

Addressing the Short-Run Packaging Reality

Technology, software, and other considerations for package printers and converters accommodating an increasing demand in short-run jobs.



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This article was originally published in the August 2021 issue of *Packaging Impressions*.

The influx of short run lengths has been a top-of-mind challenge in the packaging industry in recent years, as printers and converters strategize over how to efficiently and cost-effectively adjust to the ongoing trend. Digital printing has emerged as a go-to solution for these short runs, but when optimizing a workflow to contend with varying run lengths, it's not always as black and white as short runs being printed digital and long runs conventional.

Understanding the needs of individual jobs and customers, color management requirements, finishing and converting processes, and the software that drives it all, is imperative for package printers to succeed in this short-run reality. But because each package printer's book of business is different, there is no one-size-fits-all solution, and collaboration between converters and suppliers is essential to implementing a successful short-run strategy.

"If we talk about how the market educates itself or how do we help educate the market, the first thing any converter should ask of their supplier is to understand the business they're doing today," says Steve Lynn, director of labels and packaging for Durst, an inkjet press manufacturer. "Understand the pain points. Understand [package printers'] needs over the next three to five years before you start trying to recommend a solution."

Maximizing Digital and Conventional Printing

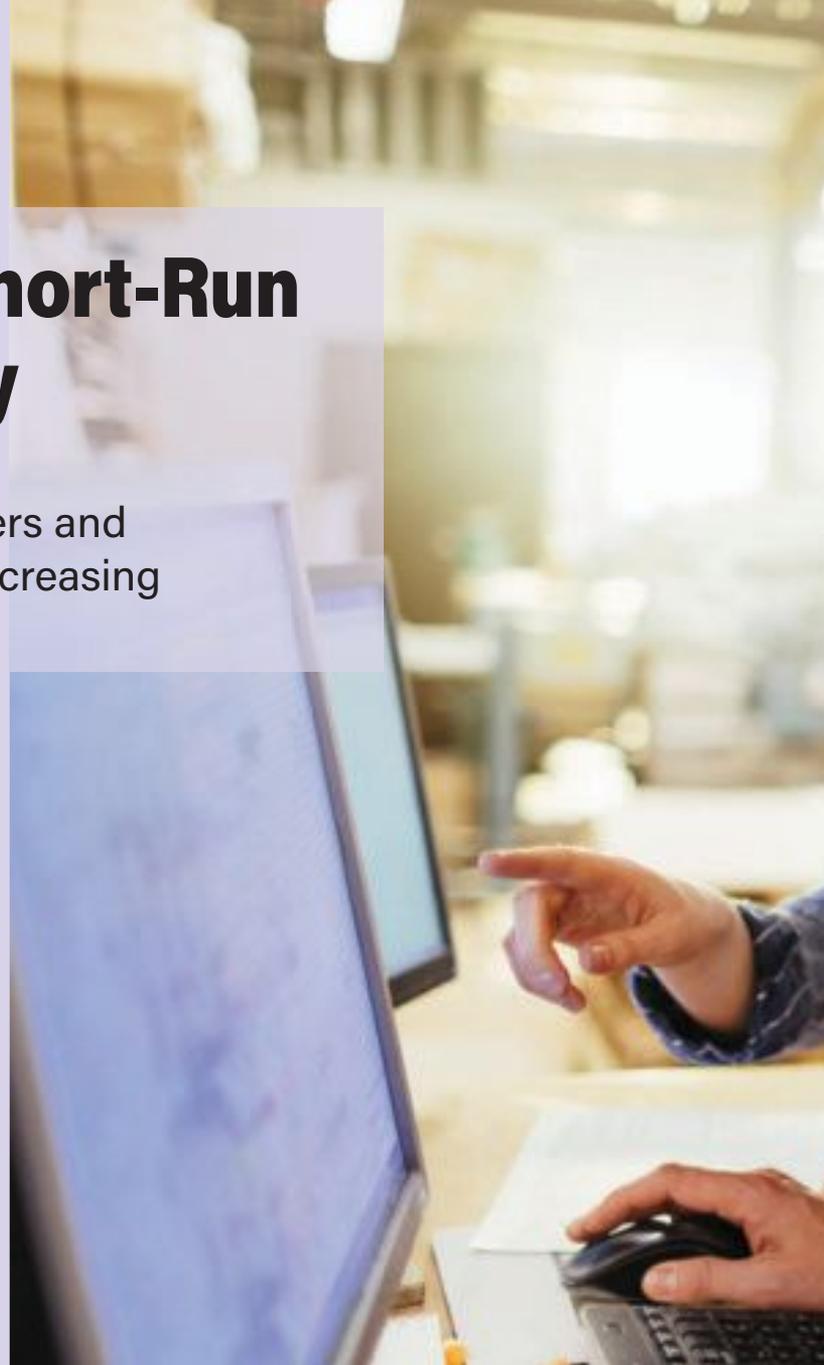
While evidence of run length reductions is prevalent across all packaging

