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The Future of Direct-to-Shape





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A Letter from the President



Sir Winston Churchill said, “It is wonderful what great strides can be made when there is a resolute purpose behind them.” We are proud of the great strides SGIA is making with resolute purpose for our members, and for the greater good of our collective industry. As we move through 2020, we are taking a close look at all our programs and offerings to

ensure that they tie in directly with specific goals and initiatives, for the long-term benefit and success of our members.

From hands-on workshops to certifications and specially crafted events, we are working hard to deliver a product for you to tap into and find useful as it pertains to your business strategies and practices.

Read on to learn more about the programs available to you and stay tuned for more that speaks directly to that resolute purpose as we navigate the year. We are enthusiastic about the strides taking place and have you to thank for being on this journey with us as we work to be your “go-to” resource for all things printing.



Ford Bowers, President & CEO, SGIA

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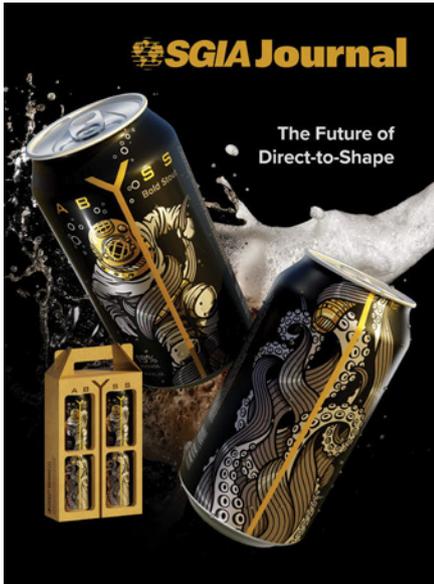
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On the Cover

The question isn't what's in the box, it's what's *on* the box (or can, bottle, etc.). This issue of the Journal unfolds different aspects of package printing, from the opportunities for direct-to-shape with inkjet to the design and color management considerations behind the labels and packaging we encounter on a daily basis.

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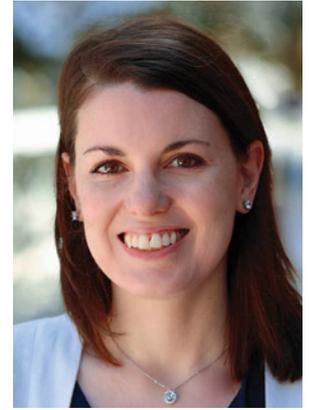
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From the Editor

Dear Readers,

I'll be honest — in moments of wine purchasing indecisiveness, I've been known to base my decision on a bottle's label. Though a great design doesn't always equate to great taste, my decision making is a testament to the power of branding and eye-catching imagery. And based on industry trends, and what you'll read in this issue, I'm certainly not alone in my consumer behavior.



Unique, personalized designs and quick turnarounds are at the forefront of what today's customers want. And while digital technology is allowing printers to meet this fast-paced creative demand, it's also enabling them to stretch the bounds in terms of substrates. In our cover story, Karis Copp delves into the possibilities inkjet presents for direct-to-shape printing in an increasingly customized world. Following this article on a similar note are Vince Cahill and Claire Hunter, who share the latest capabilities in dye-sublimation printing.

While exploring the latest applications, we're also taking a look at the different aspects of creating standout designs for varying products and end uses. Multiple color management experts weigh in on design considerations for color-critical work and how to achieve consistent color across processes.

I promise you, this issue is an instance in which a great cover design translates to the value-packed content inside. Happy reading!

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LabelSaver direct-to-shape printer, created through a partnership between OPM Europa and Memjet. Courtesy of OPM Europa.

The Future of Direct-to-Shape

How inkjet is opening up opportunities in packaging.

Digital innovation in labels and flexible packaging continues to open new doors for brands looking to better engage with customers and drive stronger customer retention and brand loyalty. And, though it may seem impractical to ponder a label-free future, there is a strong focus on how direct-to-shape printing can add value to the packaging market.

Direct-to-shape printing is certainly not a new technology. However, the opportunities now available with inkjet — coupled with complementary advances in other components of direct-to-shape,

and combined with the fact that the trend for personalized, specialty packaging shows no signs of slowing down — make for a potentially exciting future for digital direct-to-shape in packaging.

Xaar-owned Engineered Printing Solutions (EPS) is among the businesses designing and building custom, often proprietary, direct-to-shape systems that can be perfectly integrated into existing production lines. At PRINTING United 2019, EPS presented the MD-9450 cylindrical inkjet printer from French company Machines Dubuit through an exclusive ▶

This trending preference for products that are special and 'just for me' shows no signs of dissipating.



By Karis Copp, Industry Author



Tapered cup printed on a Machines Dubuit. Courtesy of Machines Dubuit.

North American partnership. The show also saw Inkcups introduce its Revolution high-speed digital cylinder printer, while ink manufacturer Marabu North America debuted its first digital printer, the M Revo, designed for cylindrical objects. All three businesses focused on drinkware applications.

Advantages in a Personalized World

Where direct-to-shape inkjet really differentiates itself is in personalization and customization for promotional packaging with significantly reduced lead times, the elimination of minimum order requirements, and the flexibility to print-on-demand. The growth area here, and the area that has seen the most widespread adoption of direct-to-shape, is beverage containers. Although a label initiative, a good example is the “Share a Coke with ... [insert name here]” Coca-Cola campaign, which really cemented consumer demand for customized experiences with brands.

Eventually, the novelty of the customized Coca-Cola bottles featuring more common names wore off, and the company made it possible to order a one-off, completely personalized bottle. Customization is no longer enough — if brands want to bring consumers into their ecosystems and retain them, they need hyper-personalized end-to-end experiences. This trending preference for products that are special and “just for me” shows no signs of dissipating; if anything, it has become more prevalent and even expected by consumers, particularly the younger demographic who largely prefer personal and experiential brand interactions.

Ken Tyler, Sales Engineer at Engineered Printing Solutions, envisions direct-to-shape playing a significant role in this brave new “me, me, me” world. “Take this example: you’ve just had a baby, and you’re ordering wet wipes. You have a profile saved on Amazon, and your order is going to get processed. Perhaps you opt to have your baby’s name right there on the lid; the details are there on ‘My Subscription,’” he says. “Maybe there are Disney characters, or princesses printed on there too — who knows! The point is, it could be completely customizable. Every single lid going through the printer can have

its own image just based on variable data tracking.”

Challenges and Considerations

While there are many opportunities for direct-to-shape based on packaging trends, there are of course challenges in the space as well. Digital direct-to-shape is unique because there is no “one-size-fits-all” solution. When printing directly to 3D objects, irregular surfaces, and atypical substrates, there is a lot to consider — from pre-treatments to ink chemistry to substrate handling — therefore, a flexible, adaptable solution is paramount.

According to Craig Reid, founder and president of digital print consultancy CTR Resources, all the components for a cost-effective inkjet solution are there, but a lack of systems integrators with the ability to custom build direct-to-shape solutions, dependent on individual needs, means adoption of the technology is lagging.

“The individual elements, such as the printheads and drive electronics, ink delivery systems, pretreatment, inks, coatings, and substrate handling systems are certainly ready,” he says. “The issue with systems integrators is often who pays for the engineering and development cost as the system solution is being made ready for production. The more custom the direct-to-shape application, the more this is a factor.”

Tyler echoes this sentiment, adding, “Frankly, there is a lack of collaboration among ink manufacturers and machine manufacturers. Everybody always points to the rapid uptake of digital in the ceramic tile space, and it was largely because the manufacturers worked with the substrate companies to achieve various technical standards of adhesion and so forth. That is one of the big challenges in direct-to-shape.”

When it comes to who is investing in direct-to-shape, it is interesting to see brands taking matters into their own hands by taking package printing in-house. Despite a purported dearth of systems integrators, there is development of bespoke solutions custom-made to a client’s requirements. It’s easy to see the appeal, since it allows them to manage their own lead times; calculate costs per unit; utilize variable data to create custom,

high-end packaging on-demand; and react to packaging trends by amending and adapting designs at the drop of a hat. Not to mention, they can quickly and easily customize packaging for special promotions, seasonal changes, region-specific packs (including the use of different languages), or event collaborations. The freedom to make such smooth transitions can be game-changing.

A Label Technology Replacement?

Many experts regard direct-to-shape inkjet for the packaging market as in its infancy with significant growth potential. But if brands are eschewing converters and opting to invest in the technology themselves, it seems this would be disruptive for label and packaging printing. Dursun Acun, Founder of OPM Europa, thinks so.

Acun developed a robotic technology to integrate into label production, partnering with Memjet to combine its VersaPass technology with his system, ultimately creating a direct-to-shape label printer called LabelSaver. "It is extremely disruptive," he says. "We're looking at the developments in the markets, and the first thing customers are looking for is flexibility.

"Not having to apply a label, and printing directly on the product itself provides so many logistical advantages; it can be

more expensive, but the logistics advantages are so big, we have customers waiting until we are ready to have these machines installed in their factories. If I'm right, and I think I'm right, why would businesses want to apply labels if the advantages and the savings are so huge? We want to sell this machine to the end user and not to the label converters because the machine can be installed in line, so you can print any kind of design on any kind of bottle. You can actually produce on-demand so you don't have to wait two weeks for your labels."

As for whether direct-to-shape inkjet will serve as a replacement technology for labels, there are many instances in which it will serve as a superior option, as previously noted, but it won't happen overnight. "I feel like we are still at the beginning of direct-to-shape. As with anything at the beginning, it takes some time before knowledge and awareness of the technology and applications grow," Reid says.

For Tyler, the businesses he's seen moving from analog to digital show that the future of digital inkjet in general looks bright. "People are moving from analog, offset, screen printing, into digital, and that by itself points to a very strong future ahead," he says. "The big industry with ▶

Where direct-to-shape inkjet really differentiates itself is in personalization and customization for promotional packaging with significantly reduced lead times, the elimination of minimum order requirements, and the flexibility to print-on-demand.



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Bottles printed using the LabelSaver direct-to-shape printer. Courtesy of OPM Europa.

“As with anything at the beginning, it takes some time before knowledge and awareness of the technology and applications grow.”

regards to digital direct-to-shape is definitely beverage. Think about craft brewers: Today you walk into a gas station and there are a number of different local beers, all of them printed with labels. When we get speeds up and costs down on direct-to-shape, labels on that type of market will go away.”

Acun predicts that as direct-to-shape inkjet evolves, skepticism will subside. “Conservative graphics companies were cynical about the Indigo technology initially, but eventually the industry saw the flexibility of printing digitally, and realized it was the future,” he says. “I think our technology will experience similar rejection, but before long, people will see that it is flexible, disruptive, and the best choice.”

While adoption of digital direct-to-shape in the packaging market is not yet widespread, an intelligence report from Future Market Insights forecasts almost 6% year-over-year revenue growth for the direct-to-shape inkjet market, with food and beverage leading the pack.¹ Further maturation needs to take place, but the opportunities to meet consumers’ ever-growing demands for completely personalized experiences with products that feel luxurious and tailor-made continue apace.

Undoubtedly, more collaboration is

required for this unique area of print to drive increased investment and trust, as well as further development in robotics and printheads that can overcome curvature challenges. And as speeds accelerate and maintenance costs diminish, the industry will likely witness broader adoption. Ultimately, consumer packaging trends will continue to be the impetus for direct-to-shape demand, and while it’s unlikely to be a match for mainstream production label printing, it has its niche in personalization and customization. As the printing industry moves into a new decade, it is certainly worth keeping an eye on how this segment shapes up. ■

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Karis Copp is a journalist and communications specialist based in the United Kingdom. With a background as an editor and public relations professional in the printing industry, she now works on a freelance basis, covering events, writing about industry news and trends, and working with businesses to help them tell their stories and connect with their customers.

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Dye-sublimation applications produced by A-Tex.
Courtesy of Advanced Finishing USA.

Opportunities in Sublimation-Disperse Dye Printing

Exploring a growing market's progression and latest technologies and applications.

Transfer dye-sublimation (dye-sub) and direct disperse dye printing continue to grow both in market share and new application opportunities. Smithers' 2018 report, "The Future of Dye-Sublimation Printing to 2023," projected the worldwide market for dye-sublimation printing would grow from \$7.83 billion in 2017 to \$8.54 billion in 2018, and continue at a 10.2% compound annual growth rate to a market value of \$13.9 billion in 2023. The report identified five dye-sub application categories for end users with garments constituting the largest market category by far, followed by visual communications, household, rigids, and technical textiles.¹

The Evolution of Dye-Sub and Direct Disperse

Before the 1920s, clothing fabric was made of natural hydrophilic ("water-loving")

fibers, such as cotton, linen, wool, and silk, primarily printed with aqueous dyes or colored in aqueous dyebaths. However, the introduction of cellulose acetate² — the first synthetic hydrophobic ("water-fearing") polymeric material — required a different method for coloring, dyeing, and printing, which came in 1924.

Building on discoveries of fellow chemists, James Baddiley and Arnold Sheperdsen of British Dyestuffs Corporation developed Duranol dyes, while Holland Ellis of British Celanese produced sulpho ricinoleic acid dyes and a dispersing agent for coloring acetate fibers.³ About five years later, British Celanese's Valentin Kartaschoff observed that, when placed in contact and heated, these disperse dyes could color cellulose acetate. Officially named disperse dyes by the Society for Dyers and Colourists,

Digital printing technologies, particularly inkjet, have improved to a point where they can compete with analog printing processes for print quality and production speed.



By Vince Cahill and Claire Hunter, Owners, VCE Solutions

they were also eventually shown to color other chemist-formulated hydrophobic synthetic materials, including Nylon, polyethylene terephthalate polyester, acrylic Plexiglas, and other polymerics.

After Star Stampa Artistici di Milano developed a gravure-based heat and pressure transfer printed paper system in 1950, the heat transfer method for printing synthetic polymeric continued to evolve. Following on these developments, Noël de Plasse eventually described the transfer process as sublimation and founded Sublistatis SA to exploit the commercial potential of his printing technique.⁴

From personal experience navigating dye-sub transfer screen printing for decorating polyester-coated items and fabrics for customers in the 1980s, much knowledge on dye-sub and direct disperse dye printing technology has been gained by connecting with other users and industry suppliers, entrepreneurs, and chemists.

This has included printer, entrepreneur, and process engineer Roy Devries of Screen-Trans Development in Moonachie, N.J., who developed dye-sub inks for litho offset during the 1970s and, working with chemist Henry Lewis, began experimenting with inkjet dye-sub inks.

Collaboration among entrepreneurs, chemists, and engineers has been key in creating and improving the dye ink, substrate, transfer paper, printer, and press solutions that have enabled the dye-sub industry to prosper. Sawgrass Solutions' CEO and entrepreneur Nathan Hale and chemist Ming Xu opened the door to dye-sub opportunities for printers with their inks, supplies, and instruction. They worked with other entrepreneurs and suppliers, like David Gross at Condé Systems, who assembled one of the largest offerings of dye-sub-printable items and supplies, including dye-sub printers, software, inks, transfer papers, heat presses, and a comprehensive product catalog of dye-sub receptive blanks. The list of synthetic polymeric material applications includes fibers, garments, bags, polyester-coated mugs, cutting boards, polyester-covered mousepads, phone cases, dinner plates, ceramic tiles, skateboards, car hoods, flags, and powder-coated metals.

Condé, Sawgrass, Heat Press Nation, Heat Transfer Warehouse, and other suppliers provide online tutorials on how to use dye-sub for its many applications.

Dye-Sub vs. Disperse Dye Requirements

Aside from the transfer paper and process used with dye-sub, direct disperse dye printing has many of the same requirements as dye-sub printing. Both use virtually the same print technologies, one for depositing disperse dye images directly onto polymeric substrates and the other for depositing them as reversed images on paper for subsequent transfer to polymeric substrates. They both require heat setting to fix the dye into substrates.

Disperse dyes are nonionic colorants with very limited solubility in water at room temperature. Dye-sub transfer printing typically uses low-to-medium energy/molecular weight disperse dye inks that are printed onto transfer paper, which under heat and pressure and in contact with the intended substrate's surface, penetrate into receptive polymeric materials. Low molecular weight disperse dyes can reflect vibrant colors, but also offer limited outdoor exposure life to sunlight UV.

