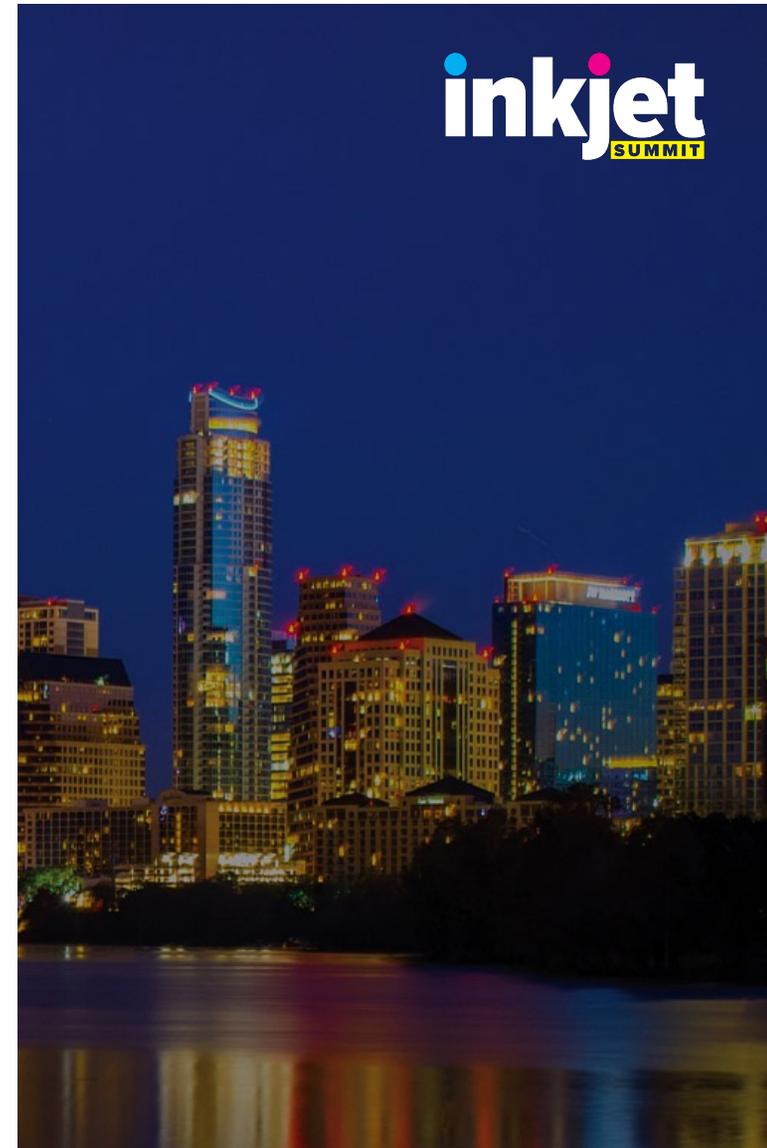


The Role of Inkjet Printing in Powering Industry 4.0 in Book Publishing



SPEAKING TODAY



Nathan Safran
Vice President, Research
NAPCO Media



Matt Baehr
Executive Director
Book Manufacturers Institute

Introduction

ABOUT NAPCO RESEARCH

- Division of NAPCO Media, parent company of *Printing Impressions, In-Plant Impressions, Packaging Impressions* and *Wide-Format Impressions*
- NAPCO Research surveys its highly engaged audiences to:
 - Produce Strategic Research
 - Identify Market Trends
 - Generate Insightful Research Studies
 - Develop Research-Based Thought Leadership Programs
 - Build Training Programs



NAPCO Research Clients

RICOH

Canon



FUJIFILM

HEIDELBERG

gallus

MBO
AMERICA

INX

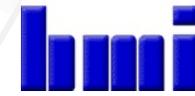


XEIKON

SCREEN



Who is BMI?



- **THE** trade association focused on the manufacturing of the printed book
- Founded in 1933
- Represent both the manufacturing side as well as supplier side
- Mission: BMI supports book manufacturing leaders in their work to drive the promotion, efficiency, and growth of book markets for readers and educators in North America.

Agenda

- Book Publishing Trends
- Inkjet Research
- Conclusions

Trends

- **Paper Market Questions**
 - **Capacity reduction – shift to packaging**
 - **Input Prices Rising (pulp, transportation)**
- Labor Challenges
- Transportation and Freight Challenges

Printer Closures and/or Bankruptcies

Printer Closures:

- Central Florida Press, Orlando, FL (2017)
- Quad/Graphics - Waseca, MN (2017)
- Quad/Graphics - Taunton, MA (2017)
- LSC Communications - Long Prairie, MN (2018)
- Quad/Graphics - Dallas, TX (2018)
- Edwards Brothers Malloy (2018)
- Pinnacle Press, Hayward CA (2018)
- Jones Printing, Chattanooga, TN (2018)
- T+J Graphic Arts, Redwood City, CA (2018)
- Ace Printing, San Rafael, CA (2018)
- Quad/Graphics - Hazleton, PA (2018)
- Vanguard Printing, Ithaca, NY (2018)
- James E. McGirr, Plymouth, MA (2018)
- Bethany Printing Company, Bethany, MO (2018)
- Quad/Graphics - Franklin, KY (Q1 2019)
- LSC Communications - Lynchburg, VA (Q2 2019)
- McCormick Armstrong, Wichita, KS (Q1 2019)
- North American Communications, Duncansville, PA (Q2 2019)
- Torstar Corp, Hamilton, ON, Canada (Q3 2019)
- Amsterdam Printing & Litho, Amsterdam, NY (Q2 2019)
- Quad - Midland, MI (Q3 2019)
- LSC Communications - Torrance, CA (Q3 2019)
- Quad - Shakopee, MN ((Q3 2019)

Printer Closures - Continued:

