

TECHNOLOGY • SOLUTIONS • RESOURCES

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**AMY MILLER, CEO**

**LESTER LITHOGRAPH**

**ROBERT MILLER**  
COO

june 2016 | vol 8 issue 5 | \$15

**INDUSTRY 4.0**

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**ASK THE EXPERTS: DEALING  
WITH PAPER DEBRIS ON PRESS**

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# MAAG

THE MAGAZINE

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## MARKETING MINUTE

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# INDUSTRY 4.0

THE NEXT LEVEL OF PRODUCTION IS HERE

Dr. Mark Bohan, Business Consultant, Heidelberg USA, and Andy Rae, Senior Vice President, Equipment & Marketing, Heidelberg Americas

Industry has gone through many changes over the past decades and is now entering the realization of the next level of production and integration, referred to as the digitization of manufacturing. Under the auspices of "Industry 4.0," this trend is now discussed by many research organizations such as McKinsey. One of the underlying themes that we heard throughout **drupa** was how manufacturers are striving to achieve this with their systems. To fully understand how this is impacting the print industry, it is best to first take a step back. The developments in the industrial age are shown in **Figure 1** with the first revolution based on the harnessing of power from steam or water, followed by the advent of mass production using electric energy. This was followed by the use of digital technologies using electronics and IT to further automate the production process. What we are seeing now with the fourth industrial revolution is the use of cyber-physical systems. These are essentially systems and processes that communicate with other machines and/or humans, both inside and outside company boundaries, collaborating to provide a smart production system throughout the whole value chain. This builds on the individual IT capabilities of separate systems, using the Internet of Things (IoT) and the Cloud to provide connectivity and integration. This facilitates big data to be collected, analyzed, and acted upon so that systems can utilize simulations and models to adapt, reconfigure, and carry out steps in the manufacturing process, autonomously in many cases, to drive quality and productivity, ultimately impacting profitability.

One of the underpinning features for Industry 4.0 is the connectivity between devices and the leveraging of the IoT, moving from a strictly hierarchical system into a more connected and integrated system. There are many different definitions of what the IoT is and what is needed to comprise it. These range from "[t]he IoT links smart objects to the Internet. It can enable an exchange of data never available before, and bring users information in a more secure way" (Cisco) to "[t]he Internet of Things is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment" (Gartner) to "[a]n infrastructure of interconnected objects, people, systems, and information resources together with intelligent services to allow them to process information of the physical and the virtual world and react" (ISO JTC 1).

To simplify, as described by Kevin Berisso at the 2016 TAGA Annual Technical Conference in Memphis, the IoT will have the following: physical objects that are connected through a network, data collection capability, and the ability to use information to make automated decisions.

Currently we have many individual systems within our manufacturing processes that are optimized; however, these all operate as individual islands of automation. While efficiencies can be gained in each of the processes, it is only through a fully integrated manufacturing systems approach that fully utilizes the IoT, analytics, and digital data that the

complete manufacturing value chain can be configured for optimal performance as shown in **Figure 2**.

The components that underpin Industry 4.0 have been agreed upon within many organizations and can best be summarized as follows.

### Systems Integration

Many computerized systems are highly automated within their own operation but struggle to communicate with disparate equipment or systems. Standards and open architecture facilitate the easy transfer of information, both within the manufacturing company and to the