Though direct disperse dye printing often uses the same or similar energy disperse dye inks as dye-sub printing, it can also use higher energy/molecular weight disperse dyes for some applications requiring greater outdoor durability and resistance to UV exposure. However, high energy disperse dyes appear less vibrant compared to low energy dyes and they require higher temperatures and pressures to merge with print substrates, which must be able to tolerate such parameters. Meanwhile, very low energy disperse dyes can tend to migrate out of the receiving substrate over time. Only a limited number of the existing hundreds of disperse dyes are appropriate for direct or transfer printing.

Disperse dye types include monoazo, accounting for 80% of all disperse dyes; anthraquinones, 15%; and other types, including nitrodiphenylamine and heterocyclic ring, accounting for the remainder. Dystar is the major producer of the monoazo type while Huntsman is the major producer of anthraquinones. Clariant produces both types. These three disperse dye manufacturers account for most of the total worldwide production. Other major producers include Yorkshire, BASF, Archroma, Nippon Kayaku, Akik Dye Chem, Lonsen, and Runtu.

Sublimation dye ink providers include Sawgrass, DuPont Artistri Xite, Sensient, ▶



Dye-sublimated water bottle produced by A-Tex. Courtesy of Advanced Finishing USA.



Epson SCF570.
Courtesy of
Condé Systems.

Though direct disperse dye printing often uses the same or similar energy disperse dye inks as dye-sub printing, it can also use higher energy/molecular weight disperse dyes for some applications requiring greater outdoor durability and resistance to UV exposure.

InkTec, Kiian Digital, STS Inks, Nutec, Marabu, and Lyson.

Digital Printing Methods

In addition to analog methods for printing dye-sub inks with gravure, offset lithography, thermography, and screen printing, dye-sub digital printing methods include thermal transfer, electrophotography, and inkjet.

Sublimation thermal transfer (TT) dye diffusion printers were developed for photo reproduction. HiTi Digital offers a line of seven commercial thermal transfer photo printers, such as its P525L, along with its four consumer TT and two ID card devices. Other TT sublimation photo printers include the Mitsubishi CP-D70DW, Kodak Dock, Canon's Selphy line of portable devices, and Canon's IX-R7000 ID card printer.

Electrophotographic dye-sub printers include the desktop narrow-format UniNet iColor 540, 550, and 600 laser printers. For wide-format, KIP's EST 480 can print 36"-wide transfer papers.

Narrow-format desktop dye-sub inkjet printer manufacturers and suppliers include Ricoh, Canon, Sawgrass, Epson, Roland, Mutoh, and Brother. Ricoh's Aficio SG 3110DN GelJet printer prints transfer paper with a maximum size of 8.5x14", while its SG 7100DN prints transfer paper up to 11x17". Sawgrass adopted the Aficio SG 3110DS gel inkjet for its SG400 dye-sub printer and the Aficio SG 7100DN gel inkjet for its SG800 gel dye-sub printer. Both printers use Ricoh's MH5220 PIJ head and built-in heater to

liquify the gel ink and enable it to jet. Sawgrass adapted the Mutoh ValueJet 628 for its Virtuoso VJ628 dye-sub inkjet printer with a maximum width of 24".

In addition to thermal transfer and laser dye-sub photo printers, desktop sublimation inkjet photo printers are producing very high-quality color prints through wireless, USB drives, and other digital means from smart phones and digital cameras. Leading inkjet sublimation photo printers include Epson Work Force WF-7110 and WF-7610, Epson Artisan 1430 and Stylus C88+, and Kodak Verité line.

Manufacturers producing wide-format (24"-plus wide) inkjet printer systems that print disperse dyes directly and dye-sub transfers include d-gen, Mimaki, HP, Konica Minolta, Roland, Mutoh, and Epson.

Inkjet printhead driver developer TTP Meteor UK indicated that as of 2016, more than 50% of digital textile ink consumption was sublimation inkjet ink, approaching \$500 million in value. It projected that inkjet sublimation ink value will exceed \$730 million this year.⁵

Advances and Advantages

Digital printing technologies, particularly inkjet, have improved to a point where they can compete with analog printing processes for print quality and production speed. Sublimation and disperse dyes have also advanced to jet reliably through inkjet nozzles and inkjet printheads while printers have added features such as recirculation and nozzle condition monitoring

that ensure successful printer operation.

Ink manufacturers have advanced their milling and pulverizing dye particles to diameters of 1 µm and smaller for inkjet firing. In 2018, Xu said, "A great portion of the fast-growing applications of dye-sublimation is due to the engineering advancement in pulverizing machinery, and the fact that sublimation inkjet inks are most suitable for transfer printing processes that have relative low cost of entry, are easy to operate, support very broad substrate selections, are widely adopted, and are eco-friendly."⁶

HP's recent entry into the wide-format dye-sub arena with its Stitch S300 and S500 thermal inkjet (TIJ) dye-sub 64" roll width printer line with advanced features has raised the bar for its competitors. Along with their 1,200x1,200 dpi maximum resolution, these printers come with optical drop detection and Smart Nozzle Compensation procedures to eliminate visible dropouts. The printers' Color Smart feature uses an onboard iOne spectrophotometer that automatically accounts for environmental changes in the printer area and

can detect when a print color is out of gamut and visually match colors with PANTONE emulation. HP has also introduced the Stitch S1000 126" super-wide dye-sub printer. To enable dye-sub printing through its TIJ heads, the company modified its heads and inks to print at lower temperatures.

Several companies have begun to offer solutions for printing dye-sub on cotton. One of these solutions is ChromaBlast-R, which, when printed to ChromaBlast Transfer Media and heat transferred to cotton and cotton-blend fabrics, results in durable, breathable soft hand, brilliant color prints.

Another area where dye-sub is growing is heat transfer decoration of powder-coated metal surfaces for architectural building skins and trim, signs, public art, awards, and promotional product installations. Italy-based Decoral Systems developed and patented its system for transferring dye-sub to powder-coated surfaces. Its Quality Decoral Gold ink and transfer system have survived three-year outdoor/sun exposure testing in south Florida, thus expanding the

durability of dye-sub. One of its licensees is Archi-Texture Finishing (A-TeX) of Fairview, Pa. ALTO of the SH Group produces dye-sub transfer-printed coated aluminum panels for colorful architectural installations. Another producer of decorated powder coated architectural and décor products is ATI Decorative Laminates of Greensboro, N.C., with its Fusion dye-sublimation process. Bison Coating & Supply of Joplin, Mo., produces ceramic and tumbled stone tiles, mugs, glass, steel, and porcelain, that are coated to receive dye-sub transferred images.

In an April/May 2017 *Screen Printing* magazine article, Eileen Fritsch described developments for dye-sub on rigid substrates.⁷ She mentioned Avianix AvianiTrans 3D dye-sub vacuum films, 3D vacuum heat presses, and hydro/aqua dye-sub technologies. The introduction of transfer methods that can decorate as much as 350 degrees around 3D objects increases the scope of dye-sub's application opportunities.

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to grow and become the norm, and as knowledge of the time, cost, color vibrancy, and rapid ROI advantages of sublimation dye and direct disperse dye printing spread, print providers and product decorators will step forward to capture the opportunities. ■

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⁵ meteorinkjet.com

⁶ "Handbook of Industrial Inkjet Printing: A Full System Approach," edited by Werner Zapka; Chapter 9 on Sublimation by Ming Xu, p. 179.

⁷ Fritsch, Eileen. "Why Hard-Surface Dye-sublimation is Heating Up." Screen Printing, April/May 2017.

Vince Cahill began screen printing in 1969. Subsequently, he printed for a sign business in Frederick, Md. In 1979, he and Claire Hunter opened The Colorworks, a custom screen printing business. In 1995, they established VCE Solutions, a print consulting business. In 2003, they formed Industrial Printing Solutions to distribute digital printers. In 2000, Vince served as CEO of Datametrics Corp., a digital printer manufacturer.



Sawgrass Virtuoso SG500. Courtesy of Condé Systems.



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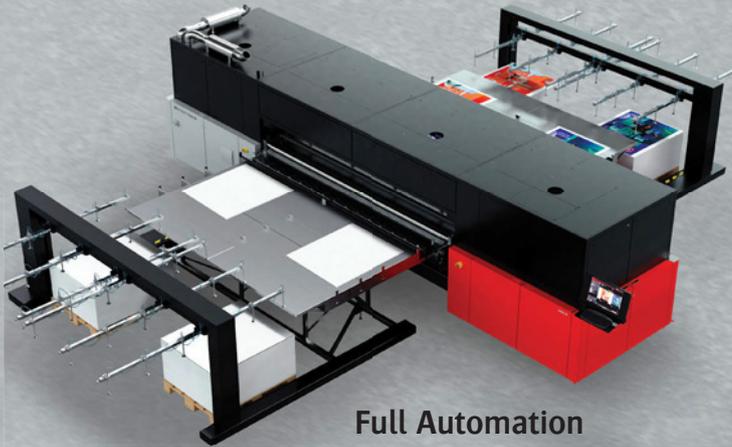
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Print Businesses Prioritize Sustainable Development Goals

While sustainability may not be the first word you think of when you think of printing, this industry has more potential to influence sustainability — positively or negatively — than you might think. What we’ve seen recently with many businesses across industries is that sustainability is becoming more of an expectation for both consumers and the incoming workforce. Younger generations are searching for a company’s core values and mission statements for terms like “sustainable initiatives” and “continuous improvement,” and they know how to sniff out greenwashing. On the other hand, customers are thinking more diligently about sustainable procurement and how they are contributing to a circular economy. They are considering how the product is made, how it can be responsibly disposed, and how everyone involved is compensated for their work. This shift is yet another motivator for integrating sustainable practices into your business and to monitor and record the impacts of these practices.

Another trend we’ve seen is sustainable initiatives aligned with the United Nations Sustainable Development Goals (SDGs). The SDGs are 17 goals internationally agreed upon to be the most important issues on Earth. These are the biggest challenges of humanity (No. 1 is achieving zero poverty), and because of their gravity, people often get discouraged about what they can do to make an impact. What they might not realize is the

SDGs are broken down into 169 total targets, which outline action-oriented items for anyone to achieve a given goal. Your business could already be hitting some targets!

In 2019, we redesigned our annual Sustainable Business Recognition Award Program to align with the SDGs. SGIA’s Sustainability, Safety, Health, and Personnel Advisory Council chose three SDGs most applicable to the printing industry:

- Goal 3:** Good Health and Well-Being
- Goal 8:** Decent Work and Economic Growth
- Goal 12:** Responsible Consumption and Production

With this new development, we are recognizing 17 companies for their commitment to sustainability throughout 2019. Among those companies are PRS Permacel Private Limited, The Bernard Group, and Empire Screen Printing, who each impressively contributed to all three recommended goals.

Specializing in tape and label-related products, India-based PRS Permacel Private Limited received SGIA’s Platinum Sustainable Business Recognition Award for not only greatly contributing to the three outlined SDGs but going the extra mile in ensuring employees’ physical health and overall well-being. In addition to having employees receive annual medical check-ups and awareness training on thyroid care and



By Heather Nortz,
Sustainability Programs
Coordinator, SGIA



monsoon diseases, the company has an on-site doctor and medical practitioner to address any first aid or medical concerns at any time. It regularly recognizes employees and employees' children for jobs well done while awarding gifts for good performance in categories such as safety and housekeeping. Employees' children can also qualify for the annual Young Achiever Award for scoring well on school exams. This above-and-beyond effort to make employees and their families feel taken care of and valued embodies how businesses of any kind can contribute to SDG 3.

The Drive to Make an Impact

The Bernard Group, a visual merchandising company for large brands based in Chanhassen, Minn., began integrating sustainability into its business practices because "more and more of our clients were asking for more sustainable options, and frankly, it is the right thing to do," says Liesl Beck, director of corporate social responsibility. With this drive to make an impact while fulfilling customers' expectations, its sustainability initiatives throughout 2019 contributed to SDGs 1, 2, 3, 8, and 12, earning it SGIA's Gold Sustainable Business Recognition Award. Its major achievements within these goals are in continuous improvement efforts, engaging employees, and charity. It has created key performance indicators to measure and reduce utility and material use. Attaching a performance value to resource usage efficiencies and creating a system to monitor the volume of material use allows it to consistently adjust and find areas where improvement is possible. Having also noted how everyone thinking and working toward the same goals makes for more efficient progress, it has arranged employee awareness trainings to discuss corporate social responsibility and environmental management systems.

Lastly, The Bernard Group invests time and money in charities and its local community. Having donated \$43,000 to Hope House, a local shelter supporting homeless or at-risk teens, and running an annual holiday program in which employees "adopt" and buy gifts for an impoverished family, the company is dedicated to SDG 1 (Zero Poverty). Similarly, it contributes to SDG 2 (Zero Hunger) with regular charity donations, including \$26,000 — raised through its annual charity golf event — to Feed My Starving Children, a charity helping fatherless families. Over the past four years, its annual charity fashion show has raised \$103,000, which has gone to People Reaching Out to People, a local organization feeding families in need.

Also earning SGIA's Gold Sustainable Business

Recognition Award is Empire Screen Printing, a screen printing company specializing in point-of-purchase and original equipment manufacturing markets. Committed to continuous improvement, it regularly reviews its company benefits, regulatory compliance, and utility and material use, making changes when it finds something not working optimally. Through regular audits and annual reviews, its Safety Committee, created in 2005, has helped to drastically reduce its insurance rates.

It has also found much success with using UV inks, which has helped reduce volatile organic compound levels, improve indoor air quality, and reduce energy costs. Its sustainability commitment is further evidenced by its "think globally, act locally" mindset to actively share its successes and positive impacts with others. "If [the benefits found with UV technology] is our secret, then we're doing a disservice to the advancements of our industry," says John Freismuth, president, Empire Screen Printing. Sustainability is not a one-size-fits-all solution. What works for one person or company may not work for everyone. However, open communication and idea sharing is the best way to help people find what works for them.

The Effects of Sustainable Development

Aligning the Sustainable Business Recognition Program with the SDGs has given SGIA members the platform to categorize their sustainable initiatives into targets that contribute to globally recognized goals. Being aware of the lasting impact of day-to-day actions helps to establish systems of intentional planning rather than individual actions with no direction. By making sustainability a valued part of their businesses, the 17 winning companies have shown customers that receiving high-quality products and services does not have to come at the cost of employees' or the environment's well-being. In fact, successful businesses often have the power to positively affect people and the environment — an achievement known as sustainable development.

What can you do to have a more positive impact? Think globally, act locally. Think of a large-scale project that would make a significant difference and scale it down to what is feasible to achieve based on your resources. Act on it and share your strategies with others to spark ideas of how they can start their own sustainability journey. ■

For more information about the Sustainable Business Recognition Award Program, Sustainable Development Goals, or sustainable business in general, please contact SGIA's Government Affairs Department at govtaffairs@sgia.org.

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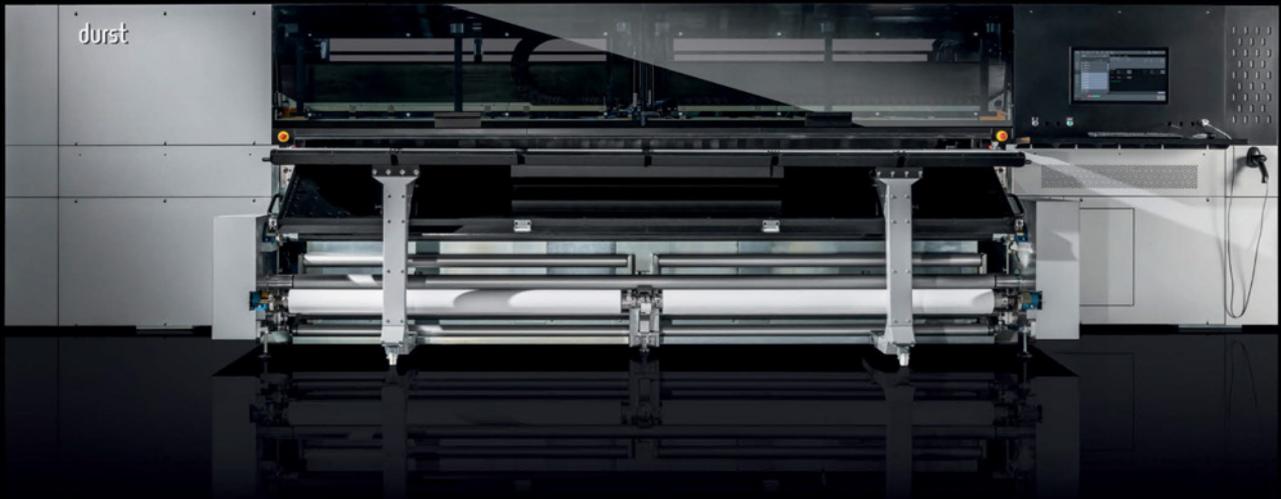
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Growth and Competitive Advantage Tactics

SGIA's 2019 Q4 research examines graphics and sign producers' strategies and their effectiveness.

