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Please send news and articles for potential publication to [magazine@printing.org](mailto:magazine@printing.org).

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## Autonomous Printing for Short and Long Production Runs

**Walter Chmura**

Vice President of Technical Sales  
Koenig & Bauer

For the past few decades, printing press manufacturers have been in a race to develop an array of automation features needed to nearly completely eliminate an operator's intervention during a press run, otherwise known as autonomous printing. Printers envision a shop that works collectively to quickly produce both short and long production runs, helps to easily train new press operators, and allows them to integrate aggressively and successfully with digital technology. It is the pinnacle of automated press production in which a print job can be produced using fully automated technology from the first full sheet on new production to the beginning of new job production.

We're happy to report that the autonomous printing vision has become a reality. Engineering teams, like ours at Koenig & Bauer, are unveiling unrivaled technology to reduce a printer's makeready time and waste in an effort to incur the least amount of time as possible. Using new technology, printers will operate a press in which its key automation features will operate simultaneously and autonomously throughout the makeready process on every job programmed in the press console.

More and more, printers are being challenged with shorter run lengths that demand automated technology to drive efficiencies. Wash-ups, plate changes, and color approvals are all necessary operations that efficiently move one job to the next. Like automobile manufacturers that have developed hands-free driverless vehicles, press manufacturers are developing autonomous printing presses. For example, Koenig & Bauer offers its Ergo-Tronic AutoRun, which starts a job change automatically as soon as the production of the previous job is completed—and then resumes production automatically once

the necessary makeready steps are completed. This cycle is repeated over and over until either the operator cancels the auto-run function or all jobs on the prepared job list have been printed. Start of makeready, job changeover, start of production, color and register control—each of the individual steps are fully integrated and everything is triggered automatically at the appropriate moment. Press crews simply monitor the process sequence and are thus relieved of routine tasks. This system enhances the capabilities of a press, takes the workload off the operators, and provides a modern work environment.

To optimize today's offset press technology, one needs to look at many influencing factors, such as workflow from job to job, to ensure scheduling is optimized for various substrates, sheet sizes, number of colors, etc. This can all be optimized by simultaneous processes, integration of press and prepress, logistic systems, autonomous operations, and optimizing press capabilities with the operator's skill level. When all of these factors are properly managed, offset can handle everything from ultra short runs to long runs in the most efficient and optimal manner.

### ABOUT THE AUTHOR

Walter Chmura comes from a highly technical background of over 30 years in the printing industry. He has risen to vice president of technical sales through his thorough understanding of the needs of customers, unique applications, and a focus on ensuring customers' long-term profitability. Walter is a trusted advisor to printing companies in all market segments throughout North America.





## Are You Ready for Expanded Gamut Printing?

**Abhay Sharma**

Professor  
Ryerson University

An exciting development in color management is expanded gamut printing, where the color gamut of a CMYK print process is expanded by adding, for example, orange, green, and violet inks to create a CMYK-OGV ink set. Expanded gamut printing allows for no spot color inks, no ink changes, no spot color ink inventory, and higher color accuracy.

CMYK-OGV systems are ready today. HP Indigo digital presses are shipped and installed as seven-color systems. Heidelberg's Gallus Labelfire 340 and Primefire 106 inkjet presses target package and label printing. Customers can choose from many workflow products such as Kodak Spotless or ORIS X GAMUT or PACKZ.

Printing for many years has used CMYK inks. Due to imperfections (such as impure colorants and unwanted secondary absorptions by the dyes and pigments) CMYK processes create a much smaller color gamut than ideal. Spot colors have been used to address the shortcomings of CMYK systems. By using a CMYK-OGV ink set, printers can hit any spot color they

want. Think about it—reproducing any spot color you want, but not using any spot colors!

It is important to realize that in expanded gamut printing, every color is made from only two or three inks. So although we are using a seven-color ink set, we only ever use two or three inks at any one time.

and yellow inks. Cyan is a blue color—the opposite of yellow and far away from yellow—so even a small amount of variation on press will have a large impact on the printed color.

In an expanded gamut system, a yellow color would be made from the three nearest colorants,



*Figure: Every swatch in the Pantone Extended Gamut Guide is made with a maximum of three inks.*

In the press room, CMYK-OGV printing is very accurate. In CMYK printing, the colorants are very far apart. To create a yellow color in a CMYK system we have at our disposal only cyan, magenta,

perhaps green, yellow, and orange. A shift in any of these colorants is not going to make as big a difference in the printed color because all three of these colorants naturally constitute yellow.

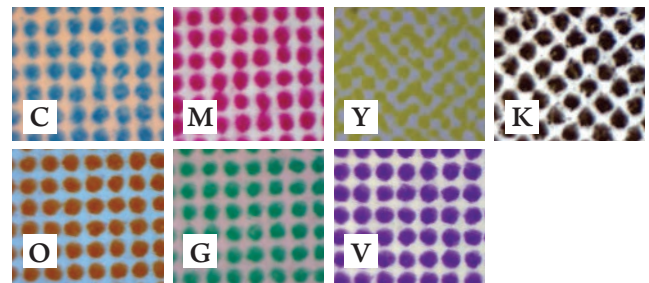
To illustrate the better accuracy in expanded gamut printing, we picked up and measured Pantone 2371 C from a swatch book. The swatch had a color difference of 0.73 CIEDE2000, where anything less than 1 is not worth worrying about.



**Figure:**  $L^*a^*b^*$  values between Photoshop and measured values from a Pantone Extended Gamut Guide swatch book are nearly identical. Would you have achieved such accuracy in your older swatch books?

The Ryerson University Expanded Gamut Study 2019 tested the following commercial systems: Alwan, CGS ORIS, ColorLogic, GMG, Heidelberg, Kodak, PACKZ, and X-Rite. Test forms and print samples were produced on the Epson SureColor P9000 inkjet and the HP Indigo 7900 digital press.

In real tests these commercially available systems were able to reproduce 95% of the Pantone+ Coated Library to 1 Delta E tolerance. I repeat, these solutions were able to reproduce every spot color without using a single spot color ink!



**Figure:** Magnified output from an HP Indigo 7900 digital press shows the CMYK-OGV colorants.

Today, expanded gamut printing allows packaging and label printers to print brand colors without the production overheads of conventional spot color printing. The technology is ready—are you?

### ABOUT THE AUTHOR

Abhay Sharma is a Professor at Ryerson University, Toronto, and author of a new book, *Understanding Color Management*, 2nd Edition, Wiley, 2018



HP Indigo 7900 Digital Press



# Climate Change and Extreme Weather— Is Your Business Prepared?

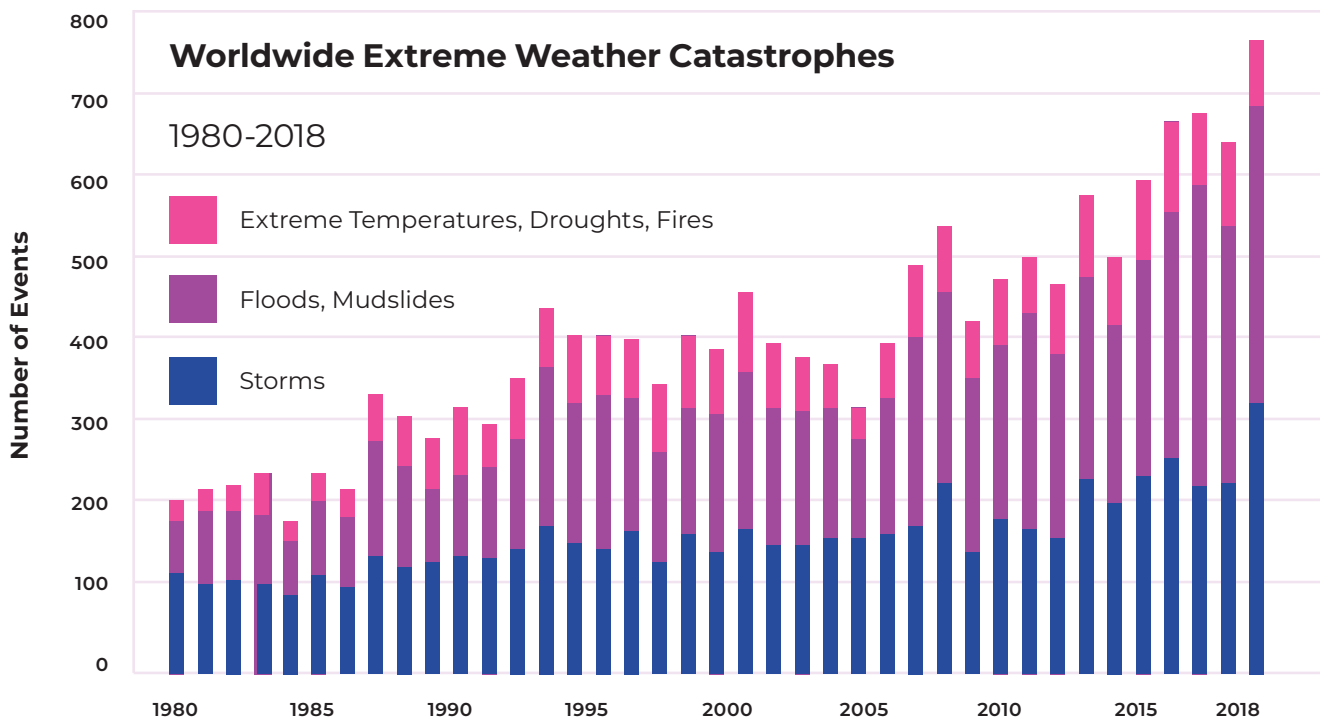
**Jamie Mackay**

Director, Environmental, Health & Safety Affairs  
Printing Industries of America

Global warming, climate change, or extreme weather—whichever of these phrases you choose, they all represent the foretelling of changes in the environment that impact communities, businesses, and human existence. Climate scientists attribute the changes to man-made emissions of greenhouse gases such as carbon dioxide primarily from fossil fuel burning. Those who question the science suggest the Earth is experiencing natural changes in weather that have been occurring for millions of years. Either way, Mother Nature is a formidable force and something has happened to cause a shift in her temperament, resulting in more frequent extreme weather events.

Extreme temperatures, droughts, wildfires, floods, mudslides, and severe storms are occurring more often, with devastating effects on homes, businesses, and infrastructure. The tendency is to deal with the destruction after it occurs instead of preparing in advance to withstand these events and minimize the damaging impacts. But, what can you do to protect your business before, during, and after these events?

Planning is critical. Having a business continuity plan to address disruption in your business due to extreme weather events is essential. Consider the steps you may need to take if an extreme weather event prevents your





employees from arriving to work, prevents materials from being delivered to your plant, or prevents product from being shipped to your customers. If your plant is unable to operate due to the impact of extreme weather, making advanced arrangements with another plant in a different geographical location to produce product for your customers may be necessary to stay in business. A robust business continuity plan could be the difference between a “going concern” and “going out of business” due to extreme weather.

Develop plans to accommodate your employees. If your business is located in an area prone to extreme heat and your employees are required to work in hot conditions, plan the work schedule so the employees can take frequent breaks and drink water more often. If your employees could suffer damage to their homes and personal vehicles due to extreme weather events, develop personal continuity plans to provide temporary housing, food, and transportation to ease the burden on your employees and their families and minimize lost wages. Employees are your most valuable resource, and safeguarding them from the impacts of extreme weather makes good business sense.

In addition to continuity planning, consider what else can be done to make your operations more extreme weather proof. Capital investments, expansions, or moves to a different location should take extreme weather occurrences into consideration. Building materials that are fireproof or can withstand strong winds and storms may be a good choice for expansions or new buildings. When planning a move to a different location, evaluate recent extreme weather events in that area and the impact on the surroundings. If you are located near a coastal area that is in jeopardy due to rising sea levels, start planning now for a move to a more climate-friendly area. You should take precautions to protect your assets and avoid costly repairs due to extreme weather.

Energy supply is also worth examining. Technological advances in solar power, wind power, and battery storage have reduced the cost of renewable sources of energy, making them equal or less expensive than fossil fuel provided electrical energy. If you have a

choice of electricity suppliers, going with a supplier whose source of power is predominantly renewables may be the less expensive option. And, according to climate scientists, renewable energy is key to fighting climate change. Switching to renewable electricity also provides the opportunity to switch to electric industrial vehicles, which will improve indoor air quality in the workplace by eliminating vehicle emissions. Whether you are motivated by reduced energy costs, improvement in workplace conditions, or environmental protection, switching to renewable sources of electrical energy may be advantageous to you.

Although you can't change the weather and it's not wise to mess with Mother Nature, you can certainly prepare your business to more effectively endure extreme weather events. What you do now and the plans you put in place can make a difference in your business's long-term viability. Preparing for the impacts of climate change and extreme weather is a must for any business that expects to be in existence in the foreseeable future.

### What To Expect



#### Extreme weather events will increase:

- Plan for business disruption
- Safeguard your employees
- Protect your assets
- Shift to renewable energy
- Be prepared!

For more information on Environmental, Health, and Safety services provided by PIA, please contact [EHS@printing.org](mailto:EHS@printing.org)

It wasn't that long ago when  
a little schmooze and booze  
pretty much sealed the deal.  
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There are companies changing our industry in the most radical, forward-thinking ways imaginable. Some have taken inspiration from the outside world, others are simply thinking outside the box. Either way, all are creating a thriving future based on bold, innovative products designed to meet our customers' rapidly changing needs. At PRINT® 19, we'll tell you how you can join them.

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Celebrate a little or celebrate a lot. All that's required is a passion for print.  
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**Advocate with Elected Officials by Hosting a Facility Tour** – Hosting a U.S. Senator or Representative, state lawmaker, or county/city elected official to tour your company is invaluable in building and maintaining relationships. It gives you the opportunity to share your successes and challenges while lawmakers can witness firsthand the impact policies and regulations have on your company and employees. PIA will provide you with a Facility Tour Toolkit including all the resources you'll need.

**Show your Support for Print Powers America Today** – Print Powers America supporters will receive an EXCLUSIVE Print Powers America Week Celebration Kit. If your company has not yet joined as a 2019 supporter, please take a moment and consider becoming one today.

**Share it on Social Media** – Let's make **#PrintPowersAmerica** a hot social media trend! We'll provide you with sample social media posts and graphics related to each day's theme—or feel free to create your own.

**Wear it** – We're excited to be celebrating Print Powers America Week as part of PRINT® 19 to show how print truly powers innovation! Stop by our booth (#834) to pick up your Print Powers America swag!

