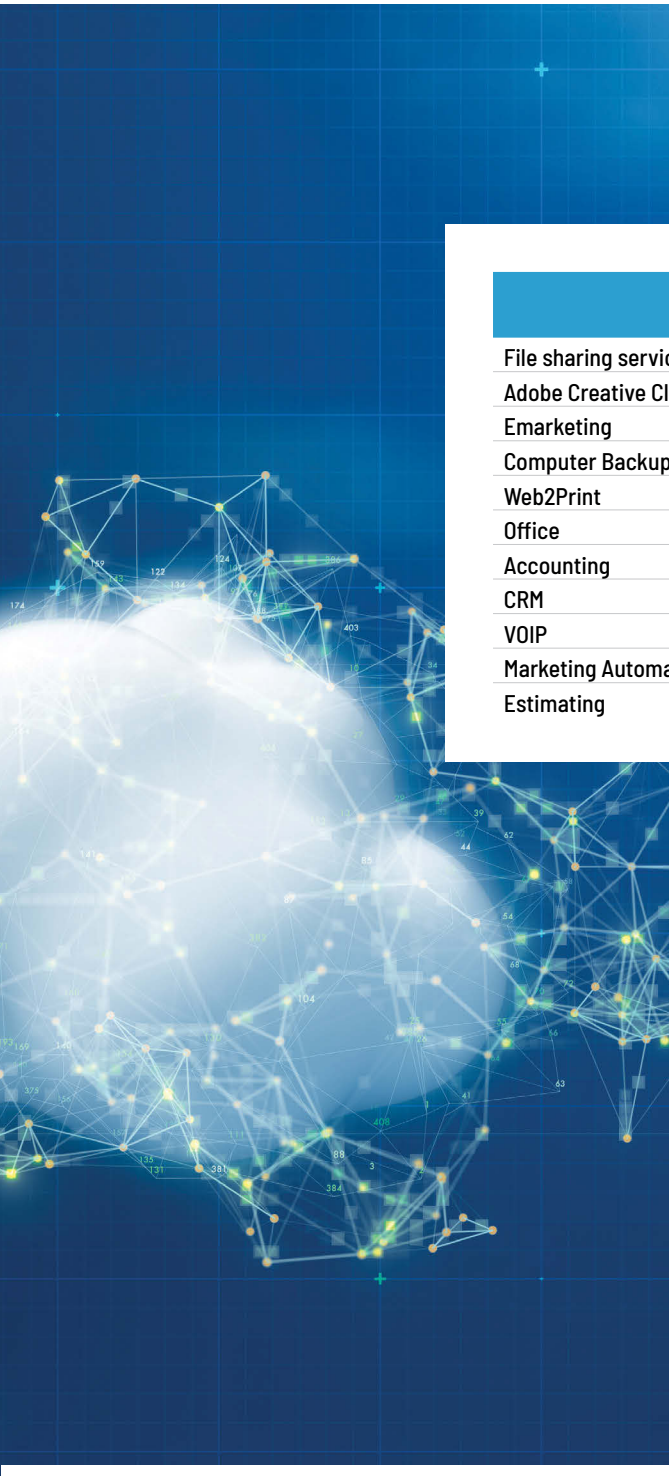


Drawing on eight years' worth of Print Business Outlook surveys, our "Tales from the Database" series looks at historical data to see if we can glean any particular hardware, software, or business trends. This issue, we turn our attention to software—specifically, migration to the cloud.

These surveys form the basis of our annual Printing Outlook reports, the most recent of which (2024) was just published in January. In every survey, we ask a broad cross-section of print businesses about business conditions, business challenges, new business opportunities, and planned investments. In our Printing Outlook reports, we tend to focus (obviously) on the most recent survey data, occasionally looking back a survey or two to see how these items have changed in the short-term. Plumbing the depths of our survey database can give us a better sense of how these trends have changed since the mid-2010s.

I've looked at clouds from both sides now
From up and down and still somehow
It's cloud illusions I recall
I really don't know clouds at all

—JONI MITCHELL



It was about 10 years ago that we all first started hearing about "the cloud," but even then it was not totally new concept. In the 1990s, various companies attempted to launch graphic design suites that were "cloud-based," but failed to gain traction. It was an idea ahead of its time, and it wasn't really until Adobe launched its subscription- and SaaS-based Creative Cloud in July 2013 that the graphic arts markets were ready for it—not necessarily eager, but at least ready. Back in Fall 2015, we had asked about current and anticipated use of cloud computing for various plant functions, and Table 1 is of historical interest in that so many functions fell reasonably high on the "won't ever use" list. Never say never.

	Use now in our shop	Will start using in 2015 or 2016	Consider use after 2016	Won't Ever use
File sharing services	83%	6%	2%	4%
Adobe Creative Cloud	63%	5%	9%	11%
Emarketing	44%	5%	19%	17%
Computer Backup	41%	3%	5%	25%
Web2Print	36%	4%	14%	17%
Office	36%	9%	11%	16%
Accounting	26%	3%	16%	38%
CRM	20%	5%	22%	27%
VOIP	16%	12%	11%	38%
Marketing Automation	12%	3%	18%	29%
Estimating	4%	1%	15%	56%

Table 1: "Use of Cloud Services." Source: WhatTheyThink Printing Outlook Surveys, Fall 2015.

Our conclusion at the time was:

It's really about not seeing the value proposition of cloud services, combined with a reluctance—certainly when it comes to sensitive things like accounting—to not have files and other resources stored locally. A lot of it is just force of habit and one of those "if it ain't broke don't fix it" situations. And, of course, it's a question of education.

Attitudes have changed a bit in the past nine years—but it was also a case of being forced into cloud migration simply because of declining support for on-premises solutions.

CLOUD CHALLENGES

Let's turn now to some decidedly more recent data. Are print businesses challenged by cloud migration? As Figure 1 shows, not too much. "Migrating production to the cloud" has been at 1–2% of respondents throughout the 2016–2022 period, and in the (very preliminary) results of the latest survey—still in the field as of this writing—it has dropped to 0%. "Migrating customer service and sales to the cloud" has been a little noisy, being a challenge for 5% in 2018, peaking at 6% in 2020 (likely the result of the abrupt need to support "work from home" during the pandemic), and then dropping in the three years since. "Migrating business functions" has stayed in the 2–4% range fairly consistently.

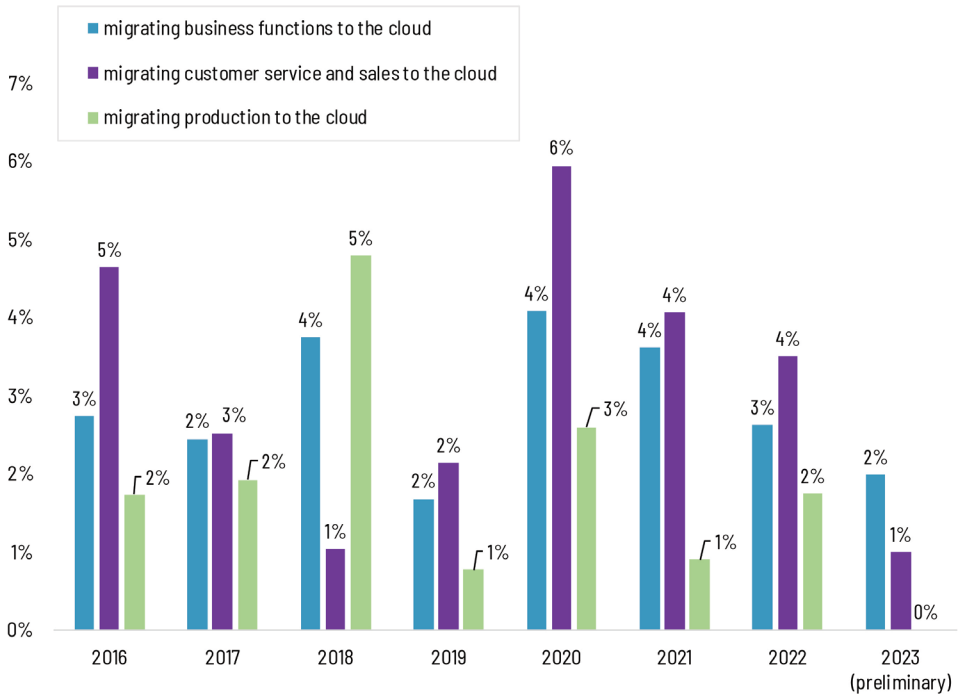


Figure 1: "Migrating to the cloud" as a business challenge. Source: WhatTheyThink Printing Outlook Surveys, 2016–2023.

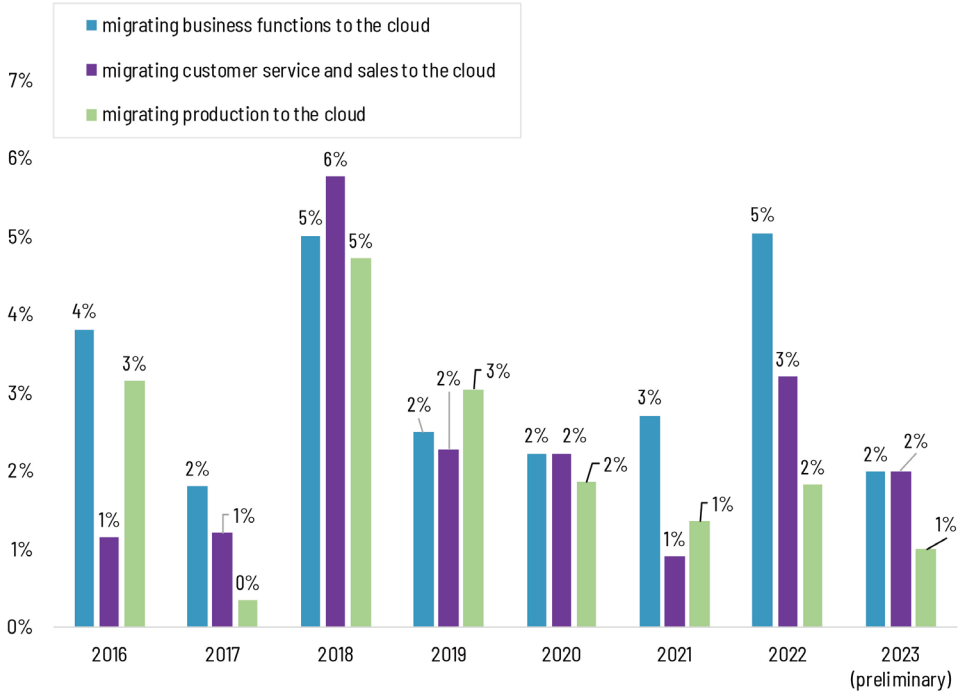


Figure 2: "Migrating to the cloud" as a business opportunity. Source: WhatTheyThink Printing Outlook Surveys, 2016–2023.

BUSINESS OPPORTUNITIES

What about the perception of cloud migration as a business opportunity? As Figure 2 shows, print businesses are not too hot on it. "Migrating production" never exceeded 3%, "migrating business functions" never exceeded 5%, and "migrating customer sales and service" was in the 1–3% range, except for a spike in 2018. That the latter didn't spike in 2020 along with the corresponding challenge suggests that, when it comes to cloud migration, it's just one of those things that "you gotta do" because there is little alternative. There is no real perception of—as we said in 2015—any overwhelming value proposition, it's just "the way things are." For example, it's likely that no one is particularly excited by Adobe Creative Cloud vs. the original Creative Suite; there just is no really viable on-premises alternative.

PLANNED INVESTMENTS

As per Figure 3, 2019 was the year when investment in MIS software spiked (in Fall 2018, 20% said they planned to invest in an MIS in the next 12 months) and it looks as if 2024 is going to be the year for investment in automation software, if our preliminary data holds up after all precincts have reported in.

For the printing industry, software has never been as sexy as equipment; you rarely see press releases in which shop owners pose proudly in front of a software interface the way they stand in front of a newly installed press. But more shops are starting to twig to the fact that software is becoming an essential backbone for the business, especially where automation and streamlining of functions are concerned. The cloud is a kind of "meh" issue, insofar as it is becoming the dominant way that software is acquired these days, although not everyone is a fan of the SaaS model. Twenty-five years ago, they probably would have been as excited over 3.5-inch diskettes.

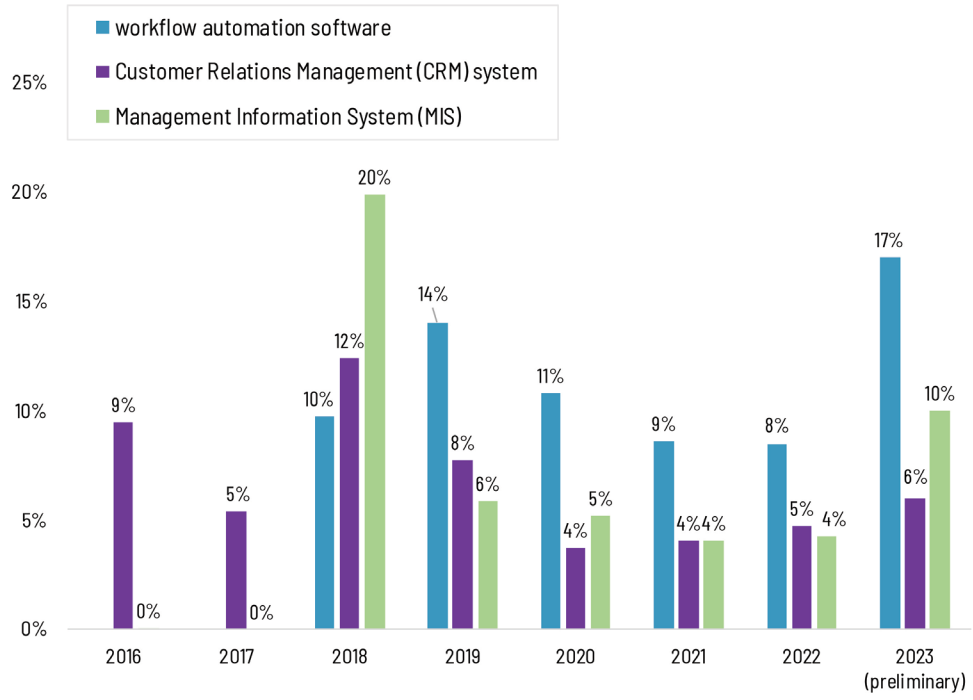
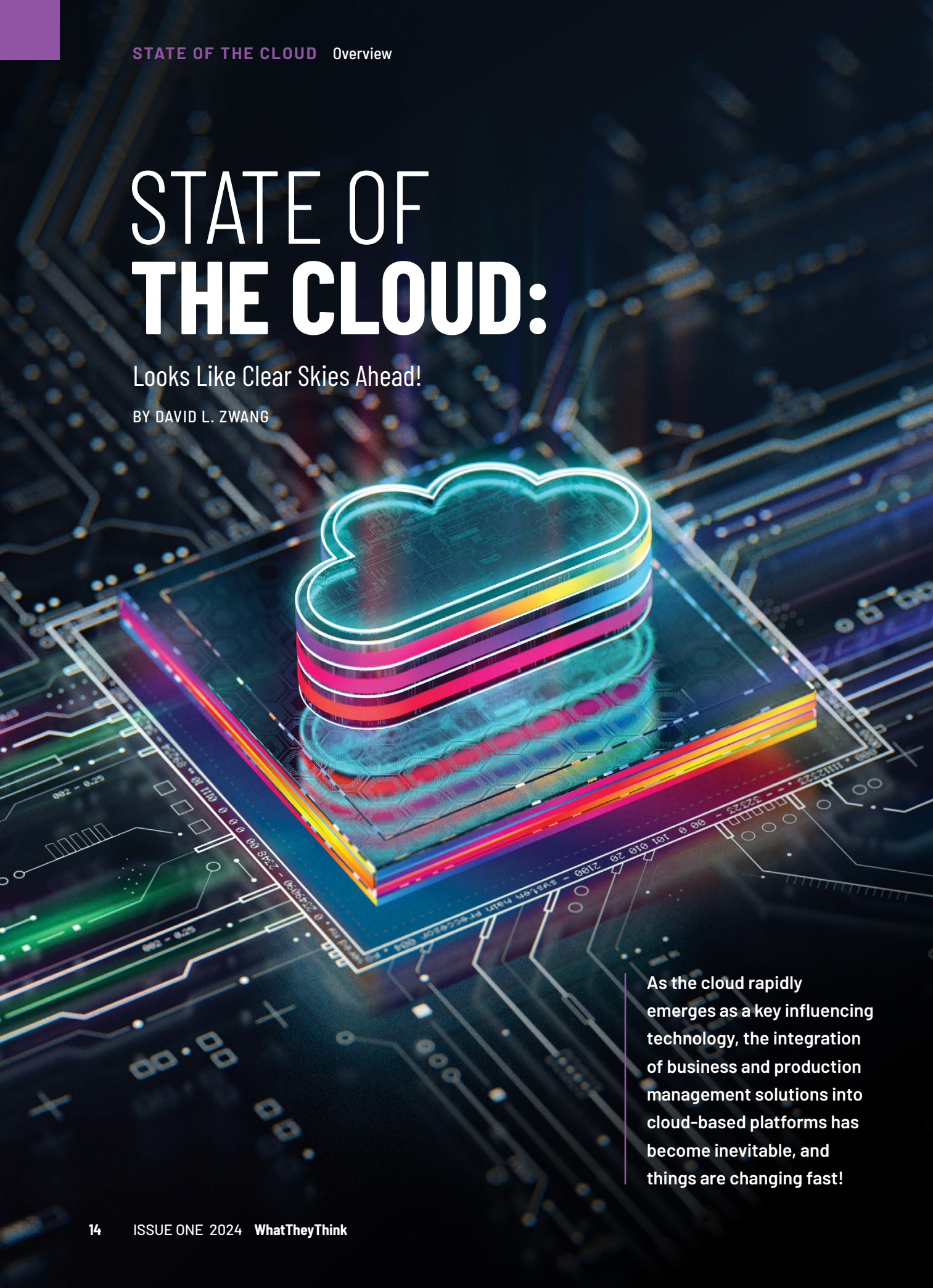


Figure 3: Selected software investments. Source: WhatTheyThink Printing Outlook Surveys, 2016–2023.