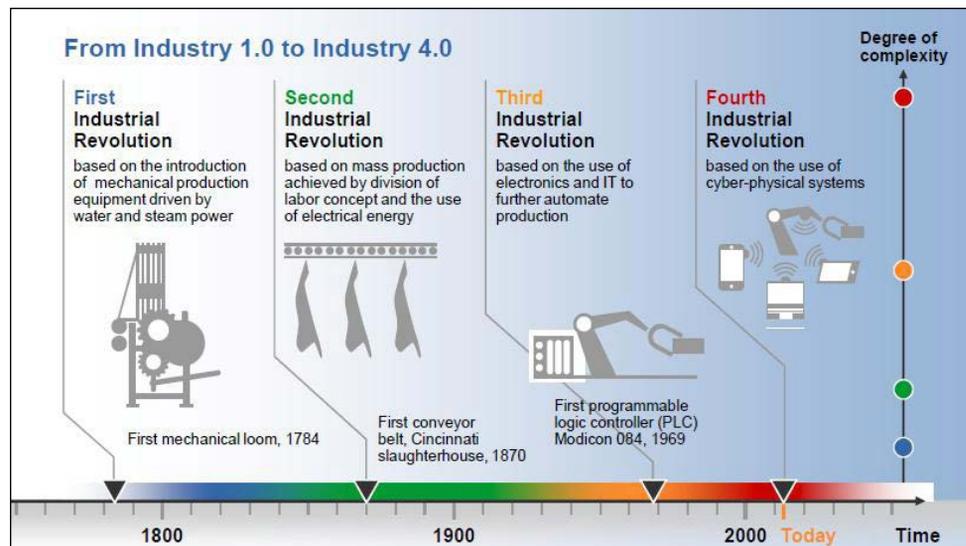


Figure 1: The stages of industrial development

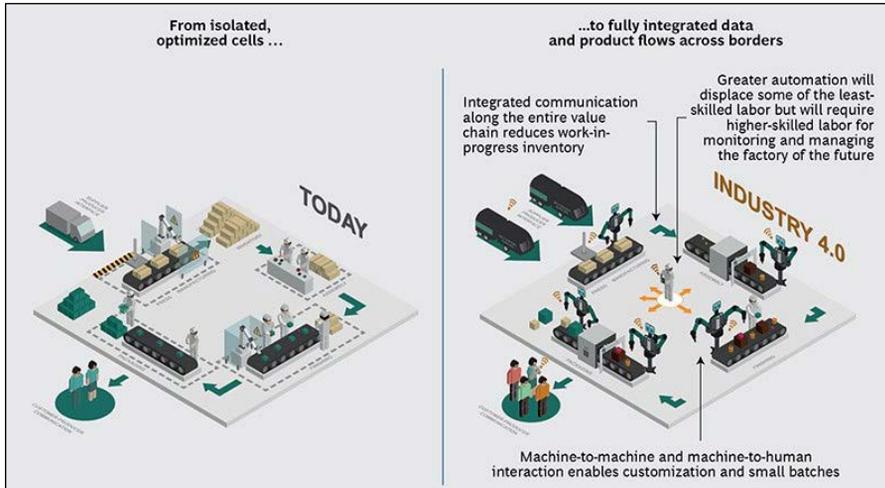


Figure 2: Integrated manufacturing [BCG]

customer or end user of the product. This can involve defining common open languages for data exchange such as JDF for job information, CxF for color information, and PDF for content.

### Big Data and Analytics

As systems become increasingly digitized and connected, there is a great deal of data that can be collected and analyzed. One of the challenges is the quantity of data where it becomes difficult to identify relevant data and identify the trends that lead to intelligent and automated decisions. This is where big data and analytics come to the forefront. This would include identifying a part's performance and operating parameters, such that failure can be identified early and corrective actions taken.

### Simulation and Virtualization

Simulations and virtualization of systems allow for different scenarios to be assessed and cost-effective solutions to be developed, tested, and implemented in a much faster time cycle, reducing both costs and time to market. Simulation today includes color management and control where in-line measurements can be used to minimize set-up times and optimize subsequent press runs.

### Internet of Things

The IoT carries out core functionality in Industry 4.0 manufacturing solutions, combining the physical devices via the network utilizing data collection to decision making processes. This embedded computing in systems enhances the value and functionality of the product being manufactured.

### The Cloud

This is being used within the industry for applications such as remote service, color management, and performance benchmarking, and its application to other areas of the business will continue to expand. The performance increases in computing mean that machine data and functionality will continue to be shifted towards Cloud solutions. The Cloud allows a much faster roll out of updates, performance models, and delivery options than stand-alone systems. The industry has seen a

large shift to utilize Cloud solutions and this continues to grow.

### Cybersecurity

With the increased connectivity from the IoT and Cloud, the security of the information becomes increasingly important as we move away from closed systems. Security and reliability underpin the successful implementation of a truly modern and digitized production workflow, leveraging all of the benefits.

### Autonomous Robots

Robotics is in an early stage in the communications industry, but we have seen many uses either with specific manufacturing systems or in plants for activities such as materials movement (as in the Cox Target Media facility) or with finished product inventory control/management. We expect the level of performance and interaction with humans and systems to improve and we anticipate an increased utilization by leading print manufacturing companies.

### Augmented Reality

Augmented reality grows in use by providing real-time information in an effective manner to allow humans to better integrate and interact with electronic systems. Examples can include the transmission of information on repairs for a part that can be viewed through different devices or the training of personnel using simulations and 3D views of the facility or equipment.

### Additive Manufacturing

This continues to become increasingly important for small-batch applications or for the manufacture of individual parts or personalized products. This will be used either directly with the customer or by suppliers to improve designs with increased performance, flexibility, and cost effectiveness.

### Summary

Many of the component parts are now available to transform the smart factories of tomorrow into the reality of today. Systems are available from manufacturers that leverage the Industry 4.0 approach and offer significant improvements to the manufacturing process, where strength is gained from having the complete approach across all manufacturing areas. The communications industry is one that is at the forefront of embracing this approach to its business operations. Exploiting these systems for business allows increased throughput and productivity to drive profitability. It will be the companies that embrace this that will see a significant competitive advantage in the marketplace today and in the coming years.

# LESTER LITHOGRAPH

## TEACHING AN OLD COMPANY NEW TRICKS

Kayleigh Smith, Manager, Marketing, Printing Industries of America

As the print industry grows older, some companies find it hard to keep up with modern problems and stay relevant in today's marketplace. The old cliché goes, "you can't teach an old dog new tricks," but at least one company is working hard to smash this concept and bring its business to the forefront of the next generation.

Over 30 years ago, Larry Lester set out to establish a solid, highly respected printing company—which he most certainly did. Using his skills and expertise as a master lithographer, he spearheaded the movement to make Lester Lithograph synonymous in the industry with words like quality, dependability, professionalism, and dedication. After almost 25 years in the business, Lester Lithograph merged with Miller Graphics, and almost ten years after that the sheetfed and digital powerhouse of Castle Press was merged into their Anaheim, CA facility. With each of the acquisitions, Lester Lithograph gained skilled workers and new ideas that the owners used to better their company for the future.