SGIA's fourth quarter 2019 Industry Benchmarking Survey investigated the tactics printing companies use to create growth and build competitive advantage, and what has/has not been effective. Nearly 240 companies from across the industry participated in the survey. The following summarizes results for the 73 who define their primary business as graphic and sign production.

Company sales range from less than \$500,000 per year to \$50 million or more per year. The majority, however, fall in one of two annual sales categories: \$1,000,000 to \$4,999,999 (41.4%) or \$10,000,000 to \$19,999,999 (22.0%).

Nearly 68% are located in the United States, 18.3% in Canada, and 14.1% in other countries, including Mexico, Australia, and Greece. Nearly 60% sell exclusively to other businesses, 32.9% to both businesses and consumers, and 8.6% exclusively to consumers. More than 37% serve at least one segment in addition to graphic and sign production, with 24.3% offering commercial printing, 17.1% industrial printing, 10% apparel decoration, and 2.9% package printing/converting.

Sales increased last year for 80.5%, did not change for 12.2%, and declined for 7.3%. More than 68% grew at least

Optimism is widespread among surveyed graphic and sign producers.

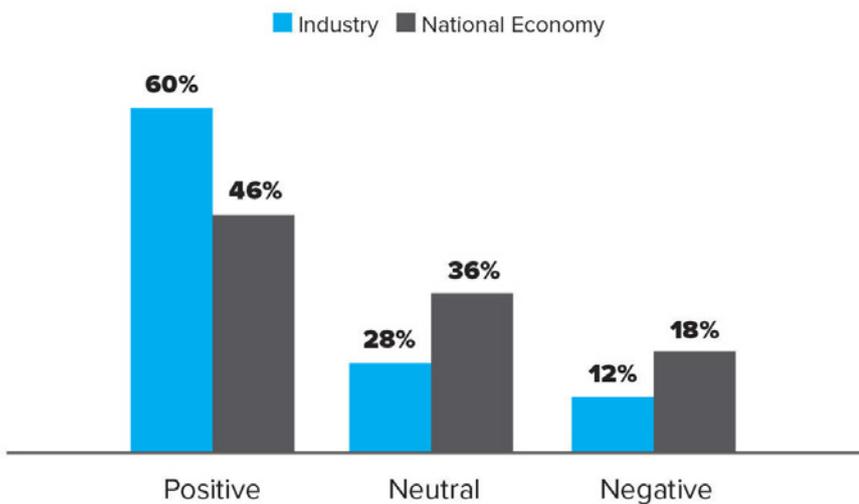


By Andy Paporozzi, Chief Economist, SGIA

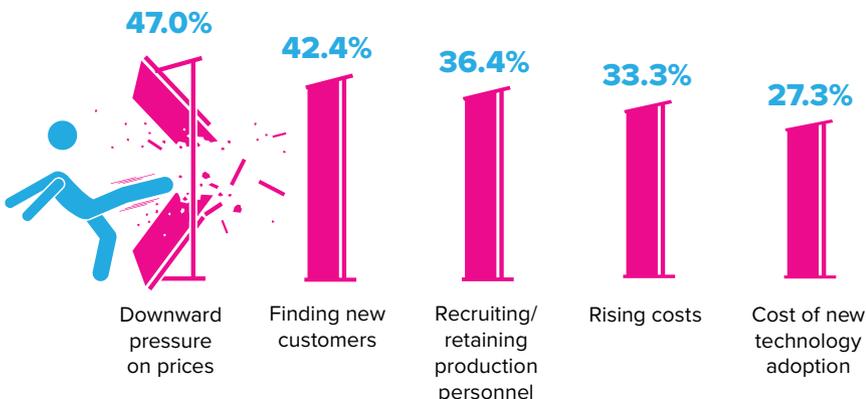
Strategies for Building Competitive Advantage



Confidence: Industry and National Economy



Biggest Barriers to Growth



5% and 41.4% grew at least 10%. Barriers to growth — our research group identified nearly 20, with pressure on prices (47%), finding new customers (42.4%) and recruiting and retaining production personnel (36.4%) cited most frequently — underscore the challenges of growing profitably in graphic and sign production.

Company websites (78.3%), referrals (67.4%), and inside sales (60.9%) are the most widely used methods of attracting clients. More than half of the respondents use networking events and social media (primarily Facebook, LinkedIn, and Instagram), while 45.7% use electronic communication and outside sales. A smaller but significant percentage use methods as varied as trade shows, pay-for-click advertising, and direct mail.

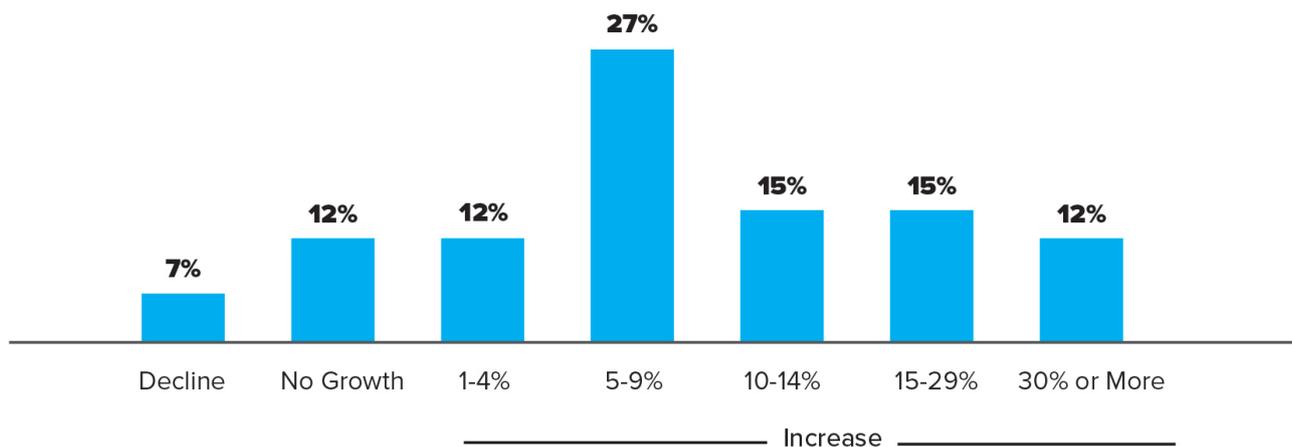
Referrals are the only method a majority rate “very effective.” Inside sales, on-site advertising, trade shows, electronic communications, and purchased banner ads were most often rated “somewhat effective.” Online directory listings, direct mail, and social media were most often rated “neutral” or “ineffective.” As for company websites, there’s plenty of room for improvement: Just 28.6% rated their website “very effective” at attracting new clients, 40% “somewhat effective,” and 31.4% “neutral” or “ineffective.”

Production-related steps for building competitive advantage focus on three areas: efficiency and cost reduction, labor force development, and the expansion of products, services, and capacity. Efficiency and cost reduction include steps toward lean manufacturing/continuous improvement (the largest area of focus at 86.2%), operating cost reduction (50%), and workflow optimization (37.9%). Labor force development includes staff training (41.4%) and employee appreciation/incentive programs (31%). Product, service, and capacity expansion includes adding new product lines (46.6%), becoming a one-stop shop (37.9%), and capacity expansion in areas such as imaging (31%), finishing (27.6%), and fulfillment (15.5%), whether to supplement an existing or adding a new capability.

As with attracting new customers, the most widely taken steps are not necessarily the most effective. Adding finishing capacity (42.9%) and becoming a one-stop shop (35%) received the most “very effective”

How Graphics and Sign Producers' 2019 Sales Compared to 2018 Sales

Graphics and Sign Producers: 2019 Sales Results



ratings. In contrast, lean manufacturing/continuous improvement was rated “very effective” by 32% and only “somewhat effective” by 64%, while operating

cost reduction was rated “very effective” by 17.9% and “neutral” or “ineffective” by 42.9%. The consensus among the SGIA research group is that both are so

important that improvement — not acceptance of so-so results — is the path to profitability.

Management- and sales-related tactics ▶



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Production-related steps for building competitive advantage focus on three areas: efficiency and cost reduction, labor force development, and the expansion of products, services, and capacity.

for building competitive advantage focus primarily on the customer. Maximizing the value of current customers, cited by 55.6%, and improving customer service, cited by 51.1%, top the list. Expanding the customer base by developing new vertical markets (40%), expanding geographically (35.6%), adding sales staff (35.6%), and increasing the marketing budget (22.2%) come next. Nearly 38% are increasing their internet presence and 26.7% are pursuing the acquisition of another company. Just 8.9% are trying to build competitive advantage by reducing prices.

What's worked? Expanding geographically (53.3%), maximizing the value of current customers (41.7%), and acquiring another company (36.4%) had the most "very effective" ratings. Improving customer service and adding sales staff have had mixed results, rated "somewhat effective" by 65.2% and 56.3%, respectively. Increasing the marketing budget was rated "very effective" by 11.1% and "neutral" or "ineffective" by 44.4%.

Of course, even the most well-conceived tactics don't get a company very far without the personnel to execute them. Nearly 66% of the graphics and sign producers surveyed plan to hire this year, 9.8% do not plan to hire, and 24.4% are unsure. Many of the undecided indicated they would undoubtedly hire if labor markets were not so tight. In other words, the consensus is "Find us qualified, skilled personnel who can help us grow profitably, and we'll bring them on-board." The positions they would most like to fill are sales representative (46.4%), digital press operator (42.9%), graphic designer (42.9%), and installer (42.9%).

Optimism is widespread among the surveyed graphic and sign producers, with 80% expecting to increase sales and 80% expecting to increase production this year. Additional sales personnel and additional products — some for the graphics and sign segment and some for other segments — are the primary reasons why. Of those

surveyed, 65% expect to increase profitability, as greater sales absorb overhead in some cases, and in others, because profitability — not growth — is the objective. Just 27.5%, however, expect to raise prices, reflecting a reality of printing industry convergence: New opportunity, but also new competition, as barriers between who does what, how, and for whom break down. For example, 50% of the commercial printers and 34.5% of the apparel decorators who participated in SGIA's survey now offer graphic and sign production.

Finally, 60% have a positive view of the graphic and sign industry's prospects for this year, while 27.5% have a neutral view and 12.5% a negative view. Expectations for the national economy — positive for 46.4%, neutral for 35.7%, and negative for 17.9% — are not as high.

The survey also investigated capital investment plans, including how much graphic and sign producers expect to invest in technology this year, which technologies they expect to purchase, and the factors most important to their purchase decision. In the coming weeks, SGIA members can find the complete results for the graphics and sign industry and other segments in the Resources/Research section of SGIA.org, under "2019 Q4 Growth Strategies and Investment Reports." ■

Andy Paparozzi joined SGIA as Chief Economist in 2018. He analyzes and reports on economic, technological, social, and demographic trends that will define the printing industry's future. His most important responsibility, however, is being an observer of the industry by listening to the issues and concerns of company owners, executives, and managers. Previously, he worked 31 years at the National Association for Printing Leadership. He has also taught mathematics, statistics, and economics at various colleges. Andy holds a Bachelor's degree in economics from Boston College and a Master's degree in economics — with concentrations in econometrics and public finance — from Columbia University.

The New Printing Industry is Based On Ink on Everything

On Oct. 23, 2019, at PRINTING United, a new era began for the printing industry. It was not just a trade show; it represented an upheaval of the status quo of the “old” printing industry.

For decades, industry events emphasized, and were supported by, offset lithographic press makers and related paraphernalia. These suppliers occupied the most space and spent the most money. As offset volume declined after 1995, the heavy metal and large booths began to disappear.

At the same time, the SGIA Expo advanced as inkjet technology advanced. It was the go-to event for new inkjet technology.

No one predicted wide-format inkjet printing. It came in 1995, initially as a color-proofing approach, but wound up engendering a major new market for printing services. (No one predicted the internet either, but it has been a competitor and enabler of print.) We often do not see new products and markets until they are right on top of us.

I believe that the flatbed inkjet printer will be as ubiquitous as the offset press over the next decade. We just need to create “Volkswagen” versions for smaller services.

New Print

The word “print” is an all-encompassing term for many printed products, from brochures to signage to packaging. Now there is “New Print,” a collection of new products and technologies based on digital technology that present opportunities for printers around the world, but also disrupt the status quo.

The enabler for much of what is happening is digital printing. Using toner and especially inkjet in all its forms, our industry can now effectively produce short runs, personalized content, and special effects on many different substrates. We can produce value-added printing that escapes commoditization. We can print on almost any substrate.

It used to be that long runs made the most money. Today, shorter runs are more the norm, and if there is something special about them, like special effects or personalization, then that is where the money is. When each printed piece looks more valuable, it is more valuable.

Ink on Everything

Printing industry growth will come from new products and services that go way beyond paper. Wide-format inkjet evolved into flatbed inkjet, which evolved into 3D printing, and even printed

electronics. Flatbed inkjet can print on virtually any substrate in thicknesses of a few centimeters. This opens the door (or doors) to specialty printing in many new markets, like home décor and specialty graphics on glass, plastic, wood, metal, textiles, and more.

Traditional printed products are changing. We are reaching a point where digital print dollar volumes are getting close to offset dollar volumes. Analysts who deal in “page impressions” miss this completely. Soon, flexo printing of flexible packaging will be challenged by inkjet, just as screen printing has been challenged. Many new digital systems now handle corrugated and folding carton printing. There are more than 20 digital printing systems specifically for printing labels. We can now print on anything. ▶



By Frank Romano, RIT Professor Emeritus



PRINTING United showcases the latest printing technologies and applications across industry segments.

Everything Merges

We are seeing the merging of distinct technologies, industries, or devices into a unified whole. Different trade shows are merging because their industries are merging. Different production functions are merging as workflow becomes more automated. Digital printing often merges printing and binding. Even different printing technologies are merging into single machines (hybrid printing).

Multiple Technologies

Most commercial print providers now have offset litho and some digital printing in the same plant. Modern workflows link these different devices. Some web-based offset presses integrate inkjet in what are called “hybrid presses.” Printed products can see full-color variable content added to fixed litho-printed content. Flexo presses have long integrated rotary screen modules.

Multiple Products

Some printers in the past specialized in certain printed products, such as catalogs, or books, or promotional material. Today, the addition of one digital machine can move a printing firm into a new market.

Flatbed inkjet printers open new markets for printing services. It is all about printing beyond paper.

Multiple Skills

The traditional printing company has been composed of people with specific skill sets: camera work, film stripping, platemaking, color scanning, press operation, finishing, etc. Today, most of those skill sets are apps. Robotics are also advancing. We may see the self-driving press before we see the self-driving car.

I recall a cartoon from the 1950s showing blank paper going in one end of a machine and bound books coming out the other end. That prophetic cartoon is now a reality. On-demand book

printing has changed the dynamics of the book publishing industry. What began as one book at a time is now seeing hundreds at a time — which changes the dynamics of warehousing and inventory management.

It is the high level of integration that is changing the printing industry. It began in 2000 with CIP4 and JDF, and advances today with robotics and automation. Operators once ran machines; now they manage machines and workflows.

Multichannel

For a long time, print communications were usually distributed by the postal service. We once thought that everyone would have a fax machine, and that is how we would get our printed content. But the internet eliminated the need for print at all. Many printing company employees now manage information more than they manage print. The same content can now be re-purposed for any communication channel.