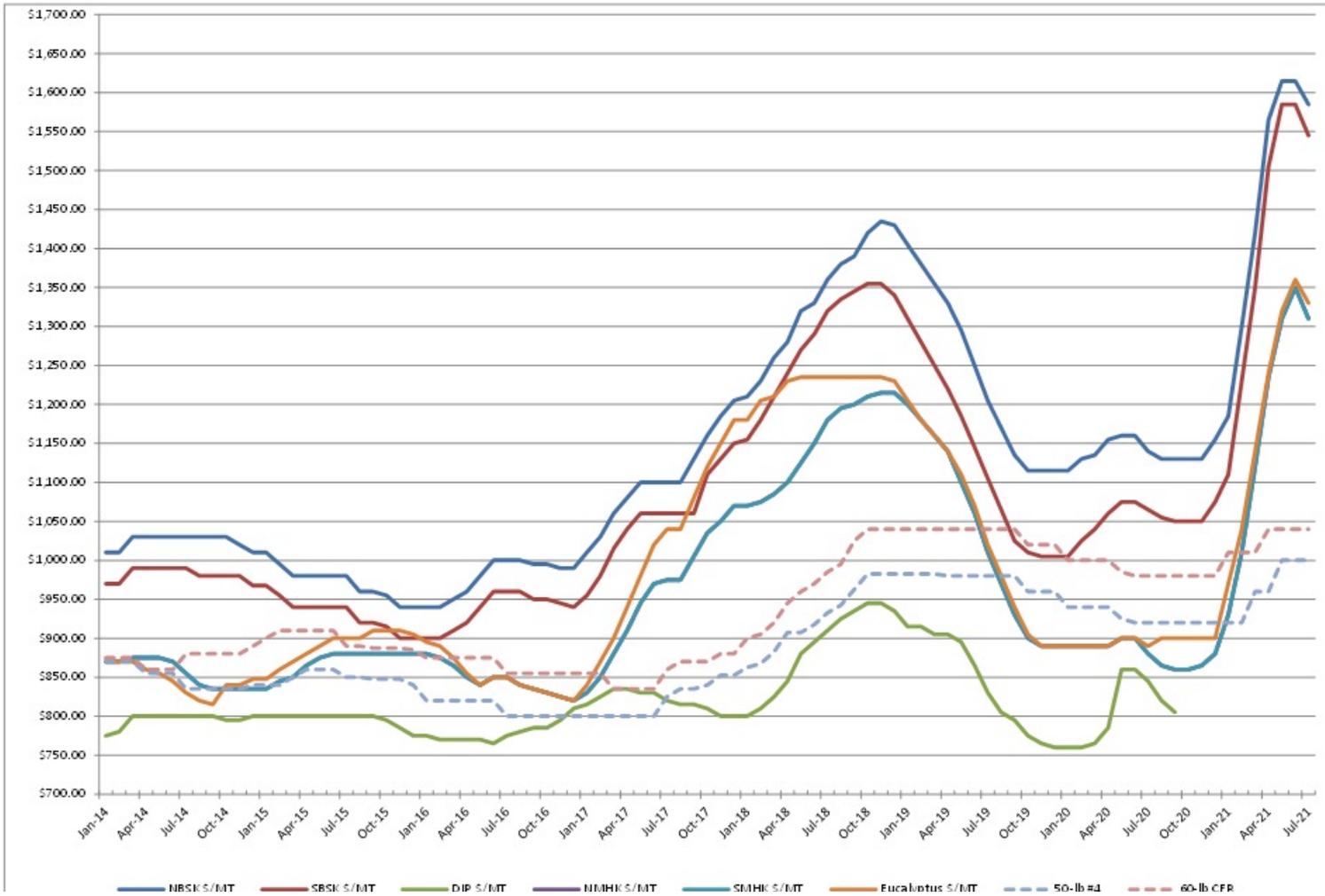
- Sentinel Printing, St. Cloud, MN (Q4 2019)
- LSC Communications - National Pub, Philadelphia, PA (Q4 2019)
- Quad - Riverside, CA, Portland, OR and Charlotte, NC (Q1 2020)
- Whitehall Printing Company, Naples, FL (Q1 2020)
- LSC Communications - Strasburg, VA, Glasgow, KY and Mattoon, IL (Q3 2020)
- Sinclair Printing, Los Angeles, CA – winds down operations (Q1 2020)
- Cenvéo - Cadmus, Richmond, VA (Q2 2020)
- Thoroughbred Printing, Lexington, KY (Q2 2020)
- Jostens, Visalia, CA (Q4 2020)
- RRD Hennegan, Florence, KY (Q3 2020)
- Arandell, Walton, KY (Q3 2020)
- LSC Communications – Kendallville, IN (Q4 2020)
- Quad Oklahoma City (Q1 2021)
- LSC Spartanburg, SC (Q1 2021)
- RRD Lewisburg, PA (Q4, 2021)
- SCNG Anaheim, CA (Q1 2022)

Printer Bankruptcies:

- Boss Litho, Inc. City of Industry - Chapter 11 Filing (2018)
- Cenvéo, Inc. - Chapter 11 Filing (2018)
- Medallion Press, Inc. – Chapter 7 Filing (2018)
- Scheffer Printing, LLC – Chapter 7 Filing (2020)
- LSC Communications – Chapter 11 (2020)
- Arandell – Chapter 11 (2020)