Robert Miller (owner of Miller Graphics) started at Lester Lithograph in 2006 after the two companies joined forces. His father had owned Miller Graphics in the past, but he bought the company from him in 2001. When he talks about his experience with the print industry, Robert explains that it's just always been a part of his life.

"I was born into it," said Robert. "But Amy was dragged into it."

Amy Miller, the current CEO of Lester Lithograph and wife to Robert, never really thought she would end up in a printing company at first. But, she had a passion for marketing and after being involved in the company part-time, she suddenly found herself loving the time spent in print and jumped in with both feet.

"I was always observant, and I was always helping and brainstorming at home," said Amy. "I have a background in public relations and as I finished business school, I put all those experiences into play."

### The Husband and Wife Dynamic

One might expect the husband and wife dynamic at a printing company to be easy—but that's because Robert and Amy have gone through lengths to make it that way. Some people might expect an atmosphere like being home with children where some employees could try to play off them both to see which of the power couple can give them the answer they want. However, Robert and Amy stress that this isn't the case in their plant, and everyone works as a team before making any irreversible decisions. Plus, they rely on a key board of advisors run by staff members whose opinions they trust when making the tough decisions.

"With our board of advisors, it doesn't come down to us always having different opinions and fighting it out. It's not just 'he said,

she said.' We have more players than that contributing to the decision making process," said Amy.



*Robert and Amy Miller work together to steer Lester Lithograph to a bright future.*

And when Robert and Amy aren't around, they trust their people and the system they put in place to manage the plant the way they would if the duo were in the office.

"Thankfully, we have people backing us up who are both very skilled at what they do and understand our values and how we want to treat our customers, so they can operate very independently. I'm amazed at just how little I'm needed sometimes," said Robert.

### Modern Solutions for Modern Problems

The age of technology brings many new problems for the print industry—all very serious. For example, data security issues (one of the biggest trends in the industry at the moment) can cause havoc for even the most organized and cautious of companies.

"We were hit with a ransomware hack in late February that shut down all our technology. I had no idea just how impactful it would be. We've improved anti-virus protection since then, but I've been told we'll never really be able to keep ahead of the hackers. So we've made sure our backup procedures are robust enough that we can get back up and running very quickly if we get hit again," explained Robert.

"We take our clients' information very seriously," said Amy. "We're continuously working to protect our services and we are very glad our clients' data was protected."

### Making Room for the Younger Generation

When it comes to family life in the Miller household, Robert and Amy try to foster enthusiasm for print in their children, while not pressuring them into a career in the industry. With children ranging from 16 to 21 years of age, the topic of choosing colleges and the family business gets brought up a lot at the dinner table. While Robert would love to have his sons and daughters eventually join him in the plant, he admits he hasn't done a good job of interesting them in the past.

"I didn't want my dream to become my children's nightmare, so I worked really hard at not pressuring the kids into coming into the business. So much so that I neglected to say things that might interest them in the industry," said Robert. "Amy did a much better job than me. She pushed the conversations in a more positive way. I think we're getting closer to a better balance of giving them the information to make their own decision of whether they want to be involved or not."

"It's a matter of changing perspectives. If we want them to work here, we must create jobs that would interest college-age students," continued Amy. "Are there ways we can grow our company that can accommodate our children's strengths, gifts, and talents?"

Amy notes that the current atmosphere in the industry isn't attracting youth and that we need to make changes. She says that printing won't

be the same as it grows and there's room for innovation that any new generation can bring.

"Let's ask what's next for print and let kids brainstorm. Let the kids in the industry be leaders. They're certainly a force to be reckoned with," said Amy.

### Somebody to Lean On

No matter what industry you work in, it's always good to have someone you can talk to that understands your struggles and your achievements. At Printing Industries of America, both Robert and Amy have found many like-minded individuals that they turn to for advice, comments, and sometimes just for a good conversation. For many years now, Robert has conversed with several of his peers on a regular basis through PIA peer groups. He says that although not everything they do is a good fit for his company, having the benefit of their comments and critiques gives him great ideas for positive action and has prevented him from making mistakes in the past.

Amy also benefits from the extensive industry connections she sees in PIA. She says, "it's good to have people I can talk to that I don't have to explain the industry to, and it's nice to just be friends."

Over the last decade, it's clear that Robert and Amy have worked to keep Lester Lithograph current in the marketplace. But, even as print continues to move forward, Robert and Amy will have lots of new tricks to learn.

To learn more about Lester Lithograph visit <http://www.lesterlitho.com>.

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# DR. TAZ TALLY

## RENAISSANCE MAN

Staff, Printing Industries of America

Dr. Taz Tally is a photographer, geologist, digital imaging expert, author, inventor, and adventurer. He enjoys renown as a Photoshop expert and as an author of six digital imaging books, including most recently *Photoshop Before and After*. We recently caught up with Dr. Tally and learned more about his background in the graphic arts and his upcoming online classes in Printing Industries of America's iLearning Center.

**Q:** How did you first get into the graphic communications industry, and why did you decide to pursue teaching the subject?