Multimedia

Books, e-books, websites, and social media are among the ways we connect with one another. Software is now available to take the file used to drive a computer platemaker and re-orient it for other forms of communication.

We should emphasize that print is a tactile medium and the advent of digital embellishment is advancing quickly. Inkjet embossing, laser diecutting, coatings of all kinds, metallics, and more are changing the face of print.

We are reaching the point where most of the things that can go digital have gone digital. And even though packaging is immune from digital replacement, the term “digital packaging” is used to describe the use of digital printing for short runs and versioned products.

It is important for printers to maintain a diverse portfolio of equipment to create new products and new markets.

See the New Printing Industry in Action!

Make plans to attend PRINTING United 2020 (Oct. 21-23; Atlanta). Visit PRINTINGUnited.com for more information.



Skill Sets in Applets

Most of the skill sets of the traditional printing industry are now lines of computer code. That is, they are programs that do what skilled people used to do. Remember dot etchers and strippers? Skill sets keep changing ... or disappearing. A printer in Rochester, N.Y., once wrote to the president of my university to complain that they hired one of my students and the student could not do paste-up. I had to explain to our president, an economist, that we do not do paste-up anymore. It is done on a screen by the creative professional.

I receive regular communication from printers who need an operator for a specific model of legacy offset press, as though every school has one of each offset press. My favorite request came when Adobe InDesign was just introduced — the printer wanted someone with two years' experience with the new program.

All this brings us to the question, where will the print workers of the future come from? Secondary schools can only teach the very basics, such as creating a file, setting up a workflow, making a plate and running a small offset or digital press. University-level curricula can teach pre-flighting, color science, process control, workflow, critical thinking, and more. But only the suppliers can teach you to run a specific modern offset press, or a state-of-the-art flatbed printer, or a finishing system.

As older workers on older machines retire, finding replacements will be near impossible. Even finding training on machines made before 2000 is a challenge. Many printers hang on to their equipment for generations. Even after the equipment is decommissioned, it is stored in an "elephant's graveyard" in the bowels of the plant, as though someday it will be dusted off and re-started like some "mothball fleet."

There is no simple solution. Technology not only obsoletes machines, it obsoletes the skills needed to run those machines. In the old days, unions were based on specific processes like linotyping and

Supporting Printing's Future

In addition to its annual Scholarship Program and the ASDPT Tom Frecska Student Printing Competition, SGIA participates in the SkillsUSA National Leadership and Skills Conference (June 22-26, Louisville, Ky.). The event tests the nation's top career and technical education students' skills in their respective trades. SGIA coordinates, judges, and provides prizes for the Graphics Imaging-Sublimation and Screen Printing Technology competitions. If you are interested in judging or supporting this year's event, contact Johnny Shell (jshell@sgia.org).



engraving, and they could supply skilled labor. Today, no single machine or process dominates. Every supplier uses different approaches, terminology, and tools.

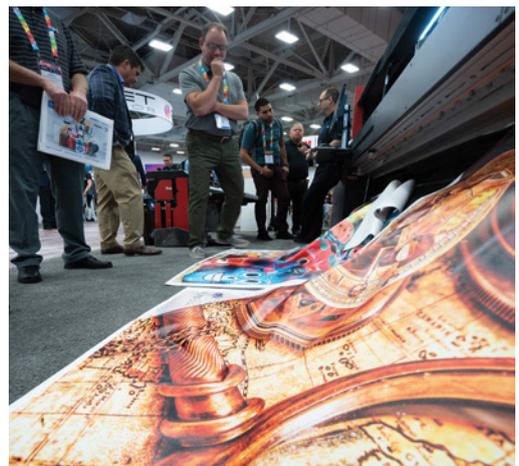
In the old phototypesetting era, printers found operators by "stealing" them from other companies.

As printing on substrates beyond paper advances, new skills will be needed. They may talk about highly automated "lights-out" workflows, but someone still has to know how to set them up and maintain them. Even robots will need maintenance and updating. (Or will they do it themselves? After all, they are robots.)

There needs to be partnerships between industry associations and education at every level with suppliers to the industry. It is a symbiotic relationship. Most schools cannot afford the very machines they need to teach with, so they use old technology to teach new technology.

Printers, educators, suppliers, associations, and others are all in this together. We need to cooperate to educate the workforce of the future. Because that future comes at us every day at one second per second. ■

Contact Frank Romano at fxrppr@rit.edu.



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Grocery stores' bright lighting and subtle flooring intentionally divert attention toward colorful products on shelves.

Design Aspects of Color Management

Essential considerations when producing color-critical work.

“Make it pretty.”

Anyone who has ever worked as a graphic designer has probably heard that statement more than once. Don't misunderstand — a big part of a graphic designer's job is to create an image or project that is visually appealing, but there isn't a “make it pretty” button that makes that happen.

Perhaps the most important variable in the decisions that a designer makes is choice of color.

Color Theory: Color Is A Feeling

Color is much more than a visual observation. It's science and math and — maybe most significantly — emotion. That's something every graphic designer needs to understand about basic color theory. Color is a feeling, and that feeling often results in action.

Every design is about trying to attract attention, convey an idea, and sell a product or service. Colors are chosen for

a design to enhance the message to the consumer. But oftentimes, those colors or their attributes are chosen without much thought. If given a choice between a bright yellow and a dull brown, people know the bright yellow will likely garner more attention.

Humans have also been trained to attribute certain words or meanings to different colors. An everyday example of this is a school bus — why is it yellow? Yellow represents caution, so people automatically regard that vehicle with hesitancy since it could stop at any time to allow children to board or exit.

This same philosophy applies to just about every roadway experience. From brake lights to stop signs to traffic lights, the color red is associated with stopping or warning. Meanwhile, green roadway signs point people in the right direction and green traffic lights allow them to proceed to their destinations. Color association, however, extends beyond the roadways. ▶

Color is much more than a visual observation. It's science and math and — maybe most significantly — emotion.



By Shelby Sapusek, Consultant & Chief Marketing Officer, ColorCasters LLC



SpectroPad measuring device.

There are three necessary elements for the perception of color: the observer (i.e., a human being), an object to observe, and a light source.

Think about what is seen when first walking into a grocery store. There is probably a produce department, deli, bakery, and meat counter on one end, with aisles and aisles of brightly colored pre-packaged food, condiments, beverages, etc., filling the rest of the space.

What about the floor color? It's not surprising if people never notice, because it's not supposed to be noticed. It's probably a subtle color, such as a light cream or tan tile, specifically chosen so as not to distract customers from the products on the shelves.

Since humans understand the relationship between color, feeling, and conveying ideas, color is even used in everyday language. For instance, when someone is told they have "the green light" on a project, they instinctively know they can go forth and proceed. If someone says they are "feeling blue," others liken that to mean that individual is sad or depressed.

Humans experience the feelings and actions that colors can provoke, but designers have to understand those associations so they can choose colors appropriately.

Don't Get Lost in The Language

While color is used to convey certain ideas in everyday conversation, it's almost impossible to determine and recognize a specific color in words. It is generally agreed that grass is green and the sky is blue, but the blue sky one person sees in his or her mind's eye could be very different than someone else's perception of the sky.

This also applies to the many descriptions, like "pretty," that designers try to discern from their clients. "Make it pretty" isn't much to go on since "pretty" can mean different things to different people. Same goes for interpreting what someone means when they ask that an image be brighter or warmer.

While everyone generally agrees on hues of color (i.e. red, green, blue, orange), describing specific colors with only words will rarely result in an agreeable outcome and, if it does, it will likely take a very long time.

Color is a feeling, but it is best described and compared mathematically, and one must first understand the science behind color.

The Power of Light

There are three necessary elements for the perception of color: the observer (i.e., a

human being), an object to observe, and a light source.

It's difficult to stress how important lighting is to viewing color. A light's intensity, its surroundings, and its direction can all affect how colors are perceived. If there is absence of light, there is absence of color. When people wake up in the middle of the night to get a glass of water, they can navigate their way to the kitchen partly from memory and because eyes can make out shapes and shadows — but not color — in the absence of light. Designers need to not only understand how light affects color but take into consideration the lighting conditions of their final projects.

Thinking back to the grocery store, what is the lighting condition inside? It's likely lit by bright, fluorescent overhead lighting. That's because the grocery store owner wants to attract customers' eyes to the brightly colored product packaging in all those aisles. And the subtle but light-colored tile flooring reflects that bright light from the ceiling without taking attention away from the products. It's all done by design. Therefore, it's important to know where a final product will be displayed. Will it be under a grocery store's bright fluorescent light, or will it be outdoors in the California sun?

Designers who work with critical color and want to improve color quality within their projects should also consider investing in a light booth. Using a light booth to view printed work allows designers to see color under the standard lighting conditions.

The Gamut of What's Possible

When it comes to color management, there are many other variables besides lighting that can affect a project's end result. One of those variables is a printing device's color gamut.

Humans see color in the RGB (red, green, blue) color space and can see many millions of colors. Computer monitors can reproduce just over 16 million colors — dramatically less than what humans can actually perceive. Worst of all, CMYK (cyan, magenta, yellow, black) output devices or printers can only reproduce thousands of colors.

Therein lies the problem. Designers try to replicate colors that they can see with their eyes, but they face limitations with their RGB monitors. They are then further limited by the print process because

CMYK printers can only produce a fraction of those colors. Those limitations are the device's gamut.

Every device, whether it's one that captures an image (camera) or outputs an image (printer), has its own unique gamut. That gamut is that device's limitation when it comes to color. If a color falls outside a device's gamut, it simply cannot be captured or reproduced. Unfortunately, there are just some colors that people can see that can't be printed. That's where color management comes into play.

Color Mathematically: L*a*b* and Delta E

Accurate color management is reliant on science and math. Although not every color seen can be printed, designers want to try to get as close as possible. And since everyone sees color just a bit differently, there needs to be a more accurate way to describe and compare colors instead of "warmer" or "brighter."

The coordinate system L*a*b* is what enables people to describe colors on an even level. L* refers to the lightness of a color, a* refers to the redness or greenness of a color, and b* refers to the yellowness or blueness of a color. Assigning L*a*b* values to colors allows for better defining and comparing them.

Delta E is used to effectively communicate color differences. If someone has

the L*a*b* values of two colors, he or she can use a Delta E formula to mathematically describe the distance — or difference — between those two colors. By using a device, such as a colorimeter, each color can be measured, with their L*a*b* values then compared.

What designers really need to know is that when comparing the L*a*b* numbers of two colors with Delta E, the colors are most closely matching when the Delta E is a smaller number. For instance, if the Delta E between two colors is 2, they are fairly close. If the Delta E between two colors is 6, they are further apart in color match.

Setting Up for Success

When designers understand the basics of color theory and color management, there are other steps they can take to set themselves up for success.

First, designers should look at the environments in which they do color-critical work. Is the workstation in a spot where windows can produce a glare on their computer screen? Are the walls and flooring neutral in color? What kind of lighting is in the workspace?

After setting up the optimal work environment, designers can turn their attention to the software and tools that will help them achieve consistent, quality color in their projects. They should determine ▶



Spectro1 measuring device.



Test prints in a light booth.

It's a good idea to invest in a measurement device. Depending on designers' needs, they may only need an inexpensive colorimeter for comparing colors and determining Delta E, as well as for calibrating monitors, or they may want a spectrophotometer that is more accurate.

what kind of monitor they'll be using to view critical color. Some considerations are purchasing a higher-end standalone monitor and installing a shade hood to keep out extraneous light.

Next, designers will want to decide which color management settings to use in their design software — and hopefully the printer's RIP. Most designers know that files can be assigned and converted to different profiles such as RGB and CMYK in software programs. What they might not know is their software's color management settings might be set to a default color space that is actually limiting their color quality.

Most design software programs have similar color management settings menus. For instance, in the Adobe Creative Cloud and CorelDRAW programs, these settings can be changed by going to "Edit" and then "Color Settings."

Some settings may default to an older color space such as U.S. Web Coated SWOP. That profile is more than 20 years old, and also very small. By changing just that setting to GRACol2006 or GRACol2013, designers will open up their color space and will be able to hit more colors.

It's also a good idea to invest in a measurement device. Depending on designers' needs, they may only need an inexpensive colorimeter for comparing colors and determining Delta E, as well as for

calibrating monitors, or they may want a spectrophotometer that is more accurate.

Consistency Is Key

When designers have a color management strategy in place, they can effectively communicate it to clients, print operators, colleagues, and especially fellow designers. While explaining their commitment to color quality, designers should also discuss what limitations there may be. They can help restructure the work environment for viewing color and advise others working on similar projects to set their color management parameters in their software programs and RIPs to the same profile and/or color space. Consistency is key in color management.

When it comes to color, it's important to know a little about everything and not necessarily everything about everything. Finding consistency in one's approach means a better chance of having a successful color management strategy that results in consistent color. ■

Shelby Sapusek worked in the newspaper industry for 17 years as a graphic designer and prepress technician. Now she works as a color management consultant and trainer in the printing industry. She is also a certified Digital Color Professional instructor for SGIA and helps with the Color Management Boot Camp program around the country.

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Managing Color Across Processes

An expert's advice on measuring color with different devices and applications.

Color — in both analog and digital reproduction — is primarily combinations of cyan, magenta, yellow, and black (CMYK) inks trying to reproduce what is seen by the human eye. Expanded gamut inks (e.g., orange, green, and violet) try and extend the color gamut of a device, whether it is an analog press, a toner-based digital device, or a digital inkjet printer.

A significant consideration for managing color across different processes is how to measure it. For analog presses, this typically means density readings (the thickness of the ink film on the substrate), while in the digital world, a spectrophotometer is used to read spectral data. Different print processes

will require certain devices based on the size of their aperture, the type of light used, and the number of light sources. For instance, reading color patches on a textile — which has a lot of surface texture — requires a device with a large aperture for better sampling across the patch, and, if possible, multiple light sources to eliminate or reduce shadows.

The other critical consideration is having a consistent and repeatable process to eliminate variables. Helping to weigh in on color management across processes is Bruce Bayne of SpotOn! As a software expert with many years of experience in the industry, Bayne has worked with various printers and their data to achieve good color from their devices. ▶

Different print processes will require certain devices based on the size of their aperture, the type of light used, and the number of light sources.



By Ray Weiss, Director of Digital Print Programs, SGIA, with Bruce Bayne, Founder, SpotOn!



SGIA Color Management Boot Camps — held nationwide — provide hands-on training in achieving consistent, repeatable color.



Weiss: *Color management requires managing CMYK and red, green, and blue (RGB) data, but what are some of the challenges you see from one process to another?*

Bayne: I'm a firm believer in working in RGB with late conversion to CMYK if, and when, necessary. My reasoning is that the RGB color gamut is larger than current CMYK profile color gamuts, so color vibrancy and brilliance is not clipped to a smaller gamut. Unfortunately, we cannot always control what we start with, as some files arrive in CMYK and others in RGB.

When working with raster image processors and using International Color Consortium (ICC) profiles, there must be a source (input) and a destination (output or printer) profile. This is the way ICC color management works. When using RGB source files, we start with a rather large source gamut that will be converted to the output device's color gamut (usually CMYK) and take advantage of the entire printer gamut available with the printing process, ink, and media being used.

The biggest challenge is with CMYK source files. CMYK source profiles available today are almost always based on an offset printing process, which often has a smaller color gamut than the actual printing device we're using. This forces all CMYK input data to align with this smaller gamut, which will often not take full advantage of the printing device's full gamut. This limits the vibrancy of the colors when printed and is particularly noticeable when printing brand spot colors that are created as CMYK colors. The bright spot colors become muted. This is why I prefer to work with RGB source files as opposed to CMYK source files.

RGB source files allow us to take advantage of the full printer gamut whenever necessary (meaning that if the file has bright colors, there is a better chance of reproducing those colors). There are, of course, some "gotchas" regarding color reproduction of original files. The biggest issue is not all printing devices or processes produce large color gamuts. Some are rather small, even smaller than CMYK offset printing. Much of this has to do with the texture of the media's surface the ink is printed on. A smooth, glossy textured media will produce brighter visual colors than a rough textured media. This is due to how the light striking the media's surface is scattered. Smooth, glossy media reflects most of the light, so we see the colors as bright. Rough textured media scatters the light, so we only see a portion of the light (color) being reflected off the surface, causing the visual appearance to be duller, or less bright. This means you cannot get the same gamut, or visual saturation of colors, when printing on a glossy vinyl as on a dull, highly textured media.