**Engage Your Whole Company** – Print Powers America Week is the perfect time to engage your entire company in promoting the power of print. Here are just a few ideas to implement:

- Host a community cleanup around your facility.
- Take a company-wide photo to show that you're Print Proud!
- Plant trees to give back to the Earth.
- Offer Print Powers America week discounts or promotions to customers.
- Open your doors to the community by hosting a Customer Appreciation Day!
- Hand out Print Powers America week swag with each order.
- Host an educational tour for a local VoTech, high school, or trade school program.
- Host a book drive for your local library, school, or shelter.
- Donate or sponsor new books and supplies to your local library or school.

To learn more about Print Powers America Week or to register your company to participate, visit [www.printpowers.com](http://www.printpowers.com).





## The Advantages of Buying Groups, Alliances, & Group Purchasing Organizations

**Dan Bendele**

President & CEO

Independent Printers Worldwide

If there is one constant throughout the history of business, it is this: business owners are always looking for an opportunity to save money, increase revenue, and minimize risk. From Greek merchants forming co-ops to share the risk of transporting goods by sea to 18th century weavers creating guilds to combat large-scale industrialization, the history of business is full of stories of independent companies coming together to maximize their leverage and power.

The challenges faced by those who came before us are similar to those we see today in the graphic arts industry. Constantly evolving technology, consolidation, fluctuating prices, shortages of skilled laborers—all these things have happened before and will likely happen again. Just as the problems have not changed, neither have the solutions. One of the best ways to maximize your company's strengths, retain independence, and compete with the best printers in the industry is to join a buying group or group purchasing organization (GPO).



### Here are three reasons why joining a GPO is the right move for your organization:

**Your company will save time & money:** Who doesn't want to save time and money? The key promise of buying groups, regardless of the industry, is that their members will save money. Whether it's discounted pricing or back-end group purchasing incentives, participating in a GPO will help your business save on the things you need to run your day-to-day operations. On top of saving money for members, most GPOs spend a significant amount of time vetting their suppliers. This gives members the peace of mind to know that the suppliers they can choose from are best in class.

**Joining a GPO provides opportunities for networking:** Business owners often feel like they're operating in a vacuum. Almost all GPOs provide opportunities for their members to gather together and share best practices. As part of a GPO, you are connected to a huge array of business owners working toward the same goals you have for your company. Need help solving a technical problem in your shop? Reach out to your group; it's likely someone has faced the same issue.

**Becoming part of a GPO expands your influence:** While the saying "bigger is better" isn't always true, it is a fact that larger companies have advantages over their smaller competitors. When you partner with a buying group, you get the benefits of increased spending power without sacrificing the unique features that make your company special. The leverage of a GPO gets you attention from suppliers that can make all the difference.

At Independent Printers Worldwide, our goal is to help take costs out of the process for members and suppliers. As part of a GPO, you are on the cutting edge of the industry in supply chain innovation. If you are looking for ways to take your company to the next level, take a look at a GPO today.

### Print-related alliances:

- Independent Printers Worldwide, Inc.
- Flexo Label Advantage Group
- Independent Carton Group
- Number 1 Network
- Graphic Source
- Graphic Arts Alliance
- NetPrint
- Page Cooperative
- Cox Newsprint Supply
- Association of Independent Printing Paper Merchants (AIPPM)

### ABOUT THE AUTHOR

Dan Bendele, President & CEO, founded Independent Printers Worldwide (IPW) in August 1998 into a national procurement group specializing in superior vendor programs for independent printers. With over 321 members (201 commercial, 8 envelope, 12 packaging, 100 FLAG label), throughout North America, IPW members sell over \$4 billion annually in print and communications solutions. Core areas for IPW are strategic sourcing (paper programs, small packaging, LTL shipping, ink, coatings, prepress suppliers & equipment, digital & wide-format solutions, service & equipment programs, label converters programs), superior supplier management, and spend analysis. These foundational strategies and proven 20-year success have created a “lifeline” for independent printers under assault by industry consolidation and change.

For more information please visit [www.ipw-inc.com](http://www.ipw-inc.com).



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# Unbiased Eyes:

## The Importance of Third-Party Lab Evaluations



**Lindsay Ferrari**

General Research Technician  
Printing Industries of America

Printing Industries of America's lab has experience evaluating materials used in the graphic arts industry. Our lab evaluates paper and ink characteristics using established standards, such as Technical Association of the Pulp & Paper Industry (TAPPI), the American Society of Testing Materials (ASTM), International Organization for Standardization (ISO), and the National Printing Ink Research Institute (NPIRI).

The lab evaluates materials proactively by providing quality control evaluations for printers, suppliers, and vendors across the industry. Some customers submit materials on a regular basis as a quality control

measure to ensure the products they are being provided are consistent and reliable. Past customers have submitted ink samples in order to keep their vendor honest or to confirm the ink formulation from year to year. By establishing a baseline for something like the tack of the ink, printers are then able to supply samples to the lab at PIA for quarterly testing and compare those quarterly values to their baseline values, ensuring consistency and repeatability of the ink.

Recently, the lab took on a job to verify that textbooks were printed in compliance with a customer's contracted specifications and international standards for quality. Of the 12 million printed textbooks, the lab conducted testing on a sampling of 700 textbooks and presented the test results in the form of a report. Some of the requested tests such as basis weight, brightness, and opacity are tests that we typically offer. This customer required additional testing such as size of pages, number of pages, and a visual evaluation of the printing to identify if it was printed four color. We do not typically perform these tests, but they are easily completed without having to purchase any additional equipment.

In addition, Printing Industries of America's lab provides analytical evaluations of jobs that did not go

as planned. Often, when conflicts arise concerning "jobs gone bad," **customers will send the materials to Printing Industries of America for an unbiased, third-party evaluation to determine what went wrong and possibly how to prevent it from occurring in the future.** Many customers choose PIA for testing because of the objective evaluations we provide. When a printer and a manufacturer are having an issue, often times they will send samples to our lab for testing and agree that our findings will be the final decision. We perform the testing and present the findings as they are.

As customers continually demand higher quality materials, both printers and suppliers must be prepared to meet these demands. The lab at PIA can help with this by offering tests for materials such as ink (duke emulsification, tack, and ISO 2846), paper (brightness and opacity) and binding evaluation (page pull and flex). Our unbiased, third-party evaluation provides customers with an objective analysis that can establish a baseline for materials testing.

For more information on lab services at Printing Industries of America, visit [www.printing.org/testing-services](http://www.printing.org/testing-services).



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## Color Measurement Is Now in the Palm of Your Hand

**Janyne Leonardi**  
Ryerson University

Color is a perception, an experience that happens in our eye and brain systems. This means that it is not a science. There are many factors that greatly affect the way we perceive color, such as light, device calibration, and human error. Various industries all over the world rely heavily on color, and with more than 10 million colors in existence, there is a need for objective solutions that resolve the inconsistency of perceived color measurement. One solution involves the conversion of colors to a mathematical basis, creating numeric codes that can be read by printers and software. However, in order to do that, every color needs to be measured in a universally controlled environment, where lighting and measurement techniques are the same for each color.

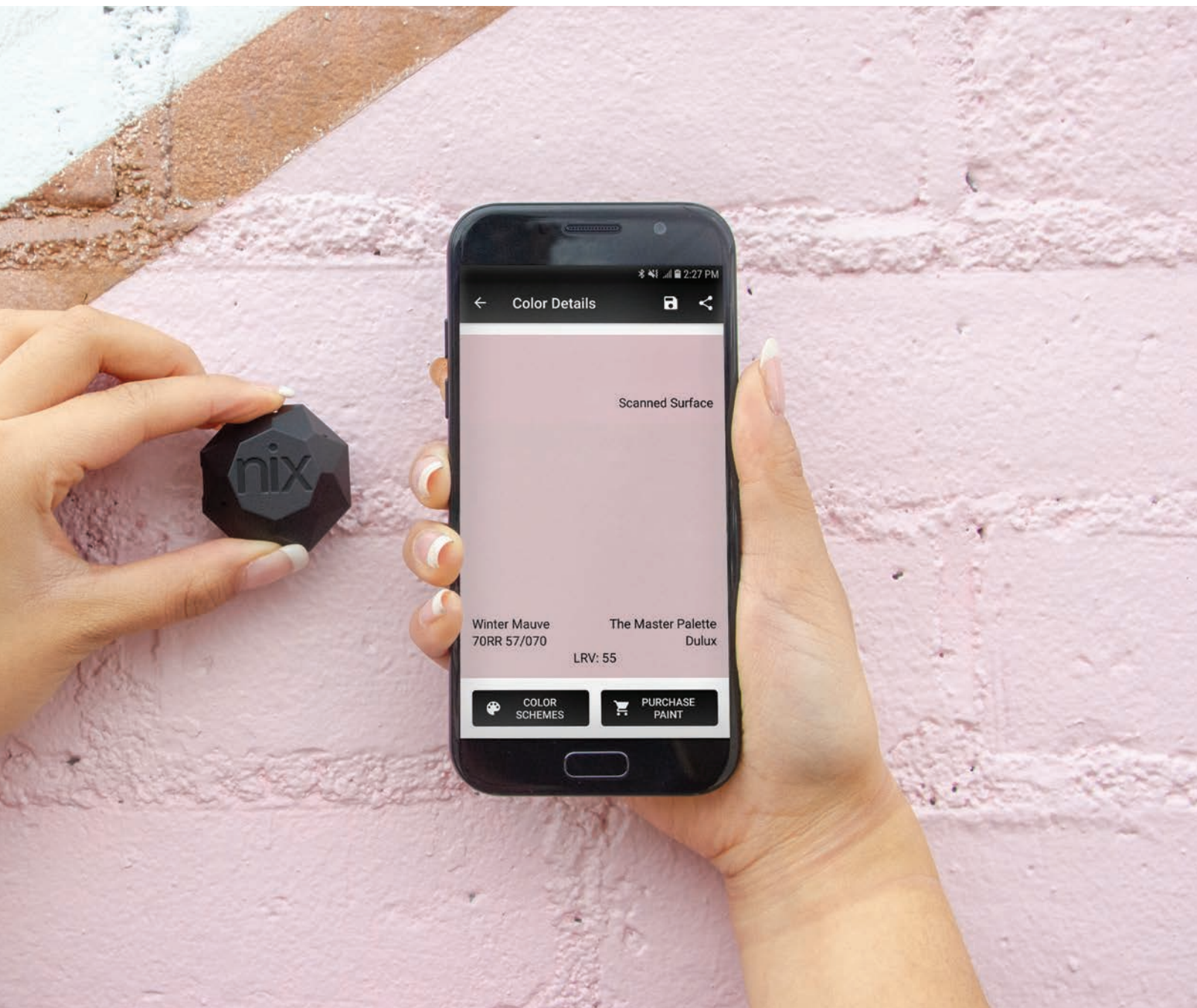
**Colorimeters** are portable devices that create this controlled environment and accurately measure color. One of the more notable features of colorimeters is the ability to convert the color into different units of measurement. This is an excellent way to ensure that the color perceived through a display is the same one that will be perceived once printed. Colorimeters used to be a synonym for large, complicated, and expensive devices. However, a new generation of colorimeters is taking advantage of another portable device that we already carry with us all day: our smartphones.

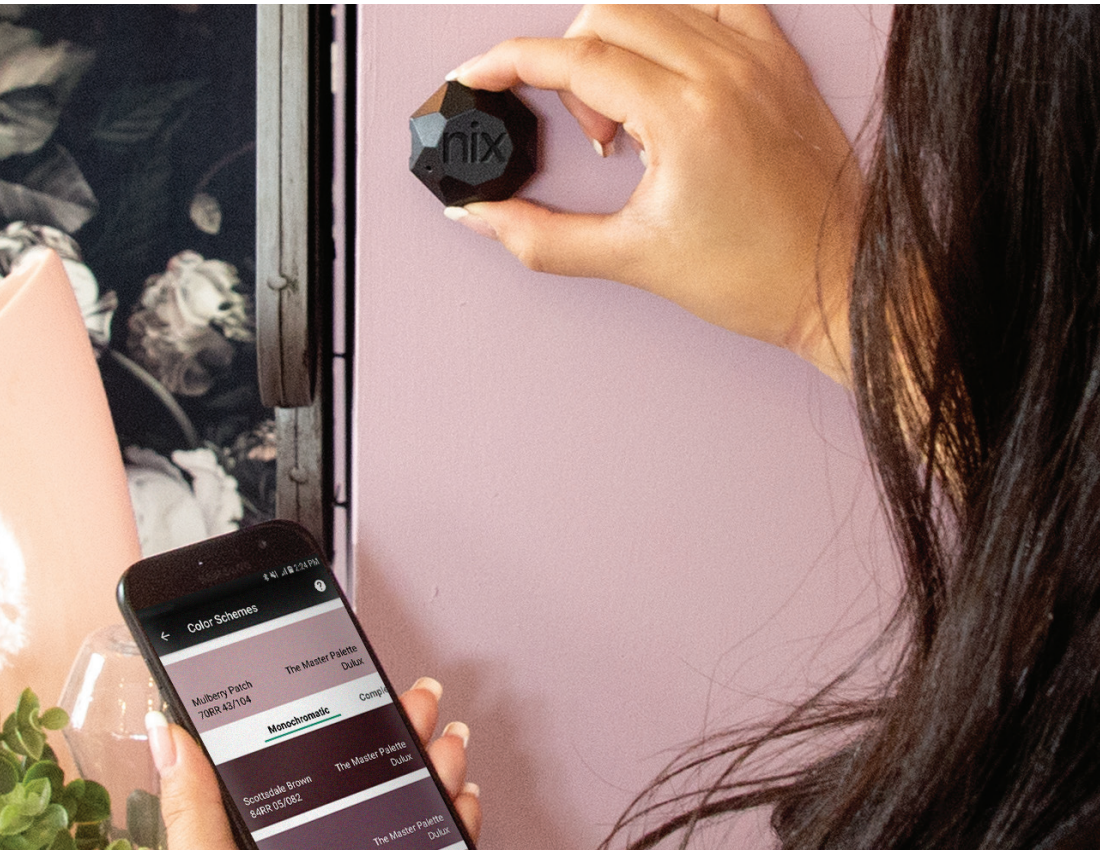
Modern smartphones have properties that can integrate with a colorimeter device and decrease costs: Bluetooth to connect with the device, a processor to run specialized apps, a display to show results, and a data or Wi-Fi connection to share the information. This allows for a shift in focus to perfect the way colorimeters control lighting environments, making color measurement a simpler user experience.





“Color is a perception, an experience that happens in our eye and brain systems.”





That is exactly what Nix Sensor Ltd. has done. The Canadian company has built devices with a patented diamond-shape design that fits in your hand and blocks any ambient light interference while using its own calibrated light source to measure the color of any solid, liquid, powder, or gel.