**TT:** In 1984, I became fascinated with desktop publishing, as the new desktop computer-based technologies were called. I began working with one of the original Apple Macintosh 128K RAM computers that had a 400K floppy disk drive for storage, a page layout program called Ready Set Go, a hand-held scanner called a Thunder Scan, a one bit black-and-white image editing program known as MacPaint, and an original LaserWriter printer that supported 13 fonts. I was using these new desktop publishing technologies to help promote and develop my educational consulting business. I soon figured out that my knowledge of desktop publishing technologies was something I could sell, so I switched gears from educational consulting to desktop publishing. I set up a digital imaging service bureau and consulting company and began working with the printing industry, which was being dragged kicking and screaming into the brave new world of desktop typesetting, page layout, and digital output. The technologies and skills being developed were so new that I was often only one week ahead of everyone else, but I made sure that I stayed one week ahead! Teaching comes naturally to me because I enjoy sharing what I know with people and always learn when I teach.

**Q:** Why do you think it is important for printers to make the switch from a Photoshop-dominated digital imaging workflow to one that emphasizes Adobe Lightroom?

**TT:** Adobe Photoshop has been our mainstay flagship imaging application since it first appeared as Photoshop 1.0 in the mid-80s. For decades, Adobe Photoshop was really the only tool that most professionals used for image editing. And Photoshop continues to be the gold standard when it comes to advanced image editing functions such as compositing, painting, and imaged-based typesetting. However, the

vast majority of whole-image adjustments that we make on images such as cropping and rotating, brightness and contrast, color corrections, sharpening, and even simple retouching do not really require the capabilities that Photoshop offers. In addition, mastering Photoshop requires climbing a steep learning curve. Even simple adjustments such as cropping or basic brightness and contrast adjustments require use of multiple tools/panels and the mastering of Photoshop's multilevel interface. Additionally, Photoshop is really designed for working on one image at a time and does not offer very much in the way of image management. Adobe Lightroom offers a single-level interface that is far simpler to learn and use. Lightroom also offers a fully integrated digital asset management (DAM) system with complete import, viewing, labeling, sorting, and image-editing and includes a wide variety of powerful output model modules that all work through a similarly organized interface. And for those projects where advanced Photoshop-based image editing is required, Photoshop-based work can be easily integrated into a Lightroom-based workflow.

**Q:** How did you decide which content to present on this issue?

**TT:** While Lightroom was originally designed for photographers, printing company production folks and photographers have many overlapping production needs when it comes to managing and editing images. So for this initial iLearning Center series I focused on showing tools and skills that are relevant to both photographers and print company production staff, including: the ability to organize and manage images; performance of basic image editing functions such as brightness, contrast, and color correction adjustments; and the need to apply output-specific adjustments such as image dimension, linear resolution, and file format assignments, all of which are easily accomplished in Lightroom. In addition, modern printing companies often offer a variety of design-oriented services that may include: photography, creation of PDF presentations, and generating images for use on the web and social media, all of which are also easily accomplished with Lightroom. In addition to the Lightroom specific courses in this initial iLearning Center series, we have included a course specifically on integrating and working back and forth between Lightroom and Photoshop for when print production people need the advanced image editing capabilities of Photoshop and want to integrate that into their Lightroom-based workflow. Additionally, I think printing companies will find Lightroom to be a very useful tool for their own internal sales, marketing, and promotional needs.

**Q:** Why do you think online learning is so important in the industry today?

**TT:** There was a time not so many years ago that a production person could learn a skill set and use it for a lifetime of work. The craftsman skills of typesetting and film stripping were often learned and handed down from generation to generation with only modest changes in technologies and required skill sets. With the dawn of the digital imaging age beginning in the mid-1980s, imaging and printing technology began a series of rapid-fire changes that continue today with no end in sight. Gone are the days when you can learn one skill set and use it for a career or lifetime. Continuing education and lifelong learning have become requirements for keeping your job, never mind progressing and moving up the ladder. Once we become working adults with a variety of competing challenges such as raising families and participating in our communities, brick-and-mortar classroom learning becomes an enormous challenge if not a near impossibility. Therefore, online learning is becoming the standard environment for continuing education. In fact, online learning is becoming an increasingly important portion of all postsecondary education.

**Q:** What is the most important thing you hope students gain from these courses?

**TT:** In this initial set of digital imaging iLearning Center courses, we are focusing on introducing Lightroom to print production people. We understand that learning and switching to a new

software application and/or workflow can be a daunting task and that there needs to be a really good reason to do it. I was not an early adopter of Adobe Lightroom. I was a Photoshop maven through and through, and the addition of Bridge to the Creative Suite lineup provided me with significant image and document management capabilities. However, Adobe Lightroom has proven to be so much faster and easier for managing and editing images than my previous Bridge-plus-Photoshop workflow that I now perform 100% of my image management tasks and 90% of my image editing and output functions through my Lightroom-based workflow. I still use Photoshop for my advanced portfolio-oriented artwork pieces that require the use of layer masks, adjustment layers, detailed selections, and specific area adjustments, which I now integrate into my Lightroom-based workflow. Therefore, our goal is to show print production folks the image management, editing, and output capabilities of a Lightroom-based workflow, so that they can evaluate for themselves whether they think this is a good tool and workflow for them. Additionally, this initial series of Lightroom training modules does indeed provide a solid foundation for actually using Adobe Lightroom in a print production environment.

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# ASK THE EXPERTS

## DEALING WITH PAPER DEBRIS ON PRESS

Dillon Mooney, Technical Consultant, Printing Industries of America

Problems related to debris contamination of the printing blankets are the basis of many questions presented to the Printing Industries of America Technical Inquiry Desk. Print quality, waste, and reduced machine efficiency are problems caused by debris on the surface of the paper that accumulates on the press blankets and can transfer to plates. The debris can cause void hickies and piling. Piling on the blankets can affect the reproduction of the halftone dots and even the ink/water balance on the printing unit.