How inks are laid down on the media can also affect color gamut. For example, the solvent in solvent inks melt vinyl surfaces, depositing the ink pigments into them. The surface texture of the ink takes on the surface texture of the media. Smooth, glossy media surfaces have smooth, glossy ink, thus more gamut (brighter colors). Conversely, rough media surfaces have rough ink surfaces and more subdued colors (less gamut).

With UV inkjet, the ink always lies on the media's surface and, depending on the UV curing settings, will most often have a rough texture. This is due to the flash curing of the ink before it has a chance to flow into a smooth surface. Think

of painting a wall with a paint roller: When first applying the paint, you see the texture of the roller in the paint. As the paint slowly dries, the texture vanishes as the paint will flow into a smooth surface (or at least flow into the texture of the surface it is on). With UV inkjet, the “paint” (ink) does not have a chance to flow out smoothly as it is flash dried instantly with the UV lamps, leaving the ink with the texture of the inkjet-spraying process (like the texture of the paint roller), which is quite rough. Hence, UV inkjet has a much smaller gamut than solvent or aqueous on the same type of media surface. UV ink never takes on the texture of the media.

There are ways to reduce the rough texture of UV inkjet printing. One is to set the UV curing lamps to only cure on the return pass, which gives the ink a bit of time to flow before it is cured. Another is to top-coat with a clear coating that flows over the rough texture of the UV ink, causing it to take on a smooth texture. Both techniques will smooth the ink surface, causing the light to scatter less and provide a larger color gamut.

Ink pigment or dyes also affect color gamut. The best example of this is offset ink vs. almost any inkjet ink. The pigments used in offset ink do not produce a large color gamut. Many, if not most, inkjet inks are more saturated, resulting in a naturally larger gamut than offset inks when printed on the same texture media. Offset inks are particularly low in gamut in the blues and violets because the cyan and magenta inks that combine to print blues are dirty. Cyan is contaminated with yellow and magenta. Magenta is contaminated with yellow. When put together, you get a dirty (gray) blue, and not a pure blue. On the other hand, dye-sublimation (dye-sub) inks can reproduce spectacular blues and purples because the cyan ink is very blue (lots of magenta contamination) and the magenta has less yellow contamination, resulting in very vibrant blues. Unfortunately, the cyan is so contaminated with magenta that you cannot produce aqua colors using dye-sub. This means images of Caribbean turquoise water will always look like there is too much magenta in the color of the water (too blue). While extreme, these are two good examples of how ink pigments affect the color gamut, which is important to know when trying to reproduce colors using different printing processes.

How does density measurement (typical in offset) compare with using spectral data in digital inkjet?

Density is a measurement of reflectance used by offset press operators to measure and control ink film thickness across a press sheet to maintain consistency. Rather than a measurement of color, it is a way to determine how much ink is going on

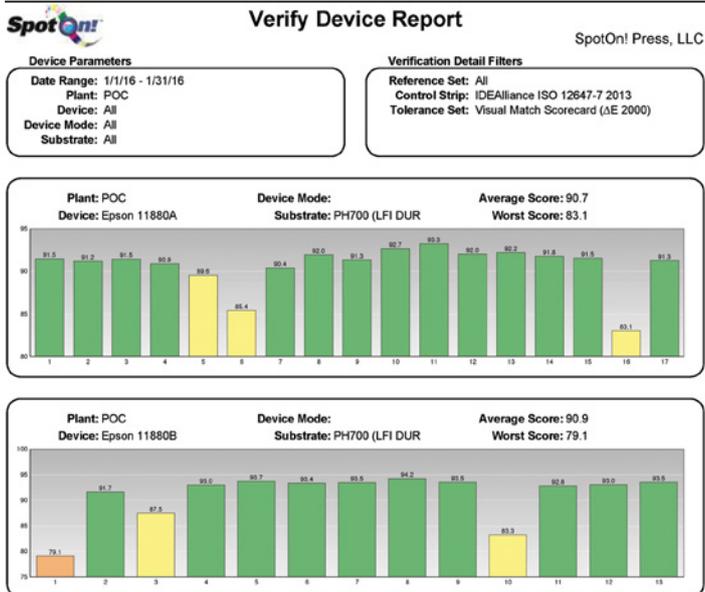
the press sheet (ink film thickness). The industry has some basic starting density values for coated and uncoated press sheets that operators use when setting up a job. From there, they can — and often need to — adjust these starting densities to match a provided proof. Since density is not a measurement of color, there is no way for the operator to determine if a press sheet matches a proof by density. Usually, they visually determine if the press sheet matches the proof. The operator adjusts the amount of ink going on the press sheet for each color to arrive at an acceptable match. Since digital devices do not have ink keys, there is no way for a digital operator to use density as a control metric, as they cannot adjust on the fly as an offset operator can.

Spectral data is an actual color measurement for a given ink or combination of inks. It is often converted into CIELAB data, which can be easier to interpret than spectral data, though spectral data is the basis for CIELAB data. All printing processes can benefit from spectral data, as it defines color value rather than just ink thickness. With spectral CIELAB data, you can assess color appearance and monitor color variation from a standard or proof. You cannot do this with density/ink film thickness.

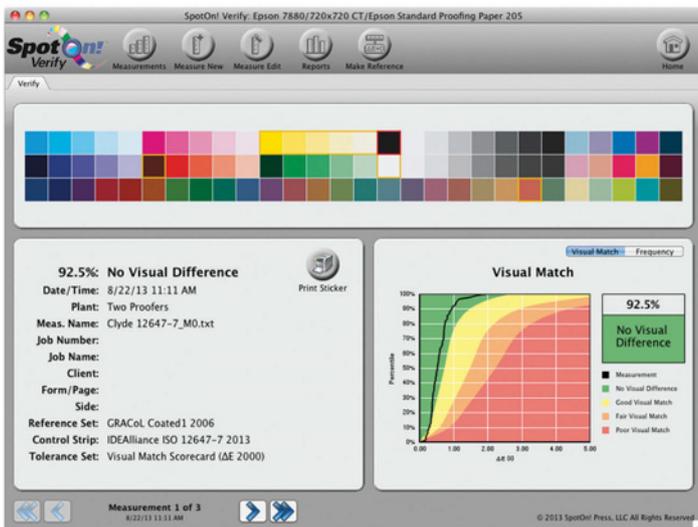
Using spectral data in any printing process, you can determine when the process is in or out of control (matching a proof or standard), but you cannot make adjustments, or really know what to adjust. In digital printing, when the process is not matching, you can recalibrate, reprofile — or both — or adjust the original file. This is where density becomes a control metric for offset operators. If the operator notes each ink’s density when the job color is correct, he/she can maintain those densities throughout the press run by monitoring them and making ink key adjustments.

What are some of the differences between digital inkjet and toner-based devices?

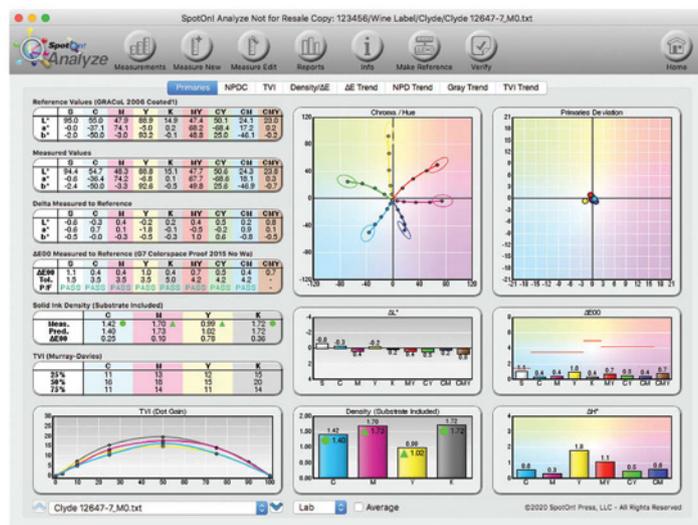
My experience with toner-based printing devices is that they tend to be a bit more temperature- and humidity-sensitive, meaning color consistency is affected more by temperature and humidity. This doesn’t mean inkjet devices aren’t affected by temperature and humidity, but they aren’t as sensitive as toner-based devices. The gamut of toner-based devices on similar-surfaced medias is a bit smaller than inkjet in general, especially in the darkest neutral tones. The advantage of toner-based devices is speed. They are faster than inkjet, but that gap is slowly vanishing. I would say the future is in inkjet and as its speed increases, toner-based devices will begin to lose what seems to be their only advantage. Inkjet generally has a wider gamut and more color stability — speed is the only missing component. ▶



A Verify Device Report for multiple devices. Courtesy of SpotOn!



Visual matching. Courtesy of SpotOn!



Analyzing primaries. Courtesy of SpotOn!

What “rule of thumb” would you share when considering managing color across different print processes?

The first thing that comes to mind is measurement data accuracy. We are using a spectrophotometer to gather color data, and the No. 1 goal of good measurement is that it is accurate (i.e., it represents how we see the color as best as possible). This means we must trick a fixed-focus, limited-aperture, limited-illumination (45°) data-gathering device to “see” color the way we do.

I often use M3 (polarized) measurements for all ink-jet devices with the widest aperture possible. Using wide apertures captures data by averaging a reasonably large area of color as opposed to a very small area that can often be inconsistent. Our eyes average a large area unless we are forced to look at a pinpoint of color, so why not mimic what our eyes are doing? The accuracy is more closely aligned to how we see. Polarization can compensate for the spectrophotometer lighting being fixed at 45°. Nature lighting is more diffuse than the lighting in a spectrophotometer, so texture is less pronounced. A spectrophotometer’s lighting will accentuate the texture and capture data that is inconsistent with how we see that color. A polarization filter will reduce the glare from the high points in the texture, allowing for better shadow detail, which modifies the data capture to better simulate how we see the color in natural lighting.

Everything during and after data capture is about consistency — being aware of each step and doing it the same way every time. For great color across different print processes, having a process that is predictable and repeatable will put you on the right path. ■

Having joined SGIA in 2014, Ray Weiss provides solutions and technical information on digital printing, equipment, materials, and vendor referrals. An SGIA Color Management Boot Camp instructor, Ray oversees several workshops, SGIA’s digital equipment evaluation program, and both the PDAA and Digital Color Professional Certification programs. Ray regularly contributes to the SGIA Journal and won the 2016 Swormstedt Award for Best in Class writing in Digital Printing. His 25-plus years in the graphics industry have spanned owning his own prepress and offset business to digital wide-format sales, training, support, and service. Ray has also worked closely with the Smithsonian Institution to implement a color managed workflow in their Exhibits department.

Bruce Bayne is an industry-recognized expert in color management, press calibration, and production workflow. He is certified to train G7 MasterPrinters as a G7 Expert and G7 Process Control Expert and serves as a vice chair of the Print Properties and Colorimetric Committee at Idealliance. There, he helps shape standards for the industry, keeping him at the forefront of print trends and color technologies. After moving from print production to consulting, Bayne began developing process control tools to address gaps in color management. These prototypes matured into the award-winning SpotOn! software suite.



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2019's Top 10 OSHA Violations



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Every year, the U.S. Occupational Safety and Health Administration (OSHA) announces the most frequently cited workplace violations for the year. OSHA's list includes violations from several industry segments, such as construction and, what printing falls under, general industry. Below are the top 10 OSHA violations for the printing industry in the 2019 fiscal year (Oct. 1, 2018-Sept. 30, 2019).

1. **Lockout/Tag-out (29 CFR 1910.147):** The lockout/tag-out regulation protects employees from unexpected machine startups or hazardous releases during servicing and maintenance. The most common violations are failing to lockout equipment, have a written program, and conduct annual inspections of machine-specific procedures.

2. **Hazard Communication (29 CFR 1910.1200):** OSHA's Hazard Communication Standard (HCS) requires companies to communicate to employees information about the chemical hazards they are exposed to and the

protective measures to ensure their health and safety. Common citations include not having a written program, safety data sheets for all chemicals, employee training, and secondary container labels.

3. **Machine Guarding (29 CFR 1910.212):** OSHA has several standards to protect employees from exposure to hazards such as ingoing nip points, point of operation, flying sparks and chips, and other moving components. This regulation requires that physical guards be provided to protect employees from exposure and contact with the hazards associated with moving parts.

4. **Electrical safety (29 CFR 1910.305):** This is one of several OSHA regulations addressing electrical safety and includes access to breaker boxes, breaker identification, and guarding. Common violations under this standard involve blocked access to breaker boxes, open breakers, missing knockouts in junction or breaker boxes, and missing or incomplete labeling of breakers.



By Gary Jones, Director,
Environmental, Health, and
Safety Affairs, SGIA

“Though OSHA may reduce penalties for small businesses, total citations for printing operations can quickly add up to as much as \$35,000 to \$40,000. Penalties can be much higher for larger operations.”

5. Portable Fire Extinguishers (29 CFR 1910.157): There are very specific requirements for the placement, mounting, access, and maintenance of portable fire extinguishers. Common violations include blocking access to fire extinguishers, not having them checked annually, and not providing annual training for employees expected to use them.

6. Powered Industrial Trucks (29 CFR 1910.178): Employees that operate forklifts or other powered vehicles for industrial use, such as pallet jacks, must be initially trained and certified, then reevaluated every three years. Safety violations include improper vehicle use, lack of training, and failing to recertify operators every three years.

7. Machine Guarding (29 CFR 1910.219): OSHA has several standards protecting employees from exposure to hazards from power transmission components found on equipment, including pulleys, flywheels, and drive shafts. Failure to provide a physical guard to prevent employee contact with these moving machine parts is a common violation.

8. Electrical Safety (29 CFR 1910.303): This regulation addresses methods, components, and equipment. Common violations under this standard involve the use of extension cords and power strips, improper pendant drops, and frayed wiring.

9. Respiratory Protection (29 CFR 1910.134): If respirators, other than dust masks, are to be provided to employees, there are very specific steps that must be followed. Failing to establish a written respiratory program was one of last year’s most common violations, followed by the failure to provide proper medical evaluations to those using respirators.

10. Personal Protective Equipment (29 CFR 1910.132): OSHA requires all employers to conduct a formal, written workplace hazard assessment to determine what personal protective

equipment is required to protect employees from injuries. In addition, employers are required to provide the personal protective equipment and training on its proper use. Failure to conduct the assessment and certification is a commonly overlooked requirement.

For fiscal year 2019, lockout/tag-out standard violations rose to be the most common in printing operations. Previously No. 1, HCS violations dropped to second place, with lack of a written program, employee training, and secondary chemical container labeling being the most popular unmet specifications.

Lockout/tag-out and machine guarding violations remain common, in part, because of the ongoing focus on the printing industry as a high-hazard industry for amputations. In the lockout/tag-out arena, the most common shortcomings were missing written programs, energy control procedures, and employee training. Given the serious nature of these violations, the average penalty remains high in the \$7,000 to \$10,000 range. Electrical safety violations, such as using extension cords and power strips to run equipment, generate penalties ranging from \$3,000 to \$5,000.

OSHA tends to find multiple violations during an inspection — and citations can be very costly. Even though OSHA may reduce penalties for small businesses, total citations for printing operations can quickly add up to as much as \$35,000 to \$40,000. The penalties can be much higher for larger operations.

Use this top 10 list to focus your safety program efforts and check for areas of improvement in your current program. SGIA’s Government Affairs department has many resources, such as written program templates, to address printing operations’ compliance programs. ■

Contact the Government Affairs Department at govtaffairs@sgia.org or visit SGIA.org/advocacy.

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Serving Omnichannel Marketing with Direct Mail

Printed mail pieces deliver an impact that still eludes email marketers.

For years, hard copy mail was the primary form of communication with other human beings, its importance and relevance to civilization still evident to anyone who browses through the archives in museums or historical societies. For much of human history, letters and messages delivered by some sort of system were the only available form of communication for people who lived more than a town apart, and their use was indiscriminate. Whether a message to the leader of troops in battle or a love letter to a faraway sweetheart, this medium was crucial to human society.