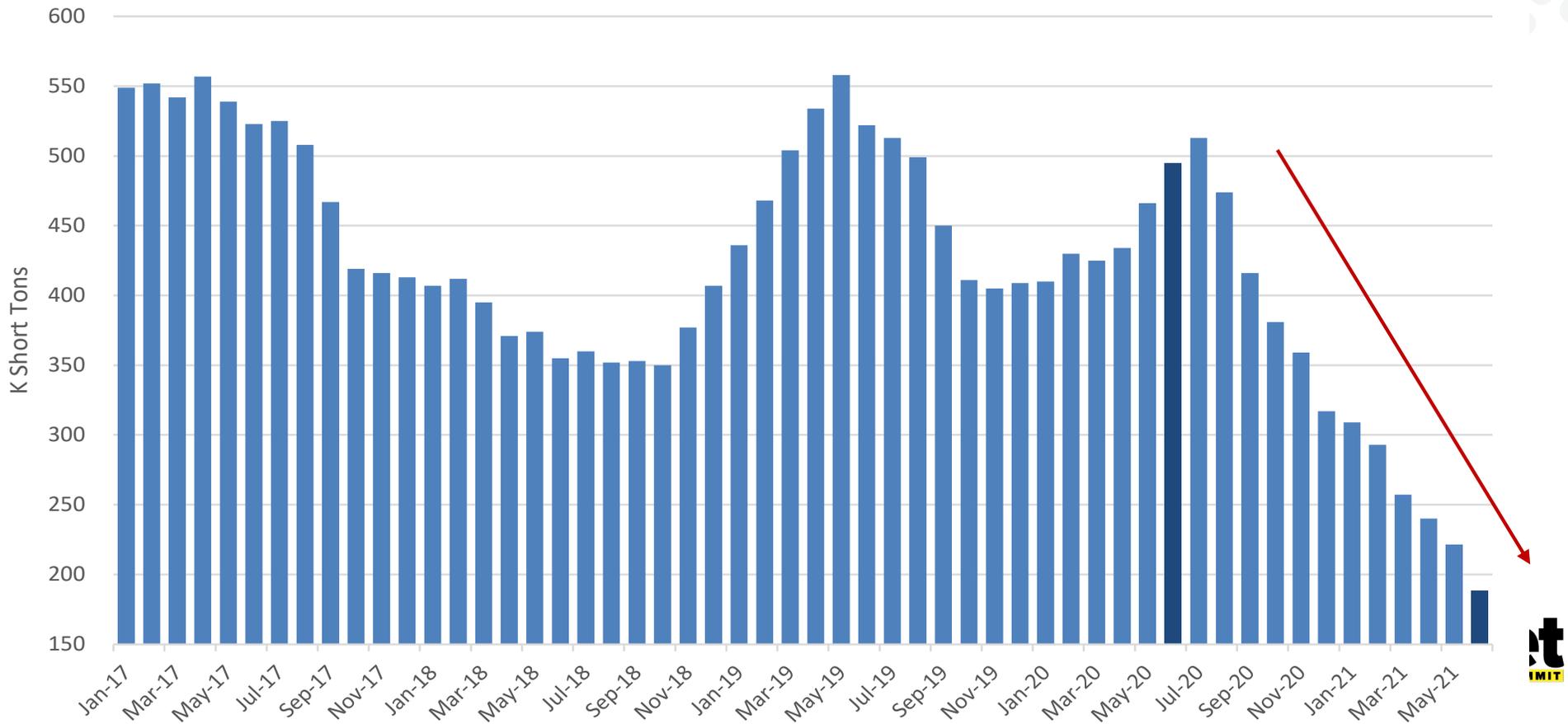


North American Pulp Prices



North American CFS Inventory

NA CFS Mill Month-End Inventory

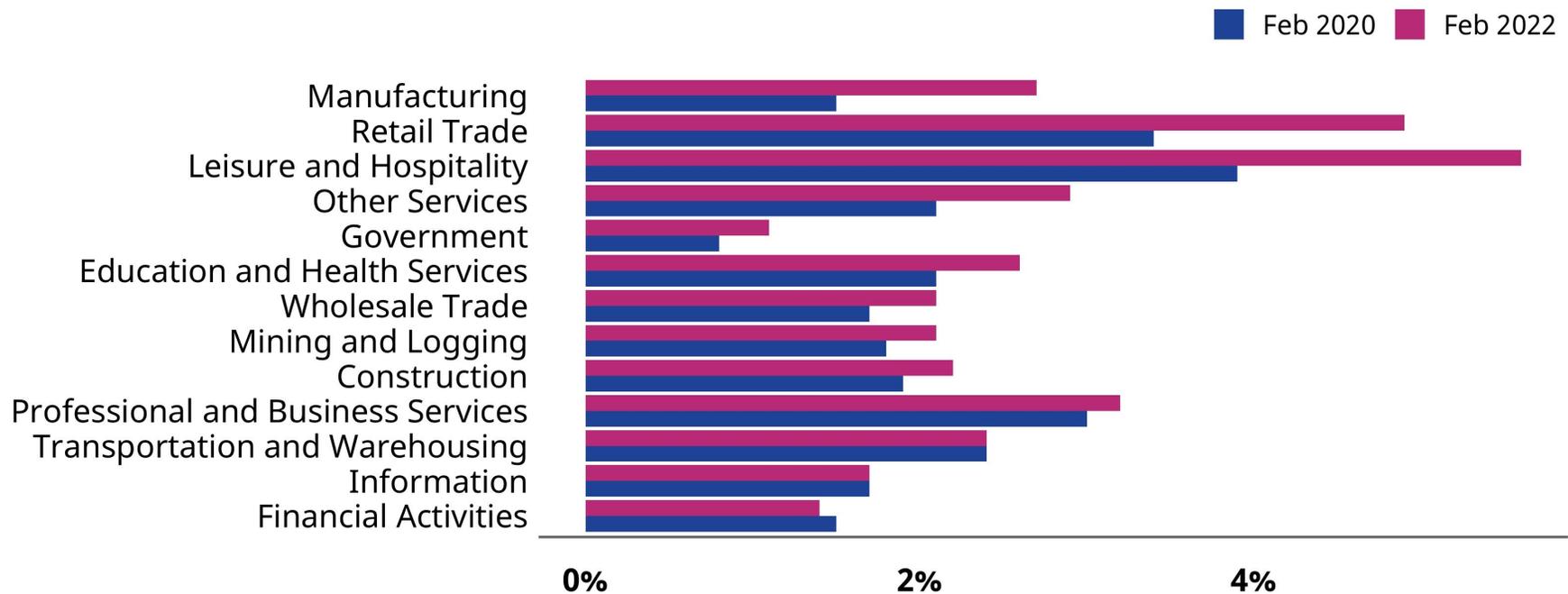


Labor Challenges

- Covid caused early retirement
 - Estimates of 1.2M+ over 55 that left the workforce
- Not enough in the workforce
 - BLS February #s show 6.3M unemployed, but 11.3M open jobs
- Workforce participation is still down
 - Proportion of adults 16 or older who are employed or looking for a job is at 62.3% (February) while it was 63.3% in Feb 2020.