Hickies can be classified into two categories: press-generated doughnut hickies or paper-generated void hickies. Doughnut hickies are solid particles that create a relief or high point that transfers ink and prevents the area around the hickey from accepting or transferring ink, creating a white space around the hickey. Doughnut hickies are more commonly found on the plate and can be on the blanket.

Doughnut hickies originate from:

- Ink skin
- Dried ink chunks from the press frame and guards
- Dried ink chunks from roller collars
- Rubber roller pieces from a deteriorating ink roller
- Dirt falling into press from overhead light fixtures, conduits, etc.

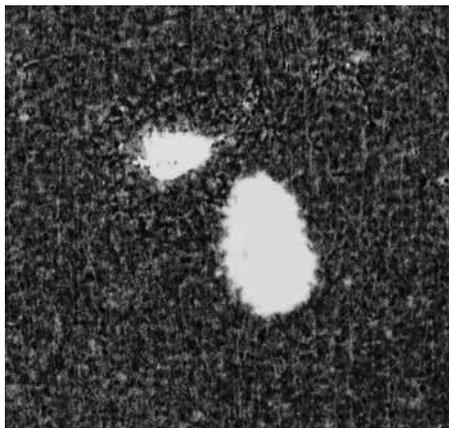
Void hickies are paper generated and may be ink receptive when they first appear. They will absorb fountain solution and eventually repel ink and print as an area with no ink transfer to the paper. Void hickies most commonly occur on the blanket and can transfer to the plate.

A void hickey typically originates from a paper source:

- Loose paper fibers or lint
- Poorly bonded fibers
- Poorly bonded coating
- Slitter/cutter dust
- Paper pick-outs

The majority of the loose material from the paper collects on the first and second unit's blankets. If the piling or buildup appears on the last unit's

blankets or has increased through the press, it may indicate the surface of the paper is being softened or dissolved by the fountain solution. In this scenario, each succeeding printing unit deposits a film of fountain solution from the plate onto the blanket and then onto the paper. If this happens with coated paper it is called "milking." This is an indication the paper's coating or sizing is being dissolved or softened by the fountain solution. Units with poor ink/water balance will be putting additional fountain solution on the paper, exacerbating the problem. Some paper has marginal water resistance and will run well on a press with good ink/water balance but when exposed to extra moisture on a press with poor ink/water balance will exhibit milking problems.



*An example of a void hickey*

Sheet and web cleaners are available that utilize a vacuum and may include static eliminators and brushes to remove any loose debris from the surface of the paper before being fed into the press. On sheetfed presses, sheet cleaners are mounted between the infeed and first unit impression cylinder. A brush and vacuum contact the sheet on the first impression cylinder before the paper is printed by the blanket. The brush dislodges any loose paper debris and spray powder and the vacuum transfers the debris to a filter unit next to the press. The effectiveness of the sheet cleaner depends on the maintenance of the filter/debris collection unit. The collection unit may contain a large filter to reduce the intervals between cleaning the filter media.

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## SOLUTIONS

Web cleaners are used to continually clean the web before entering the printing units. Web cleaners can be configured to clean one or both sides of the web on conventional and digital presses. Contact web cleaners use a brush, static elimination technology, and a vacuum to remove surface debris. Non-contact web cleaners are used in applications where a brush could damage or scratch the substrate, such as some plastics. Non-contact web cleaners can use ionized air to neutralize static, enhancing the efficacy of the vacuum system to collect and remove the contamination. Contact roll cleaners use a sticky rubber roller to pick up the debris and transfer the debris to a roller with an adhesive film or tape that removes the debris from the pick-up roller.

Standalone contact roller sheet cleaners are available that enable one sheet at a time to be manually inserted into a sticky roller nip. Some units may have a slow moving conveyer belt that enables semi-automatic operation. Standalone sheet cleaners are typically used on large sheets needing to be cleaned before a high quality finishing process such as coating or laminating.

Print quality problems created by debris transported into the press on the substrate can be minimized by using sheet and web cleaners. Not all substrates require cleaning before printing, but due to the wide ranges of substrates available to the printer and customers, having the ability to remove this contamination will improve quality while reducing machine down time and waste.

Sheet cleaner manufacturers:

- Doyle Systems  
<http://www.doylesystems.com/>

Web cleaner manufacturers:

- PolymagTec  
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<http://www.electrostatics.com/>
- Simco-Ion  
<https://www.simco-ion.com/>
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# HIGH-VALUE PRINTING

## A GOLDEN OPPORTUNITY

Mary Roddy, Global Product Marketing Manager, Xerox

For the last two decades, digital color presses have advanced by continuously improving offset-like quality while adding value with digital's faster turnarounds, lower-cost short runs, and variable information printing. This innovation path continues to have potential, evidenced most recently by emerging developments in metallic inks. New digital solutions offer the promise of producing metallic images rivaling those of traditional processes, while delivering all of digital printing's advantages.

For printers, this presents an opportunity to generate new revenues with high-value applications that expand and differentiate the shop's offerings.