STATE OF THE CLOUD:

Looks Like Clear Skies Ahead!

BY DAVID L. ZWANG



As the cloud rapidly emerges as a key influencing technology, the integration of business and production management solutions into cloud-based platforms has become inevitable, and things are changing fast!

BACKGROUND

As the cloud rapidly emerges as a key influencing technology, the integration of business and production management solutions into cloud-based platforms has become inevitable, and things are changing fast! According to Grandview Research, "the global cloud computing market size was valued at US $483.98 billion in 2022 and is expected to grow at a compound annual growth rate (CAGR) of 14.1% from 2023 to 2030."

There can be significant cost advantages in using cloud-based solutions. There is usually no up-front capital or long-term software or hardware maintenance expense for the user, although some of the solutions do have a one-time setup fee. Otherwise, each of them works on a pay-as-you-go model or subscription model.

Many of these are standalone services that exist with integration provisions. A good example is the Microsoft Azure platform, which supports developed applications but also provides tools for creating tailored applications. The platform provides uniform data exchange, so the vertical and horizontal integrations are ready and flexible.

THE STATE OF INDUSTRY TRANSFORMATION

Today, there is little data sourcing or supply chain collaboration in the industry and production is predominantly comprised of automation silos. Much of this can be attributed to the state of the individual process partners. Even taking that into account, printing firms should be preparing their businesses to support the inevitable future.

Recently many of the industry hardware manufacturers have taken significant strides by integrating essential data connectivity support into their products and transitioning to cloud-based solutions. Companies including Heidelberg, Bobst, Xeikon, HP and others are actively building this functionality into their product lines, bringing process and supply chain automation within reach for many.

CLOUD INTEGRATION AND PROCESS MODULARITY

While many of these manufacturers are envisioning systems that will support supply chain and production automation, understandably they are developing solutions that tend to be weighted toward using their own products in an end-to-end solution. While this may work for some print and packaging service providers, the shifting nature of consumer and packaging purchasing has increasingly moved service providers to provide more focused product lines, resulting in more optimized custom production systems.

THE HEART OF AI IS MACHINE LEARNING

Business and production data has significant value and will become even more important in the future. In addition to automating processes, you can also use the data captured both downstream and upstream for longer-term machine learning. Data is really the life blood of machine learning, and machine learning is what will ultimately pave the way to full artificial intelligence (AI) supply chain automation and Industry 4.0 and 5.0 (i4.0 and i5.0.)

Most of the AI that we see today in print and packaging systems are based around machine learning (ML), which is really a subset of AI. In ML, the machine or software can have the ability to modify its behavior dynamically when exposed to more data. The "learning" part of machine learning describes the ML algorithms which attempt to optimize behavior along a certain dimension. There are quite a few machine learning platforms, and more in development. Today, in the graphic communication and packaging industry there are three major players:

AWS SageMaker is Amazon's fully managed machine learning (ML) service. It enables you to quickly build and train ML models and deploy them directly into a production environment.

Azure Machine Learning is a cloud-based service that helps accelerate and manage the entire ML project lifecycle. It includes tools that help automate and accelerate ML workflows, integrate models into services and applications, and tools backed by durable Azure Resource Manager APIs.

AutoML is Google Cloud's machine learning service. It does not require extensive knowledge of machine learning and can help users build on Google's ML capabilities to create custom ML models tailored to specific needs, allowing users to integrate models into applications and websites.

MACHINE LEARNING IN THE CLOUD

Many large organizations are capable of building machine learning models on these platforms in-house, using open-source frameworks. However, even if in-house teams are capable of building the algorithms, they will often find it difficult to deploy and scale them to real-life production workloads. Many of these problems can be addressed by public clouds and artificial intelligence services. These help organizations leverage machine learning capabilities to solve business problems without having to undertake the technical burden. Artificial Intelligence as a Service (AIaaS) is a delivery model that enables vendors to provide artificial intelligence (AI) that reduces their customer's risk and initial investment. It helps customers experiment with various cloud AI offerings and test different machine learning (ML) algorithms, using the services that suit their scenario best.

The key benefits of cloud computing for machine learning workloads include:

- On-demand pricing models that make it possible to embark on ML initiatives without a large capital investment.
- The speed and performance of GPUs and FPGAs without requiring an investment in hardware.
- The ability to easily experiment with machine learning capabilities and scale as projects move into production and demand for those capabilities grows.
- Access to ML capabilities without advanced skills in artificial intelligence or data science.

Many of today's cloud based "workflow" solutions are still focused on driving print to the specific brand of hardware of the solution developer, although there is a move to open them up to support more agnostic and modular production processes. The following is a brief list of some of these solutions. You'll find more detailed descriptions of these solution on the digital version of this story on whattheythink.com.

HP PrintOS currently it has over 26,000 companies and 46,000 devices connected to its cloud-based platform. One of the applications on the platform is Print Beat, which is designed to provide a full overview of a press's performance to established KPIs.

Kodak PRINERGY On Demand is a subscription-based cloud implementation of the company's production workflow software platform. PrintVis is an MIS/ERP solution built on MS Dynamics, VPress, the web to print solution and real-time collaboration using InSite and Microsoft Teams.

Heidelberg Prinect includes PAT (Performance Advisor Technology) a service that resides in the Heidelberg Cloud (AWS) which monitors various machine and process activities and measurements against established KPIs. With machine data collected from over 13,000 devices, Heidelberg has a solid base of information on which to build a strong AI service.

Ricoh TotalFlow is a rules-based automation pipeline solution enables the software to be configured to the needs of many different applications and working environments. Ricoh recently introduced an agnostic cloud-based solution update built on AWS and Microsoft that brings together everything from onboarding through production.

Canon PRISMA Home, built on Microsoft Azure, provides customers one central access to the supported PRISMA cloud workflow applications and tools. These tools currently fall into a few categories; Color Management, Device Management, and Data Analytics, ultimately providing the data needed to maximize the performance of print devices, including monitoring, analysis and cost allocation.

It's not only about commercial print. Packaging and converting equipment manufacturer, Bobst introduced **Bobst Connect**, an infrastructure platform for packaging converters and their value chain. It is designed to provide i4.0 inter-operability with a converter's customers' manufacturing execution systems, cloud-based platforms from other partners and plant level platforms through the use of APIs.

THE "SMART" FACTORY

Connecting and automating devices in production is really not new, but using ML and AI to interpret the data and convert it into actionable information to make better decisions is, and we are now seeing more solutions that are including that enhanced functionality.

Hybrid Software is building an operating system for print and packaging production with their CLOUDFLOW modular production workflow suite. MyCLOUDFLOW is Hybrid's cloud-based application that incorporates all the modules from CLOUDFLOW without the hassle of initial setup and IT operation.

The addition of their SmartDFE can support a Smart Factory, leveraging an extensive network of interoperable and interconnected systems. Artemis, its data collection hub which uses AI to power each of the components of the SmartDFE, collecting data and passing it through an advanced artificial intelligence system to acquire and process knowledge which will eventually make the system more effective.

The **Zaikio** platform is designed for plugin collaboration, and it is ramping up and currently supports some procurement, scheduling and MIS functionality.

Enfocus the developers of Switch, the agnostic pipeline automation platform and Pitstop the PDF editing software, is moving its products to the cloud using AWS infrastructure, ultimately provide an easier path for new developments and upgrades.

Esko Automation Engine Saas is the result of the company moving its core pipeline automation software to the cloud. This provides a way to move prepress technology and everything related to it off premises, avoiding a range of technical hurdles.

Many MIS/ERP and estimating solutions are now moving into the cloud as well. One of the earlier ones to move there was **ePS Pace** (formerly EFI). Others now include; **PrintVis**, **Tharstern**, **Prinect Business**, **PressWise**, **PrintMIS** and many more. This doesn't even begin to address all of the Web and Pack to Print onboarding solutions which include varying degrees of MIS capabilities.

IN CLOSING

Cloud-based production in print and packaging production is ramping up quickly to address the needs of growing i4.0 supply and value chain demands. Many of the existing on-premise solutions are porting their code to the cloud and you can expect many new entrants as cloud and ML support becomes more ubiquitous.

STATE OF THE CLOUD:

ZERO TRUST WORKFLOWS IN 2024

BY PAT MCGREW

We live in a brave new digital world. One that is rife with cybersecurity incidents, from data breaches to malware and ransomware that interrupt business operations. The 2023 Allianz Risk Barometer survey of over 2,700 risk management experts across 94 countries ranked cyber incidents as the top risk to business for the second year in a row.

Cyber incidents are insidious. They typically disrupt business over a period of time, negatively impact employees, customers and partners, and are costly. According to the Allianz report, the average cyber incident reached an all-time high cost of $4.35 million in 2022. Be vigilant because the printing industry is not immune to cyber threats.

THE CLOUD, ZERO TRUST AND YOU

The result is a growing conversation in print shops required to follow regulatory requirements to protect data, and even those that don't handle personal financial and health information is how to build a workflow, especially a cloud-connected workflow, that ensures data protection. The expanding regulatory environment makes data security a serious consideration for anyone handling variable data communication in any output channel.

Whether you run on-premise systems, cloud-based systems or a hybrid environment, one weapon is the adoption of a Zero Trust workflow. It replaces the trust but verify approach taken in many print shops, responding to the issues that arise from phishing emails, hackers, and other security intrusions that could expose client data.

> Zero trust is a security model that assumes that no user or device should be trusted by default, regardless of their location or identity.

Cloud computing enables Zero Trust workflows in the print industry by providing a more secure and controlled environment for managing and accessing print resources. Zero Trust is a security model that assumes no user or device should be trusted by default, regardless of location or identity. Not even the company president or IT manager is exempt from ongoing verification. This approach requires continuous verification of resource access, which can be enforced effectively in cloud-based solutions using these Zero Trust principles.

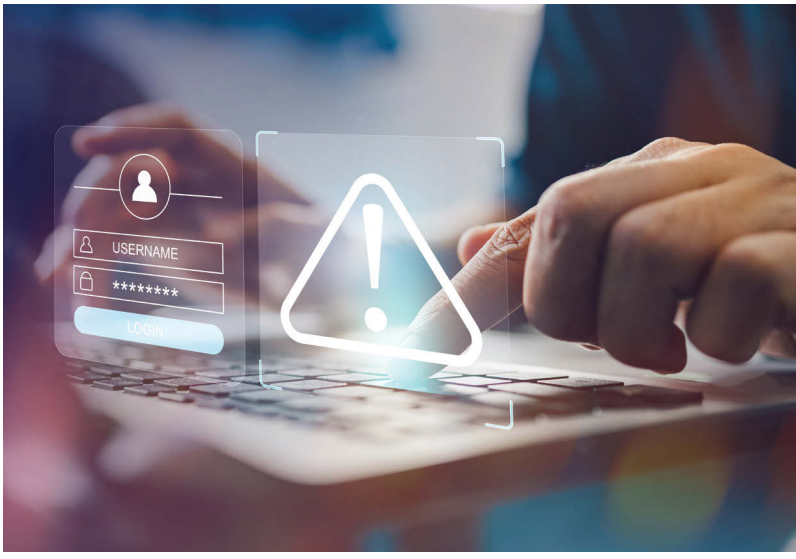
For print shops moving toward Zero Trust, there are enabling technologies and solutions to review:

1. **Secure User Identity and Access Management (IAM):** Cloud-based IAM solutions allow print businesses to centrally manage user identities and access permissions, ensuring that only authorized users can access print resources.
2. **Multi-Factor Authentication (MFA):** Cloud-based MFA solutions add an extra layer of security by requiring users to provide multiple pieces of evidence to verify their identity, such as a password, a code sent to their phone and a fingerprint scan.
3. **Network Segmentation:** Cloud-based network segmentation tools can logically divide networks into smaller, more manageable segments, limiting access to print resources only to authorized users and devices.
4. **Data Encryption and Access Controls:** Cloud-based data encryption and access controls protect sensitive print data from unauthorized access, both at rest and in transit.
5. **Continuous Monitoring and Threat Detection:** Cloud-based security solutions continuously monitor print environments and can detect and alert administrators to suspicious activity or potential breaches.

Bringing these technologies to the shop requires planning and a keen understanding of how work moves through your shop today. It also requires clear documentation of who is on your network, what access they have been granted and the audit capabilities of your current solutions. Using cloud-based zero trust principles, the emerging requirement for print businesses is to enhance the security of the print infrastructure, protect sensitive data and comply with industry regulations.

How are print jobs touched as they are onboarded, managed, printed, and delivered. Can your workflow ensure the security of every data element as work moves through processes?

1. **Securely Accessing and Managing Print Queues:** Cloud-based print management systems can enforce zero trust principles by requiring users to authenticate before accessing print queues and granting access permissions based on user roles and policies.
2. **Protecting Print Data in Transit:** Cloud-based print solutions can encrypt print data as it travels between devices, ensuring it remains secure even on public networks.
3. **Enforcing Device Authentication and Authorization:** Cloud-based solutions can require print devices to authenticate themselves before accessing print resources, preventing unauthorized devices from accessing sensitive data.
4. **Monitoring and Auditing Print Activity:** Cloud-based solutions can provide real-time monitoring of print activity and generate audit logs to track user actions and identify potential security breaches.
5. **Enforcing Least Privilege Access:** Cloud-based solutions can enforce the principle of least privilege, granting users only the level of access necessary to perform their tasks.



By adopting cloud-based zero trust principles, print businesses can create a more secure print environment, reduce the risk of data breaches and ensure the trust of customers and partners. 2024 is the time to be proactive in your security initiatives by implementing zero-trust architecture and procedures across your entire IT infrastructure. Without it, every passing day brings the risk of a cyber incident leading to business disruption.

STATE OF THE CLOUD:

TRAINING OPTIONS IN 2024

BY PAT MCGREW, MCGREWGROUP, INC. AND RYAN MCABEE, PIXEL DOT CONSULTING

In our industry, *the Cloud* is omnipresent. It is that big, fluffy ghost that lives in our networks, enables almost instant communication with colleagues, clients and applications, and allows companies to leverage the best solutions using new and creative pricing models. Because *the Cloud* is everywhere, the print industry is undergoing a significant transformation.

The opportunities of cloud computing, cloud services, and cloud-enabled training bring more power to print manufacturing than we could have imagined a decade ago. *The Cloud* offers seemingly endless storage and computing to power solutions that are changing how and where we work, shaping business strategy and providing infrastructure to new products and services. The printing industry already uses the cloud to host software solutions, store vast amounts of files for archiving and retrieval, integrate data and solutions to better serve customers, and intelligently predict equipment failures and preventative maintenance. Cloud-based solutions offer a multitude of benefits for print businesses, including increased scalability, cost-effectiveness and flexibility. However, to fully leverage these benefits, print businesses need to have a workforce that is better educated in the basics of print manufacturing as they become skilled in cloud-based technologies.

THE IMPACT OF CLOUD COMPUTING ON THE PRINT INDUSTRY

In print shops of every size, both in-plant and Print for Pay environments, cloud computing is having a profound impact. Franchise networks leverage cloud-based platforms to enable their members to share order fulfillment opportunities while large print manufacturing operations use similar cloud architectures to streamline multi-site operations. From single location shops to global print enterprises, cloud-based platforms form the backbone of how print is ordered, executed, and fulfilled. Leveraging the scalability that cloud-enabled architectures bring to print, businesses streamline operations, improve efficiency, and expand their reach. If you doubt the impact, consider how cloud computing enables print processes:

- **Streamlined Print Production:** Cloud-based print management systems (PMS) enable print businesses to automate and streamline their print production workflows, reducing errors and improving overall efficiency.
- **Enhanced Customer Experience:** Cloud-based solutions like online ordering portals and web-to-print tools provide customers with a more convenient and personalized ordering experience.
- **Expanded Market and Labor Reach:** Cloud-based technologies enable print businesses to reach a wider audience for employees and customers by expanding their market reach beyond their traditional geographic boundaries.
- **Reduced IT Costs:** Cloud-based solutions eliminate the need for print businesses to invest in and maintain their own IT infrastructure, reducing upfront costs and ongoing maintenance expenses.
- **Enhanced Scalability:** Cloud-based solutions can scale up or down quickly and easily to meet fluctuating demand, enabling print businesses to adapt to changing market conditions.
- **Enabling for AI:** Cloud computing and storage unlock the power and scale to process more data and is a basis for artificial intelligence applications in our industry and beyond.