With the advent of the digital age, however, many people assumed that hard copy mail would fall by the wayside. Why would anyone bother sending a letter through the United States Postal Service (USPS) that would — at best — be delivered the next day, when an email (or, eventually, a text message) would accomplish the same purpose in seconds?

And, indeed, mail volumes have

dropped — as was apparent in a 2019 USPS fact sheet of mail volumes from 2010 to 2018. In 2010, the USPS delivered 77.8 billion pieces of first-class mail; in 2018, the number had dropped 27% to 56.7 billion. During that same time frame, marketing mail (formerly standard mail) also declined, although not as starkly; 81.8 billion pieces were delivered in 2010, while 77.3 billion were delivered in 2018.¹

Mail Still Matters

Despite the decline in volume sent, mail is still a strong component of marketers' omnichannel campaigns. In fact, it might even be argued that mail has reemerged as a preferred method of communication thanks to its reputation as a trustworthy and legitimate medium. After all, how many people receive spam messages in their email inboxes weekly or even daily? While digital communication has its perks (namely the speed with which messages can be delivered), there is ▶

Despite the decline in volume sent, mail is still a strong component of marketers' omnichannel campaigns.



By Amanda Armendariz, Editor, Mailing Systems Technology



QR codes throughout SGIA's "The Guide 2020" direct readers to specific URLs for more information on areas of interest.

Millennials spend, on average, 4.4 minutes sorting their mail and 7.2 minutes opening and reading; baby boomers average 2.9 and 6.5 minutes, respectively.

still that understanding that many digital messages aren't legitimate and are indeed simply attempts to phish information from the recipient. Hard copy mail isn't plagued with that issue.

Mark Fallon, president & CEO of The Berkshire Company, a print and mail consultancy, attests to mail's continued relevance and sense of legitimacy. "Many companies, nonprofit organizations, and government agencies rely on physical mail to connect with their customers," he says. "[These are] statements, bills, and payments that companies need to thrive. Marketing mail drives online sales and charitable donations. [Furthermore,] many legal documents, like insurance cancellations or utility shutoff notices, must be delivered through the USPS. Some laws stipulate the class of mail or special services (e.g., Certificate of Mailing) that must be used when sending the notice. Changing those laws won't happen overnight."

Secondly, even if the digital message is valid, consumers today are suffering from what some researchers call "digital

fatigue." This is especially true for most millennials and Generation Z, who have never known life without cell phones, email addresses, and text messaging. They are bombarded with hundreds of digital messages every day, causing them to tune out the vast majority.

In fact, this group, despite being so digitally savvy, actually spends more time with mail than older generations. In an article for Mailing Systems Technology, Chris Lien, president, BCC Software, referenced a 2016 study by Quad/Graphics, which showed that "90% of millennials see direct mail messaging as reliable, and 57% have made purchases based on direct mail. Millennials also spend more time with their mail than older generations. ... Millennials spend, on average, 4.4 minutes sorting their mail and 7.2 minutes opening and reading, whereas baby boomers average 2.9 and 6.5 minutes, respectively. Additionally, millennials have a fondness for coupons, and they are more likely to read through coupon booklets than older generations, with 77% reading through them more than half of the time they receive them."²

Finally, research conducted in recent years proves that readers remember more of what they read in hard-copy format as opposed to digital, and they are more likely to engage with it, as well. "Neurological studies have shown that the human emotion and recall of hard copy outperforms our response and memory of digital messages," says Kathleen Siviter, assistant executive director of the National Association of Presort Mailers and president of Postal Consulting Services. "Hard copy mail has tremendous ability to evoke human response, not just through its visual components, but with today's technological advances, marketers are able to cost-effectively use paper texture, scent, fold/design, and more techniques to build on that human response to hard copy mail. Some marketers are even combining digital and physical in the mail piece itself with embedded video, RFID, augmented reality, and many more cutting-edge techniques!"

Physical + Digital = A Winning Combination

Marketers have begun to reawaken to the possibilities afforded by hard copy mail, and the benefits of combining it

with digital avenues are even greater. Personalization has always been a key factor in determining the level of engagement recipients feel with a mail piece, and digital offerings allow marketers to take that level of personalization to the next level. Physical mail pieces can be sent with a QR code that leads to a personalized URL; the customer can review the information in the brochure or catalog and then scan the code to be taken to a page with offers customized specifically for them. Mail pieces can also be combined with digital avenues to help recipients finalize their purchasing decisions. For example, some furniture retailers have used augmented reality on catalogs to allow readers to scan an image of a furniture item and digitally place the item in a photo of their home to see what it would look like if purchased.

The USPS has provided some programs to help mailers further combine their hard copy and digital efforts. Its program Informed Visibility allows mailers to see exactly where their mail piece is in the postal stream, from acceptance to delivery. This allows marketers to send a well-timed email or post on social media just as their customers are receiving the piece in their mailboxes. This digital reminder may spur them to further engage with the mail piece that is waiting for them when they arrive home.

Along those same lines, the USPS is seeing strong engagement with its Informed Delivery program. This subscription-based offering allows mail recipients to receive an email showing images of the actual mail pieces that will be arriving in their

mailboxes that day. (The images are pulled from the postal processing equipment.) While almost every mail piece shows up in the daily email (there are occasionally notifications that there is a mail piece for which the USPS does not have an image for on the way), marketers can set their mail pieces apart by creating a campaign linked to this daily feed. All that is required is to provide USPS with a replacement image (usually in color, to stand out from the standard black and white images), a call to action, and a destination URL. So, for example, a retailer could mail a brochure detailing their latest sales, and both the physical mail piece and the Informed Delivery image could advertise a certain percentage off if the products are purchased through the URL in the email campaign.

There are many benefits from utilizing offerings like this, one of which is that “you will be connecting to a mail-centric audience,” said Kurt Ruppel, director postal policy and marketing communications at IWCO Direct, in an article he wrote for Mailing Systems Technology. “The people who subscribe to Informed Delivery have a strong interest in what is arriving in their mailbox and can be expected to view physical mail as credible and respond accordingly — especially with Informed Delivery making the connection to your offer easy and efficient.”³

While mail will likely never see the volumes of years past, it is clear that it is still an incredibly valuable medium for marketers to engage with their customers. When combined with digital avenues, mail opens up a variety of opportunities for everyone ▶

Mailing Terms

First-class mail is composed of letters, flats, and lightweight packages; bills and statements are required to be sent via this category. Marketing mail is a mail piece under 16 ounces that is “not required to be mailed as first-class mail or periodicals.” Mailers can send out “printed matter, flyers, circulars, advertising, newsletters, bulletins, catalogs, and small parcels” via this class. Marketing mail used to be known as standard mail; the USPS made the name change in 2016 to better reflect the usage of this class of mail and encourage more direct mail marketing.

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Variable data printing adds personalization to printed pieces, which can be a key factor determining the level of recipients' engagement.

involved in this industry, and these opportunities will continue to evolve. "Print and mail professionals will begin operating more like consultants," says Mike Porter, president, Print/Mail Consultants. "They will work with clients to uncover their business objectives and then develop ways to produce the desired results using mail and other channels at their disposal." ■

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³ Ruppel, Kurt. "How Informed Delivery Can Improve Omnichannel Campaigns." Mailing Systems Technology, May/June 2019. mailingsystemstechnology.com/article-4517-How-Informed-Delivery-Can-Improve-Omnichannel-Campaigns.html

For the past 10 years, Amanda Armendariz has served as editor, Mailing Systems Technology media, where she provides thought leadership on all segments of the mail industry. Follow her on Twitter @MailSystemsTech or email amanda.c@rbpub.com. Visit MailingSystemsTechnology.com for more information.

Resources for Mailers

There are a variety of resources available online to help mailers with their questions. Some of the most popular are as follows:

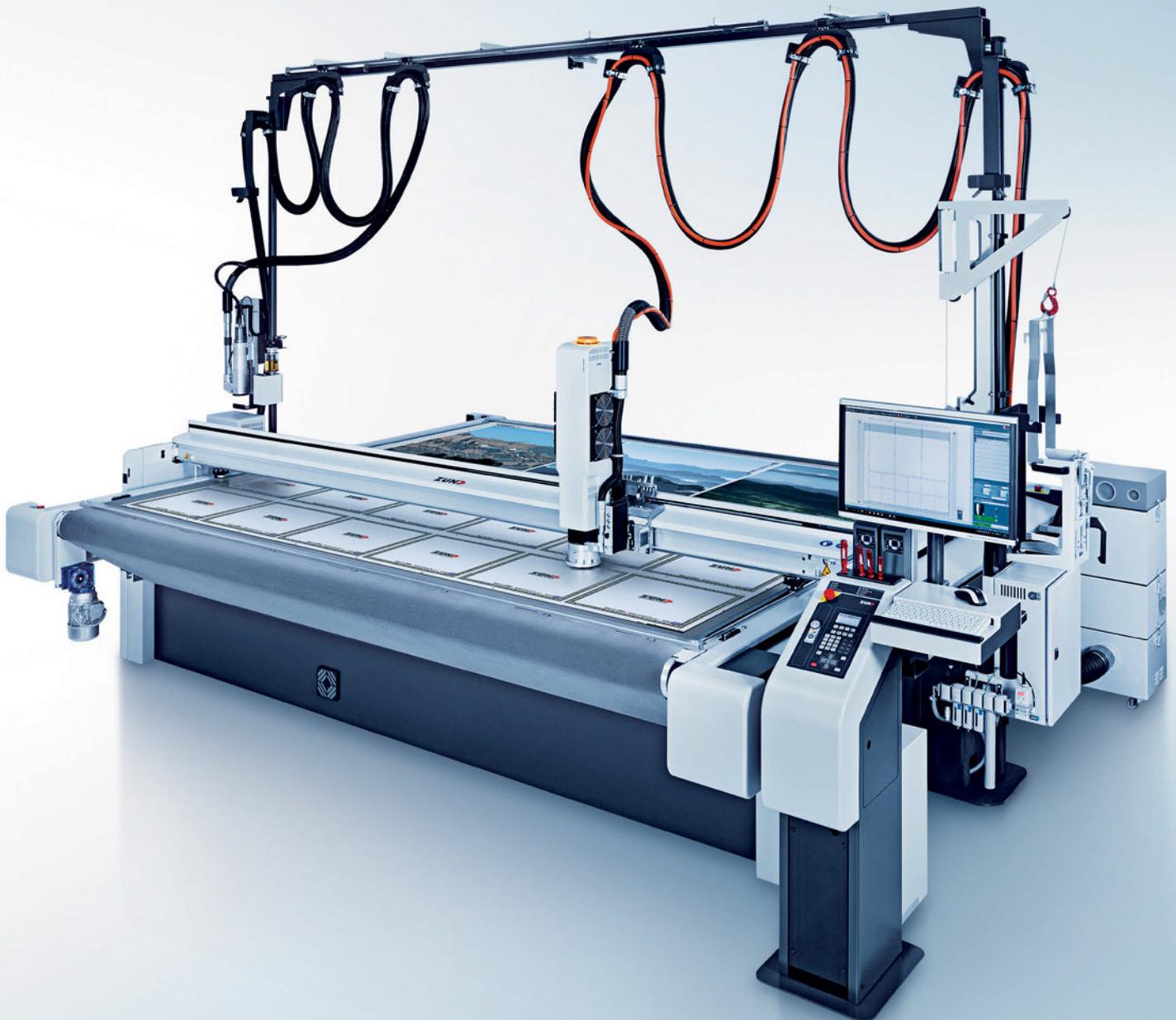
PostalPro (PostalPro.usps.com)

USPS Business Customer Gateway (gateway.usps.com)

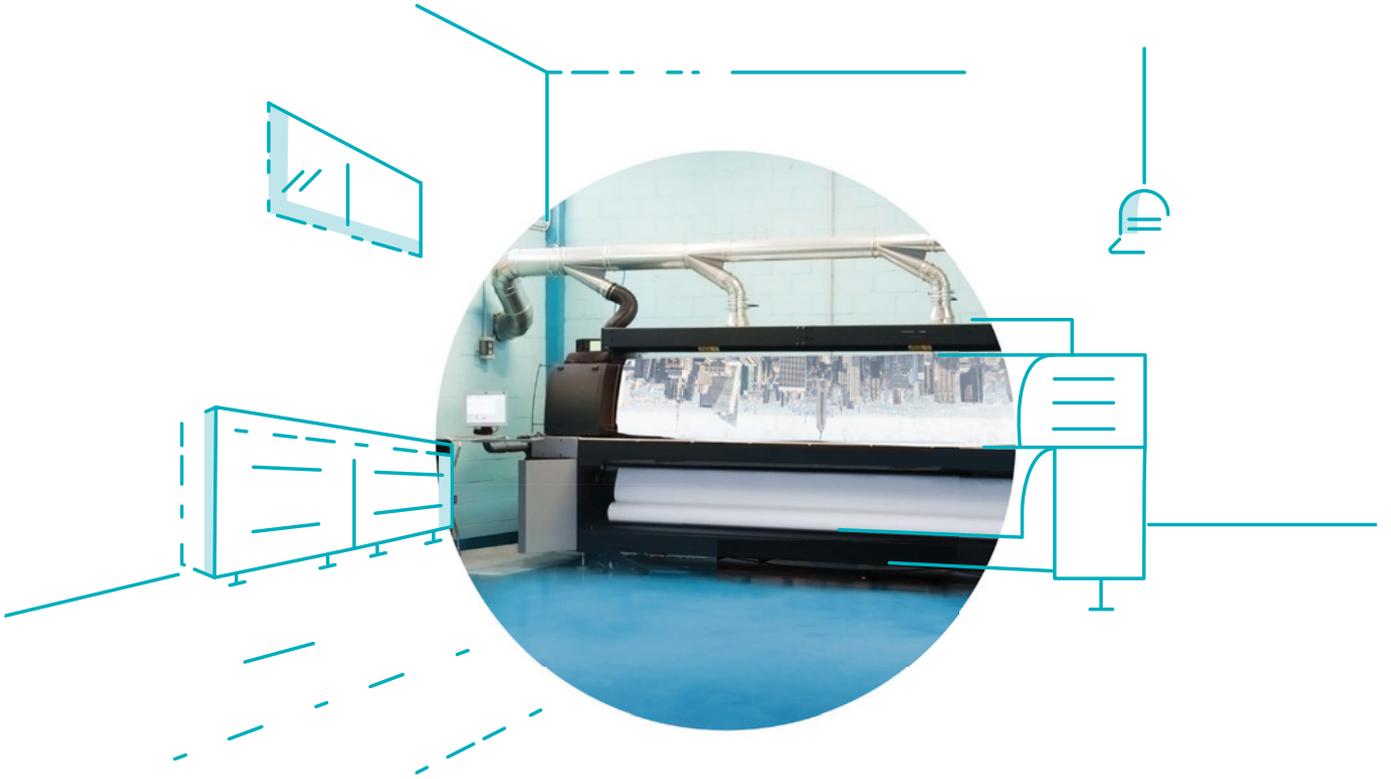
Postal Explorer (pe.usps.com)

Additionally, the USPS offers a dedicated helpline for mailers in the form of the Mailing & Shipping Solutions Center. Call 877-672-0007 during regular business hours for help on a variety of issues.

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The Threat of the National Debt

At the close of fiscal year 2019, America's national debt totaled \$22.6 trillion, up 89.9% from 10 years earlier. Net annual interest on the debt exceeded \$372 billion, more than the federal government spends on anything except Social Security, Medicare, Medicaid, and national defense.

The threat this poses is not default or something equally dramatic. Rather, it's the gradual reduction of the economy's growth potential as interest payments absorb hundreds of billions of dollars that could have been invested in infrastructure, research and development, education, clean energy, and other building blocks of prosperity. Most troubling: Washington has yet to show it is up to addressing the threat.