Production of metallic images has long been the exclusive realm of analog processes using offline foil stamping, offset metallic inks, and foil papers. Digital technologies add value to metallic applications in several ways:

- Low-cost short runs and variable information printing with metallic inks present brand new, potentially lucrative opportunities to explore.
- Fast turnarounds match those of non-metallic digital printing applications, pleasing customers accustomed to the lengthy waits associated with traditional processes.
- Production costs are lower due to the elimination of custom dies, less wasteful processes, and an in-line workflow that reduces staff time and improves overall productivity.

And of course, the finished product delivers the premium look your customers desire, enabling high-value creative effects, personalization, and the visual pop that wows readers. Metallic applications that can be produced with traditional processes can be candidates for digital printing, as well as some applications unique to digital, including:

- Seals on official documents, such as certificates and diplomas
- Personalized communications, bringing the eye-catching sparkle of metallic inks to both static and variable elements in content tailored to be relevant and engaging to each recipient
- Highlighting logos, images, text and other graphic elements in a wide range of direct marketing materials, collateral, business identity items, invitations, greeting cards, posters, and photo publishing products—to make them shine
- Image overlays on photos to create a high-impact look

- Product packaging to enhance the brand and attract attention
- Menus, point-of-sale signage, and other durable pieces produced on the wide range of digital-printing-qualified synthetic and specialty media, including vinyl, polyester, plastics, magnetics, and textiles
- Creative pieces that take advantage of pre-die-cut stocks; application-specific stocks for ID cards, labels, and mini photo books; as well as textured stocks and vellum

*This article originally appeared on the Xerox Digital Printing Hot Spot blog. You can visit the blog at <https://digitalprinting.blogs.xerox.com>.*

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# INDUSTRY CERTIFICATION

## A SOLID STEP TO ACHIEVING CLIENT SERVICE SUCCESS

Dawn Nye, Solutions and Services Marketing Manager, Konica Minolta Business Solutions

Following industry standards is one way for a printer vendor to succeed in its industry. Another way is to be certified for doing so by its industry, and the Improvement Professional in Print (IPP) certification program from the Printing Industries of America is the best “stamp of approval” any printer vendor can receive.

Based on the principles of increasing customer satisfaction, speeding production, and reducing costs and waste, the IPP certification recognizes those individuals who apply Lean and continuous improvement techniques within their organization to address the challenges of the ever-evolving print industry. The first vendor to enter the program is Konica Minolta Business Solutions U.S.A., Inc., an established leader in the production print arena that believes in providing expert service to its wide array of clients. Currently, 14 of its employees are enrolled in the program.

The prerequisites for the IPP certification program require that an individual must have at least two years of experience working for a printing services company and be able to cite at least one specific example of how they have implemented improvement in an organization. To become IPP certified, one must complete the certification exam developed by the top industry experts in the areas of Lean manufacturing and continuous improvement. The exam consists of 100 multiple-choice questions delivered online through the IPP website. Successfully passing the exam with an 80 percent or better score requires significant background and knowledge in quality improvement practices.

To deliver its expert service, Konica Minolta uses its ability to analyze its customers’ needs and create an effective workflow optimization, which begins with performing Lean assessments to reduce non-value-added steps. Even before its participation in the IPP program, Konica Minolta was exhibiting its expertise in print production with such heavyweight clients as a major cruise line, whereby it garnered \$8.3 million in savings for the client’s in-house print shop that produces everything from menus to shopping maps to daily activity sheets. Each ship has a fully functioning production print center staffed by two to five employees. They operate like any other corporate reprographics department/in-plant print and copy operation. And like other print shops, these “floating print shops” are daunted by heavy manual labor and the need for enough space to house an abundance of print cartridges.

“Think of a cruise ship as a luxury floating hotel and resort,” said Dino Pagliarello, vice president, product management and planning. “The main officer (just below Captain) is sometimes called the hotel general manager. An average print volume is 50,000 per week—just in the print shop. This does not include the MFPs and desktop printers stationed around the ship in each department.

Konica Minolta’s success with this client has opened the door for future opportunities as more ships are introduced to its lineup that will require print production units. And this success has been achieved all before Konica Minolta’s team of print solutions analysts and managers completed the IPP certification program. Imagine how much more effective they will be upon completing it.

“Konica Minolta wanted to be the first to take part in the IPP certification program because we believe that the application of process improvement is a cornerstone of a sound and profitable printing business,” said Pagliarello. “This unique new certification validates the expertise of printing industry professionals like us who help companies achieve operational excellence using Lean manufacturing and other process improvement practices.

“Konica Minolta values industry knowledge-based certifications like G7 and now IPP from PIA,” Pagliarello added. “We understand this gives customers a trust level that we educate our people who we send out to work with customers. Lean Production Workflow Assessments are an essential component of a total Konica Minolta solution that helps our clients identify waste points within their workflow and determine non-value-added steps that benefit from introducing Lean manufacturing methodologies. Only now we’re taking it to the next level.”

Are you a print professional dedicated to achieving operational excellence through the application of Lean Manufacturing and other system improvements?

Shine a light on your expertise and dedication with **Improvement Professional in Print (IPP)** certification.

For more information, visit [www.printing.org/IPP](http://www.printing.org/IPP).