This isn't every impact, but the trends are clear. As more software vendors moved workflow and other infrastructure tools to cloud platforms, often with scalable subscription models to ameliorate cost sensitivity, print manufacturers began adopting the new model.

Whether they adopt a hybrid approach where some solutions use cloud services and others remain on premise, or the move is to full-scale cloud-platform adoptions, there are benefits. By deprecating the costs associated with on premise server rooms, storage costs, network and software maintenance and the staff to keep it all humming, cloud-based platforms free resources and enable growth of workflow platforms without deep capital investments.

THE DEMAND FOR CLOUD SKILLS IN THE PRINT INDUSTRY

A study by Quocirca indicates that more than two-thirds of print companies expect to be using cloud-enables print management solutions in the next two years. It can sound like a great solution, but as cloud computing is increasingly integrated into the print industry, who is going to operate those systems? There is a growing demand for skilled cloud professionals, but not just any cloud professional. To be effective, these professionals who are responsible for designing, implementing, and managing cloud-based solutions, must understand the print business to fully leverage the benefits.

For organizations that have already dipped into the cloud options or those that are in the early planning stages, there are a variety of training options to consider.

- **Online Courses:** There are dozens of online cloud computing courses specifically tailored for manufacturing industries that apply to print. Some specifically cover topics from cloud-based print management systems to cloud-based marketing tools. Vendors often have a list of courses they recommend, and some offer their own learning platforms to help their customers develop the required skills.
- **Industry-Specific Certifications:** Most cloud platform and solutions vendors offer certifications that provide a curriculum that validates skills and knowledge in specific cloud-based print solutions. These certifications can be valuable assets in the job market.
- **Professional Development Programs:** Print industry organizations and educational institutions offer professional development programs in cloud computing for the print industry. These programs provide an understanding of cloud technologies and their application in print production and business operations.

With so many options it may be hard to know where to start. Start by organizing your plans along two vectors: Print Industry Education and Cloud Platform Education.

CHOOSING THE BEST OPTIONS FOR YOUR NEEDS

Your team members, whether they are experienced staff or newly-acquired talent, may have various levels of experience, but everyone can use access to educational opportunities. The gift of education to your team is one that keeps on giving. While the temptation is to only offer specific opportunities based on staff roles, a best practice is to open all education options to everyone on the team. The more cross-training they do, the easier it is for them to grow into new roles and build career directions over time.

Start with Print Industry Education options. The good news is that education is available! There is still quality print education available in some state colleges and universities, and there is a growing set of courses available through print industry associations. Check with the associations, user groups, and peer networks you work with to see what they offer and how they deliver on their education initiatives. Some offer access to stand-up education during the year, and a growing number offer access to online video libraries.

Another facet of industry education is the specific tool training available from your vendors. While many focus on their tools and how they work, a growing number offer access to more basic industry concept education for the segments they serve. You may operate in wide format, direct mail, commercial, apparel or transactional print, but consider offering options to access education on every segment. As your business grows that education will pay off.

The best cloud-platform training options will depend on the current staff experience level, learning styles and career goals, but in most cases, there will be a need for access to everything from beginning concepts to more advanced modules on the specific tools in use. As mentioned above, there are many online options that allow team members

to become comfortable with the jargon and platform basics that will be conducive to learning the specific tools implemented in your shop. Online courses are available from Google, Amazon Web Services (AWS), Microsoft and other platform providers as a good starting point for anyone who needs the base concepts. You can also find free courses from independent education providers like Coursera and Udemy, or paid courses from companies like CloudSkill.IO or Cloud Guru.

For team members with more experience, sponsoring access to professional development programs or certifications may be a great fit. There are many options through the cloud platform providers. Check with your solution vendors for their recommendations. They may suggest specific courses like these:

- **Cloud-Based Print Management Systems (PMS) Training:** A cloud-based PMS enables you to effectively manage print production workflows, automate tasks and reduce production costs.
- **Cloud-Based Marketing Automation Training:** These tools allow you to streamline marketing campaigns, personalize customer interactions and generate leads effectively.
- **Cloud-Based Design and Collaboration Tools Training:** Use these tools to facilitate seamless teamwork between designers, clients and print production teams, improving efficiency and productivity.
- **Cloud-Based E-commerce and Web-to-Print Training:** Build skills to create a seamless online ordering experience for customers, increasing convenience and sales opportunities.
- **Cloud-Based Data Analytics and Reporting Training:** Learn more about how to gather and analyze data to bring more efficiency to every process.

As you are looking at options, consider the reputation and quality of the training provider. Research the provider's track record, read reviews from other learners, and ensure that the training aligns with your specific needs and objectives.

The cloud is poised to play an even greater role in the future of the print industry. As cloud technologies continue to evolve and new cloud-based print solutions emerge, the demand for skilled cloud professionals who also understand the intricacies of print manufacturing will only increase. Access to a variety of educational opportunities builds the infrastructure for fostering the talent inside your organization. It also becomes a tangible benefit as you recruit new staff. Training options can become your superpower.

SOFTWARE-DRIVEN WORKFLOWS FOR OFFSET PRODUCTION:

WHERE FROM, AND WHERE TO

BY PATRICK HENRY

Many networked, automated production capabilities are now built into the operating systems of the latest digitally controlled offset presses, but there has been no universal movement toward adoption, and printers still need guidance about what workflow is, how to implement it, and how to make the best use of it. Building a software-based workflow for offset production starts with understanding how the idea of workflow originated and what functions and features it now consists of.

The CIP3 organization was formed in the late 1990s by a consortium of industry suppliers, and workflow roots are in CIP3's print production format (PPF), a software-based specification for presetting press and postpress equipment from prepress data.

SIMPLE AND SATISFACTORY

PPF's initial application was for presetting offset ink fountain keys. Hal Stratton, Director Aftersales Service & Support, Manroland Inc., notes that a digital CIP3 job ticket now also tells the press job

ID number and customer name; how much to print; what substrates and ink sequences the job will use; how much ink coverage will be needed; and what the machine settings for the feeder, delivery, coating unit and air systems should be.

"Those are the key pieces of a front end workflow," he says. "It's a very simple job ticket that can give us a basic job, which is what the majority of customers are wanting to do."

A more comprehensive approach can be taken with the JDF (job definition format) standard for process automation, introduced by the CIP3 (now CIP4) consortium in 2000.

A JDF workflow integrates press presetting with data gathering and reporting while the print run is in progress. Harvested by the plant's MIS, the production data can be used for tracking job status, analyzing cost, and recording other job parameters in real time.

"The automatic production data collection and then that ability to analyze it is the key part of seeing how productive a company is," Stratton observes.

In the early days of workflow, says Chris Travis, Vice President Print Technology, Koenig & Bauer, "you wanted CIP3 information from prepress to the press so you wouldn't have to set up your ink keys. Now, because we're a data-driven driven industry, the whole data flow continues to change at a dramatic pace."

"Now, not only are you getting the CIP3 information in simplest form, but you are getting job information that was first inputted with an MIS system when the order was taken from a customer," he continues. "We can take the name of the customer, how many sheets it is, the sheet size, the color rotation, and we can take that data and put it in our system, which then puts it into the press."

MORE DATA, LESS EFFORT

Flowing data to and from the press in this way means "less work for the operator" and a more precision form of print manufacturing, according to Travis.

"With workflow, we want to be able to supply the press with a PDF so the job when it's being printed can be compared to the PDF," he explains. "It's going to predetermine protocols for color, and it's taken out any human interaction or subjectivity.

"Workflow after that is reports: a PDF comparison report; a run inspection report; a color report that will include all of the metrics for color density, L*a*b, dot gain, and so on. That's the data you would get back from the machine."

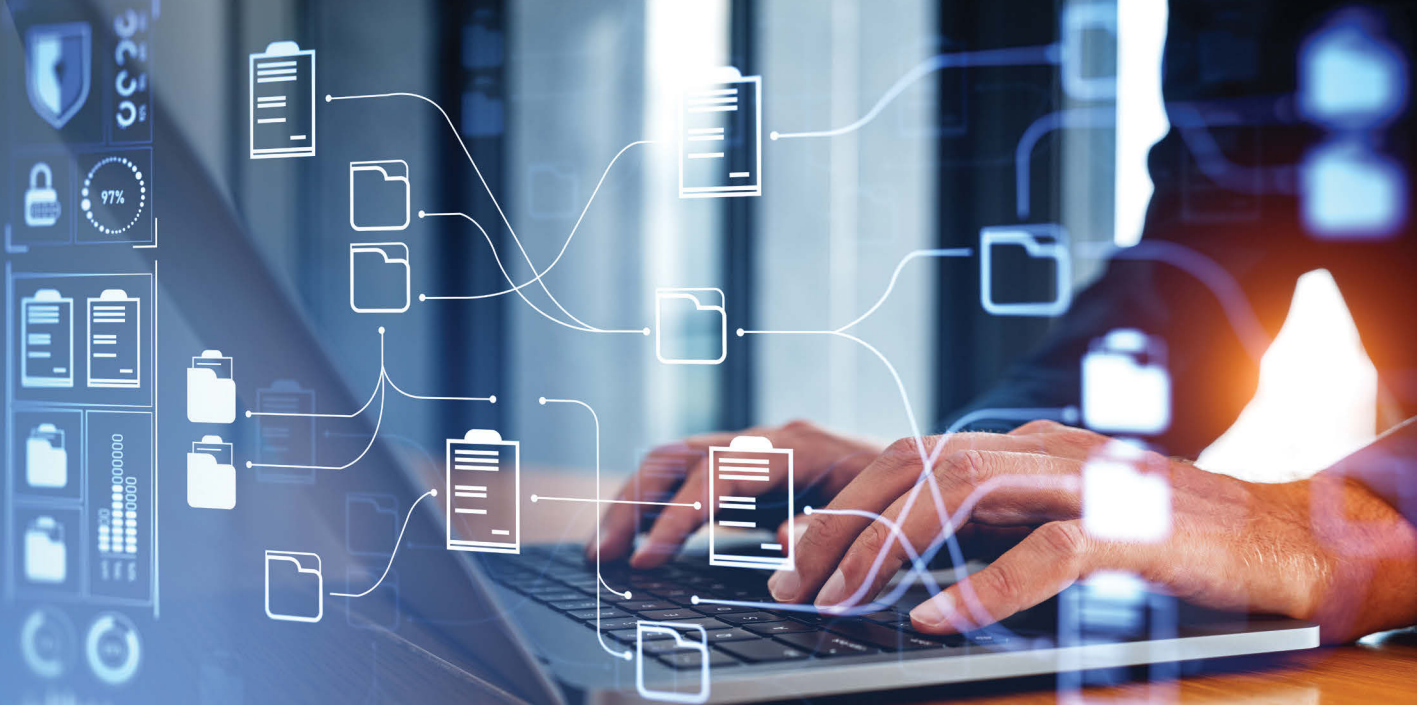
Chris Manley is President of Graphco, a distributor of commercial and packaging offset presses from RMGT. He concurs that while workflow's foundation in CIP3 "has not changed dramatically in almost 25 years," the process today is a far cry from its original self in terms of what it enables the press to do.

The RMGT workflow solution, says Manley, "has interpretation algorithms that take not only the CIP3 file itself, but also the new file coming into the press and comparing it to the existing file that's being run right now, and then continuing to refine how the press reacts to that new file."

Algorithms built into the console's software "compare where the press is now and where the press's color profile needs to go to achieve a preset density, and to do that as quickly as possible with the obvious benefit of reducing makeready waste," Manley says.

Matthew Buisson, Digital Software Engineer, Komori America Corp., divides offset workflow into what he calls "two high level functions": information management and execution management.

"On the information management side, it's supporting communication, reporting operational job tracking as work progresses through your operation," he explains. "On the execution management side, it's using that information for automatic control of devices: collection and entry on the information management side, but then turning it into action with the execution management."



Buisson notes that accomplishing the various steps of workflow—file prep, plate generation, material delivery, and so on—depends upon "getting job information to the press and postpress devices so it can be completed and shipped to the customer. How those steps are handled and integrated with a company's processes can really have a big impact on time and cost involved with print production."

DON'T PRIVILEGE ONE PROCESS

One mistake to avoid when thinking about workflow is regarding it "as something that applies to only one process", says John O'Donnell, Vice President of Prinect Product Management, Heidelberg. (Prinect is the press manufacturer's suite of software applications for production workflow.)

In hybrid commercial printing environments, "having a workflow to process customer files shouldn't be specific to offset printing," O'Donnell says. "Our goal at Heidelberg is to have one workflow, no matter how you need to print."

In a unified workflow, "you want to be able to take a customer-prepared file and be able to either process that file, or send it back to the customer for corrections or take on those corrections yourself," O'Donnell states. "Then take it right into layouts and put it on a sheet properly. Having all of that built into the workflow where it happens as automated as possible Is extremely important."

When the job is running, the objective then becomes sending "as much data as you can get into your system of record. As you're able to add more data to your jobs, and as long as your workflow has the functionality to push that data to into production printing, it just makes things significantly easier in the production process."

Workflow generates data, and data underpins a plant's ability to measure the benefits that an efficient workflow provides. According to Manley, the metrics of that efficiency are straightforward.

"The real key is the number of minutes and seconds for a press to go from job A to job B; the amount of waste paper that's generated in that process; and the consistency of the finished product produced during that run," he says. "Most of my customers

would agree that within 100 to 125 sheets, they would be to their tolerances. And that depending on plate changing, their makeready may be eight to 10 minutes to go from job A to job B."

O'Donnell thinks the main question to ask is "how much can the workflow do for me where I don't have to touch it."

"The more data that you can push into your printing systems, you will have lower makeready times," he says. "You're going to come to color quicker because the color reference values of the paper the color profile of the job all gets sent into the offset press. Those are less steps that the operator has to take to set the job up."

"THEY'RE NOT RESPONSIBLE"

Reducing the burden on operators could be the single most important thing printers expect workflow to accomplish, according to Travis. He says this happens when workflow-enabled automation frees crews from routine setup tasks so that they can completely focus on the performance of the press.

"They just want them to be responsible for getting that job through the machine," he says.

OEE—overall equipment effectiveness—is the standard way to benchmark the good outcomes of establishing a production workflow, says Stratton. Expressed as a percentage, OEE has three elements: productivity (rated press speed vs. actual operating speed); quality (good sheet count vs. waste sheet count); and availability (press time spent printing vs. non-productive downtime).

"When I break it down into those three levels, I see all aspects of productivity," Stratton says.

"Time, resources, cost, and quality are key metrics for measuring the benefits of a production workflow," according to Buisson. "Measuring the lifecycle of jobs across all departments and devices can really yield the best results if you're able to do that."

NO "AFTER" WITHOUT A "BEFORE"

But, he acknowledges that printers can "struggle" with this if they don't have a basis on which to make a comparison.

"To measure anything, you need a before and after," he explains. "With a lot of customers, when they're going to implement products like these, they need some type of data collection or measurement process in place before they can tell if it's getting better." If a body of pre-workflow performance data doesn't exist, "they may not have a good idea of what's going on, and that makes it really hard."

This points to the urgency of implementing a production workflow in the right way: with a clear understanding of what must change, how it will change, and why the change will be for the better.

"Setting customer expectations is extremely important," O'Donnell observes. "Jumping into the details of the software can get pretty deep. The way we've been going is (to say the customer), show us how you do it today in your current workflow, and then we're going to show you how we can do that going forward. You can save steps, save time, process more jobs at once. We call it a reverse demo."

According to Stratton, the conversation should begin by asking, "is the job information there digitally for us? Do we have the ability to capture and report production via JMF (job messaging format, the command and control language of JDF) to the MIS or through our own internal reporting systems?"

Digital job ticket software "only does so much," Stratton says. "It gives us the information. It allows us to preset the automation on the press. But that's really not the big picture."

Travis, likewise, prioritizes having a data infrastructure in place to support a production workflow. "My first question is always, what's their internal MIS system? For us it's important to know that because our system is open architecture, and so we're able to get data from that and give data back to it."

This is the key to streamlining the workflow before the job gets to the press – to make the handoff from MIS as smooth and as rapid as possible.

"We want to be able to, for example, optimize the job order," Travis says. "If I send 10 jobs to the machine, we are able to look at those 10 jobs and put them in order based upon the configuration of the machine. And if we put the jobs in a specific order, It means we're reducing makeready times significantly."

KNOW THE "WORKFLOW" YOU ALREADY HAVE

The press OEMs support various level levels of workflow integration for their customers, ranging from simply sending ink profiles to the press to fully integrating all available devices under the umbrella of the MIS. Buisson emphasizes that however limited or extensive the implementation is, an offset production workflow represents not just the culmination of a process, but the beginning of one.

"You need a good understanding of the activities and processes in your current operation before you can integrate them into any kind of software," he advises. "Understanding touchpoints, understanding how something flows through your shop, mapping that out and documenting current manual processes is really a first step."

Buisson adds that companies should be examining themselves in this way even if they're not now pursuing a software-based workflow.

"It can help identify issues with your current manual workflows," he says. "Knowing your operation prepares you to ask the right questions when you're assessing a workflow solution and which processes can or should be integrated. If you have a lot of that up front, it's going to help you decide which vendor is going to best suit your need."

No workflow is ever a "one-and-done solution," Buisson cautions. "You can't expect that everything's going to be perfect once you implement it. You're going to constantly be changing to address changes in your own operation, (such as) new employees, different types of customers, different types of work."