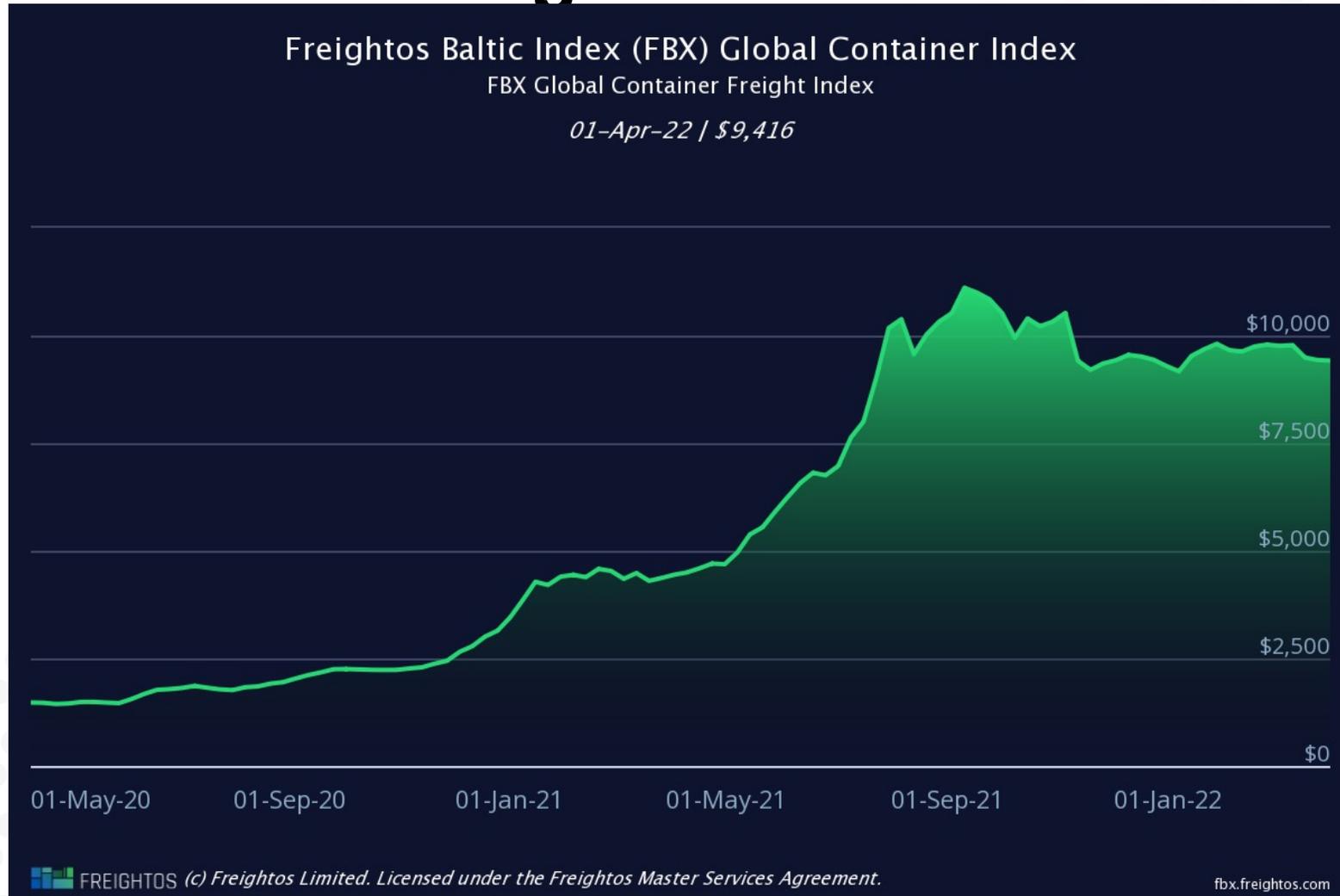
Quits rate by industry sector

Quits rates, ordered by % chng since Feb 2020

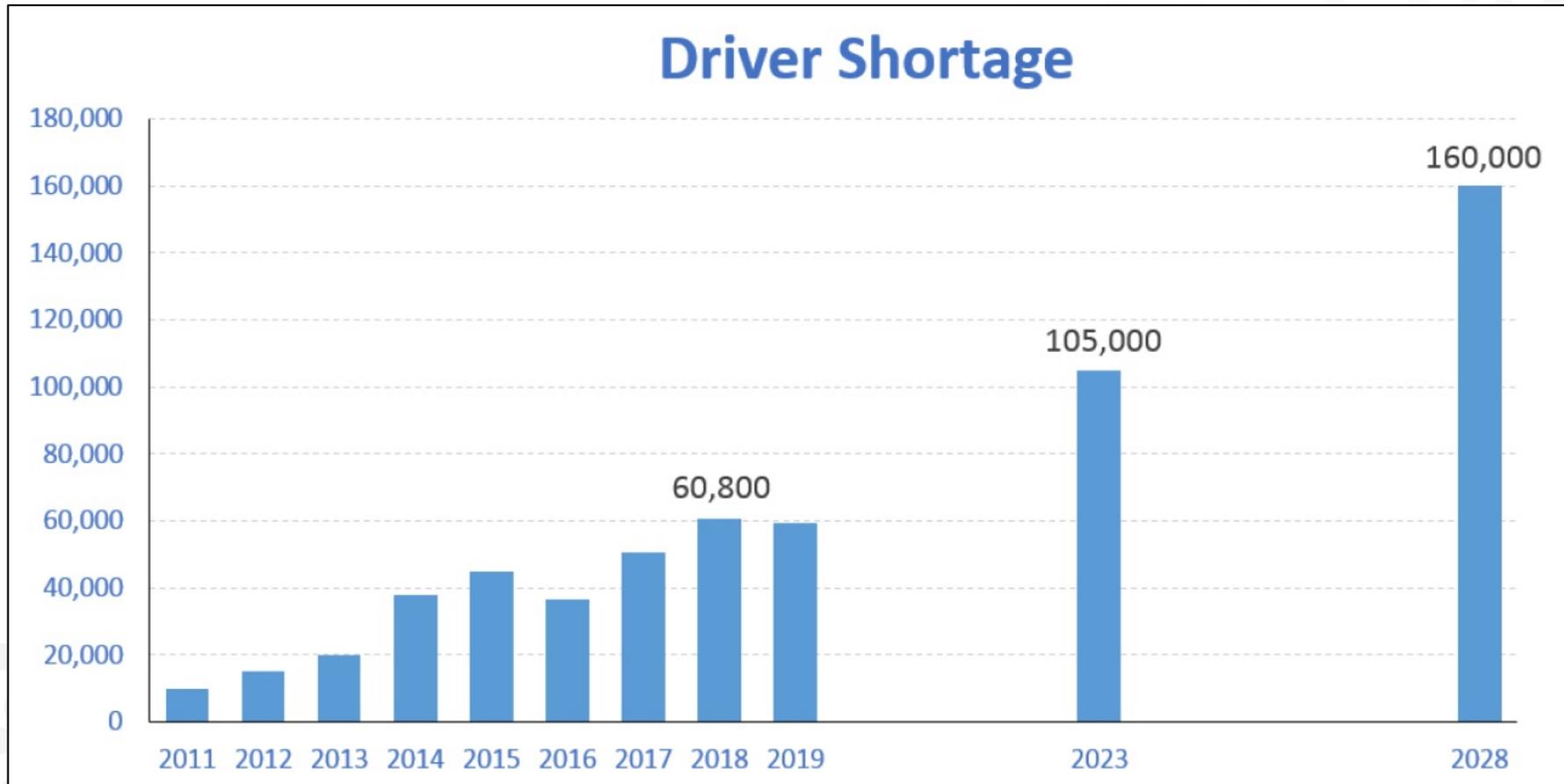


Source: BLS

Container Pricing



Truck Driver Shortages Challenging Many Industries



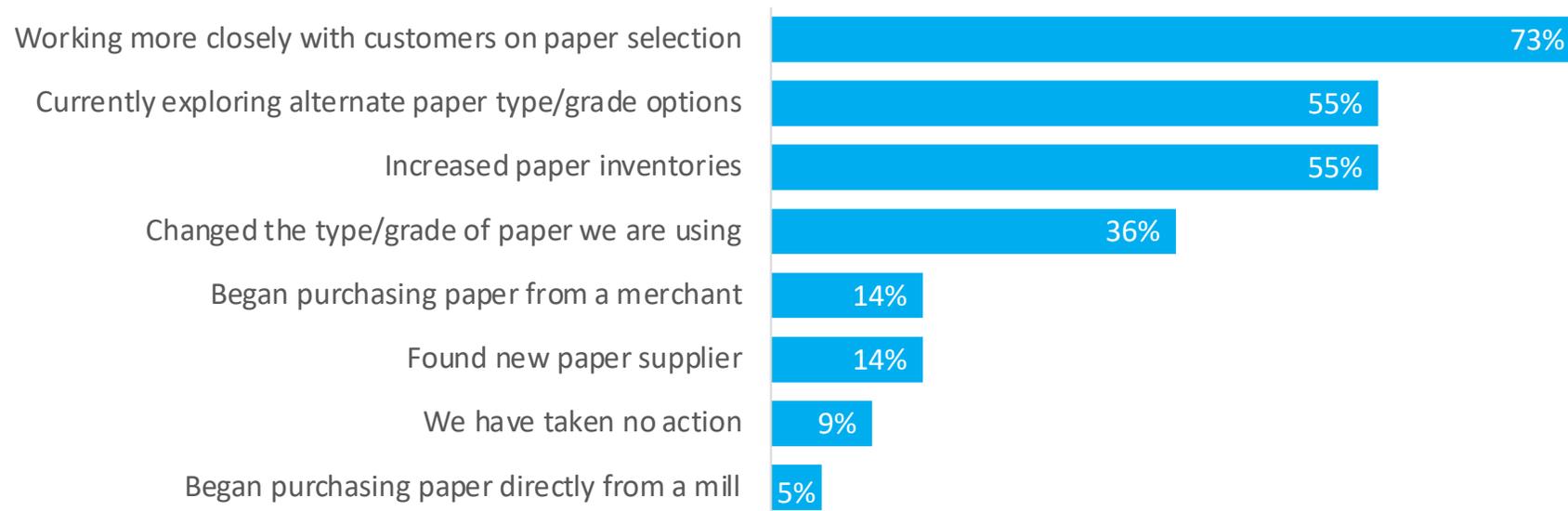
Connect with BMI

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- 386-986-4552

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Actions Book Printers are Taking in Response to Paper Supply Disruptions

Q. Which of the following actions have you taken in response to recent disruptions in paper supply and price increases?



Actions NAPCO Research Panel Members are Taking (1 of 3)

- **Building inventory**

The most widely taken action, by far: *“We are buying anything and everything we can – it’s that simple.”* Purchases are made in quantity – *“We are buying two times what we need twice as often”* – and early – *“We are buying paper at the client’s interest stage and not waiting until the last details are set.”*

- **Keeping clients informed**

The second most widely taken action includes presenting the facts, encouraging clients to plan jobs far in advance, and exploring substrate and production alternatives.

One SOI Panel member explains that *“our sales team continually preaches prudence and long-range planning. Our marketing outreach is from a position of market leadership, telling the unvarnished facts before others, advising advance planning, providing realistic options, and communicating often.”*

- **Adjusting prices frequently**

We heard about *“print estimates going out to customers being valid for 10 days,”* increased markups on specialty stocks and materials, and price adjustments to compensate for the substantial increase in time devoted to procurement.

Actions NAPCO Research Panel Members are Taking (2 of 3)

- **Capitalizing on strong supplier relationships**

Many we surveyed identify this as their most effective defense against the crisis. They meet regularly with suppliers to discuss future material requirements and alternatives, expected price increases, allocation formulas, and everything else about current and expected supply-chain conditions

“We are taking advantage of a longstanding relationship with our vendors, and they have been there for us. I have always said that you need a solid relationship with your vendors as you need to have with your client. I have been criticized for this over the years and it is paying off now.”

- **Capitalizing on supplier diversification.** This has also been very effective:

“More than anything we are glad we kept multiple suppliers. We are using all of them to get what we need.” But options are limited because many suppliers are not accepting new customers.

- **Expanded internal communications.** Meeting weekly with purchasing, estimating, scheduling, production, sales, and customer service to discuss material availability and pricing, substitution options, how the supply chain crisis is affecting customers, and how to minimize those effects. One company president is also *“educating my staff that this is a brave new world and the inclination to think the problems at hand are static and temporary are both mistakes.”*

Actions NAPCO Research Panel Members are Taking (3 of 3)

- **Networking.** A few in our research group are partnering with members of their trade associations, peer groups, and other local printers to share supply chain intelligence, storage space, and even materials and supplies.

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Supply Chain Resources

Surging demand, supply chain disruptions and sharply rising costs have significantly affected the economics of our industry. PRINTING United Alliance is continuously monitoring the supply chain situation and we are working on your behalf to minimize the impact of these issues. The **Supply Chain Resource Channel** has up-to-date information regarding our supply chain and recommended articles to help you remain resilient in a disrupted market.