Their smallest device, the Nix Mini Color Sensor, was built to be simple, easy to use, and durable. It has a robust design with no moving parts, does not need calibration tiles, and has no buttons. It is rechargeable with a USB cable and takes

about three hours to fully charge, being ready to last for approximately 3,000 scans per charge.

The Nix Mini pairs with a smartphone app called Nix Digital and displays color data in the app. It shows the measurement in many color units, such as sRGB, HEX, CIELAB, CMYK, LCH, and LRV (Light Reflectance Value). You can share the measured color and also use the application algorithm to generate color palettes, such as monochromatic, complementary, and triadic colors.

The company's other app, Nix Paints, connects the measured color with a variety of paint brands and shows the nearest paint match, saving the effort of matching by eye using paint swatches and offering an instant solution. The same applies for designers, who no longer need to depend on paper swatch books for color inspiration and can now gather color from anywhere around them. One of the greatest features of Nix products is their ability to be adapted into many industries across the world, such as food and agriculture, health and beauty, and industrial quality control.

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SOLUTIONS

Color  
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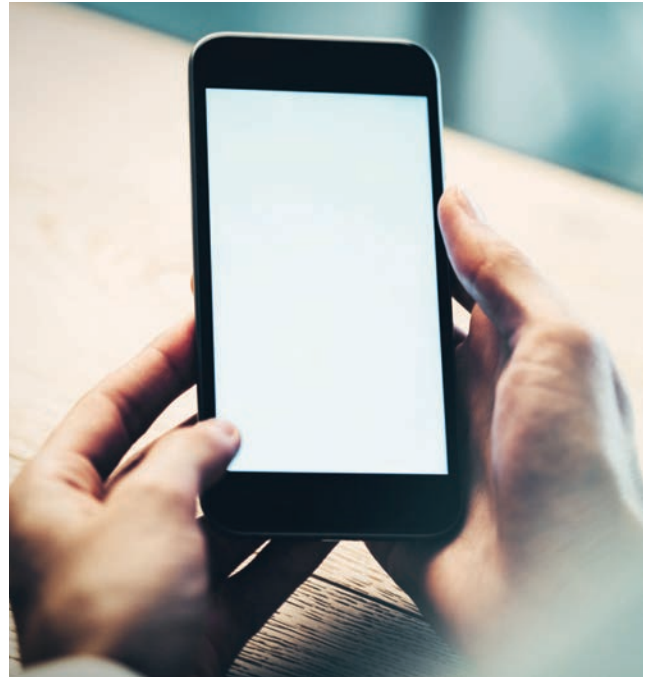
Go to our website for a free trial  
[www.colorlogic.de](http://www.colorlogic.de)

## What to Expect

According to the Nix team, the next steps for devices and smartphone applications in the upcoming years include having a greater focus on improved user experience on new platforms, while expanding solutions in the paint industry.

## ABOUT THE AUTHOR

Janyne Leonardi is an undergraduate journalism student from Federal University of Paraná in Curitiba, Brazil. She was awarded with a Mitacs Globalink Research Internship scholarship to develop research at the faculty of Graphic Communications Management of Ryerson University in Toronto, Canada, where she is doing research on the topics of color management, Canadian magazines, digital signature, and eBooks.



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## Automation in Color Management

**Dr. Mark Bohan**

Director Color Solutions  
Konica Minolta Business Solutions

There are multiple challenges facing the industry at the moment that impact business operations in different ways. Many of these challenges can negatively push against profitability, as indicated by many of PIA's economic reports. The number of jobs that we are producing continues to increase, with shorter run lengths and the expectation of faster turnaround times. This is combined with increased brand and customer expectations about the printed material, proofing cycles, and the expectation that the color will be right the first time, every time and match across multiple different processes.

Finally, we have a changing workforce where we need to be able to use tools and solutions that are intuitive, consistent, and help them optimize their time to produce value-added product. Time is the one thing that we have, and we need to be able to use it on producing product that will be sold.

It is critical to reinforce that without good process control, color management will not work consistently. This is the most common reason that color does not match the expectations in a color-managed workflow. Today it is increasingly possible to use automation to perform and manage process control and color management, standardize processes, and implementation. Color automation has been added to digital presses to allow them to linearize and calibrate themselves to a base level using their internal color measurement devices. This has democratized what was once an onerous, skilled, and time-consuming operation that was carried out inconsistently to one that is simple, able to be carried out by any operator, and able to be included in the regular operational procedures dependent on the color accuracy required by customers. This can also include profiling to specifications or standards, such as G7, where the native state of the device after linearization and calibration can pass G7 conformance. These systems can at the same time monitor and maintain front-to-back registration on the printed sheets.

ICC color profiles and device link profiles can now also be generated automatically after press linearization and calibration. During this inline process, instruments are leveraged to create the profiles automatically in minutes and can automatically insert them into the color workflow. These solutions are allowing changes to be made easily in color management to adapt for changing materials, environmental conditions, and machine state without having to call in a color expert or consultant.

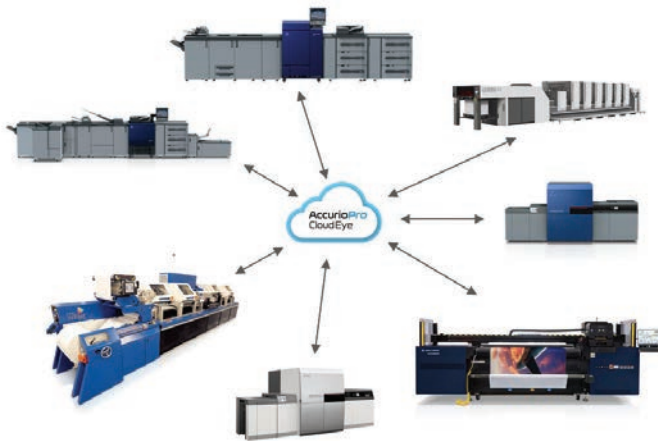


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Color verification and tracking becomes a key tool to showcase color performance. Cloud-based systems will track and report conformance to a particular target color set, providing operations and management indications of when the color is not achieving the desired result and the data from which to make informed decisions regarding the appropriate solution. Systems are not limited to individual vendors or processes, but rather will manage and track multiple presses and solutions across multiple locations when needed.



**Figure:** Example of using the Cloud to manage and track different printing processes.

Further challenges occur with color management when matching across different printing processes and previous jobs that have been produced where the actual printing conditions are not known. This is currently an iterative process from skilled operators to adjust curves in the workflow to get an acceptable color match on press. We will be seeing the introduction of color management tools that will scan the original documents and use this data in combination with the printed materials from the file to adapt the color management automatically to achieve a color match.

The use of automation has allowed process standardization and color management to be applied easily in the print workflow, increasing customer satisfaction and reducing errors and cost additions due to color-related issues. The renaissance with color management has arrived.

## ABOUT THE AUTHOR

Dr. Mark Bohan is Director Color Solutions at Konica Minolta Business Solutions and is instrumental in the color strategy for Konica Minolta. He has 30 years of experience on print operations, color, optimization of production workflow, emerging trends, and the application of print technologies and their business impact. He has carried out fundamental research, implemented new technologies, aided in their development, and evaluated their effectiveness. He serves on national and international standards committees for graphic communication, is involved in their development, and is a member of many industrial boards.

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## Responsible Paper Handling in the Face of Changing Weather Patterns

**Dillon Mooney**

Technical Consultant  
Printing Industries of America

Changes in weather patterns with extended periods of heat, cold, and prolonged precipitation are becoming more common and are creating challenges for printing companies to protect their most important raw material—paper. Of particular concern to printers are prolonged low temperatures (increasing the likelihood of cold or frozen paper), low relative humidity, and prolonged wet periods with high humidity. The temperature of the paper and the relative humidity of the air in the pressroom can greatly affect the runability of the paper.

Printers in more temperate climates need to be aware that cold or even frozen paper needs time to condition to the pressroom temperature. The pallet of paper should not be unwrapped until the paper has conditioned. Cold periods can require the printer to stage the paper in the pressroom or another heated area several days before running on the press. Partially heating a paper storage area can reduce the conditioning time. During extreme cold periods, paper arriving on a truck will need to condition before the pallet is opened and run on the press. The practice of just-in-time paper deliveries may need to be

adjusted to allow time for the paper to condition. If the temperature of a 4 x 4 x 4-foot pallet of paper was 20 degrees when the paper was unloaded from a truck and placed in a 70-degree pressroom, it would take around 77 hours (or a little longer than three days) to condition the paper.

The relative humidity of the pressroom air is another significant variable affecting the runability of paper. Paper is made from cellulosic fibers and is hygroscopic. Hygroscopic refers to the cellulosic fibers always gaining or losing moisture to stay in equilibrium with the moisture in the air around the paper. When the cellulosic fibers change moisture content they expand or contract more in the direction of the width than the length of the fiber. This expansion and contraction causes the edges of sheets stacked on pallets to become uneven or curled. High humidity in the pressroom will also cause the ink to dry slower. Paper in dry environments can shrink, resulting in tight-edged paper. Depending on the severity of the distortion of the sheet, paper may not feed well, show poor unit-to-unit fit, and in extreme conditions

may wrinkle in the impression cylinder nip.

Extremely low relative humidity (below 35%) contributes significantly to static buildup and runability problems. The paper wrapper on pallets of paper, rolls, and even wrapped cut sheet reams is a moisture barrier that prevents the paper from exchanging moisture with the ambient atmosphere and maintains the paper's flatness. The wrappers should not be removed until the paper is ready to be run through the press, and any unused paper should be rewrapped.

Pressroom environmental control is highly recommended to maintain proper pressroom relative humidity. The ideal relative humidity is around 45%–55%. Pressroom relative humidity below 35% is likely to create severe static problems on press and in the bindery. The key to control static in the winter is to humidify the pressroom; air conditioning during humid conditions is critical to maintain a consistent relative humidity. Temperature is not as significant as humidity; the pressroom temperature should be comfortable to work in, between 68–78 degrees.

The following chart shows the time needed to properly condition paper based on cubic feet.

		Time Needed for Conditioning Paper							
		10°	15°	20°	25°	30°	40°	50°	60°
Cubic Feet	6	5 hrs	9 hrs	12 hrs	15 hrs	18 hrs	25 hrs	35 hrs	54 hrs
	12	8 hrs	14 hrs	13 hrs	22 hrs	27 hrs	38 hrs	51 hrs	78 hrs
	24	11 hrs	16 hrs	14 hrs	28 hrs	35 hrs	48 hrs	67 hrs	100 hrs
	48	14 hrs	19 hrs	15 hrs	32 hrs	21 hrs	54 hrs	75 hrs	109 hrs
	96	15 hrs	20 hrs	16 hrs	34 hrs	22 hrs	57 hrs	79 hrs	115 hrs

Calculate cubic feet with these formulas:

Cubic feet of paper on a skid  
 $(ft.3) = \text{length (in)} \times \text{width (in)} \times \text{height (in)} / 1,728$

Cubic feet of paper in a roll  
 $(ft.3) = (\text{roll diameter})^2 \times \text{roll width} / 2,200$



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## Electronics for Paper Is a “Super Substitution,” But Print Will Still Shine

Henry B. Freedman  
Technology Consultant

Today it is well recognized that paper-based communications are under challenge by electronic alternatives such as email advertising, social networking with targeted ads, eBooks, downloadable audio books, and on and on. If one follows classical economic substitution theory, the utility of print has been supplanted by electronic communications in several areas.

What is unique about the substitution of electronics for print is what we would call a “super substitution.” With electronics replacing print in some applications, not only is the technology substituting pixels for paper, ink, and press, etc., but at the same time physical transportation of printed material is being eliminated. So in this unique case, one observes multiple simultaneous and conjoined substitutions for both the printed works as well as the physical movement thereof.

In economics, the strength of a substitute is in the improved utility it provides. As we can see here, printing faces a super substitution with an above-average exchange utility provided by the substitute. Researching the topic of substitution in economics as well as discussing the topic with several professors of economics, it does not appear that discussion of a super substitution as discussed here has been identified by others.

### Multiplier Effect— Electronic Increases Print Now

Electronics has a multiplier effect on print. After all, didn't a printer discover electricity? One could argue that Ben Franklin discovered the first electric light when his lightning experiments illuminated a key in a jar. Likewise, arguably the first use of an industrial electric light was a carbon arc to expose a printing plate emulsion. The first air conditioning system commercially

delivered by Carrier Corporation was used to reduce humidity in a printing facility.

Print is so pervasive today it gets overlooked. The handheld displays and televisions people watch today are printed using ink-jetted OLEDs and are circuitry printed on a glass surface. The circuitry that moves electronic communications is printed. OLED television screens jetted to glass are produced by a printed process.

So, in many cases what would appear as a substitution for print is actually printed. Talk about a contradiction!

### ABOUT THE AUTHOR

Henry B. Freedman is credited with the invention of chemical imaging techniques for graphic arts film processing, resulting in multiple scholarship and fellowship awards from Eastman Kodak, 3M, and others. He developed early programming test demonstrations for the first commercial high-speed laser printing systems in 1976 for the U.S. government. He conducted technology assessments of the impact of on-demand printing systems for the U.S. government and the National Science Foundation and assisted with videoconferencing systems for the U.S. Congress. Mr. Freedman has been granted a U.S. patent for an automated printing control digital telecommunications network, which has reached prominence and is recognized as the pioneering patent in the field as well as received a PIA InterTech Award in 2017 with his partners at Image Test Labs. In addition, he taught courses on electronic printing for more than 40 years and is the author of over 510 technical articles in his Technology Watch newsletter and as the technology editor in several industry magazines.

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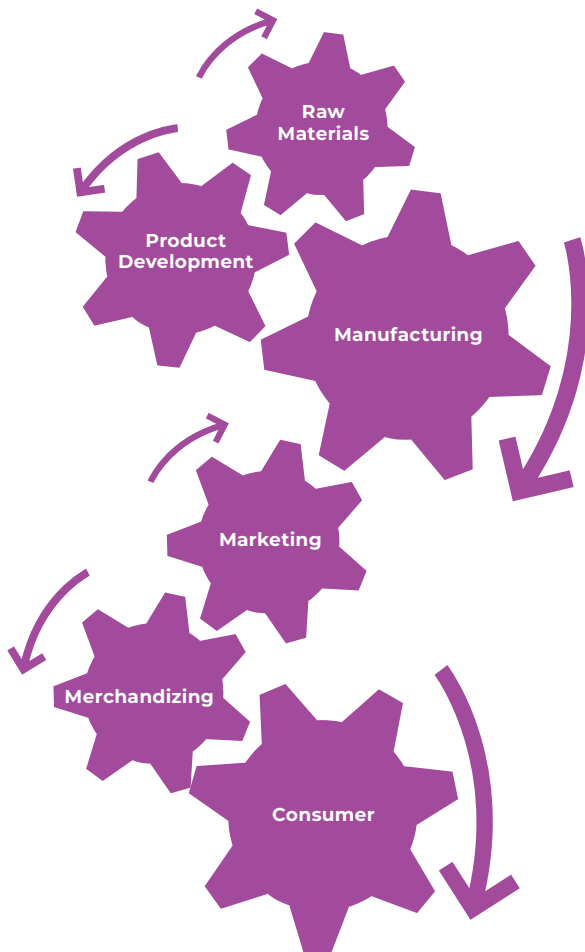
\*Print times are based upon print engine speeds only. Total throughput depends upon front-end driver/RIP, file size, printing resolution, ink coverage, network speed, etc.