Buisson believes that as skilled labor keeps getting harder to find, workflow solutions will be seen as "more of a necessity than a luxury." But, like all transformative technologies, they come with a practical caveat.

"I forewarn people that automation becomes a big responsibility. If you automate a mess, you're going to get an automated bigger mess. And so you need to make sure you've got everything in order before you try to make it run on an automated level."

Aharon Greebel, vice president, AJ Images, Roselle, NJ.

"DIVE IN AND TRY EVERYTHING": A WORKFLOW IMPLEMENTATION STORY

How does a software-driven workflow for offset printing perform in practice?

Aharon Greebel, vice president of AJ Images in Roselle, N.J., detailed the benefits. A family-run business with over 60 years of experience in commercial printing, AJ Images holds the G7 Master Facility Qualification for color management.

What does workflow for offset production at AJ Images consist of?

AJ Images uses the ECO3 Apogee workflow. The pressroom receives ink slide presets and some basic job information consisting of job number, customer information, form information, and straight or perfecting information.

How do you measure the benefits and what savings or improvements have you achieved?

We use the manroland OEE and KPI (key performance indicators) reports to keep track of the job efficiencies on press. Reducing makeready waste to an average of 250 sheets per form offers a nice savings with an average of five makereadies per shift. The OEE report lets us know where we need to make improvements or if we are having press or crew issues.

How did you begin implementing a workflow for offset production?

We decided to dive in and try everything offered. We have seen massive improvements in production efficiencies from prepress through finishing. ECO3 prepress software has improved workflow. manroland software and automation have sped up makereadies for 4/4 work down to an average of 250 sheets per form. MBO's navigator software and automation have improved finishing setup and runtimes.

What software solutions drive your offset production workflow?

With the marriage of ECO3 ColorTune and manroland Inline ColorPilot with ink presets, we have been able to reduce our makeready times by two-thirds. ECO3's PressTune has given us the ability to use spectral L*a*b values and NPDC (neutral print density curve) to maintain G7's CRPC3 and CRPC6 color space standards on every job in production. This illustrates how the products have enabled us to achieve the highest industry standards in both quality and efficiency.

EXECUTIVE Q&A:

Baldwin Technology's Patrick Keller

BY RICHARD ROMANO

We spoke with Patrick Keller, Division President, Baldwin Technology Co., about the history of the company, its broad set of solutions for a vast array of industries, including many aspects of print, and how being part of the new BW Converting Group benefits the company and its customers.

WhatTheyThink: Let's start with a little bit of your personal background. How did you come to Baldwin?

Patrick Keller: I've been with Baldwin now for about three years. I came from a completely different industry, through a company called Eaton, a global electrical manufacturing conglomerate, and was heavily involved in the oil and gas portion of the business. I'm a mechanical engineer by education, but quickly went into different aspects of the business, focusing on our international expansion. I spent a lot of time across Europe, the Middle East and Asia, and ultimately had the opportunity to come to Baldwin to work on some of the initial efforts to integrate the business in a much more global way.

WTT: Baldwin is more than 100 years old and is active in just about all aspects of print manufacturing, including packaging and labels and textiles. Talk a little bit about the company, its history, and where you stand now.

PK: Baldwin is a very well-rounded, mature business that started with our legacy surface cleaning technology. Part of what's interesting about Baldwin, and why it's tailored itself so closely to Barry-Wehmiller—which is our parent company—is that if you look at Baldwin over the past hundred years, we're more than 15 different acquisitions, and the culmination of different businesses that bring unique solutions that deliver value to various print and industrial markets. We then are able to bring all those solutions together and be one of the most robust solution providers. And when we say a "solution provider," we focus on enhancement equipment. We don't manufacture the presses themselves—our sister divisions do—but we focus our efforts on enhancing any type of industrial equipment, whether it be presses or other equipment in the industrial space, such as the textile industry. Several examples of industries we service with various solutions include flexible packaging, commercial print, corrugated, as well as textile, EV battery, wood finishing and metal. No matter the industry, we focus on enhancing our customers' processes to allow people to run more efficiently and reduce downtime. Our whole philosophy is, we change for the better. And that ties into the Barry-Wehmiller philosophy of creating a better world.

WTT: What are some of those "enhancement products" and some recent innovations?

PK: We really focus on three different value-driving categories. The first one being "speed and reduced downtime."

One product that delivers on this value is our LED-UV portfolio. The advantages of LED-UV over conventional mercury and arc lamps for ink curing are too many to name. Our LED portfolio is tailored to meet specific needs of conventional offset, flexographic and digital press manufacturers and printers.

Speaking of the flexographic market, for the corrugated industry, we have a product called the FlexoCleanerBrush that takes the manual effort of cleaning plates and cylinders out of the equation when doing job changeovers and allows press operators to clean in-line during jobs. And it's right in line with a product that does the same thing for film extrusion called FilmCylinderCleaner, that puts a roll of wet cloth onto the machine and automatically cleans the cylinder while in use. In addition to providing equipment, we provide the solvent-treated rolls for continuous use, which we call PREPAC. So our customers can rely on us to be a full solution provider with equipment, consumables, and service.

WTT: What is the second area you focus on?

PK: The second area we focus on is "efficiency." A shortage of skilled labor is becoming an increasing issue across the industry. Print compared to a lot of other industries is really seeing the signs of an aging workforce. So how do we combat that with solutions and automation? Our goal is to automate our customers' processes which provides them the most options on how to utilize their workforce. One of the product solutions we've focused on is our 100% inspection for print, spotting quality defects, verifying graphics and data (i.e barcodes) and being able to automatically ensure that the product going out the door meets expectations. Again, that reduces waste but also reduces any type of returns or reprints.

Another area that we're involved in is color—and inks in general. We have a solution called Remote Ink Control that can automate a full closed-loop cycle where we analyze the color compared to what they're trying to achieve and make automatic adjustments. For many years, a press operator would be required to manually adjust color by twisting each knob to get a color match by eyesight. Now, we have software solutions that tie back to automated control adjustments. So we're reducing waste, but allowing efficiency to be maintained in the process.

WTT: And that's the third area you're involved in—reducing waste.

PK: Correct! "Reducing waste" plays right into the buzzword of sustainability. We have register control products that verify print and color are in alignment as it goes from station to station. We also have precision spray equipment that drastically reduce the amount of required chemicals to be utilized in the production process.

WTT: Baldwin is now part of BW Converting Solutions (BWCS), which launched at PRINTING United last fall. What is BWCS, how does Baldwin fit in, and what does it mean for Baldwin customers?

PK: I should start with our parent company Barry-Wehmiller, which is run by Bob Chapman. What he focuses on is both performing with excellence and caring for people—you can't care for people if you don't perform as a business, and you can't perform as a business if you don't care for the people in it. Barry-Wehmiller is made up of four different platforms currently, one of them being BW Converting Solutions, combining well-established businesses such as Winkler+Dünnebier, Hudson Sharp, PCMC, Northern Engraving and STAX. There is a large overlap in the customer bases we serve. So in an effort to get closer to our customer base and to be able to leverage our global footprint capacity with the people that we have, that was an opportunity for the division to come together. In early 2023, the decision was made to bring Baldwin into BWCS to further strengthen the converting platform. Not only do we add value to our customers, we strengthen BWCS's presence within the markets it serves.

WTT: So other companies under the Barry-Wehmiller umbrella manufacture presses and Baldwin provides auxiliary solutions.

PK: Baldwin's goal is to provide innovative, efficient, sustainable solutions to customers throughout the world. This would include meeting BW companies' needs and their customers as well. We remain Baldwin but are working to position our brand to better service our customer base.

WTT: When you're talking about going after new customers, where are you looking? Where do you see the growth in the industry?

PK: We grew up in the offset space and that has been an area, especially through COVID, that has really struggled. But it is a very large market. People say, "Oh, print is a dying industry." It's not, by any means. Is it seeing double-digit growth? No. But the offset space is a very robust industry that is seeing flat growth, but it's where we cut our teeth. It's a huge portion of the market that we serve. Where we see a lot of the potential is what we call "growth print," such as flexographic and digital. A lot of our focus is around those industries and we're also going after adjacent markets where you see different applications and printing methods being adopted. We have some great relationships with various OEMs in the curing space. In terms of UV curing, EV batteries have a significant requirement for UV curing. Then we talk about film extrusion, so anything involving film and sustainable plastics, those are the types of things that are really seeing good signs of growth. Within that, there's a lot of change. Our philosophy is "change for a better world." Change is inevitable, but our product solutions allow our customers to change to meet their future demands.

WTT: What's your outlook for 2024? What do you think are some of the challenges and what do you think some of the opportunities for the next year are going to be?

PK: It's a mixed bag. There's a lot of uncertainty in the market. I'd say there's also a lot of optimism—I think the market is more stable than people expect. But inevitably—and you see it in different regions, such as in Europe—there's a lot of angst around situations which influence Europe, both in terms of technology and money that's fed into the economy. We see a lot of customers are holding back on large capital expenditures, which is not necessarily a bad thing for us as they may be holding back on larger investments, but they're moving forward with a lot of their maintenance, repair and operational budgets. It's all about increasing the efficiency of their existing machines, and since we sell auxiliary equipment, we see that demand. Like a tale of two cities—we're seeing some large opportunities where we're talking about upgrading every machine in a customer's facility and it's a multimillion-dollar package, but they're also saying, "This machine is about to die, we need to extend the life of it." That's where we're really trying to leverage the potential of upgrades on our machines. Even with our existing customers where we've had solutions out there for 15 plus years, we're doing a lot of service visits and control upgrades to ensure the system stays running. We definitely expect another good year, a lot of growth, and as part of BWCS, we're getting a lot more potential to be in front of customers, especially from an aftermarket and service aspect. One thing we really pride ourselves on is the relationship aspect of our business. When you're in front of customers, you're asking them questions; that's when opportunities arise and relationships are strengthened.

WTT: Is there anything else you'd like to add that we haven't touched on?

PK: It's always a journey. And even though we're now part of an over-three-and-a-half billion dollar company, you still get the entrepreneurial feel of a small business wanting to grow. We're in a good spot, but we have to continue to challenge ourselves to innovate for our customers because change is inevitable.

Now Showing

Profiles in Print:

COLORCHROME

Everything you can imagine.

It's custom, it's bespoke, it's crafted by hand.

WhatTheyThink FILMS

WHATTHEYTHINK.COM/FILMS

SMART CHANGE STARTS HERE.

ONE CLICK TWO FINISHES ONE PRINT

SPOT GLOSS WITHOUT VARNISH: GET PREMIUM PRICES WITHOUT RAISING COSTS

With Canon's FLXfinish+ technology, the Colorado printer series allows print service providers to command a premium price, while not incurring additional costs. Print gloss AND matte on the same print without a varnish or additional consumables.

There's nothing like the Colorado printer series!

- Make wallcoverings and murals stand out
- No varnish, no additional steps, no extra consumable costs
- Help increase profits and sell premium quality with no additional costs

FLX FINISH

Canon
CANON SOLUTIONS AMERICA

SCAN THE QR CODE TO GET FREE FLXFINISH+ WALLCOVERING SAMPLES

1/24-0095

A Complete Reboot at Walker360 Results in Exponential Productivity Gains

BY CARY SHERBURNE

Over 12 months, Walker360 completely restructured its production platform, a brave and unusual move for a printing company. The 75-year-old company, based in Montgomery, Alabama, employs about 50 people and generates $13.5 million in annual revenues. Founded as an offset-focused commercial printer, Walker360 is now a completely digital shop with a brand new bindery producing a wide range of applications.

Taylor Blackwell

WALKER360 PRESIDENT AND OWNER

President and Owner Taylor Blackwell understood the need to update his production platform to keep up with the latest technology and trends. This included considering acquisition of a 40" production inkjet press. "I was looking at that press based on the finishing equipment I had in place," he says. "But I just couldn't make the math work."

That's when Blackwell decided to start with the finishing side in mind rather than the printing side. "While I understood that there would be efficiencies by switching from offset to inkjet, I also realized that if you can't automate the finishing, you are just moving the bottleneck there."

INSPIRED BY INDUSTRY EVENTS

As he continued his research, Blackwell spoke to peers and attended industry events, including the Inkjet Summit and Hunkeler Innovationdays, where he was inspired by what he learned about automation and the latest state of both printing and finishing technologies. "I literally developed a plan on the plane ride home from the Hunkeler event," he says. "It was perfect timing for us, too. Our presses were aging out, so I would have had to make a change anyway within the next year. I couldn't have done it two or three years earlier; inkjet just wasn't where I needed it to be back then. Now inkjet presses can print on just about any substrate with very few limitations."

The result was a complete reboot, replacing just about every piece of equipment in the plant over a period of 12 months. "We could have stepped into it a little more softly," Blackwell allows. "We could have put in a sheetfed inkjet press and continued to use our existing bindery and our offset presses. But if you keep one offset press, you also have to keep everything else surrounding it—plate makers, plate and blanket chemistries, inks, the whole works, including a separate workflow for offset. I didn't want to do that. If we were going to embark on this transformation, I wanted to go full force. It has literally been the biggest change we've ever made in the history of our company. We changed every single piece of equipment in our shop over a 12-month period, with more to come. And it affected everything, 100%, across the board." He notes that without attending the industry events, he probably could not have gotten to this point. He also worked with his finishing vendor to make decisions about the types of equipment he could use and what was the best approach for the business.

DRAMATIC—AND UNEXPECTED—RESULTS ACHIEVED BY "BURNING THE SHIPS"

With such a dramatic change, one would expect dramatic results, and that's exactly what Walker360 got. Blackwell likens the change process the company underwent to Spanish explorer Hernán Cortés, who landed on the shorts of Mexico in 1519 with 600 men. Upon arrival, his soldiers did not want to fight natives in a strange land. To motivate his men, Cortés burned his ships to the waterline. This sent a clear message to his men: There is no turning back! The same was true at Walker360 when the transformation from offset to digital took place. They could no longer turn to "the way we've always done things" as old pieces of equipment migrated out and new equipment and processes replaced them. Their slogan for the year was "Burn the Ships"!

In their brand-new bindery, Walker360 now has Hunkeler Roll-to-Roll winders paired with Screen's Truepress 520HD inkjet press. Printed rolls are moved from that system to the Hunkeler Gen 8 Roll-to-Cut/Stack line with Horizon StitchLiner Mark V Saddlestitcher, a combination line doing both Roll-to-Stack and Roll-to-Booklet. The company also has a Canon IX3200 sheetfed inkjet press.

"This new configuration not only lets us take full advantage of automating our workflow, but it gave us new capacity and capabilities that enabled us to take in new work and acquire new customers," Blackwell reports. Citing an example of a new booklet job the company acquired as a result of this configuration, Blackwell explains, "This is a 300,000-count personalized booklet for the gaming industry. Every person gets a booklet that has specific information in it for them. We could never have done this job traditionally – no one could. We also do a booklet job for the healthcare industry where each personalized booklet has a different number of pages and contains information specific to the recipient. With the new configuration, the stitcher simply reads a printed barcode and is able to process the variation in pages on the fly. Again, this is an application we could not have done before."

Carla Green operating the Horizon BQ-500 Perfect Binder

In addition to the Hunkeler solutions, Walker360 also added a mix of Horizon equipment including the SB-09V Perfect Binder with HT-1000V Trimmer, the RD-4055DMC Die Cutter, the SPF-200L Bookletmaker with VAC collating tower, the CRF-362 Creaser/Folder, and even the PF-40L Desktop Folder for very short-run folding work. All of this is supported by Horizon's iCE LiNK workflow, which connects across multiple finishing devices and provides real-time access to critical production data.

A DIFFERENT APPROACH TO MAILING AND PERSONALIZATION

Another surprise for Blackwell was how this reconfiguration affected his mailing operation. "We've been in the mail business for almost 50 years," he says. "Over those years, we've made changes and implemented technology, of course. But it really was the same business—printing, inserting, addressing, and mailing. I wasn't really thinking about the mailing process when I got started with this. But all of a sudden after we started running the new equipment, my mailing people were running out of things to do! This was because produce was coming out of the bindery ready to mail, and didn't need to go back to the mailing department for final finishing steps."

For example, Blackwell explains that by putting marks on the sheets coming off the press, running them through the cut-to-stack line, he could get postcards ready to mail right off of the print/finishing line, adding, "In the past, we were printing postcards, cutting them down, and sending them back to the mail room to inkjet. Now they finish all at one time, sorted and ready to go into the mail stream."

The same was true for stitched books, he says. "Now, stitched books are addressed and sorted as they come off of the finishing line. Before this, we could do only very short run stuff that was cut to stack for book blocks, and now we can do longer run quantities, more page counts, in the cut-to-stack line." He cites the 300,000-count personalized booklets as an example of how the new configuration has enabled new applications and new business for the company.

Another large job he does annually for a healthcare insurance company also consists of variable

page count personalized booklets. “Every page is customized to the recipient and includes personal information,” he says. “That’s another one we couldn’t have done before without the inkjet press and finishing equipment we installed.”