MEET OUR EXPERTS

Analysis

PRINTING United Alliance is committed to providing its members with timely, accurate analysis of paper related supply chain disruptions.



State of the Industry: 2022 Outlook

Most virus restrictions have been lifted and business has resumed, but the print and press industry continues to grapple with the ongoing (long-term) effects of the pandemic: inflation, energy shortages, staffing challenges and more. Print + Press Marketing Magazine breaks down the big issues to watch for the rest of 2022.



Shortage of Paper Endangers Rebound of Graphic Industry World-Wide

Several members of the World Print & Communication Forum (WPCF) warn that the current paper shortage will have severe repercussions in the supply of print products for all economic sectors and endangers the rebound of the graphic industry after the pandemic.



Roundtable With Prominent Lawmaker on Capitol Hill Addresses Widespread Paper Shortage in the Printing Industry

PRINTING United Alliance took to role seriously as the largest member-based printing and graphics association in the U.S. to advocate and draw attention to the ongoing scarcity of printing grades and stockmaking paper prices, so supply levels fail to keep up with overall industry demand.



Addressing the Challenges in the Paper Supply Chain

It seems businesses are finally bouncing back after the past two years of the pandemic. However, even though business is picking up, there is one glaring issue: The availability of paper stocks has become limited and unaffordable, and as a result the price of paper stock is inevitably increasing.



Shipping Prices Could Be About to Skyrocket (Again)

The average cost to ship a 40 ft. container from China to the U.S. West Coast could soon hit up to \$8,000 for a yearling freight contract, a record high and a significant increase over last year's average of \$5,500.



Planning Ahead to Address Paper Supply Challenges

Business is picking up, but the availability of paper stocks has become more limited and unpredictable, which in turn has caused paper prices to increase. Supply chain issues have been making headlines across various manufacturing segments, and the printing industry is no exception.

1 2

Research

PRINTING United Alliance conducts research to help you gain perspectives on mitigating supply chain disruptions and offsetting risks.



Infographics

Download the Supply Chain Shock Infographic by Recharge.

PRINTING United Alliance Supply Chain Resource page

printing.org/library/supply-chain-resources

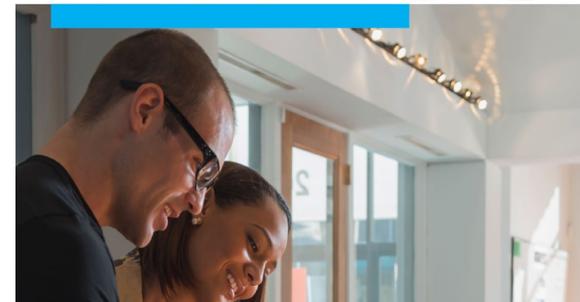
- Ongoing research into market conditions
- Insight into how printers are responding to ongoing challenges
- Expert insights



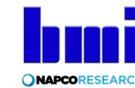
Inkjet Research

BMI – NAPCO RESEARCH BOOK PRINTING INKJET STUDY

- Identify how book printers are researching, adopting, and deploying inkjet equipment
- Define key inkjet investment drivers and barriers
- Gauge book publishers' awareness and use of automation software and equipment for digital book finishing
- Define key finishing equipment investment drivers (new to 2021 study)
- Understand how book printers are reacting to the latest paper supply chain disruptions (new to 2021 study)
- Survey fielded in Q3 2021
- 30 book printer responses



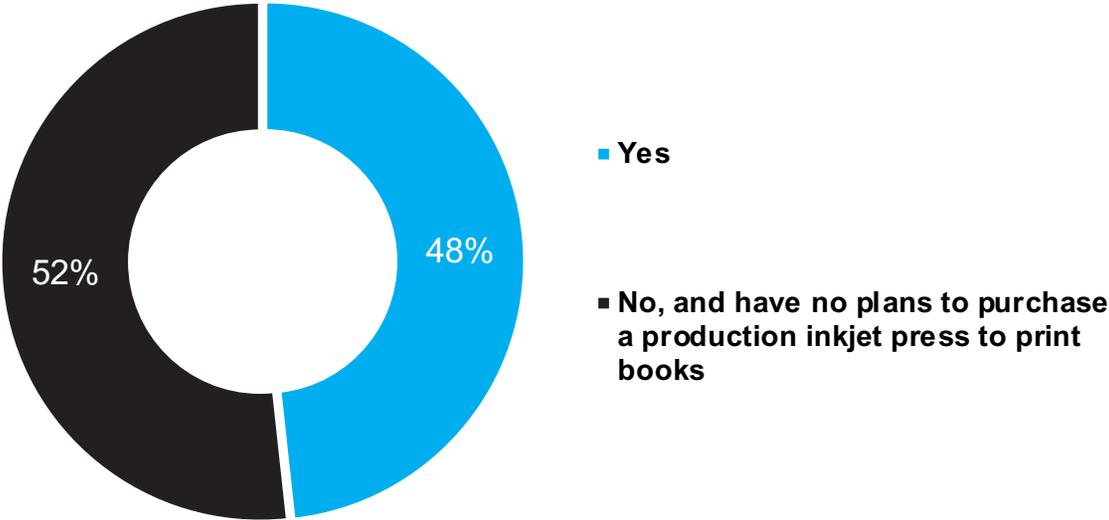
The Role of Inkjet
Printing and Automation
in Powering Industry 4.0
in Book Publishing



inkjet
SUMMIT

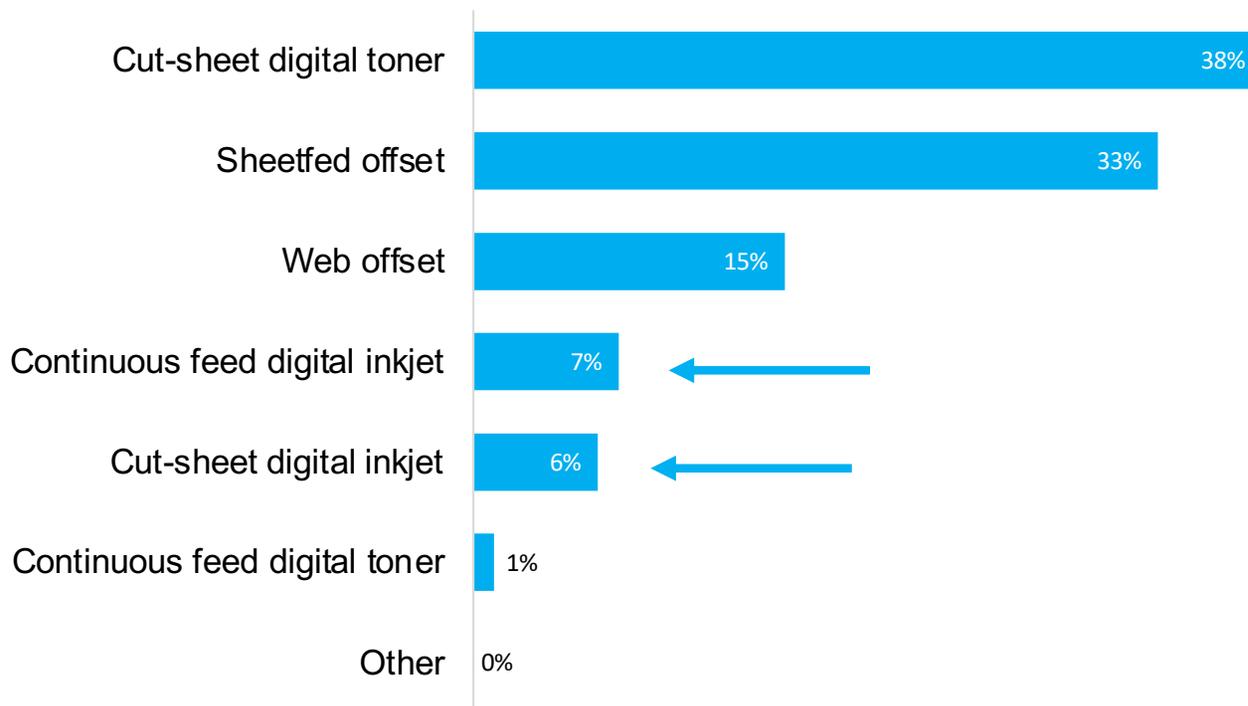
Nearly Half of Book Printers Using Production Inkjet Presses to Print Books in Their Organization....

