



## Package Print Automation Gains Ground — and Pays Off

How automation is transforming press operators from machine tenders into guarantors of print quality.



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Automation may be everywhere in the printing and packaging industries, but nowhere are its implications fully understood. They're almost entirely favorable to the business model, but they take time to appreciate.

One underlying question is how much printers and converters realize the extent to which software and automation-enabled presses can transform their operations — a challenge that requires them to think beyond the confines of traditional pressrooms.

Aleks Zlatic, general manager of packaging productivity software, EFI, says that printers naturally tend to focus on “whatever gives them the most production,” or in other words, their equipment. As a result, there is still some uncertainty when it comes to prepress and business automation software.

Zlatic also observes that because packaging production still contains numerous “artisanal aspects,” some people have difficulty accepting the fact that “their processes can be broken down and automated.”

Catherine Haynes, director of digital solutions and training, All Printing Resources, points out that production automation isn't just the result of installing a press with the right technical features. Other pressroom functions, such as controlling

environmental factors that affect fast-drying flexographic inks, must get the same kind of emphasis if maximum production efficiency is to be achieved.

One piece of good news for novices is that there's more than one place to begin automating production with the help of prepress and workflow software.

### ‘Pick a Battle’

Zlatic says that many printers and converters have already automated their billing. He urges them, as a next step toward automating the production workflow, to “pick a battle” and get started: for example, by automating design with the help of CAD software, and then moving on to estimating and CSR functions.

Keep in mind, Zlatic says, that the workforce “has to change its habits” in order to make automation successful. “It's all about the people.” A good way to get buy-in, he advises, is to “build some champions” internally as advocates of automation for the rest of the staff.

Bruce Bayne, proprietor of SpotOn! Press Software and a specialist in color reproduction, views automating tasks like color management as part of the bigger picture of process control: monitoring and regulating the full spectrum of variables

inherent in every method of printing.

According to Bayne, process control consists of using data to establish printing tolerances, and then running to those tolerances as closely as possible. But, tolerances aren't capable of holding themselves. Bayne points out, for example, that an ICC profile — the color management parameter that fingerprints the color output of a press — is only a "snapshot in time" that can't assure good color reproduction if other printing conditions are unstable.

"ICC profiles are useless if you can't control the process," Bayne emphasizes. "You can't have color management without process control."

On the other hand, he says, the more automation-assisted process control the printing receives, the less "seat-of-the-pants craftsman stuff" it will involve, and the better the results will be. On an offset press, for example, "a one-button push" sends prepress data to automatically adjust ink keys for print runs that can be measured and color-corrected on the fly with the help of in-line scanning densitometers.

### Where the Money Is

Thanks to this kind of process-controlling automation, says Bayne, presswork has largely left the "dark ages" of eyeball inspection and manual color tweaking behind. That's good for

business as well as for quality: "Where the money is, is in controlling the most variable processes," he notes.

Bayne says packaging printers can measure the benefits of automation by comparing key performance indicators (KPIs) before and after process controls were put into place: job changeover intervals; press downtime; wastage in plates, paper, and ink; and individual operator performance.

The relationship between automation and print quality is well documented. As Zlatic observes, "quality equals greater amounts of efficiency" achieved through automation.

Establishing lean manufacturing processes as an adjunct to automation supports quality by eliminating "risk areas" where redundant steps cause defects to occur. Getting rid of needless touches, Zlatic points out, reduces the possibility of failure and the quality issues that failure leads to.

Data collection yields the "quickest win" in production automation by nailing down how much time is being

spent on what tasks, Zlatic notes. With the help of automated shop-floor data collection, he says, "you can measure every minute" to pinpoint where precious time is being lost.

This highlights the fact that driving almost everything that happens in automated print production is software — the digital programming that substitutes for craft skills as press machinery becomes more self-directing. Doug Schardt, director of product management, Komori America, says that although an "iron guy" might argue otherwise, software now furnishes much of the intelligence that tells the press what to do and how to do it.

### Software vs. 'Void'

Longtime press operators may have "a lot of experience in their heads," but they take most of it with them when they leave, Schardt explains. Then, "that void of knowing what to do has to be filled by something, and software takes that role."

An example of software built to ▶



**The Speedmaster XL 106, 2020 generation, in a six-color, LYYL (coater, dryer, dryer, coater) configuration.**

Courtesy of Heidelberg.

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**The Rapida 106 X, shown with seven printing stations and dual coating units.**

Courtesy of Koenig & Bauer.



fill the void is EFT's eFlow Automator, which Zlatic describes as a business platform management system that can "listen" for various events in the progress of a job and build sequences of production steps around them. Detecting the approval of an estimate in an email message, for instance, Automator can then direct the plant's ERP system to set production of the job in motion. This could include reserving press time and even ordering the ink, Zlatic says.

Software, however, can't automate anything by itself: it needs machinery to initiate and carry out the sequence of events it has programmed. This means pairing it with printing equipment capable of turning streams of digital instructions into nonstop presswork — equipment built for automation all the way from the feeder to the delivery.