Other efficiencies include the ability to more effectively produce a publishing job. He explains, “This consists of little 20-page booklets plus a cover, and the runs are only 500 at a time. We can gang them all up and print one after another. Then we run it on the stitcher, where we can load two different covers at a time. The stitcher recognizes that the first 500 get this cover, and when that runs out, it automatically reads the code and flips to the next cover. While those are stitching, we can re-load the first pocket of covers, and it will flip back and forth like that without stopping, just reading the codes. That’s another thing we couldn’t have done before, at least not efficiently or cost-effectively.”

Walker360 and its customers have also benefited from improved time to market. Blackwell states, “I tell my employees that speed is our friend, even though sometimes it's amazing to us what can be done. We have this one job that comes in every two weeks. It's a perfect bound book, and it's about a hundred pages we produce in a quantity of 1,300. We don’t receive it until anywhere from eight to 10 at night. We run it on the inkjet press during the night, it goes to the cut-to-stack line, and then goes to the perfect binder. By eight o'clock in the morning, we are driving that job to Tennessee to deliver it. It’s really incredible what we can do now!”

CROSS-TRAINING IS KEY

Another change is that the company doesn’t really have departments anymore – it’s all just production with a cross-trained staff that can move around the operation as needed. “One example,” Blackwell notes, “is one of the pressmen. He runs the presses, the finisher, the perfect binder, the laminator, and he even goes to the mail room when we have an insert job and can run the inserter—wherever you need him for the day. That kind of cross-training is becoming more and more of a thing.”

Not everyone can or will engage in such a dramatic reboot, but the experience at Walker360 clearly demonstrates it can be done. It brought new life to the company and created a more inspiring workplace for the team.

Mike Stobert at the Hunkler Gen8 Cut-to-Stack Finisher

LEVERAGING PROFESSIONAL SERVICES IN 2024

BY PAT MCGREW, MCGREWGROUP, INC. AND RYAN MCABEE, PIXEL DOT CONSULTING

If you ask most printers about the value of using professional services from independent consultants or their vendors, you get a mixed reaction. Some see the value in paying for help to navigate the setup and maintenance of the complex technologies found in modern shops, while others prefer the Do-It-Yourself approach that leverages their in-house teams. Both approaches can provide results. The challenge is to seriously consider both options as your workload expands and technology demands continue to grow. While in-house expertise is invaluable, partnering with professional services providers can elevate your print business to new heights of efficiency, innovation, and growth.

PROFESSIONAL SERVICES AS A STRATEGY

The print industry is diverse. The needs vary for pure analog printers, pure digital shops, and the many hybrid shops, whether they serve commercial, transaction, label, packaging, or multiple sectors. That is one of the reasons that buying professional services is sometimes viewed as a daunting process. How will you find someone who understands your niche and the value proposition in your market segments?

The first step is to clearly define your business needs and objectives. Where is your expertise strongest and where could you benefit from external support? Think about that carefully because your shop may have changed over the last few years. You may have lost some of your talent to retirement or other transitions.

- Which aspects of your production or technology stack require specialized knowledge?
- Does the team have time to address new technology options or get the most out of existing ones?
- Could your operation benefit from assistance in streamlining processes, enhancing marketing efforts, or expanding into new markets?

Integrating services from an outside provider could become your secret weapon to speed new products and services to the markets you serve. Many vendors offer their services on an ad hoc, as-needed basis, while some are offered through a subscription, giving you flexibility in receiving and paying for professional assistance.

WHAT SERVICES SHOULD YOU BUY?

What would make you more productive? Where are you short-staffed? What makes more sense to buy? Here are some options:

- **Production and Technology Consulting:** Leverage the experienced professionals who can provide expert guidance on optimizing production processes, implementing cutting-edge technologies, and maximizing equipment performance. Your vendors may offer some of

these services, as well as product maintenance, to take that off your plate. Weigh the time spent on tasks against the efficiency that professional services teams might bring and the time given back to your staff for higher-value tasks.

- **Marketing and Branding Support:** Marketing specialists are often efficient developers of new, effective brand strategies and can fast-path the creation of compelling marketing materials that expand your visibility.
- **Market Research and Analysis:** Be a hero to your clients by keeping them informed on the trends in their industry.
- **Training and Education:** Empower your team with specialized training programs to enhance their skills and knowledge in various print-related areas.
- **Sales and Business Development:** Partner with sales experts to develop winning sales strategies, expand your customer base, and increase revenue opportunities.

SELECTING THE RIGHT PARTNER

Finding the best providers has two components: Their knowledge and their compatibility with how you and your team interact. Here are some factors to consider when making your selection:

- **Experience and Expertise:** Evaluate the provider's track record, industry knowledge, and specific expertise in areas relevant to your needs.
- **Reputation and References:** Seek recommendations from colleagues and industry peers and check online reviews to gauge the provider's reputation and client satisfaction.
- **Communication and Collaboration:** Assess the provider's communication style, responsiveness, and ability to collaborate effectively with your team.
- **Scalability and Flexibility:** Ensure that the provider can adapt to your changing needs as your business grows and evolves.
- **Cost-Effectiveness and Value:** Evaluate the provider's pricing structure and proposed solutions to ensure they align with your budgetary constraints and deliver tangible results.

By effectively leveraging professional services, your print business benefits:

- **Enhanced Efficiency and Productivity:** Professional expertise can streamline processes, reduce downtime, and optimize resource utilization, improving productivity and cost savings.
- **Access to Advanced Technologies:** Gain access to the latest technologies and expertise in areas such as digital printing, color management, automation, and workflow management, giving you a competitive edge that is often hard and expensive to in-source.
- **Market Expansion and Growth:** Expand your market reach, tap into new customer segments, and explore new business opportunities with strategic guidance and support.
- **Enhanced Customer Satisfaction:** Deliver consistently high-quality products, meet customer expectations.
- **Focus on Core Competencies:** By outsourcing non-core functions, you can focus your resources and expertise on driving innovation and growth.

The print industry is competitive. Leveraging professional services can be a game-changer, providing your business with the expertise, resources, and strategic insights needed to achieve operational excellence, expand market reach, and propel your business to new levels of success. Embrace the power of collaboration, harness the expertise of industry professionals, and watch your print business soar to new heights of innovation and growth.

THE RISE OF AI IN MARKETING

BY JOANNE GORE

As we step into 2024, the marketing landscape is undergoing a remarkable transformation, driven by rapid advancements in technology and changing consumer expectations. This evolution is highlighted by significant shifts in marketing strategies and the integration of cutting-edge technologies. Central to this change is the growing prominence of Artificial Intelligence (AI), which is reshaping the way businesses engage with customers and devise their marketing campaigns.

AI's influence in marketing is multifaceted, extending far beyond basic automation. It is now at the forefront of creating personalized experiences, predictive analytics, and delivering insights that were once beyond human reach. This evolution reflects a deeper understanding of customer behaviors and preferences, enabling marketers to craft campaigns that are not just about reaching audiences—but engaging them in meaningful, personalized ways.

The significance of AI in marketing has been escalating, with 64% of marketers considering AI as very or critically important to their success in the next 12 months, marking a significant 13-point jump from 2022, according to the 2023 State of Marketing AI Report from the Marketing AI Institute and Drift. AI technologies are becoming integral to understanding consumer behaviors, automating repetitive tasks, and optimizing marketing campaigns.

According to OpenAI, ChatGPT acquired 1 million users just 5 days after launching in November 2022. By comparison, it took Instagram approximately 2.5 months to reach 1 million downloads. Whereas Netflix had to wait around 3.5 years to reach 1 million users.

AI's ability to identify bugs and errors in the code at a faster and more accurate rate than humans means more reliable and error-free software. This opens a unique window of opportunity for software companies to re-position, re-target, re-price, and re-imagine their entire product suite. What does that mean for the end-user? New market entries, new pricing models, new perspectives—and a whole new MarTech (Marketing Technology) stack.

AI-powered MarTech solutions help shift marketing's focus from short-term fixes to long-term objectives by streamlining marketing tasks, optimizing performance and increasing revenue. This includes personalization, predictive analysis, comprehensive data analysis, automation and high-speed performance at scale, all of which contribute to faster outcomes—and better real-time decision-making.

As consumer expectations for cohesive brand experiences increase, understanding who you help, how you help and why it matters becomes crucial for businesses to connect and engage with their customers. Using machine-learning algorithms to predict and analyze behavioral cues unique to each person's experience, AI helps marketers create buyer personas with real-time data, focus resources with pinpoint accuracy and decrease customer acquisition costs—for more qualified leads. These personas are then used to create relevant, personalized campaigns and touchpoints across myriad channels—such as social media, email marketing, direct mail, mobile apps, text/SMS and website content—for holistic and seamless experiences throughout the prospect-to-customer buyer journey.

For companies, these trends mean adapting to a more data-driven, customer-centric approach, leveraging AI for enhanced personalization and integrating various channels for a unified marketing strategy. For customers, this promises more personalized, relevant and seamless experiences across different touchpoints, and more memorable brand experiences.

INTEGRATING AI WITH TRADITIONAL MARKETING CHANNELS

While AI ensures the message is relevant, the physical nature of direct mail adds the personal, physical touch that you simply cannot get from digital communications. This phygital (digital + physical) approach creates a seamless and cohesive experience, both on and offline—leading to a more effective and engaging marketing strategy. This integration signifies a strategic move towards blending the best of both worlds—the advanced analytics of AI and the tangible, personal appeal of traditional direct mail—enhancing the overall impact on customer engagement.

In its "Future of Direct Mail" whitepaper, research from the USPS shows that a more dynamic approach to direct mail drives website visits and increases ROI, response rates, and lead generation. Because of its ability to segment customers based on their past interactions, purchase history, and preferences, combining AI's predictive analytics with the tangible, trust-building aspect of direct mail, creates a powerful synergy. Businesses can craft direct mail pieces that resonate with each segment's unique interests, leading to higher engagement rates. Adding interactive elements, like QR codes, not only boost the experience, but the ROI. Additionally, AI can predict the best timing and frequency for sending these mails, optimizing the chances of customer interaction.

FIVE WAYS TO USE AI IN MARKETING

1. **Enhance Personalization:** Analyze customer data and personalize marketing campaigns including email marketing, targeted ads, website and landing page content.
2. **Use Predictive Analytics for Customer Insights:** Forecast customer behaviors and preferences for more strategic customer segmentation, lead scoring, churn prediction, personalization and campaign optimization.
3. **Automate Customer Service:** Integrate AI-powered chatbots and virtual assistants for instant customer service to support direct customer interactions, both inbound and outbound and offer more relevant responses based on customer queries and specific business questions.
4. **Generate and Optimize Content:** Generative AI continues to advance at warp speed since ChatGPT exploded onto the scene. It relies on prompts to produce text, visual and video content.
5. **Optimize Voice and Visual Search:** AI will optimize your content based on performance data to improve visibility in voice and visual searches.

By incorporating AI elements into their tech stack, marketing teams can ensure they are leveraging the latest technologies to stay competitive and effective in their strategies.

KEY COMPONENTS OF A 2024 MARTECH STACK

- CRM Tools with AI capabilities for better customer relationship management.
- Data Analytics Platforms for analyzing customer data and market trends.
- AI-Powered Content Creation Tools for generating and optimizing marketing content.
- Chatbots and Virtual Assistants for automated customer interactions.
- Programmatic Advertising Platforms that use AI for real-time ad bidding and placement.
- Social Media Management Tools with AI features for trend analysis and content optimization.
- SEO and SEM Tools that incorporate AI for better search engine strategies.

TIPS TO OVERCOME YOUR FEAR OF AI

Knowledge is power. There are countless online resources, courses, and webinars that offer foundational knowledge about AI. Get to know some AI basics and start experimenting. Practice your prompts to understand how AI responds and generates results. Connect with AI experts and thought leaders on platforms like LinkedIn. Follow professionals such as John Munsell, Isabella Bedoya, and Atif Khan for valuable insights into the latest trends, best practices, and practical applications of AI. Don't be shy. Engage with communities and groups focused on AI and technology, join the discussions, attend meetups and network with peers for shared experiences and support.

EMBRACING THE AI-DRIVEN FUTURE IN MARKETING

"Powered by AI" solutions are not just revolutionizing the way marketing functions, they're setting new standards in efficiency, scalability, and impact. The future of marketing is one where technology and strategy converge to create unparalleled opportunities for customer engagement and business growth. From small businesses to global enterprises, the impact of these sophisticated software solutions will be impossible to ignore, as AI and the latest software innovations set new paradigms in the world of marketing. Buckle up for a transformative impact on customer engagement and business growth.

ABOUT JOANNE GORE

President of Joanne Gore Communications and passionate about print, Joanne is a marketing powerhouse with over 25 years of experience in building global B2B marketing strategies for print, software, hardware, and manufacturing companies—and the brands they serve.

Contact Joanne:
joanne@joannegorecommunications.com

BEYOND THE PRESS:

Revolutionizing Workflow for Digital Print Embellishments

BY KEVIN ABERGEL AND CARLO RUAS, TAKTIFUL

In today's world where a single print can be a complex symphony of color, texture and dimension, the dance between technology and artistry has never been more intricate. In this dance, the role of workflow is pivotal, and its impact is nowhere more pronounced than in the realm of digital print embellishments.

The shift from analog to digital unlocked potentials that were once unfathomable. Yet, this shift brought to light the critical need for improved communication and minimized errors—a demand that propelled the ascension of workflow software in the industry, as well as pre-flighting to catch as many boo-boos as possible!

THE BRIDGE OF PROGRESS: WORKFLOW SOFTWARE

Workflow software has connected the islands of prepress, printing and binding/finishing into a seamless continuum. Specialized programs like imposition management tools laid the foundation of this bridge by incorporating predictive logic to identify and correct errors before they snowballed downstream, where the cost of mistakes multiplies.

The evolution of workflow software saw the rise of industry-wide collaborations like CIP3 (later renamed as CIP4) and the advent of its Job Definition Format (JDF), which aimed to become a universal language for job information across the printing process spectrum.

In the event, although JDF was widely adopted by suppliers, the original goal of end-user plug-and-play integration between devices from different suppliers never quite happened. It always needed some degree of suppliers sitting down together to make specific pairings work.

Many of them concluded that staying within the precise constraints of JDF wasn't worth the effort, for it demanded support for functions that were irrelevant or non-existent for some types of machinery or software. Instead they took the functionality they wanted and opened up access through APIs, which other parties could use to link their own systems' functionalities too.

For example, Paul Furse, director of channel sales, Scodix Americas, says: "Scodix does not utilize JDF in our workflow, but our open architecture allows for fast and seamless integrations into existing systems. Our open API allows for JDF integration, but we do not utilize JDF as a protocol within the Scodix Studio W2P platform.

"A customer is able to automate work at the job ticket level just as JDF would. The majority of our customers are running multiple presses, processing hundreds, even thousands of jobs per day. We offer integration at the press level, but for our larger clients, we offer a fully scalable, open API, VM RIP platform to load balance and manage your Scodix fleet."

"We do offer seamless JDF integration through our finishing automation hub," says Andrew Bailes-Collis, head of product management at Ultimate Technographics, which develops imposition-centered prepress workflows. "Each device is connected and receives full setup information to completely reduce manual makereadies by eliminating job setup. Increased accuracy and standardization results also in increased job throughput and higher quality."

However, he also says "Customers can easily integrate our imposition workflow to their existing MIS, web-to-print, or automated ordering system. We offer a very easy XML/JSON mapper to achieve it."

The announcement of Exchange Job Definition Format (XJDF) as the next evolutionary step at drupa 2016 was intended to solve the complexities of the original JDF. This is essentially a simplified model with less demanding requirements. However, more than seven years later and approaching the next drupa, there's little sign of XJDF making any real impact, certainly at the embellishment stage.

"The step towards a JDF interface should have been done 10 years ago, but the next best time is today," says Bailes-Collins. "XJDF is not present in finishing automation at this time. This may change in the future, but most of the XJDF integrations we see are more upstream, meaning between the ordering system or web-to-print and the production workflow. In the end, whether it is JDF or XJDF, what's important is that the finishing devices offer a means to programmatically control their devices by an upstream system."

OTHER UNIVERSAL STANDARDS

The conversation around workflow software also brings into focus the fact that the industry has long been able to adopt some universal standards, especially with PDF for prepress artwork tasks, recognizing the value of compatibility and integration.

PDF workflows don't actually need to be part of fully automated workflows—modern RIP-renderers invariably have some internal automated workflow elements for processing PDFs and other document formats, then rendering them for output. These can be expanded with relatively simple and affordable automation applications, such as Enfocus PitStop and Switch, to handle file reception, preflighting, fixing, color management, imposition and routing to the appropriate production system.

PDF can contain layers, which can be used for separate embellishment images by simply creating a uniquely named "spot color" within the main artwork layer and let the prepress system detect it.

"Our proprietary RIP will identify all of the defined spot colors in any PDF file," says Furse at Scodix Americas. "However, we highly recommend separating the effects into separate PDFs for organizational purposes. It makes it easier on an operator to have a gold foil PDF rather than run the risk of selecting the wrong spot color for the wrong effect."

PDF's main weakness is late stage editability. There are PDF editors, but they are either very basic or expensive. So for applications that require routine late-stage editing, typically packaging, users often opt for the proprietary Adobe Illustrator AI format. This is essentially editable PDF, as long as you edit it within Illustrator.

DIGITAL EMBELLISHMENT WORKFLOWS

More and more digital toner presses have options for embellishment via integrated fifth-, sixth-, and even seventh-color units. However, apart from identifying the embellishment images as separate layers through the use of spot colors within the artwork, they don't require any special treatment within the pre-press workflow.