Q. Do you print books on PRODUCTION INKJET presses (not wide-format printing equipment)?



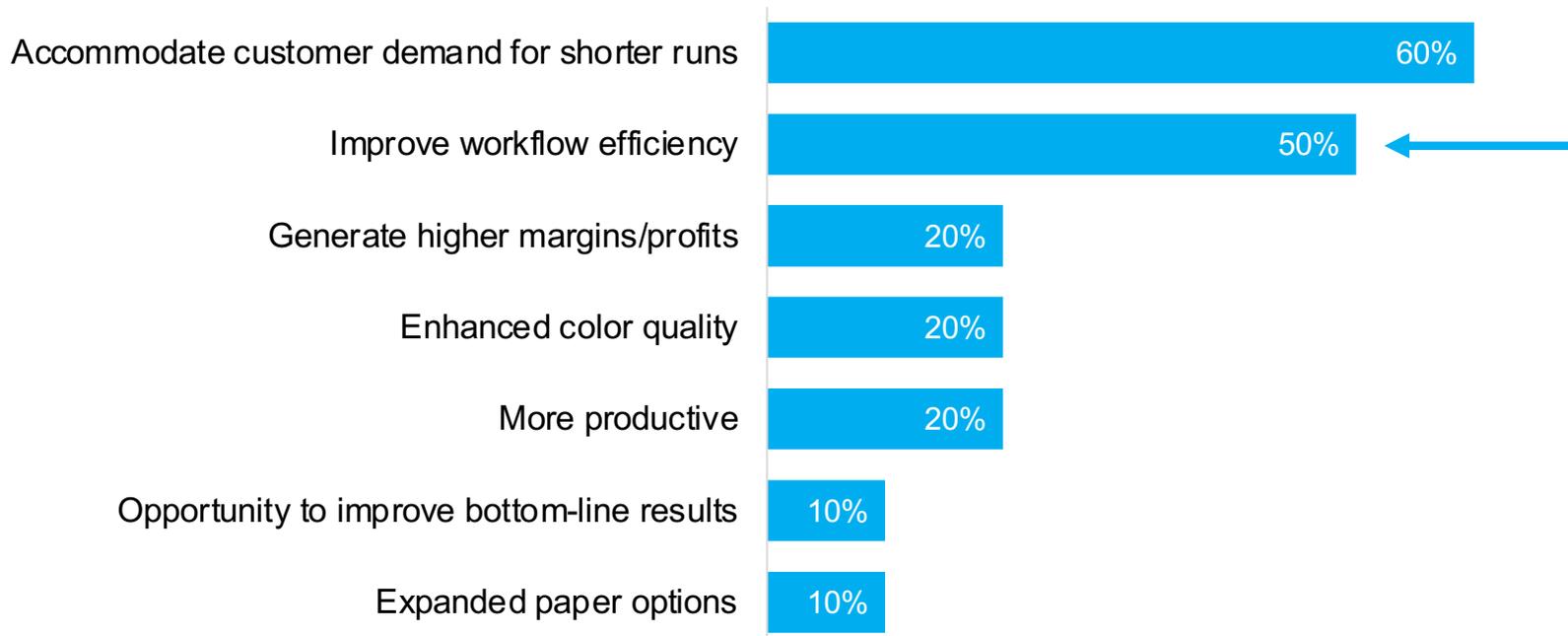
...But, only 13% of work is currently run on digital inkjet

Q. Of the books you print TODAY, what percentage are produced via the following printing methods?



Half of Production Inkjet Owners are Looking for Workflow Efficiency

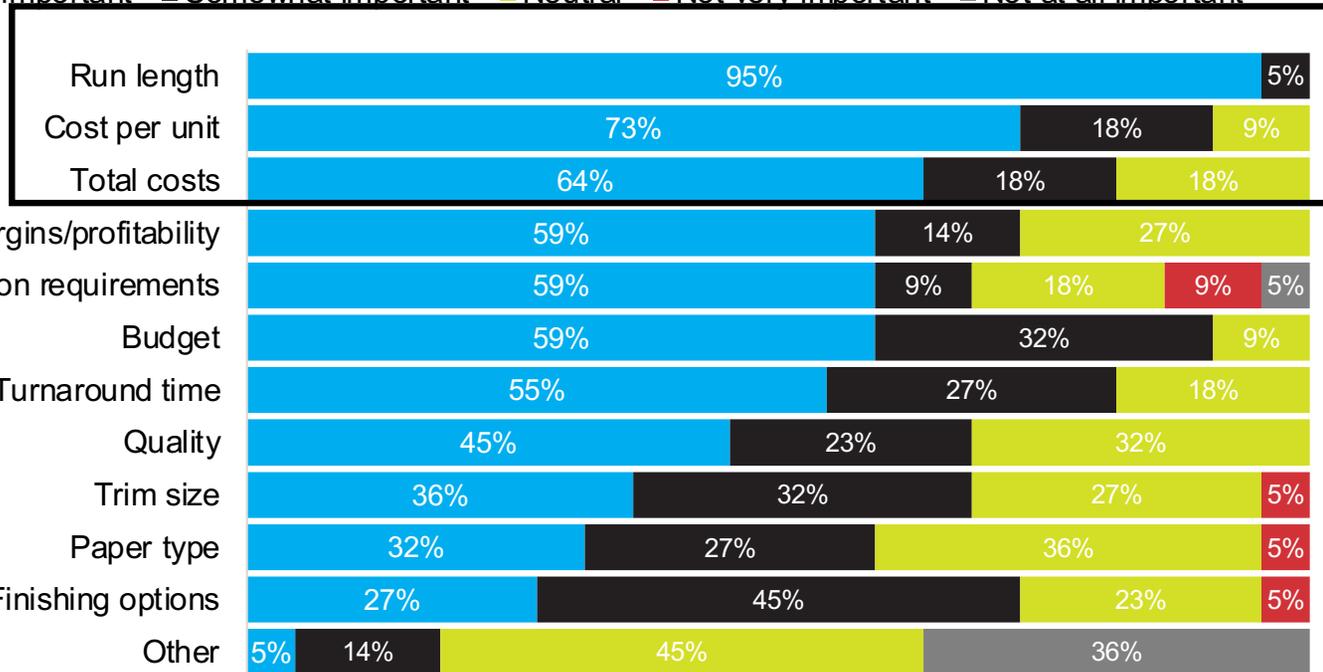
Q. What are the top three reasons you purchased or are considering purchasing a production inkjet press for book printing?