Haynes says the baseline features for automation in a flexographic press for packaging printing include "anything that will help you achieve top speed": not just of the press itself, but also of job setup, defect detection, and the management of production variables.

Walter Chmura, VP of technical sales, Koenig & Bauer (US), says a basic Rapida sheetfed press for packaging would consist of seven printing units (four process colors, three PMS) and a coating tower. An array of Koenig & Bauer technologies for enhanced productivity and quality can be added to this configuration. Some of the add-ons include traditional UV and/or LED-UV, plus an energy-saving infrared/hot air drying system; simultaneous plate changing; a camera-based plate

identification system to verify that the correct plates are being used; automated color control systems, such as in-line ink density measurement; and simultaneous washup of ink rollers, blanket cylinders, and impression cylinders.

Chris Manley, president of Graphco, the distributor of RMGT offset litho equipment in the U.S., says that RMGT offers fully autonomous production in the RMGT 970, the newest in its line of Series 9 presses. Automated job setup and plate changing, CCD camera inspection for quality assurance, and advanced feeder and delivery controls are among the features that enable the 25x38" LED-UV curing press to move continuously from job to job, Manley says.

**'You Still Need the Guy'**

However, there is yet no such thing as a 100% automated printing press. Schardt points to offset ink fountain washup during color changes as an example of a task "where you still need the guy." He says that although the step can be automated and accelerated up to a point, scooping residual ink from the fountains by hand will remain part of the drill — especially when the press "hasn't seen the color before."

Haynes sees some constraints on automation in flexographic printing for packaging. She says, for example, that making in-line color management on flexographic equipment as accurate and reliable as offline inspection "has been a tough nut to crack." She also notes elements of market resistance. One is the high cost of acquiring automated printing systems; another is operator apprehension about job displacement.

Once printers can be persuaded to embrace it, they will find automation an investment that delivers a return they shouldn't have difficulty measuring.

Clarence Penge, VP – sheetfed, Heidelberg USA, points out that because presses have the highest budgeted hourly costs of all production equipment, the principal payback will come from replacing two or three older presses with a new one that prints more sheets with less labor. His formula for press ROI is "more output in fewer hours with lower labor costs," along with waste reduction as "the icing on the cake."

Manley notes that when one new press replaces multiple legacy machines, "the ROI is apparent within the first 120 days of owning the press." Counting the labor that its automation saves, "you see the ROI almost instantly."

**Who Wants a Free Press?**

In Zlatic's view, quality achieved through workflow automation "is the biggest money-saver ever" because of the way it reduces failure points and repetitive touches; saves time and improves communications; speeds up the review and approval process; and cuts lead times. The net result of these gains, he observes, "is almost like getting an additional press for free."

Another measurable benefit of automation, according to Zlatic, comes from reducing the time it takes to convert the raw materials of packaging

**The new RMGT 970ST-5+CC+LED-UV (five colors with coater & LED-UV curing).**

Courtesy of RMGT.



into finished goods. He explains that speeding up the cycle with automated, just-in-time production means keeping less cash tied up in inventory — with a commensurate improvement in cash flow.

The automation features built into new presses and the software that drives them is making it possible to print with fewer people, some of whom won't necessarily have — or need — traditional printing skills. That means reevaluating what they do in the pressroom and finding new ways to put their abilities to the most productive use.

A shift in labor emphasis along these lines is probably inevitable. Printing, Penge concedes, is a shrinking industry that loses non-transferrable knowledge as veteran personnel leave it. And, as Schardt points out, "having the machine do the mechanical steps the press operator used to do" is the operational advantage that printers expect automation to deliver in the first place.

### 'Engaging' and Liberating

This isn't to be interpreted as the final curtain for print craftsmanship. "Automation does not take the skill out of running a press," Haynes declares. She admits that software-based automation routines could be "intimidating" to some operators. Nevertheless, she thinks that in most cases, automation will prove "engaging for them" by eliminating the repetitive, time-consuming production routines they traditionally were responsible for.

Haynes predicts that as automation enables operators to redirect energy from tending equipment to controlling quality, they will become "masters of the print itself." Then they will find it to be "a lot more freeing than they expected," she says. This is consonant with Schardt's belief that automation helps print personnel by giving them more "brain time" to inspect sheets and assure quality. "And, that's what we want them doing," he says.

The result could be a step up in stature for the press operator's job description, not a diminution of it. Chmura compares the operator's evolving role to that of "a commander in a space shuttle," where the automated Koenig & Bauer Rapida press is the launch vehicle and its ErgoTronic control console the "NASA" guiding the flight. Keeping watch over the "shuttle's" monitors, the operator presides as "the No. 1 supervisor" of the entire sequence, intervening only when something is wrong.

If Chmura is correct that this kind of automation represents the future of the industry, then it's a future to celebrate in advance. ■

*Patrick Henry is a senior editor for NAPCO Media's Printing & Packaging Group. He has covered the graphic communications industry since 1984 and is the recipient of multiple awards for industry education and service.*

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