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## LED Lighting— Changing Color for Good?

**James Summers**  
Vice President  
Just Normlicht



Lighting impacts how we see color—from supplier to consumer, throughout our workflows, from creation, design, and production to merchandizing and point-of-sale, across virtually every industry, product, and application. Today, lighting environments are changing, as the much revered and oft-maligned light emitting diode (LED) permeates them. Energy savings have driven much of this transformation, assisted by utility and other programs subsidizing change-over costs or simply mandated by progressive building practices such as LEED, WELL Building, CA Title 24, etc. Understanding those changes helps organizations adapt to them most effectively and efficiently.

Yes, we all know everything beneficial about LEDs—more energy efficient (> 50% more than even high-efficiency florescent tubes), more reliable, longer life, no toxic mercury, instant startup... They're the reason progressive countries and states are banning fluorescent lights and, as with tungsten bulbs, they face rapid obsolescence. Modern building codes all require high-efficiency lighting for new or remodeled constructions, and today that means LED. The color performance of different LEDs varies dramatically, but it's clear the technology is here to stay a while.

With all this change, it's interesting that most lighting experts agree "standardized" lighting per se doesn't exist. Even the CIE, a highly respected worldwide organization that defines lighting standards, has several definitions for "daylight" (e.g. D65, D50) and even more for the newly released LED standards. But wait, we digress...

First, we all know looking at something under a specific light source gives a specific color sensation. We also know that if we color match two different objects (like a customer's product and a poster, brochure, or website) under one light source, and then view it under a different one that, quite often, they will no longer match (metameric failure). You many have experienced this with clothing—a tie or scarf matches a shirt perfectly at the store, but there is a "What was I thinking?" moment when wearing it at home or outside.

"LED lighting is projected to reduce lighting energy consumption...by **40%** in 2030"

By this time, "LED lighting...will account for **88%** of all lumen-hours being produced for general illumination."

— **U.S. Department of Energy,  
Energy Savings Forecast**

Fortunately, graphic arts service providers already have well-defined lighting standards. Progressive organizations manage and regularly audit conformance to the ISO 3664:2009 viewing standard, and many have transitioned to LED-based ISO-compliant lighting for its core advantages of tighter and more consistent perfor-

mance to the viewing standards, longer life, calibratable, serviceable, and ecological (not toxic or disposable). The light source technology (e.g. LED, fluorescent, halogen) is not specified in the standard, only the light spectra (D50) and color performance metrics. However, LED cost/performance in these applications is clearly superior.

## Performance Comparison of Color Critical Lighting

Performance Metric	Viewing Conditions		
	ISO	FL	LED*
• Color Rendering Index (CRI)			
– Rendering Average (Ra)	>90	>93	≥97.5
– Rendering Index (min. for R1 to R8)	≥85	≥90	≥96.5
• Chromaticity Error	≤0.005±	≤0.005±	≤0.002±
• MI(vis) < 1.0	<1.0	<1.0	≤0.8
• MI(uv) < 1.5	<1.5	<1.5	≤0.6

**ISO** = ISO 3664:2009 colormetric requirements. **JUST** = JUST Normlicht LED moduLights performance  
**FL** = Fluorescent tube performance. (\*minimum, standard products exceed these)

# Your Solution to Higher Profits

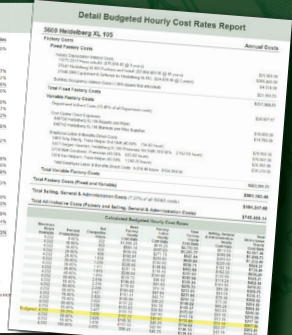
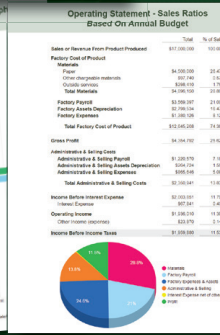
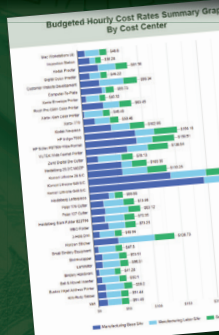
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Controlling appearance variables is familiar territory for color management folks. Those who implement and regularly monitor conditions to the ISO standard are already in good shape. You exchange materials throughout the workflow with photographers, designers, prepress, and production personnel with ease, knowing color differences are within allowable tolerances or due to an identified manufacturing process or operator malfunction. So, let's assume you run a tight ship and have implemented and maintain standardized viewing conditions, at least within your organization. All is good, right? Almost...

The issue is customers. In many cases they are implementing LED lighting throughout THEIR workflows too—from design to production and retail. Even with the new CIE LED standards, these end-customer environments often are not standardized. Well informed customers have detailed internal standards. Less informed customers have limited standards based on purchase price and/or electrical efficiency. Often, color performance isn't specified or is left to the contractor, utility, or energy auditor to specify. Color reproduction fidelity? Not so high on the purchasing criteria list.

What's a graphic arts services provider to do? First, audit and make sure your viewing condition standards are up to compliance in all parts of your organization. Consider upgrading to LED-based ISO-compliant viewing fixtures.

Second, standardize conditions between you and your customers where possible. Some companies provide small viewers for their customers. Others install kiosks that duplicate their customer's retail environment, complete with controlled lighting.

Regardless of your approach to lighting, it's clear LEDs are part of our bright future, illuminating an opportunity for more predictable color, viewing environments, and workflows between service providers, their customers, and of course, the ultimate end customer.

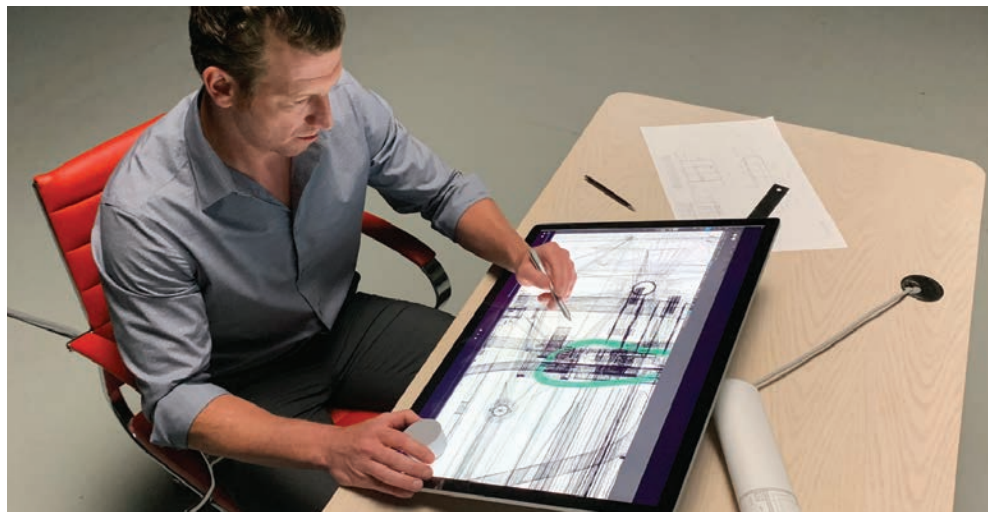
## ABOUT THE AUTHOR

James S. Summers is Vice President of Just Normlicht and GL Optic for the Americas. The companies design, manufacture, and deliver lighting and light measurement tools for color critical applications. Mr. Summers' background in lighting, color management, print processes, content management, web development, and work process optimization spans 30 years with roles in management, business development, marketing, and services.

Mr. Summers has worked for and with companies ranging from Fortune 500s to startups across a broad range of industries and application environments. He is a member and advisor to a variety of organizations and received his MS and BS from the Rochester Institute of Technology.

# Can a single equation revolutionize an industry?

The print industry has changed. It's no longer enough to rely on the classic printer triangle of cost, quality and speed. Customers today expect a whole new level of results: Can you reach their target audience through complex, multi-touch campaigns? Can you deliver relevant content and drive a response? And most importantly, can you do it all over again — adapting to ever-shifting needs while delivering consistent results?



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### Marybeth Gilbert

Vice President General Manager  
Production Inkjet and Packing Business  
Xerox Corporation

# Inkjet Innovation Marches On

**Jim Workman** · Vice President, Center for Technology & Research  
Printing Industries of America



High-speed inkjet continues to grab the technology headlines. The technology has matured to the point that its erosion of offset and digital electrophotographic volume is ramping up. The percentage of direct mail, marketing collateral, and publica-

tion pages accounted for by inkjet is still fairly small, but early adopter printing companies have already made their investments and are now upgrading to faster machines with better print quality.

A glimpse at the InterTech Technology awards given to inkjet equipment and related software over just the last two years gives credence to the inexorable march of inkjet technology. Substrate choices have widened considerably, a top print setting of 1200 x 1200 dpi is pretty standard, and LED UV curing and better drying technology for water-based ink have raised throughput.

Here are the awarded innovations since 2018:

## **Océ ProStream™ 1000, Canon Solutions America**

The combination of 1200 x 1200 dpi, a new polymer pigment ink, inline pretreatment, and a flotation dryer makes Canon's inkjet web press capable of producing premium direct mail and high-quality commercial products. It has print quality that rivals offset and the ability to print 22 inches wide on commodity grade papers, including coated, at 262 feet per minute.

## **Ricoh Pro VC 70000, Ricoh USA, Inc.**

The Ricoh Pro VC 70000 is a 20.5-inch-wide production inkjet web press that gives commercial printers lowered paper costs and the productivity to accelerate the transfer of offset print volumes to digital. With a new ink set and special dryer, it can print 1200 x 1200 dpi at 164 feet per minute (up to 492 feet/min at 600 x 600) on offset coated or uncoated stock. It has remarkably good print quality and the ability to print a wide range of commodity grades with no inline pre-treatment.

## **Primefire 106, Heidelberg**

Primefire 106 is a 40-inch (B1 size) sheetfed inkjet press capable of producing high-quality images on a wide





range of substrates. It uses Heidelberg's existing press platform and prepress workflow, making it easy to add into sheetfed pressrooms. Primarily targeted at carton producers but also available for commercial work, Primefire can image seven colors at 1200 x 1200 dpi and reproduce 95% of Pantone spot colors. The quality monitoring system is impressive and helps achieve a high level of uptime.

### ScreenPro™ and PrintFlat, Global Graphics Software

The ScreenPro screening engine significantly improves inkjet print quality by obscuring quality defects inherent with inkjet heads, such as chaining and mottling. Screening patterns change based on density levels and drop sizes. PrintFlat works with ScreenPro to rid inkjet presses of banding issues. The software creates a customized calibration based on measurements taken from the press. The calibrations are installed into the ScreenPro screening engine, and PrintFlat adjusts the print density to produce uniformity across a print bar. Without software like this to address banding, certain jobs would remain off limits to inkjet presses.

This gives you a sense of the speed of technology advancement. Since 2012, there have been 15 awards for technology related to high speed inkjet. It started when the FUJIFILM J Press 720 burst on the scene. Some of the technologies have been related to packaging. Just this year, HYBRID VDP (Hybrid Software) was recognized for its method of creating PDF-based variable-data files to ensure presses don't sit idle while personalized packaging files are processed. In addition, HP True Water-Based Inks for corrugated received an award for enabling the use of inkjet-printed corrugated boxes as primary packaging for sensitive products like food and pharmaceuticals.

The amount of money pouring into inkjet research and development must be staggering. Printing companies that haven't already added inkjet to their printing arsenal should, at least, carefully study the technology to understand its application to their market.



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## Employ Minimalism for Maximum Results

**Sabine Lenz**  
Founder  
PaperSpecs.com

In a world where everything and everyone screams for attention, the best way to actually get it is by keeping your work simple, even minimalist. But not to worry: keeping it simple does not mean boring. On the contrary, in a landscape choked with overdesigned marketing materials and packaging, it is the minimalistic, well-thought-out design that truly stands out. Here are just a few examples.

### Deceptively Unassuming

Often asked why their studio was called Giraff, this brand design house came up with an unassuming-looking leave-behind card that gives potential clients no doubt as to what Giraff is all about.

The card itself is a minimalistic looking Black Favini Burano sheet with the question “Why Giraff?” digitally imprinted in white ink. Lifting the top flap of what ultimately proves to be a tri-fold reveals the word “discover.” Lift THAT flap and surprise! The words “We aim higher” practically leap out at you in huge white letters inside a unique oyster fold!

A closer look reveals that the oyster itself is actually a lighter sheet of that same Burano paper, with laser-engraved folding lines. The sheet is glued to the second and third panel of the tri-fold and then hand-folded down. It is very minimalistic at first glance for sure, but also very memorable.





## If It's Good Enough for Oprah...

When you're trying to catch the eye of the discerning consumer in the crowded gourmet chocolate bar market, you can't afford to be modest.

Morla Design transformed the staid packaging of K+M's confections into a thing of beauty through the use of quality papers, clean typography, and by suggesting an important shift in the company's branding.

A venture between Michelin-starred Chef Thomas Keller and Armando Manni, founder of the organic extra-virgin olive oil company Manni, K+M chocolate bars were originally packaged in dark-colored boxes featuring the K+M name and foil stamped dots. Tasteful, but the packaging did blend in with oh-so-many others.

The first thing Morla did was put Keller and Manni's names front and center by creating a large, clean logo applied to an elegantly designed package.

While the black and white theme might look simple, each of the three varieties of chocolate features its own twist:

- **Milk chocolate: all white package with matte black foil lettering**
- **Dark chocolate: all black package with white foil lettering**
- **Dark milk chocolate: a half-white/half-black package with two hits of black and a spot dull varnish to create the dark lower section of the packaging, and white and matte black foil for the type**

The design of that last one is particularly clever in the way it neatly highlights the names of Keller and Manni, which are rendered in foil in the white area and the variety of chocolate in the black.



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Not only did this new minimalistic design give K+M a fresh, distinctive look, it even grabbed the attention of Oprah, who promptly added it to her list of favorite things.