segments, there is still plenty of high-volume work that printers and converters must contend with. Some of the impetus for these varying run lengths can be attributed to consumer behavior and their evolving preferences, as they shift away from the "center of the grocery store" and the major brands that inhabit that space, explains Bill Pope, VP of technical services, PRINTING United Alliance.

Pope, whose experience in the packaging industry includes various positions at major printers and converters such as Greif (Caraustar), Graphic Packaging International, and Hammer Packaging, explains that as consumers continue to shift their

support toward smaller companies that provide locally made, craft, or artisanal products, more stock-keeping units (SKUs) are introduced into stores, supplementing the high-volume products.

"There's still a lot of products out there — your cereals, chips, snacks, and other products that are high volume," Pope says. "So the decline in run lengths isn't so much about shorter run lengths for the sake of shorter run lengths. It's more about declining sales in some of those long-established products and the proliferation of new and alternative products. Add in the change in consumer buying habits, and you've got yourself a situation that pressures brand owners and





print suppliers to manage shorter run lengths.”

The traditional way of thinking about these run lengths, and whether to print with conventional or digital processes, Pope explains, is to assess the “crossover point” at which digital production makes more economic sense than conventional due to its almost non-existent makeready, quick changeovers, and low waste. This flexibility is particularly advantageous when it comes to these emerging brands, Pope adds, because they tend to have difficulty in forecasting the quantities they may need, and digital can eliminate the need for the traditional minimum order quantities.

So, despite conventional printing

offering a lower cost per piece above a certain quantity, Pope says savings from digital production can be found down the road through inventory reduction.

“What happens oftentimes is that packaging sits in a warehouse waiting to be used, then along comes a copy change of some sort — an ingredient panel, an update to the nutritional panel, or something else — and the brand owner gets stuck with all this obsolete inventory,” he says. “[Customers would] go back to the printers to replace it and they’d be throwing out quite a bit of packaging. ... While the price per piece was less with conventional printing, the total spend at the end of the year was more because

they had to buy higher quantities. But with digital, even though the price per piece is typically higher, when you can order lower quantities and more on-demand, you keep your inventories down lower, throw away less packaging, and have lower packaging costs over time. And, you can respond more quickly when changes come along.”

While digital has undoubtedly provided an important tool for printers and converters to tackle short runs with added flexibility, Pope says conventional press manufacturers are not sitting still, and have also enhanced their products’ ability to compete in a world of reduced run lengths.

“Press manufacturers have done a very good job of automating so

many aspects of the makeready process — feeder and delivery setups, plate changing, and closed-loop-color,” he says. “About the only manual thing an operator has to do with these newer presses is scoop the ink out of the fountains when there’s a color change. And even then, with servos and the ability to decouple print decks, a unit can be washed up and have the ink changed while the rest of the press is running. We’re seeing makereadies in well under 10 minutes now, and even less than five minutes in some cases, and with sheet counts well under 100 sheets getting up to color and to a saving condition.”

Meanwhile, in the label segment, the introduction of hybrid presses that combine inkjet and flexographic technology with in-line finishing and converting functions has presented an interesting component to the short-run conversation. However, Lynn explains that in some instances, these high-power hybrid presses have proven to be less effective in true short-run production than their roll-to-roll pure digital counterparts, and are better suited to medium-to-long-sized runs.