Fully digital standalone embellishment systems are almost always centered on some sort of digital marking engine, too, so likewise they are networkable and can be integrated into an automated workflow at some level.

Ultimate Technographics builds in provisions for standalone embellishment in its imposition workflows, says Bailes-Collins. "Our software solutions prepare files for the press through imposition, ganging and nesting and also drive finishing automation, so the ability to produce additional separated files for embellishment—digital and analog—cutting tables/lasers as well as paper cutters, folders, stitchers, booklet makers, cutter-creasers, and binders, is at the very heart of our offering.

"Different devices will require different format support, we ensure we support the requirements of the devices we are driving which typically tend to be PDF, DXF, or JDF," he adds. "Generally, we see that PDF files with specified layers are becoming the norm with recent equipment. CAD files can be used with older equipment."

The actual requirements for file handling can be quite simple, according to Scodix's Furse. "The only workflow requirements for a Scodix operation are presenting files with identifiable spot colors or spot channels, and ensuring registration (OPA) dots are on the sheet. The spot color name does not matter, but we recommend them being identifiable so operators can distinguish which colors are to be used for which effects. With over 10 different effects, and the ability to both layer them and/or use multiple effects on a single sheet, the possibilities are only bound by your creativity."

You still have to load the artwork file into the job queue, of course, so a workflow system is certainly relevant to Scodix operations. However, the optical positioning system makes life simpler once it gets there. "In order to turn work quickly, the OPA dots allow for accuracy and automation," says Furse. "However, we can utilize any repeated and contrastable CMYK object on a sheet, even crop marks for registration. Worst case scenario, if it's a blank sheet, we can even use the edges of the sheet to register our imaging."

THE LIMITS TO AUTOMATION

Workflows can reach out to every corner of production, including separate embellishment lines. However, that doesn't mean the data reaches every machine, or needs to. There's still a lot of non-digital embellishment and other finishing equipment around, that was either built long before digital controls were thought of, or is too basic and manual to ever need them.

However, applicators that run downstream from digital devices, such as foil-adapted laminators, are rarely networked because they don't need to be. It's the same with old letterpress machines converted for hot foiling, or purpose-built mechanical foilers (such as the Kluge range), that work brilliantly but will never be adaptable for the sort of automation that's available in say, an MGI JetVarnish or Scodix varnish/foil embellisher, or a digital press with extra embellishment units.

The solution here is well-established. Instead of plugging the production system into the workflow network, you set up a terminal next to the machine that displays job lists and usually has some provision for operator feedback to the central workflow system—such as job started, job paused, job completed, quantities produced and so on. Increasingly, these terminals are low-cost touchscreen tablets, often on a wireless network.

Workflow and automation work just fine for the prepress stage of these non-digital embellishers, when plates and dies can be produced from digital image data on digital exposure or engraving

machines. The digital artwork is often a specially named layer within the same PDF artwork file that carries the color printing data, and is extracted and directed within the prepress workflow.

Some finishing equipment can set itself up via barcode readers, so again a direct link to a networked workflow manager isn't needed. The workflow system can command the generation and printing of the barcodes within the printed job, however. Scodix uses unique barcodes on every printed sheet for data integrity, to ensure that the correct effects are called up and applied.

THE FUTURE: AI AND THE PRINTING INDUSTRY

Peering into the horizon, the printing industry anticipates the integration of artificial intelligence (AI) into workflow software. To some extent it's already here: MIS companies have been calling their expert systems with some autonomous learning abilities "AI" for several years now. It's a matter of terminology. Look also at the last decade's hyping of the vague concept of "Industry 4.0," or more specifically "Print/Finishing 4.0." Its predicted fusion of expert systems with mass data-slurping analytics, automated workflows and robotics may indeed be the "fourth industrial revolution," or it could also be regarded as implemented AI.

The past year's most recent hype about AI mostly concerns generative AI, which can produce plausible-seeming but often clichéd stories with hidden errors or erroneous conclusions, or images that look convincing as long as you don't start counting fingers. There is little doubt this will improve rapidly.

Looking on the optimistic side, AI might be the next leap in automating the printing process, including the integration of embellishments, reducing the need for human intervention, and allowing for more complex, customized, and high-quality outputs.

Whether used as "expert system" decision support for pricing, or generative solutions that can learn to "design" for digital embellishments, there's certainly going to be a place for AI in print.

EMBRACING CHANGE: THE HUMAN FACTOR

In this rapidly evolving landscape, it is imperative to address the human element. Staff and operators accustomed to the old ways need to transition to new processes, so education and training are needed. A workforce that understands the nuances of advanced workflow software becomes an asset and not just a cost center.

SUSTAINABILITY AND EFFICIENCY

An aspect of workflow that cannot be overlooked in our environmentally conscious era is sustainability. Efficient workflows reduce waste by detecting errors early, optimizing resource use, and streamlining production processes.

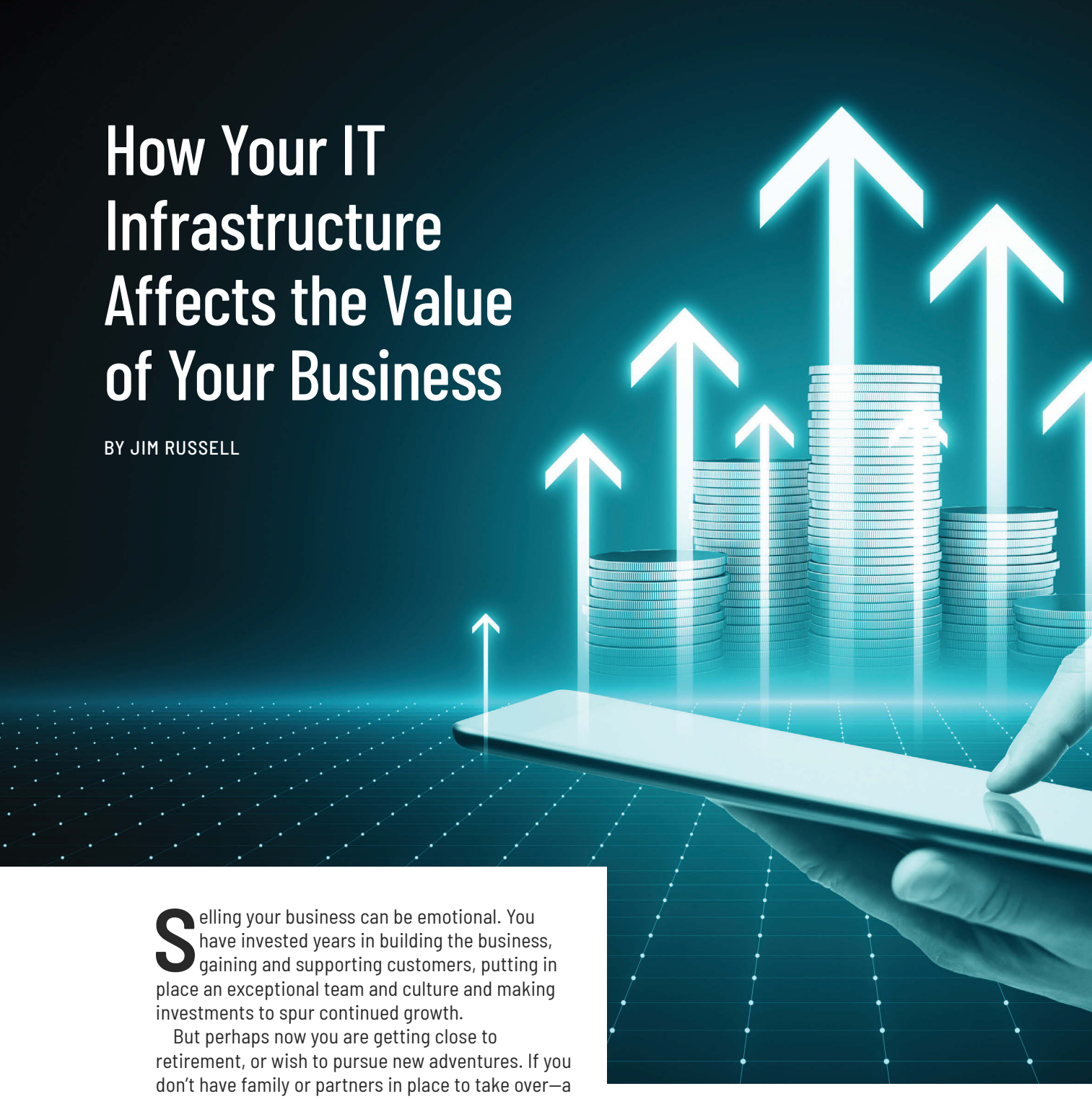
This is particularly significant in the realm of embellishments, where foils and specialized inks can be costly and environmentally impactful. An optimized workflow helps ensure that these materials are used judiciously, contributing to a more sustainable printing industry.

CLOSING THOUGHTS

As we embrace the future, we can foresee a time when workflow software, augmented by AI and continuous innovation, will allow the print industry to not just meet but drive the evolving expectations of the market. It will enable the creation of products that are as sustainable as they are beautiful, as unique as they are high-quality, and as profitable as they are technologically impressive.

How Your IT Infrastructure Affects the Value of Your Business

BY JIM RUSSELL



Selling your business can be emotional. You have invested years in building the business, gaining and supporting customers, putting in place an exceptional team and culture and making investments to spur continued growth.

But perhaps now you are getting close to retirement, or wish to pursue new adventures. If you don't have family or partners in place to take over—a succession plan—you might be thinking of looking for a buyer who can carry on the business you have put so much into, continuing to provide the best possible support to your customers and take care of your employees.

There are many things that go into finding the right buyer and negotiating a fair price. Over the past 20 years, New Direction Partners has closed hundreds of M&A deals in the printing, packaging and display graphics industries. Collectively we have over 200 years of industry experience with transactions in aggregate exceeding $2 billion.

One unique characteristic of our work is the fact that when we visit a potential seller to help them assess the value of their business and determine an appropriate buyer(s), we not only tour the facility and speak with management and staff, but we also have the opportunity to dig into the financials. This in-depth view of the business allows us, over time, to determine what is working, what isn't, and where there is room for improvement.

One critical element for any printing or packaging business is the state of its technology infrastructure.

This includes hardware (presses, finishing equipment, prepress, etc.), but increasingly, it also includes the software infrastructure.

Companies that have invested in and are effectively utilizing software solutions, such as web-to-print, MIS/ERP, workflow automation and more, intrinsically have more value than those that don't—they use that technology to make their customers "sticky". As we have said many times, our industry is increasingly becoming one of the "haves" and "have nots." When you effectively use these software solutions to streamline workflow and retain clients, you add value to your business and move toward becoming a "have".

Another aspect that buyers often look at when valuing a business is where you are in the investment cycle for capital expenses. Buyers are more interested when the capital investment is somewhere around its midpoint and has demonstrated a good return on investment. In today's cloud-based and Software as a Service (SaaS) environment, the requisite software investments can often be made on a subscription basis, making them operating, rather than capital, expenses. This can also be attractive to buyers – not only because there is no capital expense involved, but also because this is the modern way today's businesses run. There may be a need for some part of the software infrastructure to be on-premise for many reasons, but by hosting as much as possible in the cloud, you achieve many benefits, including a much easier means of keeping software secure and updated.

A buyer is also likely to consider is whether you have homegrown systems and an IT staff on site to maintain them, or whether you are using packaged software that has a good reputation in the market. Depending on the size of the business, the former typically relies on one or two people who know the system—and if they leave, you can be left without good means of keeping the system up to date. With packaged software, a supplier is spreading the costs of keeping it updated over a variety of customers, and typically has a talented staff of developers, can continue to maintain it and help you troubleshoot when necessary, and are not likely to enter crisis mode if an employee leaves.

If you are thinking about selling your business, you need to plan ahead to get the most value you can from all of your hard work. Sometimes this planning can take a handful years; sometimes longer. Take a look around: If you still have a scheduling whiteboard, or are using spreadsheets to do estimates, manage inventory and more, or have limited automation in your job entry, prepress and production operations, you have some work to do to modernize that infrastructure! Once you do that, not only does it increase the value of your business, but it also makes life easier for you and your staff – and your customers – and often both increases revenue and reduces cost. You'll be more attractive to a buyer. Or you may decide to stick around for a while and enjoy the fruits of that labor!

Jim Russell is a partner at New Direction Partners.

RULES-BASED WORKFLOWS:

Connecting and Automating Processes to Fit Your Business Needs

BY DAVID L. ZWANG

As print and packaging procurement changes, and as production equipment and processes evolve, automation software needs to keep up to satisfy the new requirements and pain points of PSPs and their customers. Many current off-the-shelf workflow software and service offerings support newer and disparate technologies and markets, but ultimately solutions need to fit the specific needs of a PSP. That's where rules-based workflows shine.

"Pipeline" workflow solutions come in many forms, but here I will focus on ***rules-based pipeline solutions***, the main advantage of which is that you can minimize the number of workflows you need to define as well as the amount of potential operator intervention that is required. The system can be programmed to make its own intelligent choices. Experience shows that the advantages received from implementation of rules-based pipeline workflows have an ROI of about six months!

Today's rules-based have been designed with a higher level of built-in intelligence to support the automation of a wider range of applications, going beyond the production of templated products and pages, and addressing the variability of day-to-day production. They support configurable tasks, triggers, actions, and filters, providing almost endless variability and control of processes. Those who have implemented these types of systems have significantly reduced production time and costs.

Rules-based workflow solutions can be developed by hardware manufacturers or can be agnostic in that they can work with disparate systems. It's important to note that some solutions developed by hardware manufacturers can be compatible with third-party systems. As you research the options, you need to be specific in your requirements. The following examples are targeted at print and packaging production and are fairly representative of the landscape.

ENFOCUS

Enfocus Switch is an agnostic, scalable, server-based solution that connects various production, business, and communication processes. Switch supports inbound and outbound transmission and

review of production files, customer communication, and metadata. It also supports "configurators," API-driven integrators for third-party applications, as well as hot folders. For more complex needs, scripting support allows further workflow customization. Switch also integrates with other Enfocus products like PitStop Server. Switch set the bar for the market and has a very wide global following.

HYBRID SOFTWARE

CLOUDFLOW is a browser-based workflow platform that supports the open JSON REST API for scripting and a NoSQL database back end making it easier to integrate with other cloud-based solutions and services. Recently, Hybrid introduced MyCLOUDFLOW which helps companies achieve print workflow automation through a cloud-based application. This incorporates all the modules from the CLOUDFLOW application and supplies the tools and benefits of an internal workflow solution without the hassle of initial setup and IT operation.

FIERY

JobFlow is a rules-based job preparation and prepress automation workflow platform designed to take customer files from submission to output by placing them into the predefined workflow appropriate for a specific job. Workflows are built with modules which can be managed, edited, imported, and shared, including job routing, internal and external proof reviewing, file correction, AI-based image scaling to improve resolution at larger sizes, and the ability to import custom script packages for unique requirements. Fiery can configure job flows to take advantage of manufacturer-specific features.

ESKO

Although Esko is more focused on labels and packaging markets, Automation Engine is an agnostic workflow solution whose application modules cover everything from job onboarding to production file processing and integration formats to support third-party systems. It is available on-premise or in the cloud.

DALIM

Twist has extended its scope and reach with the creation of DALiM Drive. Drive makes the various DALiM technologies available with an agnostic platform connected to the cloud by DALiM Web services. Unlike many of the other solutions, their existing workflow modules are available as Microservices which can be used as needed.

RICOH

Although developed by a hardware manufacturer, TotalFlow Producer is an agnostic solution that streamlines job onboarding and handles file preparation and processing without operator intervention. It funnels jobs from multiple external online sources into a centralized cloud-based portal and automates preflight and malware scans. Clients can upload and approve jobs and view job status. PDF editing allows swift file changes while annotations can foster bi-directional communication.

KODAK

RBA (Rules Based Automation) is built in to Kodak's PRINERGY Workflow Software. You can set up chains of workflow tasks from receipt of the customer order through prepress and to digital presses and CTP devices. Workflows can be triggered by events or manually by hitting a "play" button. It can replace nearly any manual event, business process, or print production step. In PRINERGY 10, you can add comments to every rule to enhance knowledge transfer.

XEROX

FreeFlow Core was designed as a new product platform and shouldn't be confused with the legacy FreeFlow Process Manager. FreeFlow Core takes a fundamentally different approach, expanding the features and functionality available through Process Manager. Core goes beyond workflow, making decisions to include prepress operator decisions as well as giving customers more control of prepress operations. A single template can support a wide variety of imposed layouts, as well as automatic media size selection and layout orientation.

MOVING TO THE CLOUD

Each of these workflow architectures are constantly evolving to support the changes in print procurement, product offerings, and production technologies. They already have solutions in the cloud—or are gradually bringing them there. On the horizon is the availability of Machine Learning and AI opportunities.

Potential Artificial Intelligence Use Cases for the Printing and Packaging Industry

BY CARY SHERBURNE

It seems like discussion of artificial intelligence (AI) is everywhere these days, from the Open AI blowup which resulted in its CEO being fired—and rehired—to COP28 discussions on the topic and a European Union landmark AI bill paving the way for what could become a global standard to regulate AI risks for a more trustworthy AI environment.