Whether your equipment is more on the traditional side or you boast the latest technology, minimalism is a trend you and your clients can easily employ for maximum results.

### ABOUT THE AUTHOR

Sabine Lenz is the founder of PaperSpecs.com, THE online hub for brand owners and designers who love and spec paper and print. More than 18,000 creatives receive her e-newsletter, attend her webinars, and watch her videos. An award winning graphic designer with more than 20 years of experience in the U.S., Germany, and Australia, Sabine writes frequently for numerous industry publications and is also a speaker on the subject of paper, print and related topics. Lovingly referred to as the Paper Queen by many of her followers, she combines a passion for paper and print with a hands-on approach to sharing her knowledge.

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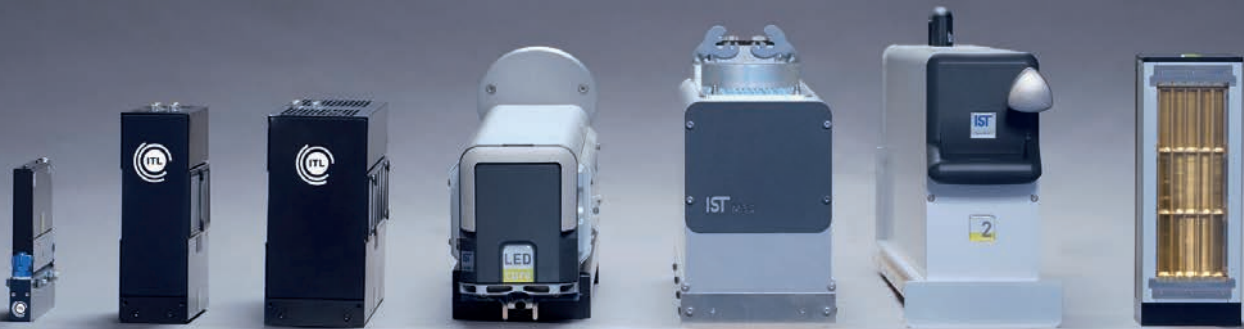
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## Up to 80% of Offset Printers Can Now Use Process Free Plates

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### Kevin Barton

Regional Business Director  
Print Systems Division  
Kodak

You may think that is a bold claim. Only a few years ago, process free plates were used primarily by small- and medium-sized commercial printers. Large printers were concerned about run length capability, imaging speed, and other limitations of the technology. However, things changed last year when Kodak made a technology breakthrough around process free and introduced the KODAK SONORA X Process Free Plate.

SONORA X Plates overcome many of the limitations of previous generations of process free plates, and printers that were never able to use a process free plate before have converted successfully. By the end of 2018, one out of every four plates sold by Kodak was process free, and by the end of 2019, we expect that nearly one out of every three plates we sell will be a SONORA Process Free Plate.

This breakthrough is an important one for the print industry. Process free plates reduce both costs and environmental impact for a printer, and those are just the obvious benefits. Printers that are using SONORA Plates report shorter makeready times on press, more consistent quality thanks to no processing variation, improved employee safety from removing processing chemicals, and more floorspace by eliminating the processing line. The printer also saves electricity and water and has no processor maintenance costs.

Some printers are understandably skeptical. How can a process free plate match the performance of a processed plate? To design the SONORA X Plate technology, Kodak's scientists combined the standard anodising layer of a wet processed plate base, providing the extremely robust press performance and excellent ink/water balance together with the technology of SONORA XP Plates, topping it off with a new coating to improve the platesetter throughput/productivity and extend the plate's run length capability.

The result is a plate that delivers all the benefits of process free, plus fast imaging speeds, robust handling capabilities, excellent resolution, and long run lengths, even for challenging applications such as UV. Process free plates can be used by large commercial printers, offset packaging printers, book publishers, large newspapers, and more. The process free revolution is happening, and the faster the conversion happens, the more individual printers and the print industry as a whole will benefit.

### What To Expect

**For this year and the next few years:** There will be a dramatic increase in the number of printers switching to process free plates.

**For five years and beyond:** Process free plates will be the standard for offset plates

### ABOUT THE AUTHOR

Kevin Barton joined Kodak's sales organization in 2004, but his experience in the printing industry extends back for decades. Prior to joining Kodak, he worked for over twenty years at RR Donnelley in a variety of positions in manufacturing, technology, continuous improvement, and management. In his time at Kodak, Barton has held a number of senior management positions and most recently became the Regional Business Director for Kodak's Print System Division in the U.S. & Canada. This new role affords him great opportunity to continue the ongoing efforts to streamline operations, improve reaction time, and provide an exceptional customer experience.

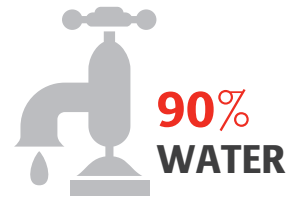


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## Early Adopters of Digital Finishing: What They've Learned and Their Candid Advice on How to Get Started

**Dawn Nye**

Solutions and Services  
Production Print  
Konica Minolta Business Solutions

### Opening new doors and generating more profit with digital finishing

The introduction of digital finishing technology to the marketplace was met with great excitement and curiosity. It challenged printers to rethink embellishment printing and to consider how this game-changing technology could be used to help transform their business.

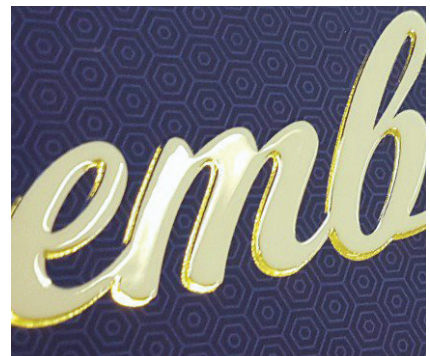
Innovative devices like Konica Minolta's MGI JETVarnish 3DS with iFoil offered stunning 2D and

3D digital spot varnish finishing, all in a single pass. When the technology was first introduced, the digital process was unfamiliar to many printers, brands, and members of the design community alike.

But that was then. Today most printers understand how these devices work, and highly publicized stories of success have made clear the positive impact this technology can have on a company's bottom line; for example, just four months after switching to embellished packaging, Colgate Total toothpaste became the

number one toothpaste brand in the United States.

Despite this, many printers have yet to take advantage of this technology. Based on a series of discussions with early adopters of this technology, it's clear that most have experienced significant growth in revenue and profits over the past four years. More importantly, the technology has allowed early adopters to approach clients with a unique value proposition, which has helped differentiate their operation from competitors.



## Stand Out from the Crowd and Increase Your Margins

Apart from merging with or acquiring other companies, there are two ways for a business to grow: maintain the same product and service portfolio but add more clientele, or increase the wallet-share of existing customers by offering a wider range of products and services.

Offering digital embellishment finishing is an excellent way to initiate growth for any business. It has allowed early adopters to open new doors with variable embellished printing, enhancing the value of the work produced. It's about making it easy and convenient for customers to access everything they need under one roof. Being a one-stop-shop servicing a wider range of printing needs positively impacts retention and facilitates the addition of new clients.

Offering digital embellishment has also created new profit opportunities for the early adopters. For example, if a customer came in to order 500 business cards, they would typically offer a standard price for traditional printing methods. With digital print embellishments including varnish, lamination, and foil, there is an opportunity to charge the customer up to three times the price of the non-embellished cards. This means that profits increase with each incremental embellishment that is included.

### Let's Get Started

Getting into the digital embellishment game is not going to be as simple as just buying a printer and plugging it in—and it shouldn't be. As a major investment, it should be thoughtfully and seriously considered before the decision is made. The early adopters suggest taking

the following into account before committing to this (or any) new business venture:

#### 1) Assess viability within your business plan.

Make sure that it is a decision that makes sense for your business. Reassess your business goals. Where are you right now? Where do you want to be? How do you want to grow to get there? Most print shops are trying to differentiate to avoid being a commodity printer; make sure that this is the right way for you to achieve this differentiation.

#### 2) Do your homework.

Make sure you know everything about the technology that you are considering. Digital embellishment printers need to be in a climate-controlled environment—is that something that your shop is capable of? It is also important to have solid



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prepress to understand the files and know how the varnish and foil will be applied to ensure the jobs are done at the highest quality and efficiency. You should also consider the supplies and materials used to ensure the machine is compatible with the output of your other printers (e.g., not all inks are compatible with digital foil).

### 3) See it in action.

Go to a print shop that uses the machine you are considering and see it in action. In a showroom, everything is preset so only the push of a button is needed to get a perfect sample. Sure, this shows you what the machine can produce, but it doesn't have the same impact as seeing the machine used in a real print shop. Travel if necessary, because once you see the machine in its intended environment and talk to operators that use it daily, you will know better whether it is a fit for your business.

### 4) Talk to your customers.

Perhaps one of the best ways to determine whether this is a viable investment for your business is to consult your existing customers. Ultimately, they are the ones that

will make or break the success of the investment, so it is important their view be considered. Often, it is simply a matter of educating the customer on the capabilities that are available in the market. Chances are, once a client sees what is possible with digital embellishment, they will be interested in what it can offer their business.

### 5) Prepare for continuous learning.

As with any new technology, there is a period of learning that is expected when you venture into digital embellishment. You will first need to be trained on the new machine for operation and general maintenance. But you should also expect ongoing learning for things like setting pricing, learning best processes, and partnering with the right suppliers.

The best way to know how to price your work is through trial and error. There may be jobs you haven't done before that seem to be straightforward, but once you start work on them you find they are much more involved than you thought.

### Breathing Life into Print

With digital print embellishment in the market, the adage that print is dead holds no weight. It has breathed fresh air into the industry, forcing suppliers to improve the quality of materials they offer. Particularly with luxury brands, print has always been a critical component of building brand equity, with companies constantly utilizing print embellishments in their advertising and packaging.

### ABOUT THE AUTHOR

Dawn Nye is Manager of Solutions and Services for Production Print at Konica Minolta Business Solutions. She has more than 35 years of experience in the graphic communications industry. Her background ranges from production to product management and education. Nye is the recipient of a Gold Key Award from the International Graphic Arts Honor Society. She sits on the Board of Directors as VP of Marketing of the Technical Association of Graphic Arts and is a board member of Printing Industries of America. Dawn serves as an educational advisor to Cal Poly, Central Connecticut State University, and the University of Wisconsin–Stout.

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*Keith Sullivan, President, Sull Graphics*

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The graphic features a yellow background with a purple bar at the bottom. On the right side, there is an illustration of three stylized figures in business attire standing on a bar chart with three bars of increasing height. The tallest bar is on the left, the middle bar is on the right, and the shortest bar is on the far right. The figures are positioned as if they are climbing or standing on the bars.



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# PRINT<sup>®</sup> 19

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There is a great amount of opportunity at PRINT 19, and as we head into the fall and the event draws closer, we're excited to share some of what we have planned for this October 3–5 in Chicago.

Nicholas Thompson, editor-in-chief of *Wired*, truly one of the most prestigious positions in the world of technology, will be delivering this year's keynote session, titled "The Wired Future: Artificial Intelligence, Robotics, Privacy, Social Media, Truth, Tech Companies, and More." This is a "future-forward" talk about how we will be using technology in print...and in our daily lives. The quickening adoption of artificial intelligence/machine learning is already affecting how content is created and distributed. This trend, along with robotics, will transform not only our devices, but how we earn paychecks, determine public policy, and a host of other issues.

The APTEch education team has been working very hard at curating another robust three-day Learning Experience. We are assembling 80-plus educational sessions that run the gamut of big-picture trend discussions to practical ones, including hands-on labs. PRINT attendees need and value both the 30,000-foot view as well as getting deep into the nitty gritty on topics that impact their day-to-day operations: relevant, visionary, and actionable intelligence to plan for tomorrow and beyond.

Last year we introduced the highly successful TechWalks, a guided exhibit hall experience focusing on topical solutions for attendees. This year we've added

TechTalks to the mix where visitors will experience moderated panel discussions on a number of different topics.

Other important events at PRINT include the opening night reception Celebrate PRINT! on the exhibit hall floor at McCormick Place. All registered attendees and exhibitors are invited to mix and mingle after the hustle and bustle of the day.

The RED HOT Technology Recognition Program is also returning this year. This program features publishing and printing technology, equipment, or services that have come to market within the past 12 months—true highlights of "what's new" on the exhibit floor.

In addition to these more public events, we are hosting a CEO luncheon for invited innovators and creators in the print industry. This is an interactive session that will expand people's thinking in the world of print.

Attendees can expect a full exhibit hall experience that includes manufacturers, suppliers, as well as front-end and finishing solution providers. We're on track to have several hundred exhibitors covering the entire spectrum of the print value chain.

There is a future for the print industry and it's a bright one, for those who think beyond the box to what new products can be created to support the needs of the end customer. We live in a digital world, but there is a continued desire for the tactile experience of print.

To learn more or to register for PRINT 19, visit [www.PRINTevent.com](http://www.PRINTevent.com).



# 2019 INTERTECH™ TECHNOLOGY AWARDS

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and related industries.



# 2019 **InterTech** Recipients

**Océ ProStream 1000**

Canon Solutions America

**Print Control Wizard**

Esko USA

**PrintFlat**

Global Graphics Software

**HP PageWide True  
Water-based Inks**

HP Inc.

**HP PrintOS Color Beat**

HP Indigo in Collaboration  
with Vistaprint

**HYBRID VDP**

Hybrid Software Inc.

**VRCut Ready  
Triumph Cutters**

MBM Corporation

**KODAK FLEXCEL NX  
Ultra Solution**

Miraclon

**RICOH Pro VC70000**

Ricoh USA, Inc.

**tilia Phoenix 7.0**

Tilia Labs Inc.



For 40 years the awarded technologies have been a harbinger of the trends altering the future of our industry. Since 1978, the InterTech™ Technology Awards have honored technologies predicted to have a major impact on graphic communications and related industries. Past honorees have introduced entirely new products and services that have revolutionized ways of working and enabled printers to operate more efficiently.

This year we are pleased to present the 2019 Printing Industries of America InterTech™ Technology Awards recipients and candidates. This premier program recognizes emerging technologies that have a significant impact on the advancement of the graphic communications industry.

The InterTech competition is conducted annually by Printing Industries of America to showcase and encourage continuous development of new products and technologies that aim to improve the industry, increase production quality, and foster operational excellence. Each entry is examined by an independent panel of judges against the following criteria. First and foremost, the technology must be truly innovative—not just an evolutionary improvement to an existing product. Further, it needs to enable printers to operate more efficiently or provide new products or services with a clear return on investment. Finally, the product or service must be commercially available, yet not be in widespread use.

The judges review each technology entry and then gather to vigorously debate their “breakthrough” nature. We assume all of the technologies are excellent performers, but the argument lies in which ones are truly innovative.