Understanding the national debt begins by understanding its two components, intra-government debt and debt held by the public. Intra-government debt is owed by one part of the government to another part. The nearly \$3 trillion that the U.S. Department of the Treasury has borrowed from the Social Security Trust Fund is an example. Intra-government debt matters — Social Security will need the money the Treasury has borrowed to keep promises made to millions of Americans — but it does not affect Washington's financial position, because while

it is a liability for the part of the government that issued the debt, it's also an asset for the part that owns it.

Debt held by the public is of much greater economic significance. It is money Washington owes someone, and so is a liability for the federal government. Holders include private citizens, businesses, and governments (foreign and domestic). Approximately 40% is foreign-owned, with Japan (\$1.2 trillion) and mainland China (\$1.1 trillion) the largest holders.

Debt held by the public (Figure 1) has increased 39.2%, to \$16.7 trillion, in the past four years alone and now accounts for nearly three-quarters of the national total. The 52% increase from the start of the Great Recession in 2007 to the end in 2009 is understandable: Washington should take on debt to stimulate a rapidly contracting economy. But the 119.7% increase since — when debt should have been paid down as the economy expanded — points to a problem that is structural, not cyclical.

So does Washington's budget process. In "Let Congress Debate Spending Again," published in *The Wall Street Journal*, Dec. 27, 2019, Sen. William Cassidy provided a glimpse of the process: "Congress last week quietly passed a \$1.4 trillion spending extravaganza, complete with half a trillion dollars in tax cuts and a bevy of favors for special interests — all ▶



By Andy Paparozzi,
Chief Economist, SGIA

Debt held by the public has increased 39.2%, to \$16.7 trillion, in the past four years alone and now accounts for nearly three-quarters of the national total.

Figure 1: U.S. National Debt

Fiscal Year	U.S. National Debt (Trillions)			Percent of Total	
	Total	Intra-Government	Held by Public	Intra-Government	Held by Public
2019	\$22.6	\$5.9	\$16.7	26.0%	74.0%
2017	\$20.2	\$5.6	\$14.7	27.5%	72.5%
2015	\$18.2	\$5.0	\$13.1	27.7%	72.3%
2013	\$16.7	\$4.8	\$12.0	28.4%	71.6%
2011	\$14.8	\$4.7	\$10.1	31.5%	68.5%
2009	\$11.9	\$4.4	\$7.6	36.6%	63.4%
2007	\$9.0	\$4.0	\$5.0	43.9%	56.1%

Source: "Debt to the Penny and Who Holds It," U.S. Department of the Treasury, treasurydirect.gov/NP/debt/current.

By decade's end, Washington could be spending as much on annual interest as it is on all non-defense discretionary programs, including education, the environment, income security, science, space, and technology.

without debate and without committee consideration, based on decisions made by the bill's sponsors over a weekend.”

The bill totaled 2,313 pages. But as Cassidy pointed out, the vote was scheduled “a mere two-and-a-half days after it was released” and “the day before government funding would expire, so that failing to pass the bill would have triggered a shutdown.” Debate was limited to 90 minutes before the vote. “The message was unstated but obvious,” Cassidy said, “Vote for the bill or be blamed for shutting down the government just before the holidays.”

Such antics contribute to budget projections that make where we are headed even more troubling than where we are. Specifically, the Congressional Budget Office (CBO) projects that federal spending will exceed federal revenue by more than \$1 trillion per year in each of the next 10 years, increasing debt held by the public 75.7%, to \$29.3 trillion, and annual interest on the debt 116.9%, to \$807 billion, by 2029. In other words, by decade's end, Washington could be spending as much on annual interest as it is on all non-defense discretionary programs, including education, the environment, income security, science, space, and technology.

Finally, there's the sharp increase in debt held by the public as a percent

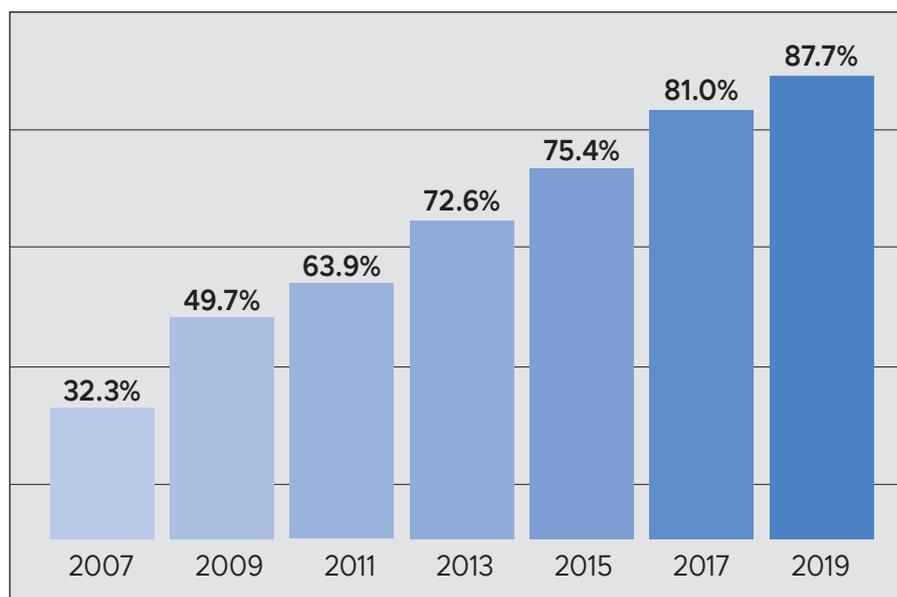
of gross domestic product (GDP). This measure of ability to manage the debt has risen to 87.7% of national income from 49.7% over the past 10 years (Figure 2). If the CBO's projections are accurate, it will exceed 95% by 2029. And if interest rates rise significantly from the current lows, which they eventually will, or the economy doesn't grow as much as the CBO expects, debt held by the public will exceed GDP before the end of the decade.

We've never seen anything like this in peacetime. And while borrowing to finance investments that enhance the economy's growth potential is sound policy, the episode Cassidy describes raises doubts about whether that's what Washington is doing — and about Washington's ability in general to raise revenue efficiently, spend wisely, and maintain at least some balance between the two.

But the news is not all bad. Organizations such as the Peter G. Peterson Foundation, The Heritage Foundation, and Just Facts have well-thought-out proposals for putting the federal government on a sustainable fiscal path. The trick is to get Washington to act on them before we wander too far down a path that clearly isn't. ■

Contact Andy Paparozzi at apaparozzi@sgia.org.

Figure 2: U.S. Debt Held by the Public as a Percent of GDP



Source: “Federal Debt Held by the Public as a Percent of Gross Domestic Product,” FRED Economic Data, Federal Reserve Bank of St. Louis, fred.stlouisfed.org.

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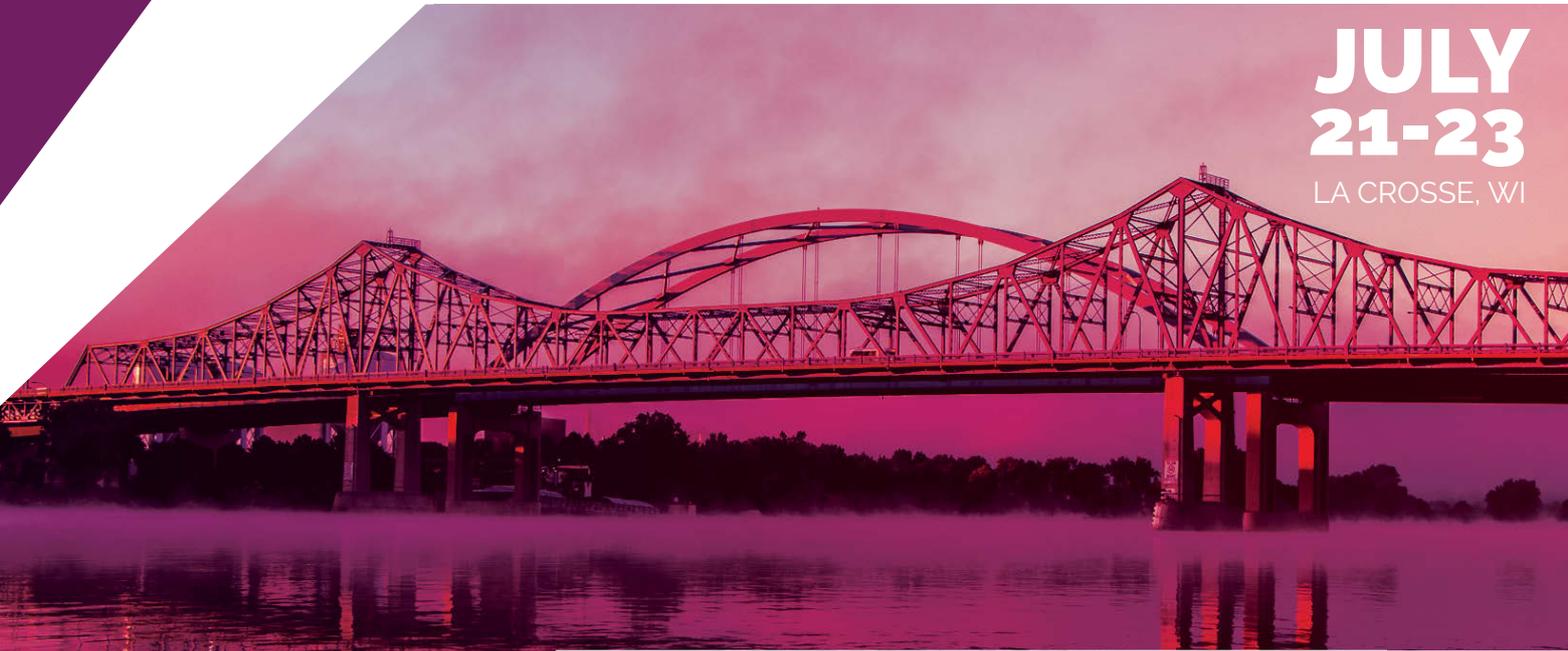


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Leaving a Legacy

In 2010, a small group of employees organized the first national sales meeting at Empire Screen Printing in Onalaska, Wis. What started out as an opportunity to bring our national sales reps together to network ideas through print education turned into a multifaceted mission: To provide education on printing, to promote the industry and its suppliers, to provide unique networking opportunities, to illustrate how to be good stewards of the environment, and to leave a legacy for future generations. As this show grew, so did Empire. As the show surpassed on-site capacity, the Partners in Printing Expo was formed and is now located at the La Crosse Center, in downtown La Crosse, Wis.

You may be thinking, “A printing expo? Isn’t Wisconsin the land of beer, cheese, brats, and the Packers?” Yes, the state is famous for all those things, but more than 1,000 printing businesses call Wisconsin home. Some of the country’s largest and most respected firms reside in the state.

At the outset, the expo was an addition to our national sales meeting. We had lofty ideas for the expo, but realized we had to start small. We were a manufacturer whose experience in trade shows was limited to attending them. The first expo had five suppliers who agreed to display new products and educate attendees. Our sustainability efforts

were in the early stages, and the “keynote” speakers were employees with knowledge on key areas of printing. Catering was done by our spouses (who informed us afterwards that would change). As Wisconsin’s legendary Packers coach Vince Lombardi said: “The measure of who we are is what we do with what we have.” We didn’t have much at that first expo, but with what we had, we set a strong tone for the future.

Since then, we have been as aggressive and progressive as our imaginations have allowed. From those humble beginnings of five exhibitors, we have grown in size, scope, and international reach. This year, we’ll welcome more than 100 exhibiting companies to the La Crosse Center. The small original group of attendees is joined by printers from all corners of the United States and Canada. Still, the question remains: “Why another print expo, and what makes this one different?”

The Secret’s Out

To achieve our mission of leaving a legacy for future generations, one of the unique aspects of the Partners in Printing Expo is we invite our competition into our facility for tours. When we started the expo in 2010, the industry was like a spy novel. Every bit of information was held closely under lock and key, and printers tried to ▶



By Doug Billings, VP of Sales/Marketing, Empire Screen Printing



Photos courtesy of Empire Screen Printing.



glean information from any source they could about what the others were doing.

We see this expo as a tool to do our part to strengthen printing as an industry. Technology has encroached on traditional print methods. Low-cost illuminated displays are eliminating print opportunities, manufacturers are buying their own digital equipment, and direct mail has declined because of online marketing. We should be more concerned with those threats than each other. Working together, sharing, and collaborating will strengthen and protect our industry.

So, we do not look at other printers as a threat to our business but partners in printing. Our competition motivates us to perform at higher levels, encourages innovation, and forces us out of our comfort zone.

Illustrating how to be good stewards of the environment is another element of our mission. Let's be honest: The public's impression of printers isn't that we are the cleanest of industries. In 2008, Empire drove the development of LED-UV ink curing technology for screen printing. This allows us to be more environmentally sustainable than using solvent-based ink. LED-UV curing technology produces no ozone emissions, reduces energy consumption, and eliminates the need for high-energy mercury vapor bulbs.

Douglas Johnson, president of environmental intelligence and auditor for Wisconsin's DNR Green Tier program, said, "Empire has a winning

hand, but instead of keeping its cards close to the chest, the company prefers to put its cards on the table for peers and competitors, so that the industry as a whole can see it is possible to deliver better outcomes to society and nature. This makes Wisconsin better!"

We illustrate and share these innovations so printers can learn how to apply LED-UV curing to their own equipment when they take the tours offered during the expo — and our attendees appreciate it. In thanking us for the tour, Wilmington Nameplate President Brett Greene said, "We were impressed with the cellular layouts and the level of innovation blew us away. Your team was great as well and provided us with loads of information. Definitely plenty of takeaways for us during this visit."

Solutions for Different Communities

Looking for the latest technological developments from national and international exhibitors? The expo showcases key suppliers not just for screen printing, but digital, flexographic, lithographic and offset markets. Partners in Printing is focused on the whole printing industry, not just a single segment. This allows attendees to look for new avenues of growth from expansion, with new equipment or growth opportunities in new segments.

One of the expo's best elements is the networking opportunities to share ideas and knowledge

to expand business. Many people talk about building relationships, but often they focus more on transactions. This is short-sighted and doesn't bring about the best result. We have gained friendships with many printers whose work we admire and who understand the highs and lows of the work we do.

That's why the expo offers great networking events, such as the Charitable Celebrity Golf Tournament. This 96-person (maximum) event brings celebrities and attendees together to raise money for local charities. All proceeds from the event are donated to a designated charity within our community. This supports our mission to make our community a better place for those who call Wisconsin home.

New for 2020, we're presenting a concert event open to the public at the La Crosse Oktoberfest grounds. This exciting networking addition will allow us to share Wisconsin's rich printing heritage with the local community as concertgoers enjoy a night of food, fun, and great country, rock, and pop music. La Crosse is home to one of the largest Oktoberfest celebrations in the United States, and we are partnering with La Crosse Festivals to utilize the grounds.

This year, the expo also welcomes the support of SGIA — the foremost resource for information and education for the printing industry. They realize printers are bold, driven, and creative, and have chosen to lend their expertise to help us

continue our mission well into the future.

The bottom line at Partners in Printing is, as it will always be, a combination of sharing, networking, and collaboration. The ingredients for a successful expo are accommodating industry growth and diversification. The opinion of those attending is the best barometer of the value and benefit the expo brings — and we value the comment of Ed Cook, president, ECI Screen Printing and past chairman of SGIA: "Being the leader of a small business, we constantly look for ways to inspire our staff and refine our company. Your outreach and giveback to the industry have definitely helped us to continue this journey in a big way."

Lombardi also once said, "The quality of a person's life is in direct proportion to their commitment to excellence, regardless of their chosen field of endeavor." We choose printing as our endeavor, and it is up to each of us to consider what we want our legacy to be. Empire's legacy will not be defined by how much we sold, but rather how we impacted our communities, businesses, and environment, and how we inspired future generations. Maybe if football had not worked out so well, Lombardi would have been a printer.

To register for Partners in Printing (La Crosse Convention Center, July 21-23), visit SGIA.org/events/partners-in-printing. ■

Contact Doug Billings at dougb@empirescreen.com.



PRINTING United is Bigger. Better. TOGETHER.

PRINTING United, the most comprehensive expo and event showcase in the printing industry, announced it has already eclipsed the total square footage sold in 2019 and is on track to sell out again this year. The show's second edition will take place Oct. 21-23, at the Georgia World Congress Center in Atlanta.