“One unique angle on this is a lot of people bought digital for short run over the last three or four years,” Lynn says. “And when they bought that digital asset, they were excited by digital being able to be purchased in a hybrid configuration, putting flexo, lamination, and diecutting in-line. What we’re seeing is people who invested in that technology are finding that it isn’t perfectly suited for pure short run. So when they’re buying their next digital asset, they’re going for roll-to-roll only without the in-line hybrid, because webbing up an in-line hybrid and the setup time doesn’t actually lend itself ideally to pure short-run work.”

Where hybrid thrives, Lynn explains, is in medium- to long-run work that requires the flexibility that digital provides.

“For example, we recently had a customer that bought a piece of equipment where a long-term customer wanted a long run of a standard label that had a foil and white on it, and then a regularly changing graphic on top of the white,” he says. “Now, that lends itself to hybrid perfectly. They can set up the press, drop down a foil, and then put a flexo

white on it that keeps the cost down because flexo white is less than digital white. Then the digital engine can drop a varying image onto the preprinted flexo piece.”

Automation software is another advantage that printers and converters can have at their fingertips when strategizing between conventional and digital. Rather than having to manually calculate the cost components of each job as it pertains to multiple technologies, software solutions such as Esko’s Automation Engine can drive those decisions, helping converters stay efficient through short-run production.

“You’re not having to manage multiple files throughout that process,” Paul Land, product manager at Esko, says. “It’s just that single file, and the system knows that this separation is going into flexo and is able to form the necessary actions that will be sent to platemaking for example, or likewise going onto the digital press.”

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Courtesy of Esko.

The Color Management Conversation

In addition to an increased demand for shorter run lengths, brand owners remain highly color-conscious, placing a discerning eye on the accuracy of their brand colors being printed on their labels and packaging. The use of spot colors in conjunction with process printing can ensure an accurate laydown of a brand color, but when it comes to short-run production, it can be a hindrance.

For example, Jan De Roeck, Esko’s marketing director – industry relations and strategy, explains that when producing multiple short-run jobs, reducing changeover times is imperative. When spot colors are involved, this means removing the plate, changing out the ink in the ink station, and removing the ink from the press entirely. This, he says, could take 20 to 40 minutes per spot color ink station, depending on the press.





While in-line finishing has its distinct advantages, there are times when being able to efficiently print multiple short run jobs, and then finish them offline, is a better fit for a converter's job mix.
 Durst Tau 420 RSCI image courtesy of Durst.

A solution to this predicament is implementing an expanded gamut color space, typically in the form of adding orange, green, or violet to the traditional CMYK. Though some brand owners may be adamant about a spot ink being utilized to produce their brand colors, others may be more open minded to expanded gamut, which can reproduce the vast majority of Pantone colors.

“What if you would print in a color gamut that consists not only of four inks, but you would add at least two or three inks to ‘expand’ the color

gamut?” De Roeck says. “You would leave those inks on the press the entire time. You never have to clean any of your ink stations anymore and you have a color space so wide that most, if not all, brand colors that you need to reproduce fit well within this expanded color gamut. So the press crew no longer needs to clean the printing press. They only need to change plates and they can print whatever job they want.”

Through the use of dedicated prepress software, De Roeck explains that users can reparate the package

or label artwork from CMYK to CMYKOGV. This added effort in prepress helps ensure color accuracy in expanded gamut, he adds, and automating this process provides benefits in short-run production.

Pope further explains that today's expanded gamut systems yield such a large color gamut that the need for spot colors is greatly reduced. “The vast majority of PMS colors and custom brand colors can be accurately reproduced with expanded gamut,” he says.

Expanded gamut advantages carry over to digital printing as well, adds

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Pope, where spot colors are utilized. He says that in his experience with the HP Indigo 30000 digital press, utilizing the orange, green, and violet colors virtually eliminated the need for ordering costly spot inks with long lead times, and allowed for matching the desired brand colors very closely.