**Jim Workman**  
Vice President, Center for Technology and Research

## 2019 Recipients

# Océ ProStream™ 1000 Canon Solutions America

Canon Solutions America • Boca Raton, FL • [www.csa.canon.com](http://www.csa.canon.com)

# Canon

## CANON SOLUTIONS AMERICA

New printing challenges demand a new, innovative approach. Designed for a commercial printing market, the Océ ProStream series from Canon Solutions America provides high-coverage, high-quality inkjet printing that takes continuous-feed inkjet technology beyond its current limits and deeper into the commercial printing and graphic arts mainstream. This is a press for commercial printers looking to enhance their applications and service offerings as well as transfer work from existing offset presses.

The ProStream is a web-fed inkjet production print engine that can print 22-inch (565 mm) width and was developed with the requirements of premium direct mail and high-quality commercial print applications in mind. It's been designed from the ground up to combine the best technologies in digital and offset printing as well as

fit into technology-driven progressive environments and business cases of innovative commercial printers and specialized direct mailers. It's a tool that allows printers to provide more targeted content, shorter turnaround times, and better service.

The ProStream excels in demanding applications where existing printing technologies run into limitations: run lengths that are too short for offset to operate profitably, overall volumes that are beyond throughput levels of toner engines, and media latitude that is beyond that of existing inkjet presses. Printers can use the ProStream to take over low run lengths to free up offset presses to print more profitable long run jobs, add personalized content beyond monochrome imprinting, increase volumes in toner applications, and replace several toner engines for cost efficiency. In addition, the ProStream is one of the only production inkjet presses to print on commodity-grade offset glossmatte, silk, and dull papers by incorporating three new key innovations: ColorGrip application, polymer-based pigment ink, and a flotation dryer that keeps the paper web floating above rollers and mechanical parts. These advantages eliminate the need, cost, and extra steps of UV or other protective coatings.



## 2019 Recipients

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The ProStream prints at 1200 x 1200 dots per inch at full rated speed and has among the highest print quality in its productivity class, allowing users to move work from unprofitable offset runs without compromise.

With a rated uptime of a roll-to-roll system at 90 percent, customers can produce more jobs per day. In fact, customers can profitably run up to 35 million pages per month with one operator per shift.

The ProStream offers product cost savings thanks to its ability to run on commodity grade papers and use durable ink. It is easy to operate and has excellent uptime and reliability. The ProStream keeps the high-quality profitable work, such as marketing collateral like direct mail or catalogs, rolling off the press. This truly is an inkjet press that can serve the needs of the commercial print market.



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2019 Recipients

# Print Control Wizard

## Esko USA

Esko USA • Miamisburg, OH • [www.esko.com](http://www.esko.com)



Esko's **Print Control Wizard** is an innovative response to the shortage of skilled flexo press operators and the growing demand for more high-quality, short-run print work.

Print Control Wizard is an intuitive wizard-based tool that brings innovation to the platemaking department by simplifying the implementation of screens and curves for the flexo print process. Creating and managing flexo screening and imaging processes can be tedious and time-consuming. Printers typically need a color, prepress, and plate making expert who understands screening and color management and a wide range of variables just to ensure consistent plates. This game-changing technology allows almost anyone to create superior flexo plates, eliminating the time needed to train and develop new operators.

The Print Control Wizard walks the operator, step by step, through the process of defining screens and curves for a flexo press. Designed to be instinctive, efficient, and flexible, Print Control Wizard offers a company-wide way to standardize and optimize flexo curves and screening for trade shops and label and flexible converters—regardless of the skill or experience level of its operators.



## 2019 Recipients

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Thanks to its wizard-based system, Print Control Wizard is simple for operators with less experience, but retains the accuracy, flexibility, and operational efficiency required by more experienced operators. It considers all the parameters in play within the platemaking and flexo print process: plate exposure, processing system, plate type, press, substrate, ink, tape, anilox, and print target to build stable and specific output for the individual platemaking and press environment.

This tool reduces the implementation time for screens and curves, speeds up the day-to-day repro tasks by keeping plates cleaner on press and applying a “dot clean up” function, improves overall equipment efficiency by better controlling press results, takes the human subjectivity out of the QA process, and relieves the pressure of finding and hiring highly skilled operators. It’s designed to remove extra tasks while setting a repeatable standard process for pre-media and trade shops, producing high-quality, consistent plates with limited skill set.

Beyond its ease of use, Print Control Wizard allows users to set printing conditions based on their existing inks and tailored to their individual production workflow, ultimately reducing makeready and streamlining the flexo print operation. Print Control Wizard is an important tool for the flexo printing industry to stay ahead by producing smaller, higher-quality print runs.

2019 Recipients

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# PrintFlat™

## Global Graphics Software

Global Graphics Software • Cambourne, Cambridge UK • [www.globalgraphics.com/software](http://www.globalgraphics.com/software)



# GLOBAL GRAPHICS®

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software

Ellerhold Aktiengesellschaft was facing quality issues on its large-format posters, also known as mega lights or classic billboard posters, the most popular indoor and outdoor advertising medium in Germany. The firm's printheads caused visible bands, often on large areas of flat color. To stay relevant in a highly competitive environment, Ellerhold Aktiengesellschaft needed a reliable solution and turned to Global Graphics' PrintFlat technology to start a calibration workflow for its printing device to produce uniform output covering the entire poster width. Now the company follows a simplified process where staff upload scans to Global Graphics online inkjet press calibration service. Automatically the company receives corrected calibrations, allowing the firm to have print runs with the best quality.

PrintFlat software corrects banding and non-uniformity in inkjet output that happens because of manufacturing variations within and between printheads or after they are replaced in the field. Banding, also known as the inkjet smile or frown, is chronic on areas of flat tints, such as the blues of a sky. This makes the print output unacceptable to press vendors and their customers, leading to financial losses. That's because a significant percent of jobs, depending of the market, cannot be printed digitally because of banding issues.

PrintFlat creates customized calibration based on press measurement, which is installed into the ScreenPro screening engine. This directly corrects the presses. By adjusting the density within, ScreenPro, PrintFlat creates uniformity across a print bar. Also by automating the process, it allows for closed-loop correction, meaning there is no effect on jetting stability or head

lifetime, ink pressure, and timing/drop speed variation. Companies see immediate results. Businesses can have very fine granularity because the software addresses every nozzle separately on any head while making previously unacceptable print heads acceptable. It saves the time and cost of building and maintaining a press. PrintFlat can also be accessed via an online portal and businesses can upload a scan of the print bar to a website via a user account. PrintFlat creates corrections that can be applied directly to the presses.

To correct undesired effects people generally have had to tweak the head voltages, but that is a hands-on and time consuming task that doesn't easily lead to the desired results. The main advantages from PrintFlat are that it is quick to apply, saves money, and can be used in any workflow.

This is the second InterTech Technology Award in successive years for Global Graphics. Last year the company received an award for ScenePro screening engine that can mask imperfections in output from high-speed inkjet presses.

### Judge's Comments

"Global Graphics has developed a fantastic idea that is well executed with significant impact on the industry."



# HP PageWide True Water-Based Inks HP Inc.

HP Inc. • Netanya Israel • [www.hp.com](http://www.hp.com)



As customers become more savvy, many of them worry about using UV inks with photo-initiators or any high-risk air pollutants. That's why many companies turn to HP PageWide technology for their needs for corrugated packaging and display with high graphics for short, medium, and long run on either coated or uncoated media. Companies using HP's digital corrugated press have reportedly found clients asking for the safety of water-based inks. This digitally printed corrugated packaging is providing an opportunity for brands to take advantage of sophisticated and high-quality color graphics for product marketing and supply chain cost efficiencies.

With the HP thermal inkjet technology, printers can deliver vibrant graphics and offset quality for packaging for food, pharmaceuticals, cosmetics, and infant care products that need sensitive and safe storage. That's because HP developed the PageWide A30 and CV150 true water-based inks specifically for the corrugated packaging and display market. HP PageWide true-water based inks do not have any UV reactive elements, contain no hazardous air pollutants, and have low volatile organic compounds (VOCs). This leads to a variety of health and safety advantages. What's more, the inks have no perceptible smell, which is often important to clients who worry that a strongly smelling ink might affect the product. As they are odorless and absent of UV-reactive properties, no additional barriers are needed for packages of sensitive items, such as food and personal care.

HP's water-based inks and the HP thermal inkjet printheads are designed as a complementary system to achieve the highest levels of performance, reliability, media versatility, and cost savings. The stringent UL ECOLOGO® certifies that the HP PageWide true-water based inks adhere to specific requirements and meet several multi-attribute, lifecycle-based criteria regarding human health and environmental consideration. And HP has fulfilled the Intertek Guidelines for the Safe Use of Printing Inks, offering safety requirements that comply with global regulatory and industry guidance including the Swiss Ordinance, Nestle Guidance FDA, EU Framework, and others. Corrugated packaging

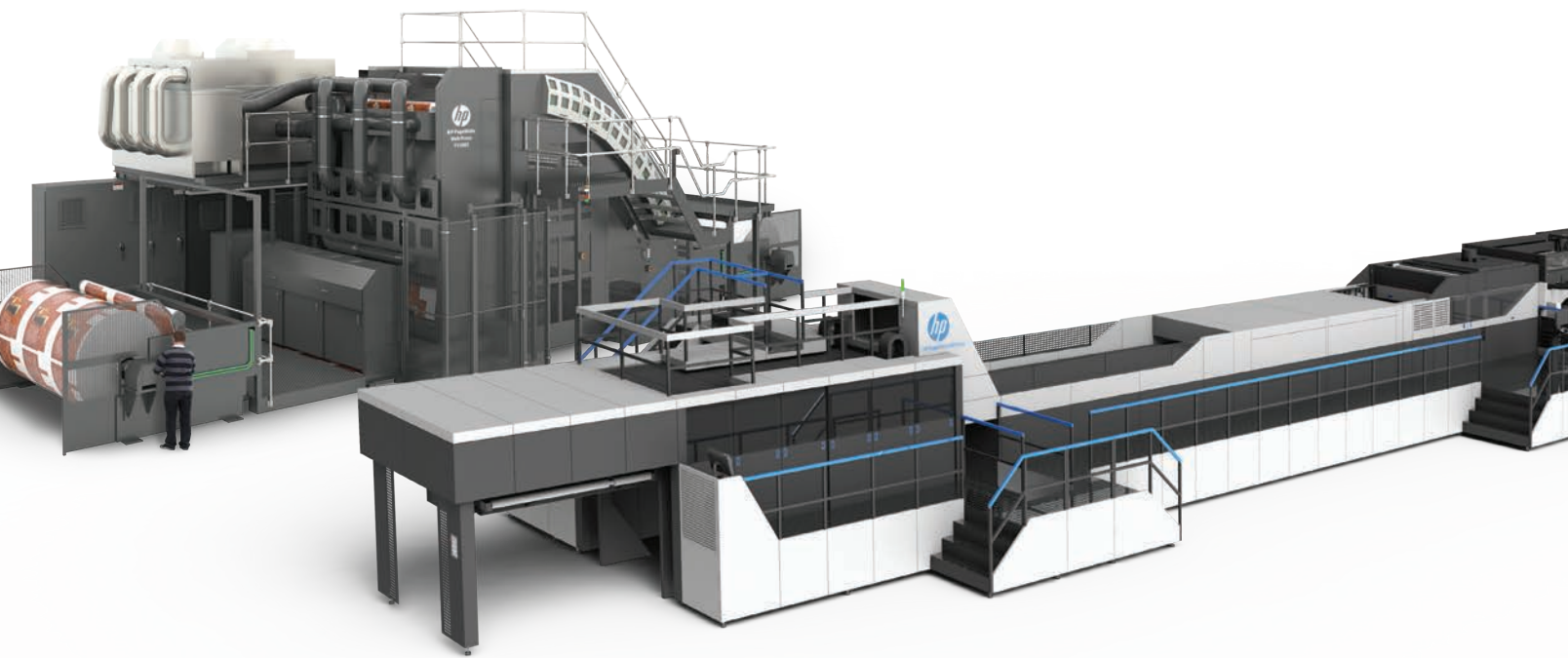


## 2019 Recipients

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converters and brands can benefit from HP PageWide print recyclability (validated by PTS Labs in Germany) as a mean to support a circular economy strategy.

Clients report being drawn to the HP PageWide True Water-Based Inks because it offers them and their customers' peace of mind when using digitally-printed packaging for products in which contamination or even the perception of it would raise huge liability concerns. "Knowing that the HP True Water-Based ink is 100% food safe allowed us to concentrate on additional benefits our print supplier could offer," said Andrea Fedrizzi, marketing manager of Melinda SCA, an Italian cooperative of apple and cherry producers.



# HP PrintOS Color Beat

## HP Indigo in Collaboration with Vistaprint

HP Indigo • Ness Ziona, Israel • [www.hp.com](http://www.hp.com)



# Indigo

When Vistaprint looked to improve their color control process, they defined an ambitious target for reducing production overhead and costs while improving on color performance. Color control was high on Vistaprint's agenda given its vital impact on both efficiency and quality.

The company wanted to adopt a fast and reliable method that would not only provide consistent color for B2 formats but also have automation features. The solution also needed to maintain the same stringent tolerance levels their customers had come to expect.

With HP PrintOS Color Beat, Vistaprint was able to replace its offline color process control software entirely. Teams from HP Indigo and Vistaprint worked together to stress test and perfect the solution. Prior to Color Beat, the company relied on traditional offline color process control software which was time-consuming and often caused inconsistent color readings.

Color control integrated directly in the HP Indigo press provides new and exciting opportunities. Custom color targets that match Vistaprint's needs ensures color uniformity and consistency on the full circumference of the printing drum. With HP PrintOS Color Beat, Vistaprint uses color process control automation features on all its latest model HP presses, saves on press operator time and enjoys highly consistent and accurate color measurements.

HP PrintOS Color Beat harnesses the cloud to monitor and capture the color status of HP Indigo presses in an efficient, hands-off manner. Color Beat orchestrates





numerous internet-enabled HP Indigo presses in tandem to provide real-time color quality information and insights at any time, in any location. It supports B2 formats, allowing for press color standards to be consistently, simply, and reliably met. It also offers real-time color status reporting to press operators and overall fleet reporting to production managers.

Time-consuming color tracking and measurement problems transform into a process that is so simple and efficient that it takes two minutes or less. Color quality information is immediately delivered through an intuitive web interface accessible from any location—including mobile access.

An inline spectrophotometer records color measurements from the press in between printing jobs, while data is stored, analyzed, and maintained in the cloud to provide immediate reports, including heat maps

and historical information. Color Beat also provides API-enabling integrations with third-party applications.