Run Length & Costs Key Drivers for Where a Job is Run

Q. What are the key decision factors in deciding between printing a book on an offset versus digital press?

■ Very important ■ Somewhat important ■ Neutral ■ Not very important ■ Not at all important

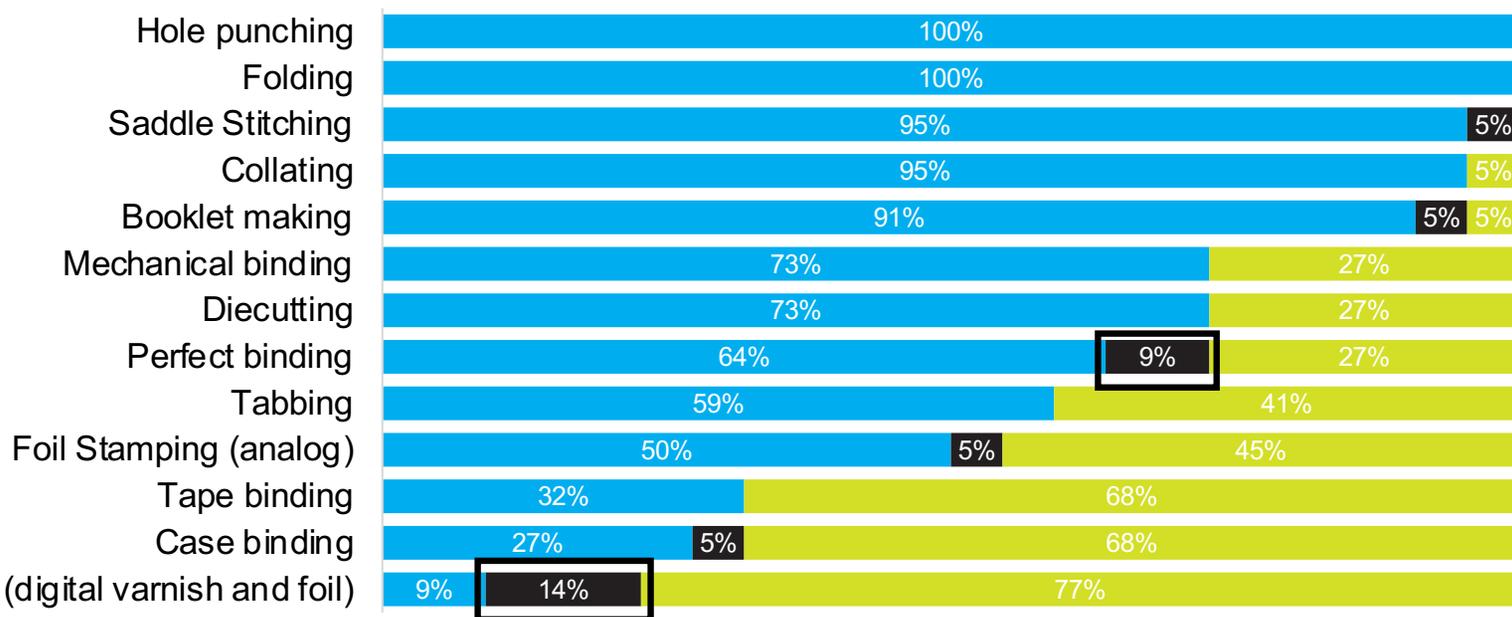


Finishing

Digital Embellishment & Perfect Binding top Finishing Investment Areas

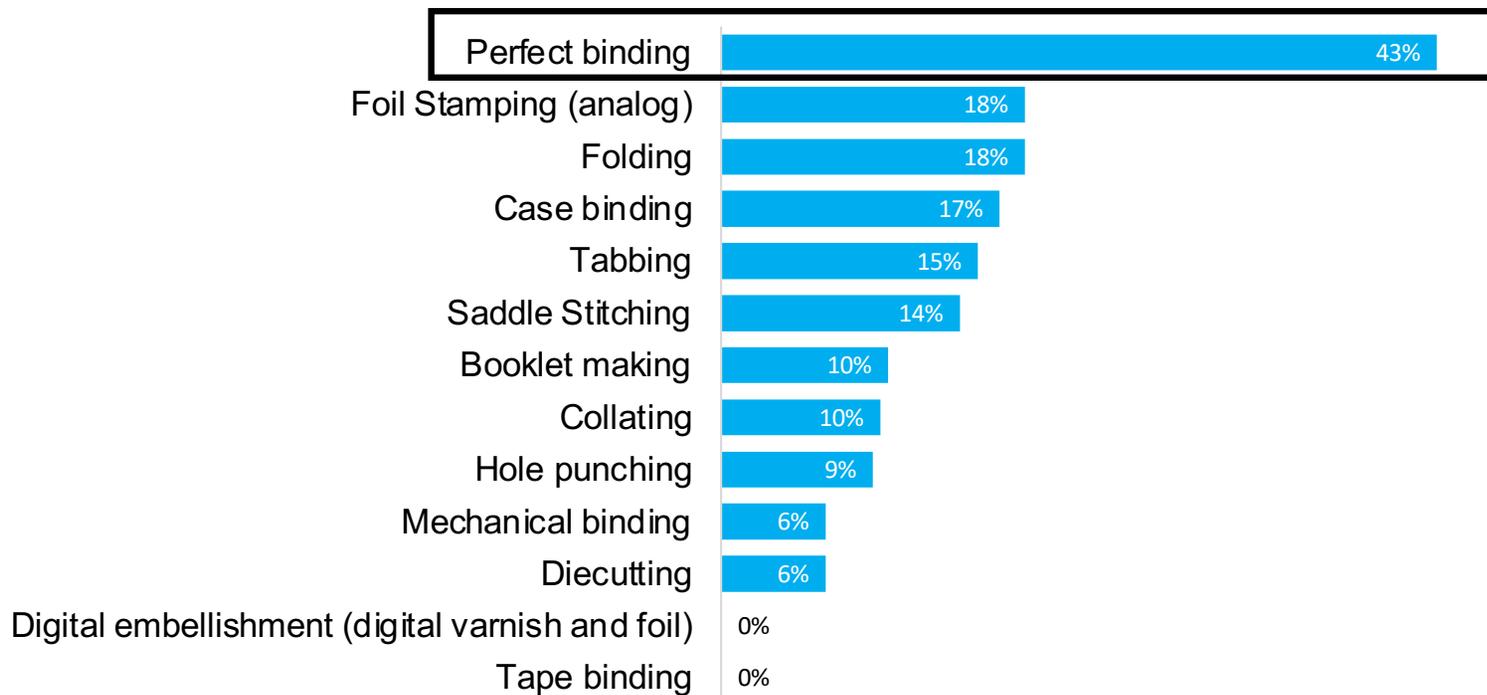
Q. Does your organization currently offer, or plan to offer the following book finishing processes in the next 12-18 months?

■ Currently Offer
 ■ Plan to Offer in the Next 12-18 Months
 ■ No Plans to Offer in the Next 12-18 Months



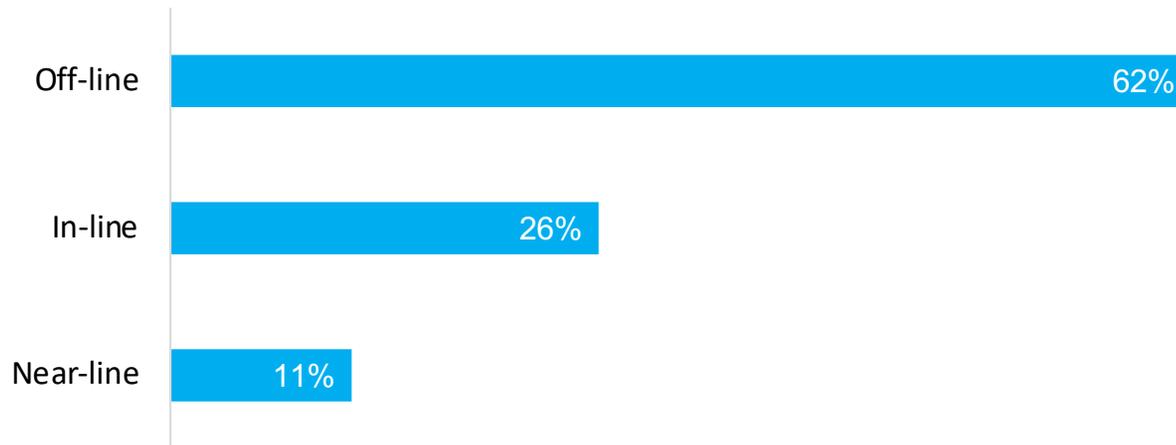
4 out of 10 Book Printers Plan to Upgrade Perfect Binding in the next 12-18 Months