AI IN THE PRINT SHOP

As an owner or manager of a printing or packaging business, you might still be wondering what this has to do with your business. You might even be a little unclear on what AI actually is. We published an AI Explainer on WhatTheyThink that will help you in this regard. But we also recently spoke with a couple of industry executives from companies that are suppliers to the industry to understand what, if anything, they are doing or thinking about with respect to AI. It's likely that this is where it will first show up in your business: implementations by suppliers to the industry. It's already being used in search engines and other applications that you probably use every day. Perhaps we should call this "stealth AI"!

Another factor that confuses the issue is how machine learning plays into the picture. In our Explainer, we quoted Coursera, an online learning organization, that defined the two terms this way:

- **Artificial Intelligence (AI)** is an umbrella term for computer software that mimics human cognition in order to perform complex tasks and learn from them.
- **Machine learning (ML)** is a subfield of AI that uses algorithms trained on data to produce adaptable models that can perform a variety of complex tasks.

In researching this article, we spoke with Nick Benkovich, Vice President of Product Management for eProductivity Software. He explains, "Machine learning tries to let a system derive meaningful output from data. In effect, it 'learns' meaningful representations of the data it is presented that provide new insights on data that it has not seen." He notes that by feeding rules and data into classical programming, you get answers. But by feeding those data and answers into a machine learning solution, rules are generated. And this enables automation as well as actionable data.

With AI and ML working together, it takes things up a level. Benkovich adds, "Artificial Intelligence AI is an umbrella term for computer software that mimics human cognition in order to perform complex tasks and learn from them. Partnering humans with a cognitive 'brain' and automation on a single full integrated end-to-end platform enables accelerated innovation and delivery of optimized performance by augmenting human intelligence with cognitive insights and autonomously managing IT operations."

So in his view, AI understands, reasons, and learns from data; and then automation executes tasks and operations, feeding back data into the AI system. He adds, "Fundamentally, we are a manufacturing industry, but a bespoke manufacturing industry rather than a more widget-based manufacturing industry. I think that's where the opportunity for AI really comes in. Our data reflects that the average commercial printer is doing 40% more jobs than they did eight years ago to generate the same amount of revenue. And the jobs are so bespoke—the days of 4/4 printing when I started are gone. It's now die cutting, laminating, embossing and debossing, foil stamping, and run lengths are so variable that no human can possibly calculate all of the possible permutations.

"People need to understand that much like the human brain, AI is about training and learning, unlike the algorithms we are used to. It's about looking at a set of inputs, calculating the output, working out what the optimum output is, and then generating the algorithm, essentially the logic, that got you to that answer. A lot of our customers have 15 or 20 years of data, a great data set, but there's a lot of training that has to go into that algorithm. I think we will see true AI start to appear in 2024, and it's going to impact our industry, especially as we see a workforce that is aging out."

AI IDEAS FOR SUPPLIERS TO THE INDUSTRY

While many suppliers to the industry will be implementing a variety of AI/ML capabilities in their products, and some already have, they will also be using it for their own internal operations. For an example of how that might work, we spoke with Frank Pennisi, EFI's CEO, to gain insight into some of the ways a supplier to the industry might benefit from AI—which ultimately would benefit their customers.

One area of the business that could benefit from AI, according to Pennisi, is service, where it could be structured as a troubleshooting and optimization assistant. The AI application would ideally have access to everything about a piece of equipment, including manuals, drawings, machine and service data—literally anything that might make diagnosing a printer easier. He adds, "The end goal is a better customer experience, greater uptime, and improved profitability for us and for the customer."

Another idea is to harness all of the data available from increasingly connected systems operating in the field as input to new product development: what's working, what's not, where are the operational constraints, and how could future products become even better, based on this performance data along with customer feedback. "It's a lot of data," he says, "and AI could certainly make the analytics faster and more effective, helping us to get new, more innovative product to market faster."

THE FUTURE WILL BE HERE BEFORE YOU KNOW IT!

As we have pointed out before, many of our members can look back to the 1990s when the internet was emerging and see the opportunities that most of us missed at that time. Whether we thought it was a fad, or it didn't apply to us, or just didn't know how to integrate it into our businesses, in hindsight we, as an industry, should have been much more proactive. Let's not let the AI opportunity slip through our fingers. As Benkovich predicts, 2024 is likely to be the year of AI…and if you are going to drupa 2024, that's a great venue to get up to speed with what folks are doing or thinking about to take advantage of this quickly evolving opportunity.

What Is Artificial Intelligence?

AI has been around for a long time. We often talk about machine learning, which is a subset of AI, and it is likely better understood by most of us than the broader artificial intelligence term. Your Roomba, for example, learns the best pathways to vacuum your house. That's machine learning. Maybe newer models will be able to do more with a broader spectrum of embedded artificial intelligence.

Coursera, an online learning organization, defines the two terms, AI and Machine Learning, this way:

- **Artificial Intelligence (AI)** is an umbrella term for computer software that mimics human cognition in order to perform complex tasks and learn from them.
- **Machine learning (ML)** is a subfield of AI that uses algorithms trained on data to produce adaptable models that can perform a variety of complex tasks.

…like having your Roomba learn which areas of the house to avoid, or how to keep from falling down the stairs.

It adds another term to the mix as well: **Deep Learning**, a subset of machine learning that uses several layers within neural networks to do some of the most complex ML tasks without any human intervention. Neural networks are composed of interconnected nodes, known as neurons or artificial neurons, organized into layers. Neural networks are used for tasks like pattern recognition, classification, regression, and more.

The Key to Strategic Software Investments? **HAVING A PROCESS**

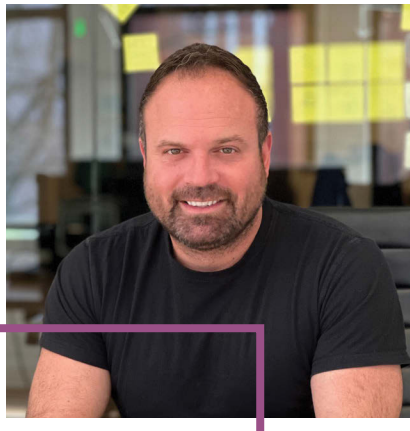
BY HEIDI TOLLIVER-WALKER

As you look ahead to 2024, what areas of your business processes or production workflow do you need to tackle? Need to upgrade your MIS to be more efficient? Accommodate new areas of business? Looking to add AI to your marketing automation? Where do you start?

The reality is, most business owners or managers probably aren't in a position to do this on their own. They need a team and they need a process. In many cases, they need outside help.

"The focus of most CEOs, presidents, and business owners is operations and sales," observes Bill Prettyman, CEO of Atlanta-based Wise, one of the largest manufacturers of operational print to the trade. "Having a process keeps them focused and ensures that they are taking into consideration the full range of information. It also ensures that they get the right product that matches their actual business needs."

Wise knows the complexities of large software investments first-hand. It operates five plants—Alpharetta, GA; Portland, ME; and Ft.



Bill Prettyman
CEO OF WISE

Wayne, IN producing business forms; Butler, PA producing programmatic digital print; and Anderson, NC, purchased in 2017 to produce prime and industrial labels.

When the Anderson plant was purchased, it was running its business operations on Microsoft Office and QuickBooks. With Wise's plans to significantly scale the operation, it needed a proper MIS. But which one?

FOLLOWING THE PROCESS

Prettyman, a proponent of lean business planning, follows a regular process when making any strategic investment:

1. Clearly define the business goal you are trying to achieve.
2. Form a team of decision-makers from all of the areas of the company impacted by the decision.
3. Define the requirements, in detail, based on the stated business needs. (So you don't run down rabbit trails.)
4. Send out requirements and receive responses from vendors.
5. Narrow the list and ask for demonstrations.
6. Talk to other users of the software or equipment to see how it is actually performing in the field.
7. Get final recommendations or consensus from the team before the purchase decision is made.

In this case, the business goal was clear—transition to a modern MIS that could handle the volume and produce the efficiencies that the plant would need.

The next step was to form a team. For this purchase, the team included Bill Prettyman, Will Prettyman, GM of the labels plant, the company's IT director at the time, and the operations manager whose CSMs would be using the system. Each team member brought a unique perspective based on their area of expertise.

In addition documenting broad company requirements, team meetings identified parameters that were specific to Wise's business requirements and the needs of those who would be using the system.

"One of those things was that it's better to go with something proven—we didn't want to be the first adopter out in the field," Will Prettyman recalls. "Second was reporting capabilities. We wanted something that would provide detailed reporting that would allow us to make strategic business decisions. Finally, we wanted something that our developers could work with. We didn't want anything proprietary."

This drew the team to the Belgian-based CERM, which had a Microsoft Sequel back end and strong reporting capabilities.

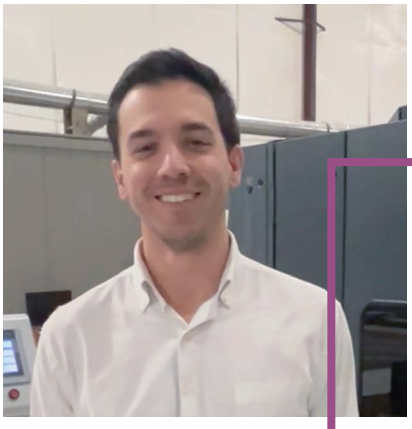
"For us, the back end was as important as—or more important than—the user interface," Prettyman continues. "The user interface might not have looked that pretty, but we wanted the solution to have a back end strong enough and flexible enough to be adjusted to our needs over time. For that to happen, we needed it to use a back end language that our team can work on."

This narrowed the list down significantly. At that point, Prettyman says, they looked for references from other users, and the CERM system was installed in 2019.

"WE DIDN'T KNOW WHAT WE DIDN'T KNOW"

Full Sail Media, a full marketing services company in Baltimore, MD, also recently made a significant software purchase. Started by Nelson Anderson, who took a simple Minuteman Press franchise and grew it to the largest in the country, Full Sail had been growing so rapidly that its growth had outstripped the capabilities of its existing system.

"We were doing 2,000—3,000 jobs per month," recalls Anderson, founder of Full Sail Media, which offers a full complement of digital and offset print production, a full digital production studio, digital marketing, large format, mailing, promotional items and apparel printing. "When we got super busy, we couldn't track down jobs in the shop. We also didn't know how much money we were making on each job. We knew we needed to do something, but we didn't know what."



Will Prettyman
GM OF LABELS PLANT

Production floor at Full Sail Media

The company hired a consultant to conduct a full assessment. This included three days of comprehensive interviews of everything from the minute details of the workflow to how the company produced an estimate. "We even created a BHR [budgeted hourly rate] for every position in the building—machine rate, person rate, overhead, capacity, excess capacity and multiple shifts," says Anderson. "It was quite the exercise, but it really opened our eyes to a lot of things we had been missing."

Ultimately, the consultant's assessment was that Full Sail needed a more robust MIS. He helped define those goals, which required asking the questions, "What do we need now?" And also, "What will we need in the future?" "Based on those questions, we determined that we needed a system that was web-based, that had an open API and that was developer-friendly to give us the flexibility to tweak the system and do any future integrations that we deemed necessary," says Anderson.

Taking that extra time upfront benefited Full Sail in other ways, too. Among them, the company discovered a functionality of the system they didn't know they needed: the ability to let customers give their employees a "swag budget" and access to a company store to order their own branded promotional items.

"I had no idea it was a thing, but it's a thing," says Anderson. "The client gives their employees a budget and they can order whatever they want. If they want to order more, it's on them, but they have credit on the company store. We have customers who have 200 employees. If we hadn't asked questions about what is hot and how other people are using their web portals, we could have missed a huge business opportunity."

FORM A TEAM

The next step in making an informed decision was to form a team. In this case, the team included Anderson, the consultant, and his operations manager, all of whom had different needs and would be touched in different ways by the system. After making their needs list, the team worked together to narrow down the options to three. Then they started eliminated more options based on usability, flexibility and overall interface.

Ultimately, the team chose PrintIQ and, subsequently, Infigo as an integrated storefront.

Although Anderson is happy with the company's selection, he acknowledges that if he could do it all over again, there is one thing he would have done differently: do a more thorough job interviewing previous customers. "Although it wouldn't have changed our decision, I would have learned upfront that we needed to integrate multiple other pieces of software order to get the full functionality we needed," he says. "Having that information would have helped me better manage expectations and create a better, more realistic implementation plan."

Looking back, he says, there was so much "they didn't know they didn't know." That's why, even though the consultant pushed them far beyond what they would have done on their own, having that "sherpa" to come alongside them was a critical part of their success.

SUPPORTING THE IMPLEMENTATION

Part of being strategic about purchasing any type of software is implementation. "Often, it's not the vision that is the hardest part," says Bill Prettyman of Wise. "It's executing that is the hardest part."

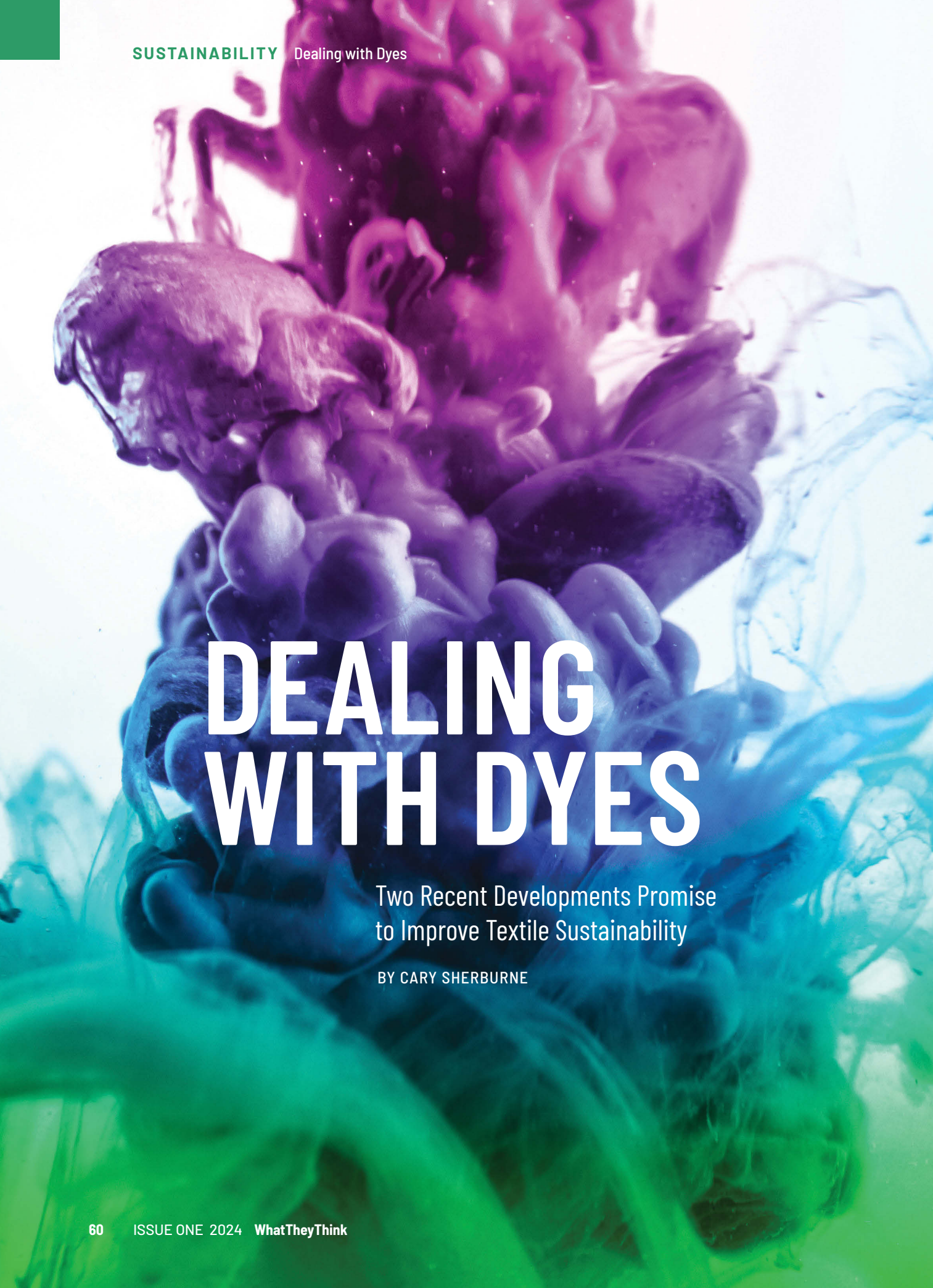
This, Prettyman says, means setting realistic expectations about how long it will take the resources it will take and providing the proper support. For example, it's a good rule of thumb that, with any piece of software, it will take twice as long and cost twice as much as you expect.

Anderson is in full agreement. "Our consultant at the time told me to put someone on it, full-time—hire someone if necessary. I laughed and said, 'You're crazy!' Now, five years later, I know better—I should have listened." Sure enough, the implementation took longer and cost more than expected. But Full Sail did learn from the experience. It now has a full-time developer on staff.

Other lessons from strategic software implementations?

- Develop a phased implementation plan.
- Set up employee training and change management in advance.
- Have an internal champion that will drive the process.