Color Beat can be configured with default settings but can also be tailored for the specific needs of a business. What's more, Color Beat can optionally pause printing when detecting issues and offers intelligent, data-driven insights to the operator to correct color issues. Users define customized charts to print with customized color management specs and analyses with specified quality criteria and tolerances.

### Judge's Comments

"Want assurance that your targeted color will be automatically maintained across a fleet of presses? This does it!"

## 2019 Recipients

# HYBRID VDP

## Hybrid Software Inc.

Hybrid Software Inc. • Trevose, PA • [www.hybridsoftware.com](http://www.hybridsoftware.com)

# HYBRID SOFTWARE

With the rapid adoption of digital presses for labels, cartons, and corrugated boxes along with a growing demand for personalization—as well as the need to find a way to reduce the cost of producing multiple flavors, languages, or other options—package printers have needed a better solution for variable data print preparation and output than existing offerings. After years of development, Hybrid Software has released HYBRID VDP, a self-contained, easy-to-use, variable data printing answer to these new challenges.

HYBRID VDP is a new option for Hybrid's PACKZ native PDF editor. It changes text, images, barcodes, colors, and other elements linked to variable data sources, producing an optimized file for fast printing on all digital presses. The VDP Prepare tool is included as a standard component of the native PDF editor and can be used to turn any PDF package or label design into a VDP design simply by indicating which elements are dynamic and linking them to the data source. It can place variable objects in different shapes and colors. It prepares displays in all iterations of the design and features special tools for quality assurance. A viewing option even allows operators to review the largest piece of content, to be sure that it fits in the design field. Once the graphics are VDP ready, the VDP Execute module is used to prepare an optimized PDF that is ready for digital output.

HYBRID VDP products are applied at the prepress stage—not in the pressroom—eliminating the upfront template creation that slows down other VDP options. Significant operator time is saved, as there is no need to build templates for variable data files, the common practice. The optional module—VDP Execute—allows users to produce a printable file on PACKZ locally or on HYBRID CLOUDFLOW for additional computing power. This provides flexibility so that as a company's use of VDP grows, so can its computing power.

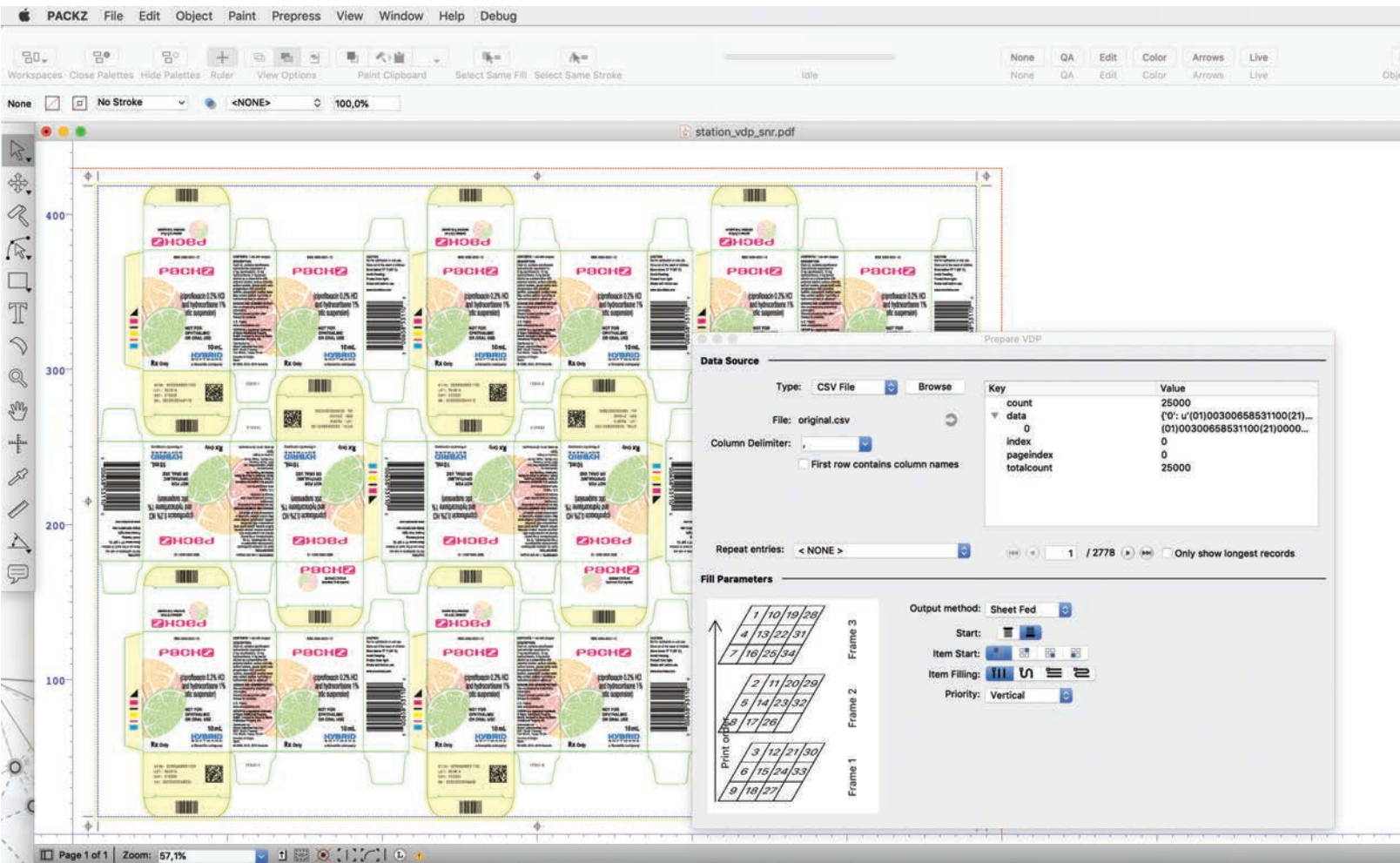
This solution is easy to learn, allowing printers to keep variable data work in-house rather than sending it

## VDP Variable Data Printing



**PACKZ**<sup>®</sup>  
PREPRESS INNOVATION

**HYBRID**  
SOFTWARE



outside. A tool that's easy to implement and helpful in eliminating errors, HYBRID VDP has been tested with the most common digital presses available today.

Even adding a simple QR code or variable element can slow printing speeds significantly. By moving VDP to the prepress stage, HYBRID VDP keeps printers' expensive digital presses running and making money, not waiting for variable data files that are generated on the digital press front end while the press sits idle.

## Judge's Comments

"It makes personalized packaging easier by cutting processing time immensely."

## 2019 Recipients

# VRCut Ready Triumph<sup>TM</sup> Cutters MBM Corporation

MBM Corporation • North Charleston, SC • [www.mbmcorp.com](http://www.mbmcorp.com)

## MBM CORPORATION

Even the most efficient printer's workflow often bottlenecks at the guillotine cutter station, since only one or two people know how to operate the cutter. With the pressure of getting jobs done on time and without costly errors, finding and keeping experienced cutter operators is difficult—and if the operator is out sick or on vacation, work will just pile up since no one else can step in. The VRCut<sup>TM</sup> software, integrated into select Triumph cutters, helps eliminate that skill and time bottleneck. A partnership with Lytrod Software and MBM Corporation, the VRCut integrates prepress

PDF creation software with a Triumph Cutter-connected visual guidance system that also automatically controls the back gauge. The VRCut software automates the operator workflow by creating an efficient cutting process from start to finish, allowing operators of any experience level the ability to cut with confidence on select Triumph cutters.

VRCut's two included software modules—Impose and Controller—bridge the gap between design and finishing. Designers can easily use VRCut Impose to transform artwork into PDFs laid out specifically for optimized cutting on the VRCut-enabled Triumph cutter. The software places a template barcode and unique visual markers that facilitate an automated cutting process. The VRCut Controller module scans the document barcode and automatically displays the operator guidance system, connecting directly to the cutter for automatic back gauge movement and provides a full step-by-step visual, audio, and text interface for the operator.

### VRCut<sup>TM</sup> Ready TRIUMPH



5260 VRCut

Cutting width, inches: 20 3/8  
Cutting height, inches: 3  
Narrow cut, inches: 1 3/8  
Length behind blade, inches: 20 3/8



5560/5560 LT VRCut

Cutting width, inches: 21 5/8  
Cutting height, inches: 3 3/4  
Narrow cut, inches: 1 1/4  
Length behind blade, inches: 22 7/16



6660 VRCut

Cutting width, inches: 25 1/2  
Cutting height, inches: 3  
Narrow cut, inches: 1  
Length behind blade, inches: 24



7260 VRCut

Cutting width, inches: 28  
Cutting height, inches: 3  
Narrow cut, inches: 3/4  
Length behind blade, inches: 28

The VRCut™ solution transforms the traditional cutting workflow, allowing operators to confidently cut by providing precise instructions. Once a cut is made, VRCut Controller moves the cutter back gauge and displays exact instructions for what action to take next, such as paper rotation, discarding of scraps, and placement of stacks on the workbench for future steps.

VRCut™ Ready Triumph models 5260, 6660, and hydraulic models 5560 and 7260 are the first cutters with VRCut software fully integrated and come with a complimentary one-year license.

Operators of any experience level can use a VRCut™ Ready Triumph cutter accurately and efficiently without lengthy training or ramp up programs, allowing printers and businesses to increase operation speed and efficiency while reducing the possibility of cutting errors that require additional press time and cause missed delivery dates.



# VRCUT™

## CUT WITH CONFIDENCE

# KODAK FLEXCEL NX Ultra Solution Miraclon

Miraclon • Rochester, NY • [www.miraclon.com](http://www.miraclon.com)

**KODAK FLEXCEL**  
SOLUTIONS | Brought to life by Miraclon

The FLEXCEL NX Ultra Solution provides plate makers with another way of producing KODAK FLEXCEL NX Plates. The solution offers solvent-free, VOC-free, water-based processing that allows printers to create a press-ready plate in less than an hour. The FLEXCEL NX Ultra Solution removes disadvantages and challenges that have plagued aqueous plate-making solutions for the last 25 years.

Traditionally, aqueous flexo plate solutions suffered from a buildup of unexposed polymer and debris that weren't easily dissolved or suspended in water, creating



challenges for plate makers and printers alike. Miraclon's new and innovative technology avoids the rapid buildup of photopolymer debris that causes frequent processor cleaning and has made aqueous plate-making solutions inconsistent and uncompetitive in the past. Utilizing a unique plant-based processing agent, the KODAK FLEXCEL NX Ultra Solution enables better conditions for plate makers, delivering a process that's easier to handle and a cleaner environment. Debris cleaning can add additional hours of downtime to the prepress stage. Miraclon reports that normal washout times of competitive aqueous systems are twice as long as with the FLEXCEL NX Ultra Solution, averaging 14–21 minutes versus 7 minutes.

Plate makers can create more than 32 finished plates per shift, a considerable increase compared to the amount of plates per shift that thermal or solvent processes can achieve. The ability to turn a plate in less than an hour means that when a plate on press needs to be switched out, the wait time is much shorter than an average solvent plate, meaning less downtime on press and higher productivity overall.

Clients and brand owners working with printers utilizing FLEXCEL NX Ultra technology receive quality graphics with consistent, reliable performance. They also experience additional flexibility to make last minute design changes thanks to the ability to get plates on press faster.

The KODAK FLEXCEL NX Ultra Solution combines quality print performance with water-based processing to deliver a press-ready plate quickly, cleanly, and consistently in a high-volume production environment. The judges agreed that this technology will be the catalyst for more printers and pre-press providers to convert to aqueous platemaking.

## 2019 Recipients

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### Judge's Comments

"Revolutionary! This is the first time water wash has been at this level...a significant time saver!"



## 2019 Recipients

# RICOH Pro VC70000

## Ricoh USA, Inc.

Ricoh USA, Inc. • Malvern, PA • [www.ricoh.com](http://www.ricoh.com)

# RICOH

## imagine. change.

When Heeter—a firm that produces direct mail and other data-rich printing for the retail, education, and gaming industries—was looking for colors that popped and needed to provide quality printing media to these markets, it turned to the RICOH Pro VC70000 inkjet press. The extended color gamut inks available for the platform and its ability to print coated papers without pretreatment allow the firm to harness the vibrant color needed to serve their current

clients and win new ones. What's more, Heeter loves the speed at which it now prints its products.

The RICOH Pro VC70000 uses Ricoh printheads to produce 1,200 by 1,200 dpi resolution with uncoated, offset coated, inkjet treated or inkjet coated papers that range from 40 gsm to 250. This allows for vivid image quality without slowing production. With print speeds up to 492 feet (150 meters) per minute on a maximum 20-inch (508 mm) print web width, producing almost 130,000 A4 letter impressions per hour, businesses can produce high volume, tight turnaround orders, which are a staple of modern print shops. Yet, the high speeds do not come with a sacrifice in quality. The Pro VC70000 uses unique, Ricoh patented dryer technology, which speeds up drying capabilities, allowing for faster print





speeds and higher ink limit. By using small-diameter heated rollers to “iron the paper,” the Pro VC7000 almost eliminates the wrinkles that sometimes develop in lighter weight or offset-coated papers. It also employs fluid-chilled cooling rollers, and high precision monitoring tracks temperature to ensure cooling occurs properly for quick turnarounds that don’t sacrifice image quality.

The Pro VC7000’s groundbreaking introduction of traditionally offset-associated media to a continuous feed inkjet platform, without pretreatment, empowers

printers to produce high-quality products, such as glossy catalogues and magazines. The new Ricoh inks offer as much as a 40 percent savings on paper costs by allowing for support of offset coated papers and untreated papers, among others. Lower water in the inks reduces color bleed, and the exclusive formulation allows for the ink to remain at the surface of uncoated papers while allowing for better adhesion to offset coated stocks. This also means the ink remains more durable and is scratch and fade resistant.





# Take flight.

## The RICOH Pro VC70000 Continuous Feed Inkjet Press

Extended gamut inks and advanced drying technologies help you do what others can't — print on offset coated papers with no priming or post-treatment. Achieve more ink coverage. Colors. Media choices. More ways to set your business apart with greater productivity and profitability. Serve new customers and new markets with the powerful digital capabilities that position your business as a leader.

Get a free copy of our 32-page *Lucerne | 2019 Landmarks* book\*. See the quality this system brings to commercial print and graphic arts applications. [TakeLookatRicohProduction.com/AmazingTechnology](http://TakeLookatRicohProduction.com/AmazingTechnology)

\*One book per name and address. Offer available while supplies last. U.S. addresses only.