# BOOK EXCERPT

## LEAN PRINTING: CULTURAL IMPERATIVES FOR SUCCESS

Kevin Cooper, Professor of Graphic Communication, Cal Poly University

The frequently cited long and rich history of the print industry is an asset in many regards to doing business. In some cases, many customer relationships have existed for decades, and mutual trust and symbiotic relationships have evolved. As an example, quality printing can lead to a growth in customer business and increases in advertising, which lead to additional print volume. Long-standing relationships make for an ease in doing business and have historically been mutually profitable. The historical strength of the print business and its proven functional value to society overall have led many printers to solid growth and steady and predictable business patterns over the years.

An issue created by print's long history is that the management philosophy for success and leadership's role in success have significantly evolved over time. Management has historically been seen as necessary for establishing control mechanisms in organizations. Growth in industries, and individual businesses within an industry, led business leaders to layer organizations with managers focused on optimizing specific functions within a business. Growth in size meant growth in both organizational layers and management positions as larger organizations required a greater number of control points and mechanisms to effectively control the various activities that comprised the business. Individually, people typically got promoted who were proven effective at problem solving. The ability to get something done led to recognition and additional responsibilities. This is continually reinforced as people move up an organization's structure. People in upper management in organizations are frequently those who have achieved the greatest individual accomplishments or have been seen as high-performing based on the problem solving skills they have exhibited. Power in an organization came from position, and your position was based on individual achievement skills. Frequently, control was directly correlated with power and responsibility. Additional power came from exhibiting tighter control over information, decision making, and functional responsibility.

As the industry was evolving in the twentieth century with mass production and assembly-line process thinking, the focus on functional excellence was appropriate. Printing historically has focused on mass production techniques with the various functions of print separated within a facility and run semiautonomously. Prepress areas focused on receipt of customer material and the ultimate output of plates. Pressrooms focused on optimizing press runs and churning out signatures for future use in postpress activities. Binderies tried to optimize binding processes in col-

lating and finishing signatures into final product with the customer delivery date as a back-end constraint to manage. Each of these areas, along with other essential functions within a facility, typically have a manager and perhaps layers of supervision whose focus is to control and monitor the various functions in their areas of responsibility. Employees within an area are often rewarded for optimizing the performance of equipment they work on, and frequent performance measures on makeready time, net productivity per hour, and percentage of spoilage generated are common in many print shops. The focus is primarily on getting product out the door and on time through tight control of the various functions involved in the production steps along the way. This approach has served the industry well for decades, and cultures have been built around this functional optimization of a plant.

Under today's competitive conditions, companies are recognizing that optimizing a function within an organization can easily lead to sub-optimization of the overall organization. Lean thinkers encourage the customer-centric view of a value stream and all the steps that add value along the way. Seeing the business in this manner moves away from the thought of optimizing individual functions within a plant and encourages a much broader view of how value is generated and where waste is created within an organization. Ultimately, it makes greater sense to optimize value-creating activities across an organization than to have a super-efficient process within a plant but dissatisfied customers, animosity among departments, or a lack of competitive advantage overall in your business. The trick for printers today is determining how to move the leadership within their organizations from being focused on managing for control to being focused on managing to optimize the creation of value across the entire business. This requires different skill sets and an ability to lead change management efforts to enable the building of these skill sets throughout the organization.

*The preceding excerpt was from the Printing Industries Press publication Lean Printing: Cultural Imperatives for Success by Kevin Cooper. This publication, along with many others, can be found at the Printing Industries of America online store at [www.printing.org/store](http://www.printing.org/store). This publication is also part of the new IPP Certification by Printing Industries of America. To learn more about this certification program, visit [www.printing.org/ipp](http://www.printing.org/ipp).*

# PRESCRIPTION FOR A HEALTHY ROI

FROM PIA'S CENTER FOR PRINT ECONOMICS AND MANAGEMENT

Tai McNaughton, Economist, Printing Industries of America

Let's face it; the world of print is changing. If you are not looking for an antidote to your financial woes, you are instead looking for a vaccine of sorts—one that will keep you far away from a financial plague.

What if you had the opportunity to check the health of your company? What if you were able to see where you are hemorrhaging money? What if you were able to get a clear plan to get your company back on track?

Consider us your business health advocate.

Printing Industries of America's Center for Print Economics and Management has announced a new program that is aimed at helping printers: the Financial Performance Assessment. Not only will this assessment diagnose existing issues, but participating companies will also receive a customized managerial action plan aimed at their firms' needs.

## Get a Check-Up

Choosing where to go to receive a financial assessment is the first part of the battle. Printing Industries of America is the largest association for printers in the United States and has over 94 years of experience in providing industry specific financial knowledge.

The research and analysis are conducted by Dr. Ron Davis, senior vice president and chief economist, Printing Industries of America, who has over 28 years of experience in financial analysis in the printing industry, and Tai McNaughton, economist, Printing Industries of America.

To explain how this new program will help you gauge your company's financial health, we'll show how we apply our customized analysis to a hypothetical company.

*Let's say that our hypothetical company, ABC Printing, thinks that without new orders being brought in, it will not need as many factory workers. A logical conclusion would be that it is spending too much on factory workers and not enough on qualified sales employees.*

*However, proper analysis would actually determine if ABC Printing is on par with industry averages for what it is paying for factory workers and for what it is paying its current sales staff. Would adding another sales person increase sales, or would it be possible other companies have fewer sales staff but are producing ten times the amount of sales? Just maybe, instead of laying off factory workers, ABC Printing needs to look at sales staff under a microscope to answer why it is underperforming.*

## Checking Your Financial Vital Signs

First, by participating in the Financial Performance Assessment, you will receive a detailed comparison and analysis of your company's performance metrics with profit-leading firms that are similar in size, business model, and printing processes.