There is truly a difference between software investment and strategic software investment. Every company is unique and has individual preferences and needs that need to be taken into consideration. With so many variables, having a set process to help walk through and narrow the options in a strategic way can make the difference between purchasing a software that looks good in the box and one that is both ideally suited to your company's business goals now and one that supports them in the future, as well.



DEALING WITH DYES

Two Recent Developments Promise to Improve Textile Sustainability

BY CARY SHERBURNE

The textile and apparel industry is notorious for its contributions to the climate crisis, including, but not limited to, contamination of precious fresh water, excessive waste with much of it ending up in landfills, generation of greenhouse gases and reliance on petroleum-based fibers that do not biodegrade, and a continuing push to get consumers to buy cheaper, often trending, clothing that is only worn a few times before being discarded (fast fashion). Progress to mitigate these issues has been slow, but there are two recent developments that can help with some of these issues, including de-inking of fabric printed using dye sublimation, and a graphene-enhanced water filtering system that removes 79% to 85% of contaminates in wastewater, including toxic textile dyes. In this article, we provide information on these projects, both of which are in early stages of development. We hope this discussion both raises awareness of the sustainability challenges facing the textiles and apparel industry and some potential solutions which, if scaled sufficiently to be brought to market in a commercially viable manner, could help the industry make substantial progress against sustainability goals.

DE-INKING FABRICS PRINTED WITH DYE SUBLIMATION

In the commercial printing industry, there was a significant effort made to ensure de-inkability of paper in order to be able to more effectively recycle it. This included removing ink applied with both analog and digital printing technologies. The industry responded relatively quickly to these challenges, including removing of UV-cured and toner-based inks. These days, you really don't hear much discussion about de-inkability—it's table stakes.

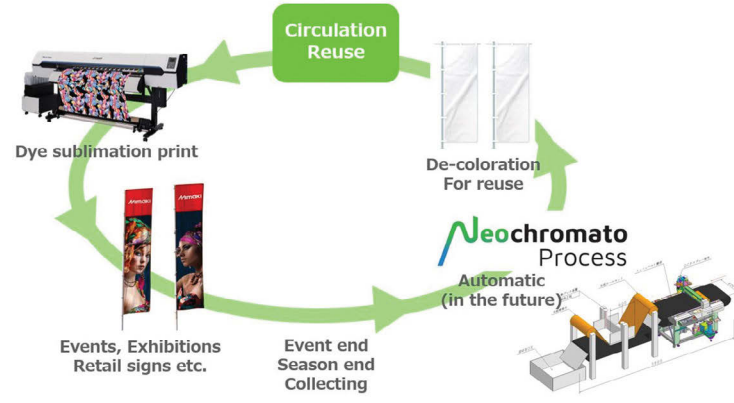
But with printed textiles, it's a whole different story. Some 60% of printed textiles are polyester or poly blends, and much of that is printed or decorated with dye sublimation inks, both in analog and digital processes. Last spring at the ISA Sign Expo, and again last fall at PRINTING United, Mimaki introduced its Neo Chromato Process, a pilot project that removes ink dye-sublimated onto textiles, resulting in a white textile that can then be reprinted or more easily recycled.

We spoke with Mimaki's Senior Segment Specialist, Victoria Harris, to get more details on this innovative process. The full video interview can be accessed at https://whattheythink.com/video/117652-mimaki-offers-integrated-direct-film-printing-solution.

Victoria Harris
MIMAKI'S SENIOR SEGMENT SPECIALIST

Harris explains, "The Neo Chromato Process was created around our initiatives to create circularity within the digital textile sphere, to be able to recycle and reuse sublimated fabrics. Some 92 million tons of waste goes into the landfills every year. It cannot be incinerated. And consumers continue to purchase more than they need and throw away clothing with little use. That's the basis of bringing this concept to market—to mitigate that waste."

According to Harris, the process uses a proprietary discharge fluid that coats the fabric. An absorbent layer of non-woven fabric is then placed on top of it, and the material is put in a heat press for about three minutes at 160 to 200°C. Once removed from the heat press, the non-woven fabric, which has absorbed all of the ink, is removed, and what remains is fabric which can be reprinted. She adds, "Our internal testing indicates that this process can be repeated up to 20 times." Alternatively, the processed fabric could be broken down and repurposed into new fiber or other polyester applications.



A challenge here is scaling the solution. Harris says, "The concept we have brought to market thus far definitely needs full technology development, and the equipment is still in design and development. With this proof of concept, we are looking to gauge the market to determine if there are other industry

leaders and/or collaborators that are also interested in taking this further toward commercialization, and if so, we encourage them to contact us."

Harris points out that apparel is a key target, but also trade show exhibits, which might be an easier one to tackle first. "After the trade show is over, those exhibits, which are increasingly textile-based, are just torn down and put in the trash. It's a huge waste. Perhaps this is a service that trade show companies could offer. That's an example of the type of collaboration we are looking for."

ADVANCED DYE-NAMICS: AN INNOVATIVE STRATEGY FOR REMOVING TOXIC DYES FROM WASTEWATER

Clearly, preparing sublimated fabrics for reuse or recycling is an important step toward increased sustainability. But another aspect that dogs the textiles and apparel industry is the massive amount of water that is used in preparation of textiles, as well as the effects of dyes emitted into the wastewater stream. There are, of course, filtering systems available to remove all or part of the dyes and other contaminates from wastewater, but they can often be costly and require substantial changes to the wastewater processing systems already in place.

A ray of hope comes from a project underway in India through a collaboration between researchers from the Indian Institute of Technology Madras (IIT Madras) and Tel Aviv University, Israel, who have developed an aerogel adsorbent modified with graphene that can remove trace pollutants from wastewater. This aerogel removes over 76% of trace pollutants and textile dyes (PPM level) in continuous-flow conditions, offering a sustainable path for large-scale water purification. The research team is dedicated to enhancing these results for large-scale applications. It's another fascinating use for graphene, often called a miracle material and which was discovered in 2004 at the University of Manchester in the UK.

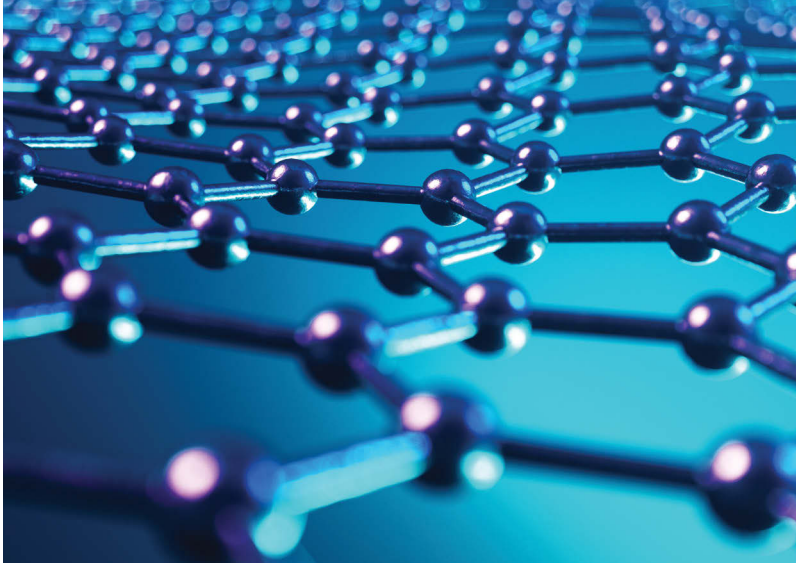
The new aerogels, which are incredibly lightweight solids composed mostly of air, are excellent adsorbents (a solid substance used to remove contaminants). In addition, they offer advantages like adjustable surface chemistry, low density, and a highly porous structure. These materials, often referred to as "solid air" or "frozen smoke," can be easily fabricated. Under real-life conditions mimicked in the researchers' experiments, the material removed over 85% of pollutants in controlled settings and more than 76% in continuous-flow conditions.

According to Subhash Kumar Sharma, one of the IIT Madras researchers, "After a thorough review of multiple research articles on graphene and its properties, we decided to employ graphene oxide for the doping process. Graphene oxide, a derivative of graphene, features a single layer of carbon atoms arranged in a hexagonal lattice. While graphene possesses exceptional mechanical, electrical, and thermal properties, graphene oxide offers advantages in terms of ease of production in large quantities and enhanced functionalization. This characteristic makes it suitable for a broader range of applications. The development of graphene oxide-based materials has been driven by the desire to harness the unique properties of graphene for practical purposes. Researchers and scientists have explored its applications in electronics, energy storage, sensors, biomedical technology and more."

Subhash notes there are a number of properties of graphene that make it a remarkable material for this use case including:

- Large Surface Area: Graphene oxide (GO) has a two-dimensional structure with a large surface area. This extensive surface provides ample active sites for the adsorption of pollutants, allowing for a higher adsorption capacity.
- GO contains various oxygen-containing functional groups, such as hydroxyl, epoxy, and carboxyl groups, on its surface, that enhance the chemical reactivity of GO and provide active sites for interaction with pollutants through mechanisms like hydrogen bonding and electrostatic interactions. These functional groups increase its reactivity, allowing it to effectively interact with a wide range of pollutants present in wastewater.
- GO is versatile and can be easily modified or functionalized to tailor its properties for specific pollutants. This versatility makes it adaptable to various wastewater treatment scenarios and allows for the optimization of its adsorption capacity.
- Compared to pristine graphene, GO is more easily produced in large quantities. This scalability is advantageous for practical applications in wastewater treatment on a larger scale.
- The biocompatible nature of GO is advantageous for certain applications, especially in biological wastewater treatment processes. Its compatibility with biological systems can facilitate the removal of organic pollutants.

Subhash adds, "Compared to energy-intensive processes like reverse osmosis, GO-based adsorption typically requires lower energy consumption.



This can contribute to a more energy-efficient and environmentally friendly water treatment solution. GO-based adsorption systems can potentially integrate with existing water treatment infrastructure, minimizing the need for extensive modifications or replacements." Plus, with reverse osmosis, the water recovery percentage is a maximum of 50% while this new system does not have this limitation.

One example of a use case would be implementation of this system in textile mills. This could deliver multiple benefits including production of treated water that could be recycled for reuse within the mill. This has the potential to reduce the overall water consumption of the facility. In addition, recycling water can lead to cost savings for the mill, as it reduces the need to source and treat fresh water for industrial processes.

This is just a surface overview of the benefits of this research and its potential viability in the marketplace. For a more detailed technical explanation, download a peer-reviewed article published in Scientific Reports of the Nature Portfolio.

Like the Neo Chromato Process from Mimaki, it will take some time for this filtering system to be commercially available. Subhash concludes, "Regarding our market entry, it will require some time as we are diligently addressing various aspects to ensure a well-prepared and thoroughly analyzed approach. We are committed to entering the market when adequately equipped and have comprehensively assessed the potential market dynamics. The scalability of our solution is not an issue, given that we have already conducted a successful pilot-scale plant study."

GLITTER IS NOT GREEN

Why petroleum-based glitter should be banned worldwide

BY CARY SHERBURNE

Growing up, most of us used glitter in one way or another. Glitter and glue were attractive components of grade school art projects. We loved having it on our clothes and shoes, or anywhere it could sparkle. We love glitter in our makeup and nail polish. And it sure dresses up greeting cards, gift bags and more. It's sparkly. It's festive. Let's face it, glitter is fun!

In many ways, glitter was a bane of our parents' existence. But even more importantly in today's sustainability-minded society, traditional petroleum-based glitter is an environmental hazard to be avoided.

As with many things environmental, the EU is playing a leadership role in the glitter battle. As of October 18, 2023, no resident of the EU will be able to buy or sell glitter across the 27 European countries that make up the EU. Biodegradable glitter is not included in this ban.

WHAT IS GLITTER?

Glitter is a type of microplastic, which means that it is made of tiny pieces of plastic that are less than 5 millimeters in diameter. Microplastics are a major source of pollution in the environment, and they can have a number of negative impacts on wildlife and ecosystems.

Glitter is made of plastic and aluminum. This means that it is not biodegradable and will not break down naturally in the environment. As a result, glitter can persist in the environment for hundreds or even thousands of years.

Glitter is just one of the microplastics harming our environment. The elimination of plastic glitter, while not a quick fix for all of our microplastic woes, is clearly one step on that pathway.

HOW DOES GLITTER HARM THE ENVIRONMENT?

Glitter can easily end up in the environment. It can be washed away from beaches and streets during storms, and it can also be released into the air when people use glitter products. Once glitter is in the environment, it can be eaten by fish and other marine animals, which can lead to health problems and even death. Some of its harmful effects include:

- Glitter can accumulate in the food chain. When fish and other marine animals eat glitter, the glitter can pass up the food chain to larger

predators, such as sharks and seabirds. This can lead to the accumulation of glitter in the bodies of these animals, which can have a number of negative health effects.

- Glitter can harm aquatic ecosystems. Glitter can damage the habitats of aquatic plants and animals, and it can also interfere with their feeding and reproduction. For example, glitter can coat the gills of fish, making it difficult for them to breathe.
- Glitter can be harmful to human health. Some studies have shown that exposure to microplastics can have negative health effects on humans, such as disrupting hormones and increasing the risk of cancer. A 2019 study estimates that humans take in up to 100,000 bits of plastic each day by ingesting or inhaling them. Not all of this is glitter, of course, but glitter is arguably one of the most visible sources of this contamination.

GREEN GLITTER ALTERNATIVES

A University of Washington post argues that going glitter-free is a good idea, but admits it may not be much fun, adding:

> *"For those of us not quite ready to eschew glitter for good, many companies have started producing biodegradable glitters made with the mineral mica and vegan glitters made from plant cellulose that can refract light to create vivid colors."*

According to the post, Bio-glitter from Sigmund Lindner GmbH is currently the only glitter that has been independently certified to biodegrade in normal conditions in the natural environment, including in fresh water. It is 100% plastic-free and is made from regenerated eucalyptus cellulose that is responsibly sourced.

German company Projekt Glitter is one company offering bio-glitter, made with biodegradable materials like cellulose, instead of plastic, and colored with cosmetic-grade natural dyes, making it much kinder to the environment. The company says, "It gives you all the sparkle you love, without the environmental damage." Projekt Glitter offers more than 30 different glitter blends, and its products are available in 35 countries.

CONCERNED ABOUT THE ENVIRONMENTAL IMPACT OF GLITTER?

Here are a few things you can do:

- Avoid using glitter products whenever possible.
- Choose products that use biodegradable glitter alternatives.
- Recycle glitter products whenever possible.
- Clean up glitter spills immediately.

By taking these steps, you can help to reduce the amount of glitter pollution in the environment.

Author's Note: *Google Bard, a chat-based AI tool from Google, helped me write this article.*

JOHNSON'S WORLD

Getting Real About Artificial Intelligence

BY STEVE JOHNSON

At a conference of printing sales managers way back in, oh, sometime in the early 1990s, we were treated to an overview of a new technological phenomenon called "the World Wide Web." I might have been the youngest guy in the room.

When the session was complete, the presenter asked his audience what they thought of it.

"It's like drinking from a firehose," replied one of the attendees, looking more like a deer in the headlights than an experienced management professional.

Fast forward three decades, and here we are, feeling the same way about artificial intelligence, or AI for short.

Ah, but there is a difference. We now all use computers every day—in fact, every minute. We call them phones, but in reality what we all carry around are microprocessors. We feel lost without them.

It is even more than that. Our autos, our homes, our printing machinery are all driven by computer chips. Artificial intelligence is already here, and it is pretty advanced. You've been "googling" information for decades. Why shouldn't your computer use this same firehose of information to assemble content the way an artist, an author, or a reporter does?

Depending upon who you ask, AI means either the beginning of the end for the human race's domination of the world, or the elimination of all our jobs…or the debut of a really amazing and useful tool with almost limitless possibilities.

In fact, it might be all three, but let's take a look at the latter scenario.

Matt Therriault is the owner of Footprints Floors, a growing franchise business in the bustling Peachtree City area of south suburban Atlanta, Ga. Matt keeps busy following up on sales leads, estimating, and assuring customer satisfaction, but he knows the importance of marketing to keep the lead pipeline full.

There are only so many hours in a day, so Matt has outsourced his social media marketing efforts.

"Recently I switched to a new company that uses artificial intelligence to generate posts. The cost is about a tenth of my previous vendor, but the results are great." Matt admits that the quality of content isn't perfect, or even perfectly consistent, "but it is good enough to get the job done."

The annoyance of an occasional post that isn't worded as poetically as it could be is easily overcome by the results obtained by consistently posting content each day, day after day, day in and day out.

Judge for yourself by checking out @FootprintsFloorsPeachtreeCity on Facebook or Instagram. In my humble opinion, the AI-generated posts are of a quality that is at least equal to the average human-generated business posting.

Is this "cheating"? Of course not. It might be on a doctoral thesis or a college admission essay (that is a different discussion for another day) but this is business.

Footprints Floors has a story to tell, and they are using AI to tell it. Consumers in need of hardwood, vinyl, or tile floors don't give a hoot if content is written by the owner, an ad agency, or artificially. They have a need, they want answers, and AI assures that they will know where to go to get what they need.

Philosophers worry that AI has the capability to take over the world, and that it will be a brutal master. Perhaps. Until that day, it appears that it will be a most useful servant.


NEED
ASSISTANCE?
GIVE US A MINUTE...
OR LESS
99% OF CALLS ANSWERED
WITHIN 60 SECONDS.
(800) 265-8830
SIGNS365