Awarded the **Printing Industries of America 2019 InterTech™ Technology Award** for the system's print quality and ability to print a wide range of commodity grades with no pre-treatment.

2019  
INTERTECH™  
TECHNOLOGY  
AWARDS



**RICOH**  
imagine. change.



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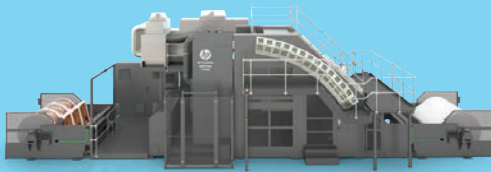
# MEET STRINGENT FOOD PACKAGING STANDARDS FOR SENSITIVE PRODUCTS

With HP PageWide True Water-Based Inks



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Grow your business with HP's digital post-print solution delivering offset quality for mainstream production.



## HP PAGEWIDE T1100 SERIES PRESSES

Optimize time savings with high-volume production and job versatility.



## HP PAGEWIDE T400 PRESS

Open new opportunities with a combined solution of pre-print and digital, in one inkjet web press.



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FLEXIBILITY



OFFSET-LIKE  
PRINT QUALITY



FOOD-SAFE  
WATER-BASED INK

To find out more, visit: [www.hp.com/go/corrugatedpackaging](http://www.hp.com/go/corrugatedpackaging)

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keep reinventing

# tilia Phoenix 7.0

## Tilia Labs Inc.

Tilia Labs Inc. • Ottawa, Ontario • [www.tilialabs.com](http://www.tilialabs.com)



# tilia labs

Tilia Phoenix 7.0 from Tilia Labs is a modular software application that offers an open-application programming interface (API) for planning and imposition. It utilizes artificial intelligence to make production more efficient for all print sectors, including packaging, labels, wide-format printing, and commercial sheet and web. The InterTech judges said it is one of the best applications of AI for the printing industry that they've seen. Combining planning and prepress functions, Phoenix integrates into any workflow or business system to

reduce prepress planning time while automating tasks. And, it optimizes media usage while reducing post-press issues. Phoenix's Imposition AI module powers the software by using smart machine-learning algorithms to manage the production workspace, evaluate possible alternatives, and arrive at the best results. Imposition AI finds solutions that traditional software simply cannot discover. Return on investment occurs in months or weeks as companies see immediate time savings, fewer print runs, and diminished materials cost and waste.

When Inland Packaging was looking for ways to improve its overall efficiency in prepress planning especially for gang runs, the company turned to tilia Phoenix from Tilia Labs. Thanks to the software, jobs that previously took nearly all day can now be completed in only a few hours. The prep department loves the ease with which they can use PDF output to create the plates needed for jobs without manually imposing artwork. In addition to saving time, tilia Phoenix has helped automate Inland's processes both upstream and downstream so that customer orders and artwork can be imported directly into the software, reducing the number of mistakes that would happen with manual entry. Even distribution has benefitted thanks to barcode capabilities that help sort combo jobs into the right boxes.

Phoenix also uses a unique, highly-optimized PDF processing engine, which can analyze 20 GB of artwork files while exporting layout plans 15 times faster than other options. This allows for the ability to feed an HP Indigo



50000 digital press at its highest web speed, preparing jobs for shortest roll lengths and supporting inline and near-line finishing of flat work or bound products.

Relying on an open API means that customers and third-party vendors can easily integrate with any system while automating almost every area of production. Users can benefit from unique choices of implementation options, providing flexibility and seamless transition.

## Judge's Comments

"Real AI used at an appropriate point and in an appropriate way. Game changing in that you could submit a design and it could go right to print without anyone else touching it!"





## 2019 **InterTech** Candidates

**PureFiltration**  
Baldwin Americas

**HP Indigo Colorful Metal**  
HP Indigo in Collaboration  
with Vistaprint

**HP SmartStream Collage**  
HP Indigo

**Rollem Insignia Series**  
Rollem Intl.

**Xerox® Ultra Lightweight  
Stock Printing Kit**  
Xerox Corporation

**PersonalEffect  
StoreFlow Version 10**  
XMPie

**X-Rite eXact® Auto-Scan**  
X-Rite

# PureFiltration

Baldwin Americas • Lenexa, KS • [www.baldwintech.com](http://www.baldwintech.com)

# **BALDWIN**®

*Unlocking Your Potential*

Baldwin Americas' Pure Filtration removes process contaminants like ink, paper lint, and other ingredients from the returning dampening solution, which allows printers to maintain the highest possible quality during the production process. Before Pure Filtration, the only solution available to printers was to completely dump the dampening system. This costs time and money for print operations. Enter Pure Filtration, a cross-flow filtration technology that improves the overall performance of the press. It works for commercial web, newspaper, digital printing, and semi-commercial printing.

Unlike other dampening-cleaning systems, Pure Filtration is low-maintenance and environmentally friendly. It doesn't require any consumables (like filter mats or bags), and the automatic thermal, chemical cleaning developed and patented by Baldwin Americas reduces bacteria in the press. Pure Filtration has a touch display with clear functions and detailed information. It promotes sedimentation, which creates a clear phase, then filters the dampening solution to its almost original clean quality. This then is returned back into the circulator. It can be used on press widths up to 117 inches (2,960 mm) and speeds up to 56 feet (17 meters) per second to flush out ink and paper ingredients.

Pure Filtration creates less physical waste than other filtration systems and costs less too. It requires less supervision from operators, freeing them up for other important tasks. It also saves printers considerable filter costs and machines hours.

# HP Indigo Colorful Metal

HP Indigo in Collaboration with Vistaprint • Ness Ziona, Israel • [www.hp.com](http://www.hp.com)



HP Indigo Colorful Metal produces colorful metallized effects on B2-size media. The technology was refined and perfected through a collaboration between Indigo, Kurz, and Vistaprint.

**Indigo**

Colorful Metal uses the HP Indigo 12000 ElectroInk black as a digitally printed adhesive that bonds foil to a substrate through the KURZ DM-LUXLINER®. Colorful metallic effects are achieved when reinserting the digitally foiled sheets to the Indigo 12000 and directly overprinting the foil with CMYK inks. Previously, registering the CMYK overprint to the foil was time consuming and labor intensive, to the point of being uncontrollable due to reinsertion challenges such as paper handling accuracy, paper deformation, and other issues.

HP Indigo Colorful Metal is a very accurate, image-based, sheet-by-sheet reinsertion solution for B2-size sheets. It registers the overprint to the foiled image across the sheet using a "fiducial marker" system. The process is all digital and dynamically monitors and corrects overprint color registration for every single sheet. Colorful Metal uses on-press registration cameras combined with a new algorithm to scan foiled markers at all four corners. The software then compensates as necessary to produce exact image registration on the foiled image across the entire B2 sheet.

Colorful Metal is a fully digital process enabling short runs as well as variable data applications, eliminating make ready time and waste. As such it enables PSPs to offer more premium possibilities to customers at a faster turnaround time.

## 2019 Candidates

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# HP SmartStream Collage

HP Indigo • Ness Ziona, Israel • [www.hp.com](http://www.hp.com)



SmartStream Collage (HP Collage) is part of the HP SmartStream Designer suite for variable design printing (a software plug-in for Adobe InDesign or Illustrator CC 2019). Collage builds upon HP's Mosaic product, which introduced the possibility of doing mass customization in design, including millions of one-of-a-kind print applications, automatically.

With Collage, brands, agencies and PSPs can have more ways of creating unique and variable graphics. Collage can be applied to any HP Graphics printed application, like labels, corrugated, folding cartons, commercial, and flexible packaging.

Unlike Mosaic, which begins with a pattern, HP Collage allows designers to start with individual design elements

(such as images, logos or letters) for maximum control over their brand identity. With Collage, brands have maximum control over their design elements and can control frequency of repeating elements, rotation, scaling, and more. Collage is compatible with other HP SmartStream VDP solutions, including variable text, barcodes, and even Mosaic.

Collage allows users to control the scattering frequency of elements in a defined area. With the "slider" bar in the GUI, users can preview designs after making adjustments to see how changes will affect outcomes in real time. Because the processing is done on the Cloud, HP Collage does not require a dedicated server. It keeps functionality and response time high and does not diminish DFE performance. With features like "shuffle colors," users can maximize design possibilities by changing the colors of any element. Collage will then make a randomly-generated, multi-colored pattern using those elements.

# Rollem Insignia Series

Rollem Intl. • Anaheim, CA • [www.rollemusa.com](http://www.rollemusa.com) • [www.insigniadiecut.com](http://www.insigniadiecut.com)



Rollem International's Insignia Die Cutters provide a customizable, economical choice for customers looking to expand their embellishment services. Insignia Die Cutters are sheetfed devices with magnetic cylinders that are mounted with flexible metal dies. These rotary die cutters respond to the increasing need for shorter run, faster turnaround die cutting and kiss-cutting services. The multi-function device can also perforate, score, cut-score, and emboss on a range of materials. The machine can handle paper, laminates, magnetic material, PVC, and more with thicknesses up to 30 pt. and speeds up to 5,000 sheets per hour.

The Insignia Series is highly customizable. It is available in four sizes: 20" x 15," 20" x 20," 24" x 30." and 24" x 24." With two cylinder configurations, customers can choose the series that works for their operations. A single magnetic configuration provides an ideal platform for straight die cutting or kiss-cutting. The dual magnetic configuration, using paired male/female dies are ideal for die cutting, scoring, and embossing for larger projects like packaging. Each system is equipped with a waste stripping unit to remove the skeleton from the finished product. Customers also have a choice of three delivery systems: a fast-moving conveyor, a high capacity receding stacker, or a receding bin stacker for efficient card product collection. These customizing options allow printers to expand their offerings within their budget and capabilities. The Insignia Series allows printers to do profitable work in-house instead of sending it out to larger outfits.



# Xerox® Ultra Lightweight Stock Printing Kit

Xerox Corporation • Webster, NY • [www.xerox.com](http://www.xerox.com)

# xerox™

The Xerox Ultra Lightweight Stock Printing Kit for the Nuvera® Production Printing System has the lightest stock weight at the maximum sheet size, opening up the growing book market and more. The kit has components that are installed in the Xerox Nuvera print engine and on the production stackers so that that mono pages can be printed with quality and speed without sacrificing productivity. The Ultra Lightweight Stock Printing Kit gives users the opportunity to print paper down to 30 lb. text (44 gsm), at 12" x 18" (305 mm x 457 mm). Ultra lightweight paper has the tendency to roll or dog-ear at high speeds; this kit has patented new tech that includes both hardware and software components to keep sheets flat, resulting in high-quality image transfer and flat sheet stacking.

Lightweight paper opens up new print on demand markets as shipping and mailing costs are also reduced, making each job more attractive for a customers' overall budget. This makes Xerox's kit an attractive medium not only for cost-conscious applications, but also for any printing that needs to be lighter or thinner for storing, folding, and binding. The Xerox Ultra Lightweight Stock Printing Kit creates greater opportunity in book printing, from trade books to religious texts to other manuals. For those customers already printing short-book runs, the ultra-lightweight stock allows them to expand their offerings to digital print without sacrificing productivity as the Xerox Nuvera prints up to 314 images per minute. Even more than books, customers can print pharmaceutical prescription inserts, financial prospectus materials, manuals, handbooks, and other applications with the Xerox Nuvera productivity, quality, and economics required in today's competitive print market.

# PersonalEffect StoreFlow Version 10

XMPie • New York, NY • [www.xmpie.com](http://www.xmpie.com)



## one to one in one™

PersonalEffect Store Flow Version 10 is a web-to-print product for launching e-commerce sites and marketing portals for print service providers. PersonalEffect balances printers' desire for a customized online print ordering system with the need for a customer-friendly front-end experience. It has HTML5 responsive design, the ability to customize the store look and feel to that of the operation's branding, easy

reordering, order approval, and more. Because StoreFlow works on mobile, customers can use any device to customize, review, and approve their orders. They can also track order status from their mobile device.

StoreFlow allows users to create a storefront with custom branding in minutes. Administrators need not have any programming skills to control main elements like font, logos, buttons, and banners. Companies can create a branded store concept for prospective clients in minutes and make changes immediately, making for a faster and more cost-effective sales cycle. Once a site is active, the e-commerce workflow is automated and streamlined from order to fulfillment for the administrator and consumer.

StoreFlow Version 10 can be extended and integrated into other systems. With plugin technology, companies can add custom functionalities like CRMs, tailored fulfillment workflow, and more.

# X-Rite eXact® Auto-Scan

X-Rite • Grand Rapids, MI • [www.xrite.com](http://www.xrite.com)



Combine the technology of the eXact with advanced automation and you have the X-Rite eXact Auto-Scan. The device can be used in automatic scanning mode or removed from the scanning track and used as a handheld spectrophotometer. Able to accommodate both 29-inch and 40-inch presses, small and mid-size printers alike can benefit from the flexibility of the Auto-Scan.

The eXact can measure true M1 Part 1 (as opposed to a simulation), one of the only handheld devices on the market with such a capability. It can also capture M0, M1, M2, and M3 readings simultaneously. The tool

also acts quickly; it takes less than 15 seconds for the eXact Auto-Scan to measure a 40-inch color bar. This reduces makeready by 30% and reduces the potential for human error.

The eXact Auto-Scan offers a variety of tools to assist press operators right from the device. Operators can create customized standards and color libraries directly on the device and use comprehensive color data immediately through Bluetooth technology to make quick adjustments. The eXact Auto-Scan can stand on its own or be integrated with other third-party solutions to expand ink key and quality control to create a closed loop solution.

The simultaneous M-mode measures density and color data on set targets to ensure more accuracy. The Auto-Scan is able to capture all data in one scan, helping printers to increase productivity and accuracy, reduce costs and wastage, and deliver dependable products to customers.

# Check Off Your Compliance To-do List with EHS Verify



EHS Verify, the newest program from Printing Industries of America's Environmental, Health, and Safety Affairs, provides a customized audit process that helps printing companies strengthen their EHS programs to prevent workplace injuries, avoid environmental and safety incidents, and reduce the risk of OSHA and EPA fines.



## EHS Verify includes:



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On-site visit



Action plan



Re-audit

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[printing.org/ehsverify](https://printing.org/ehsverify)



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OR

**COLOR20**  
January 11-14, 2020  
San Diego, CA

[PRINTING.ORG/COLOR](http://PRINTING.ORG/COLOR)



**TAGA ANNUAL  
TECHNICAL CONFERENCE**  
March 15-18, 2020  
Oklahoma City, OK

[TAGA.ORG](http://TAGA.ORG)



**2020 CONTINUOUS  
IMPROVEMENT CONFERENCE**  
April 5-8, 2020  
Columbus, OH

[CI.PRINTING.ORG](http://CI.PRINTING.ORG)