It may not have always been a 100% match, but Pope explains that the savings in both time and cost tended to offset any color concerns.

“Is it perfect? No. But when customers looked at the cost of having to order a special ink and the extra cost of the changeover, it just doesn’t make sense,” he says. “People are nervous about getting into expanded gamut, but it just makes so much sense economically. Those that have gotten into it, if they can get their customers to agree to it, they get to reap all the savings and reduce their cost.”

The Finishing Touch

While much of the success of short-run production is dependent on the printing equipment, finishing and converting processes are essential elements to consider when churning out jobs at reduced run lengths.

For example, when printing multiple jobs digitally, label and package printers may find they encounter bottlenecks during the converting process, having to conduct the changeovers on conventional finishing equipment that they did not have to do during digital printing. In these instances, investing in digital finishing equipment can help maintain the efficiencies gained in digital printing.

However, Pope explains that in situations where a brand is producing multiple SKUs, but the size and structure of the finished package remain the same, conventional finishing equipment that operates at high speeds can certainly handle the job.

“If you’re going through a straight line gluer and it’s the same structure, the gluer doesn’t care what the graphics are or what the print was,” he said. “They just care about the physical structure.”

Lynn explains the importance of OEMs understanding a converter’s specific need before recommending one technology over the other (e.g. roll-to-roll vs. hybrid). While in-line finishing

The Personalization Conversation

While reduced run lengths have become commonplace throughout packaging, the ability of digital printing technology to produce one-of-a-kind packages has introduced intriguing new opportunities for brand owners and consumers. Here are some examples of how packaging can connect directly with consumers:

- **Milk-Bone:** Recently highlighted on the *Packaging Impressions* video series “Package of the Week!”, Milk-Bone has launched a customizable folding carton for pet owners to have their dog’s picture printed on a package. By simply uploading a photo to the Milk-Bone website, consumers can receive a package of dog treats featuring their pet front and center. Zumbiel Digital, a Hebron, Ky.-based folding carton printer, has been producing these packages on its Kodak PROSPER 6000S digital press.
- **Share a Coke:** Perhaps the most widely recognized personalized packaging application, when The Coca-Cola Company’s “Share a Coke” campaign first burst onto the scene, consumers were delighted to find labels that bore their name. In the early days of this initiative, however, finding your own name on a bottle was truly a luck of the draw, depending on what was on shelf. Today, the Share a Coke initiative lives on, and consumers can specially order bottles with a variety of themed graphics and — most importantly — a custom-printed name or phrase on the label.
- **Oreo:** Another major brand at the forefront of customized packaging, Oreo made waves in recent years with its Colorfilled packaging initiative. This packaging concept was launched in 2015 and coincided with the holiday season. The packages featured a distinct design, and through an online portal, consumers could color their custom package with a “digital paintbrush.” Through a collaboration with HP Indigo, these custom packages were digitally printed and then shipped to the consumer.
- **The BoxMaker:** This corrugated printer based in Kent, Wash., has opened a custom print division it has dubbed Fantastapack. Through the online Fantastapack portal, users can custom design a variety of boxes, choosing the exact quantity they need. Custom artwork, photos, and text can be applied via the online tool, and to ensure design accuracy, users can benefit from the 3D viewer that allows them to rotate the box in all directions.

has its distinct advantages, he says there are times when being able to efficiently print multiple short-run jobs, and then finish them offline, is a better fit for a converter’s job mix.

“We try to educate the sales team to not force anything down anybody’s throat until you completely understand their application and need,” he says. “Then we can offer both solutions based on understanding the exact need. We can do roll-to-roll and we can do hybrid and it can be a very specific reason why you’d want to do one or the other.” ■

Cory Francer is a research analyst with NAPCO Research, a division of NAPCO Media. From 2014 to 2021, he served as editor of Packaging Impressions magazine, helping grow the publication in print and beyond, and positioning it to serve as the leading source of industry news and information for all packaging segments and printing technologies. Francer received his bachelor’s degree from Ithaca College in 2010 and a master’s degree from Temple University in 2018.