Every printing segment — from commercial to industrial; packaging to apparel; and digital textiles to mailing and fulfillment — will be accessible to the industry at large in more than 1 million sq. ft. of show floor space. PRINTING United exhibitors will have the unique opportunity to showcase a full range of their latest equipment to the industry's foremost qualified buyers and decision makers, maximizing marketing spend. This year's show will add the Apparel Zone; Digital Textile Zone; Mailing and Fulfillment Center; and special, dedicated Community Receptions to the countless opportunities for collaboration among OEMs, suppliers, printers, media, analysts, and more.

"We knew that something special was born at PRINTING United last October when we haven't seen a bit of slowdown by the community in the desire to be a part of this year's upcoming event in Atlanta," says Mark J. Subers, president - exhibitions and events, SGIA/NAPCO Media. "It is still early in 2020 and the show floor has already surpassed our space in 2019. We are committed to delivering the best possible experience for the entire industry and are excited for what's to come."

Companies interested in exhibiting at PRINTING United 2020 can visit printingunited.com/exhibit or email exhibit@printingunited.com.



OCT. 21-23, 2020 • ATLANTA, GA

SGIA Welcomes Andy Cvitanov and Jack Noonan

SGIA/NAPCO Media has appointed Andy Cvitanov as COO, a new position overseeing all operations within the newly formed company, including association infrastructure, strategy, audience development, finance, IT and human resources.

Cvitanov has held senior leadership positions in the business-to-business space, from the entrepreneurial/middle market to large Fortune 500 companies. Cvitanov most recently held the position of president and CEO of Vizant, a privately held independent advisory firm, assisting companies in eliminating transaction fees, improving processes, optimizing products, and delivering greater business value. He has led the growth and operational execution of a supply chain firm, IT services organization, tax and accounting firm, and various leasing companies.



Andy Cvitanov

Additionally, longtime printing industry marketing and sales executive Jack Noonan has also joined the organization as VP of business development. In this newly created role, Noonan will oversee PRINTING United exposition exhibitor and sponsorship partnerships for SGIA, strengthen existing communities, develop dedicated postal and packaging sector participation, and help explore new business opportunities for the leading annual event in the combined graphic arts industries.



Jack Noonan

Noonan's industry experience extends from entrepreneurial Adobe-funded Silicon Valley ventures to enterprise roles with organizations such as Eastman Kodak. He most recently worked with MGI and global partner Konica Minolta on international marketing and business development initiatives. He has held positions in the printing and packaging industries for more than 20 years.

2020 Scholarship Program & Student Printing Competition Now Open

SGIA is now accepting submissions for the annual Student Scholarship Program and ASDPT Tom Frecska Student Printing Competition. Both initiatives are part of SGIA's continued work to support and provide students with long-term resources, tools, and recognition to aid with continued growth in the industry.

Supported by generous donations, and in conjunction with the Specialty Graphic Imaging Foundation, the 2020 SGIA Scholarship Program awards 25 graphic communications students with \$2,000 each. Eligible students must be enrolled at an SGIA Educational Institution





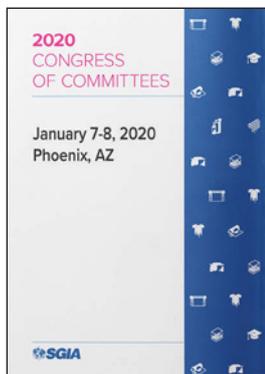
Member college/university for the Fall 2020 semester (registered for 12 or more credits); pursuing a career in graphic communications, printing technology, or printing management; and maintain a cumulative 3.0 grade point average or higher on a 4.0 scale.

Highly sought after by graphic arts students for more than 10 years, the ASDPT Tom Frecska Student Printing Competition honors superior imaging work within a variety of categories. All entries will be displayed at PRINTING United, where Best of Show will be awarded to one secondary (high school and vocational) and one post-secondary (technical school, college, or university) student, who receive \$500 toward their education and another \$500 for their schools' programs.

Scholarship applications are due April 30, and all Student Printing Competition entries must be received at SGIA headquarters by Sept. 16.

Visit SGIA.org/programs for more information on these student opportunities.

SGIA's Congress of Committees Sets the Course for 2020



Following a long-standing annual tradition, SGIA's annual Congress of Committees convened on Jan. 7-8 in Phoenix, where representatives from across the printing industry met to discuss strategies, trends, and opportunities for the industry for the coming year.

SGIA's collective committees and advisory councils come together during the two-day event to brainstorm and discuss pressing industry issues and offer essential knowledge and guidance to help steer initiatives to support both the association and the printing industry at large. Committees then collaborate remotely on initiatives throughout the year.

SGIA committees and advisory councils comprise

elected volunteers serving within dedicated market segments and include:

- Apparel Decorators Committee
- Digital Packaging Committee
- Digital Textile and Décor Committee
- Graphics Production Committee
- Industrial Applications and Printed Electronics Committee
- Ink and Chemical Manufacturers Advisory Council
- Next Generation Advisory Council
- PDAA/Installers Committee
- Sustainability, Safety, Health, and Personnel Advisory Council
- Women in Print Alliance

Latest Wide-format Summit 2020 Sponsors Announced

Four more industry-leading vendors have committed to sponsoring the Wide-format Summit 2020, taking place April 20-22 at the Hyatt Lost Pines in Austin, Texas. Produced by SGIA/NAPCO Media and *Wide-format Impressions* magazine, the Summit is designed for senior printing executives and managers to better understand how current and future wide-format inkjet printers, substrates, software, and finishing systems will impact their businesses and investment decisions.

Joining the official list of Summit sponsors are: Gold sponsors Summa America, swissQprint, and Tilia Labs; and Silver sponsor Fisher Textiles. These companies join Canon Solutions America, HP, Ricoh, and more, who have committed to supporting the event. Sponsor companies receive extensive networking opportunities with a highly qualified audience of senior decision makers, as well as the chance to present boardroom-style case studies and meet individually with select attendees in the Summit's exclusive Meeting Zone.

The Summit will feature top-notch educational sessions programmed by an advisory board featuring industry thought leaders. Sessions focus on strategic-level insights and best practices for print service providers to grow, optimize, and ultimately transform their businesses.

Visit wideformatsummit.com for more information.



SGIA Competitions

SGIA Events

SGIA Expos

	April 4 - 5	PIA/SGIA Continuous Improvement Conference (Columbus, OH)
	April 30	Student Scholarship Program Closes
	July 21 - 23	Partners in Printing Expo (La Crosse, WI)
	October 21 - 23	PRINTING United (Atlanta, GA)

SGIA Workshops

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	April 6 - 8	Screen Making: Basic to Advanced (Fairfax, VA)
	April 13 - 14	Art & Separations for Screen Printed Apparel (Fairfax, VA)
	April 15 - 17	Totally T-Shirts! Apparel Screen Printing (Fairfax, VA)
	April 21 - 23	RPI Imaging Color Management Boot Camp (Phoenix, AZ)
	April 28 - 30	Alder Color Solutions Color Management Boot Camp (Dallas, TX)
	May 4 - 5	Color Management Group Color Management Boot Camp (Boston, MA)
	May 13 - 14	PDAA Architecture Level 1 – Windows, Walls, Floors (Fairfax, VA)
	May 16 - 21	Nazdar Color Management Boot Camp (Shawnee, KS)
	May 27 - 29	Apparel Screen Printing Crash Course (Toronto, ON)

SGIA Research

April	Look for the "SGIA 2019 Q4 Industry Benchmarking Report: Growth Strategies and Capital Investment"
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SGIA Publications

June	Watch for the next SGIA Journal Issue
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NEW PRODUCTS

Equipment

Konica Minolta Launches High-Speed Digital Press



Konica Minolta Business Solutions U.S.A. launched its new AccurioPress C14000 series of high-speed toner-based digital presses.

The AccurioPress C14000 was first introduced to the public through a technology preview at PRINTING United in October 2019. The digital press was put through its paces with nonstop demonstrations to a highly receptive audience of customers, press, and analysts. All were impressed with its capabilities — high-speed, outstanding image quality, and the new TU-510 four-side full-bleed trimmer — and product attributes that offer increased efficiencies and profitability for print professionals.

The AccurioPress C14000 prints 140 A4 ppm and the C12000 runs at 120 ppm respectively. Their innovative design demonstrates Konica Minolta's mission to be a leader in the high-speed, toner-based digital production print market. Through hours of individual client interviews, the product was developed to support their transformation by creating solutions together that expand and streamline their businesses through advanced automation, fewer human touchpoints, and higher productivity.

More info: kmbs.konicaminolta.us or 551-500-2659

Roland DGA Releases New DGSHAPE LD-300 Laser Decorator

Roland DGA has launched the DGSHAPE LD-300 laser decorator — a larger, more robust version of the company's LD-80, the world's first laser decorator, which was introduced in March 2018.



In addition to featuring all the impressive capabilities of its predecessor, the LD-300 boasts an expanded 12x9" workspace that allows for precision foil decoration on larger 3D items, plus the ability to imprint directly onto natural leather.

The LD-300's workspace makes it easy to decorate objects up to 1.9" thick with a variety of metallic and holographic foils. For larger items, the bed can be easily removed, allowing the LD-300 to accommodate handbags, product packaging, and other objects up to 11.8" in size. It's also simple to set up and operate. Users can customize a wide variety of items in just a few easy steps — placing the object in the machine, adding a chosen foil, and laser imprinting the design via the included METAZA Studio Software.

More info: rolanddga.com or 800-542-2307

Consumables

FDC Graphic Films Introduces an Ultra-Metallic Cast Vinyl

FDC Graphic Films launched a new premium cast vinyl film, Lumina 3710, for use in general signage, RV and marine applications, automotive aftermarket graphics, and striping.

This series provides dynamic graphic accents due to its large metal flakes, high surface gloss, and exceptional color depth.

The new 4 mm film is offered in nine colors with more on the way. Standard rolls are available in 15-60" widths.

Lumina 3710 is also available in 12x12" standard size sheets as part of FDC's sheeting program, which is ideal for craft and do-it-yourself projects.

More info: fdcfilms.com or 800-634-7523

Software

Canon Production Printing Partners with OneVision



OneVision CEO Hussein Khalil (left) and Canon VP, Large Format Graphics Michele Tuscano (right).
Courtesy of OneVision.

Canon Production Printing has partnered with OneVision to offer Europe-based large-format graphics customers improved operational efficiencies through end-to-end workflow automation.

With OneVision's Wide Format Automation Suite, print service providers working with Canon's award-winning Colorado roll-to-roll and Arizona flatbed printer series can now increase productivity and reduce waste to support growing production volumes.

The OneVision software works from the moment an order is received. It automatically picks up the job data, creates print files, and checks them against 130 different error criteria, automatically correcting errors identified. Color management is also optimized.

Automated nesting and data normalization remove the complexity of handling files, speeding up RIP and print times, as well as optimizing all available space on the media by automatically arranging artwork on any given print size. The software also prepares the job for the finishing process by automatically generating cut line PDFs, saving time and effort, all with pinpoint accuracy.

More info: onevision.com or 201-938-0500

Corporate

Marc Levine Joins GMG Americas



Courtesy of GMG.

Marc Levine has joined GMG Americas' senior management team as director of business development. In this role, Levine is working to expand GMG's technology adoption by dealers and end users across all marketing segments.

Levine has nearly 25 years of experience selling, supporting, developing, and driving business on products that are built on color across different print verticals. Levine most recently worked at Schawk, where he was director of

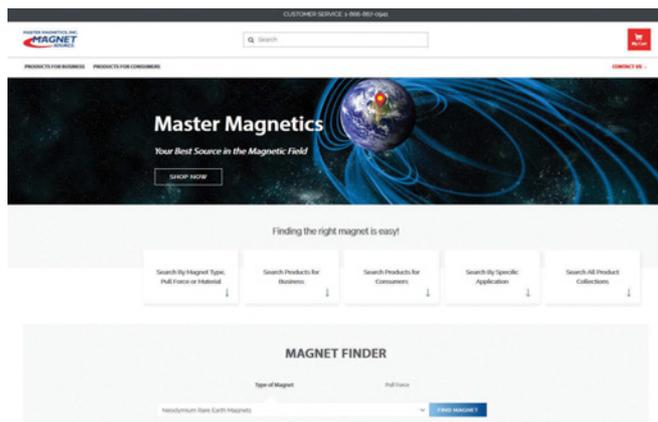
the enterprise print quality program. At Schawk, Levine was focused on packaging — helping brands to optimize packaging color on shelves and to produce more consistent and durable brand equity. Levine also worked as director of business development at the Color Management Group, where he worked with manufacturer partners, resellers, and customers on strategic sales and marketing programs to improve business performance based on color technology products. He also held technical and sales roles of increasing responsibility at X-Rite and NUR Macroprinters.

More info: gmgcolor.com or 781-740-4077

Master Magnetics Launches New Website

Master Magnetics has launched its redesigned website, which better serves customers from all industries and customer segments and further positions the company as an expert source of information and products in the magnetic field.

With more than 20 million magnets in stock, the new magnetsource.com makes it easy for users to find the right magnetic solution for their application. Major new features include a clean, intuitive design enabling a consistent experience across the site. Multiple search and filtering functions enable users to find, research, and purchase products by product name, part number, application, magnet type, material, and strength. Additionally, users can perform quick, side-by-side product comparisons to aid research.



Courtesy of Master Magnetics.

More than 300 Master Magnetics products are available for immediate purchase, including a wide selection of neodymium magnets and customer favorites including Magnetic Floor and Road Sweepers, the Pop 'n Catch magnetic bottle opener, and the Magnetic Cup Caddy cup holder.

More info: magnetsource.com or 303-688-3966

Orbus Donates More than \$14,600 to Charitable Institutions in 2019

Orbus Exhibit & Display Group donated more than \$14,600 to various charitable institutions in 2019. The Orbus Social and Cultural Committee organizes fundraising and team-building events throughout the year to ensure the Orbus culture is one that values each employee and gives back whenever possible.



Courtesy of Orbus.

In the first half of 2019, Orbus raised more than \$9,000 to benefit the Leukemia and Lymphoma Society and in the latter half of 2019, Orbus raised more than \$5,600 to benefit Ann & Robert H. Lurie Children's Hospital of Chicago.

Company-wide fundraising events included casual wear buy-in, shamrock grams, a chili cook-off, manager dunk tank, an ice cream social, TV raffle, and "Change Wars" competition. In addition to monetary donations, Orbus hosted its first employee blood drive with the American Red Cross, as well as its annual Toys for Tots drive to help less fortunate children share in the magic of the holidays. Orbus looks forward to expanding its philanthropic efforts this year.

More info: orbus.com or 866-672-8715

OVERHEARD

“Marketers have begun to reawaken to the possibilities afforded by hard copy mail, and the benefits of combining it with digital avenues are even greater.”

– Amanda Armendariz, *Serving Omnichannel Marketing with Direct Mail*, page 45

“Color is a feeling, but it is best described and compared mathematically, and one must first understand the science behind color.”

– Shelby Sapusek, *Design Aspects of Color Management*, page 31

“With UV inkjet, the ink always lies on the media’s surface and, depending on the UV curing settings, will most often have a rough texture. This is due to the flash curing of the ink before it has a chance to flow into a smooth surface.”

– Bruce Bayne, quoted in *Managing Color Across Processes*, page 37

“Management- and sales-related tactics for building competitive advantage focus primarily on the customer. Maximizing the value of current customers, cited by 55.6%, and improving customer service, cited by 51.1%, top the list.

– Andy Paporozzi, *Growth and Competitive Advantage Tactics*, page 23

“Another area where dye-sub is growing is heat transfer decoration of powder-coated metal surfaces for architectural building skins and trim, signs, public art, awards, and promotional product installations.”

– Vince Cahill, *Opportunities in Sublimation-Disperse Dye Printing*, page 12

“The opportunities now available with inkjet — coupled with complementary advances in other components of direct-to-shape, and combined with the fact that the trend for personalized, specialty packaging shows no signs of slowing down — make for a potentially exciting future for digital direct-to-shape in packaging.”

– Karis Copp, *The Future of Direct-to-Shape*, page 7

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