*Returning to our hypothetical example, the sales-per-factory-employee metric for ABC Printing is only around 50% of the peer group average and approximately 60% of comparable profit leaders.*

Next, you will receive a comprehensive variance analysis examining the underlying reasons for performance issues.

*Employees per \$1 million in sales are directly related to the people-cost variance benchmark. ABC Printing's metric for this variable is very high compared to peer group averages and comparable profit leaders—10.0 for ABC Printing versus 5.0 and 6.0 for the others respectively.*

*There may be valid business model reasons for this variance, but in many cases it is a result of lack of investment. Profit leaders are able to use less labor per sales dollar because they abide by the classic dictum of substituting capital for labor. For example, in 2015, profit leaders averaged \$108,350 in net assets per factory worker employed compared to just \$92,690.*

## Your Own Customized Plan

Lastly, you will receive an action plan with recommendations for specific strategic management practices and operational improvements, such as lowering costs, saving resources, changing prices, and other actions to stop losses and increase sales and profits. The customized action plan for ABC Printing might look something like this:

*Focus on the cost of personnel and the number or headcount of full-time equivalent employees. Typically, high people costs are associated with either too many employees or above competitive pay and benefit costs, so look into these two elements first. Also, can the work process be changed to eliminate people or substitute capital for labor? Another key to reducing labor cost, especially production costs, is to treat labor as a variable resource rather than a fixed resource. As much as possible, more profitable printers vary their staffing levels with their production.*

Look into reducing the total factory cost of product as a percentage of sales. Investigate possible bottlenecks in the production process, reduce outside work, and look at the price of outside services.

Evaluate the use and cost of other consumables and outside services. If these costs could be brought in-line with industry averages, about 2–4% of sales could be moved to the bottom line. In particular, focus on ink and plate costs. Additionally, we do not know if ABC Printing centrally procures consumables for all plants, but this might be a way of saving money and improving profitability at every plant.

### Ongoing Follow-Up Assistance

As your partner in financial wellbeing, you will receive from us both a detailed report and a Web-based presentation for your management team. We are also offering ongoing assistance and consultation as needed to help in the implementation of the action plan for up to three months after receiving your final report.

To participate in the Financial Performance Assessment, companies need only to complete a confidential questionnaire on their current financials. The assessment report is delivered within three weeks.

According to Dr. Davis, “this new Financial Performance Assessment is a quick, affordable, and useful way for printers to promptly determine their strengths and weaknesses and get a template for improved performance. It can help printers become profit leaders and pay for itself many times over.”

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the new *Dynamic Ratios*, you gain access to a new 24/7 secure interactive dashboard, new instant performance graphics, and a new shorter survey option. Not to mention, participating members of PIA through their local affiliate receive a free copy of the *Dynamic Ratios* report—up to a \$129 value! To find out more, visit [www.printing.org/ratios](http://www.printing.org/ratios).

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From recruiting to overtime-exempt regulations, the human relations department at PIA is the place to go for insider HR tips and information regarding all things print. Members of Printing Industries of America can have all this information delivered right to their inbox! The HR newsletter will update you every month on the industry's most recent topics. On the other hand, you can also sign up for the Printing Industries of America HR Flash Report, which will provide you with a deep dive into the print industry's most pressing human relations topics. To sign up for one or both of these benefits, visit [www.printing.org/hrnewsletters](http://www.printing.org/hrnewsletters) today.



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**MARKETING MINUTE**

As social media starts to play a bigger role in how we market our businesses, it's more important than ever that we stay organized and on top of our online presences. While some companies stick with one social media account, others take advantage of multiple platforms and sometimes find it difficult to keep track of everything that is going on. In these types of situations, having a social media dashboard can come in handy.



There are a lot of different programs out there for social media, but in this month's exercise, we'll talk about how using one of these systems can help you in your social media strategy. Visit <http://prnt.in/MM1606> to begin.

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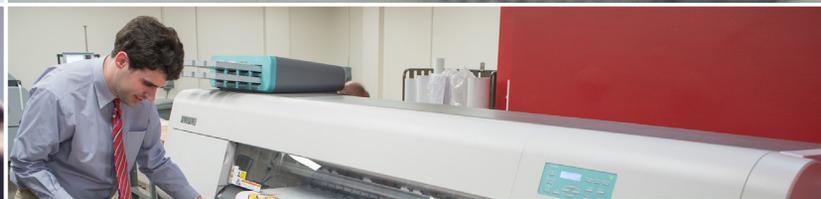
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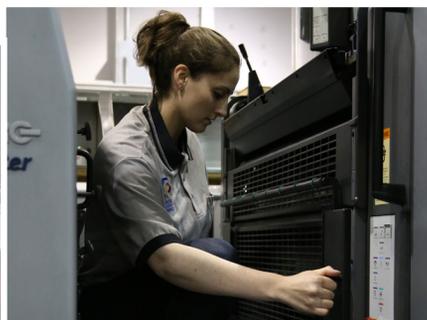
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