Q. Do you plan on upgrading any of your current book finishing equipment in the next 12-18 months?



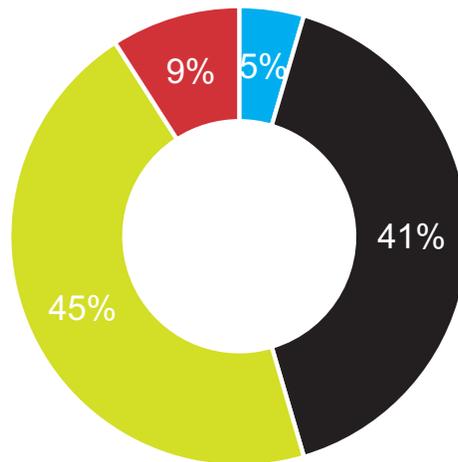
Most Finishing is Still Offline, but More than a Quarter is Now Inline

Q. What percentage of your digital book printing is finished in the following ways?



Opportunity for Increased Automation to offset Labor Challenges and Increase Productivity

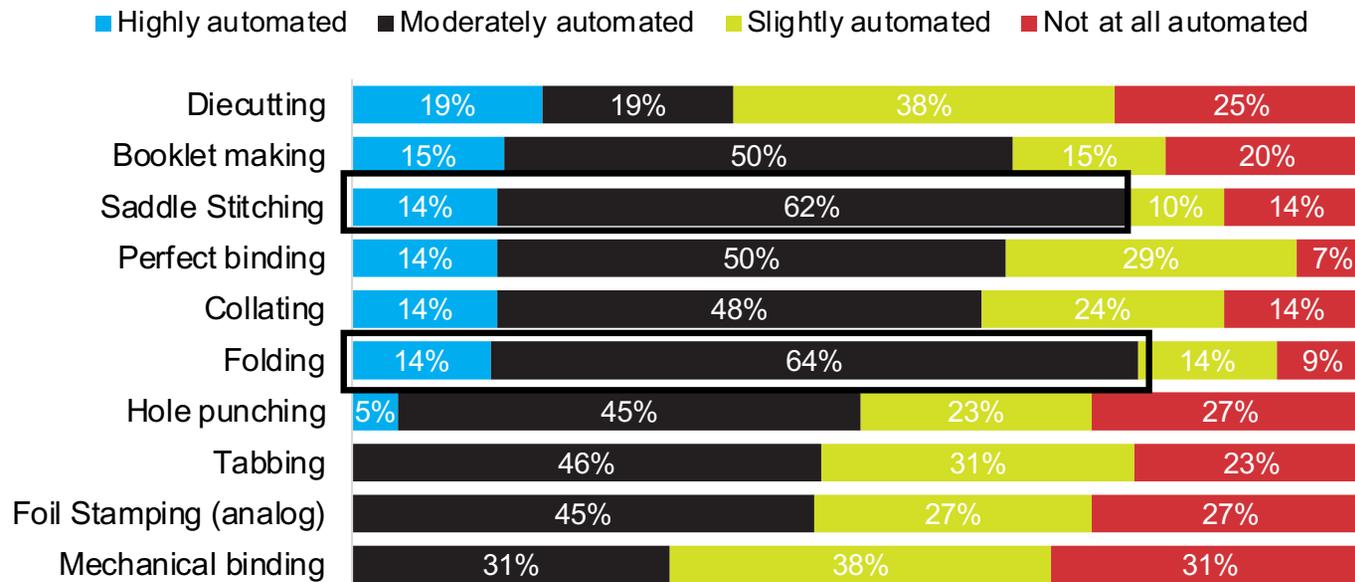
Q. Please describe the level of automation of your end-to-end book manufacturing workflow automation process?



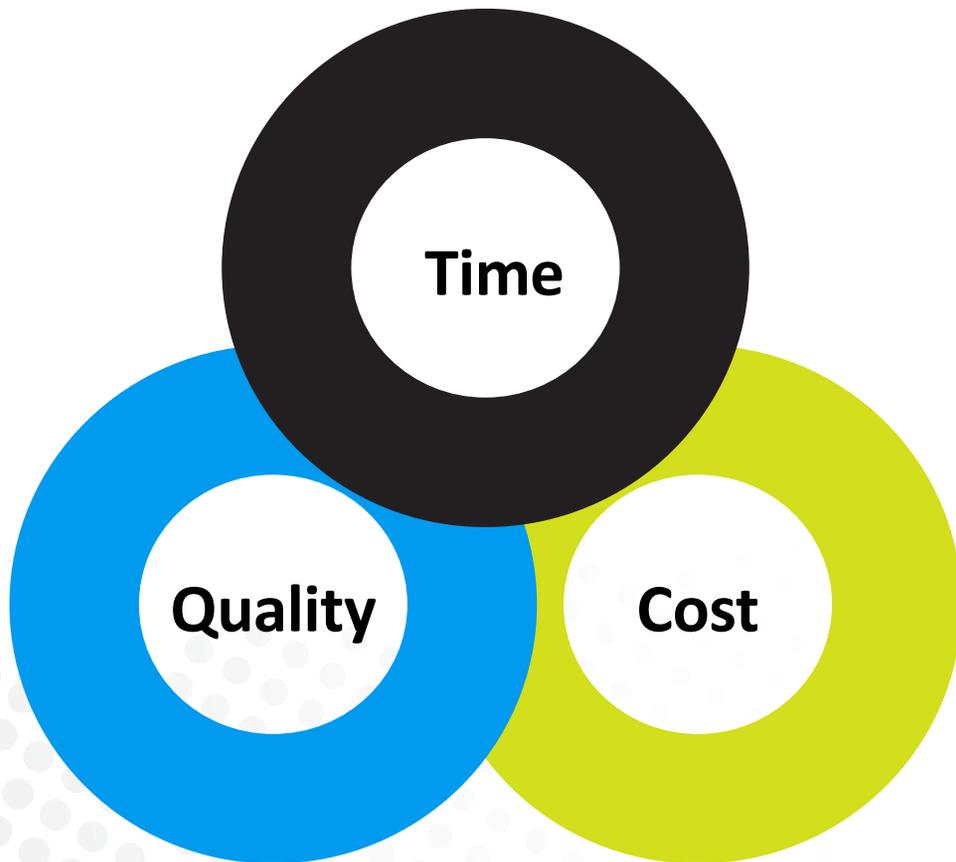
- Highly automated
- Moderately automated
- Slightly automated
- Not at all automated

Saddle Stitching & Folding Most Automated

Q. Please describe the level of automation of each of the following book finishing processes



The INKJET ADVANTAGE FOR PUBLISHERS



- Reduces publisher's risk
- Eliminate warehousing and return costs
- Production flexibility/advantages
 - Electronic collation
 - Just-in-time manufacturing
 - Workflow automation
- Reduce cycle time
- More affordable color
- Personalization
- Shifts the business model to sell, then print
- Improves profitability

Conclusions

- Books printed on digital presses for some time, but innovations in inkjet printing are:
 - Moving more work from offset to digital
 - Improving productivity
 - Offering new opportunities for products and services
- Ultra-high-speed inkjet presses redefining the economics of on-demand book printing
- Presses can print sheetfed quality on off-the-shelf offset paper, without any special coatings or pretreatments.
- Large-format sheet sizes and inline finishing solutions allowing for “white paper in, finished product out” capabilities.
- Book printers implementing inkjet technology to better serve customers with improved productivity, automation, and profitability.

JOIN OUR PANEL!

Join the NAPCO Print Industry
Research Panel and gain **exclusive access**
to survey research, trend analysis, and reports.
Participation requires completing a 3-5 minute
web-based survey approximately once a month.

Follow the link below
to join our business panel:
research.net/r/PrintPanel

Or email:
research@napco.com



Thank You!



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NAPCO Media



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