

WhatTheyThink!

Technology Outlook Display Graphics & Signage, Textiles & Apparel

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Today's Presenters

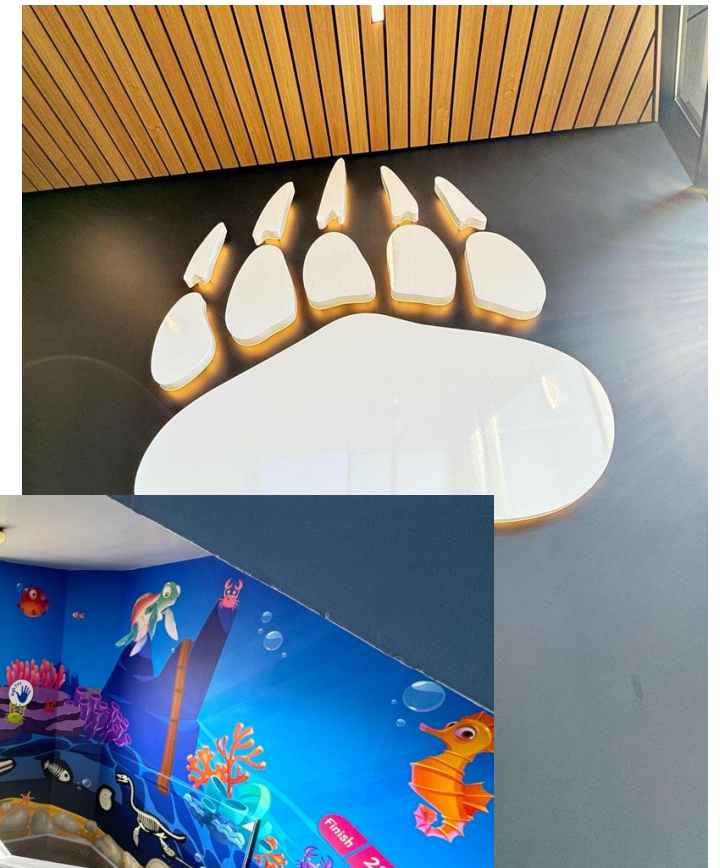


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Wide Format & Signage



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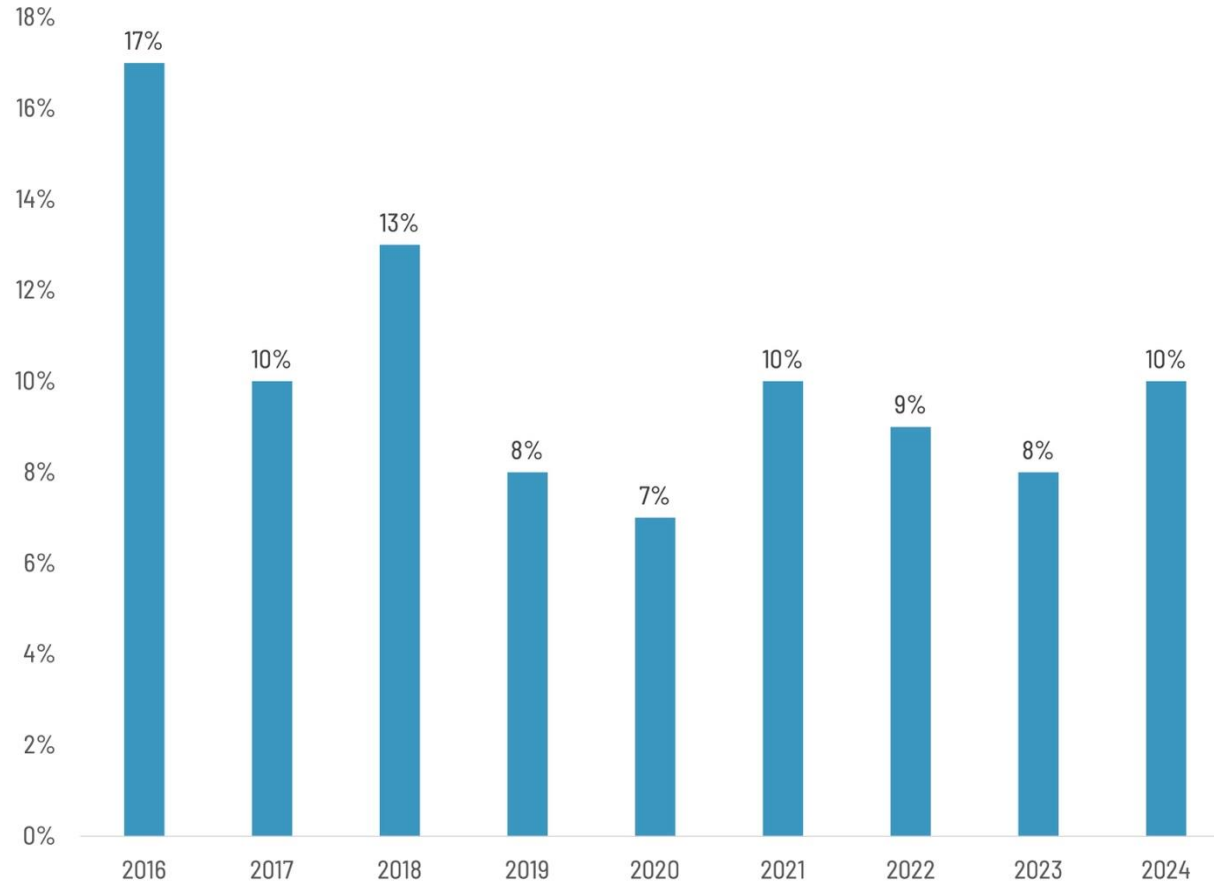
Wide Format & Signage: What Kind of Day Has it Been?

- By the end of the 2010s, the migration to wide-format on the part of general commercial printers had been slowing.
- The COVID pandemic of 2020 struck, and wide-format printing was a saving grace during the pandemic, what with the infamous “pivot” to safety signage, distancing dots, and all the other ephemera of the COVID lockdown that have all but been forgotten now.
- In 2021, things started to return to normal as we spent the year rebuilding the industry (and the economy).
- In 2022, it was “Virus? What virus?” while the infamous “supply chain challenges” dominated the headlines, and obtaining paper, certain types of vinyl, aluminum, and other materials and consumables was a challenge—and expensive.
- By 2023 and 2024, everything was back to normal—or to the “new normal.” Shops that specialized in display graphics started to look at diversification into new areas.

The Maturing of Wide Format

- Wide format is a mature market
- Commercial print migration to wide format is over
 - ~30–40% of the industry are “never wides”

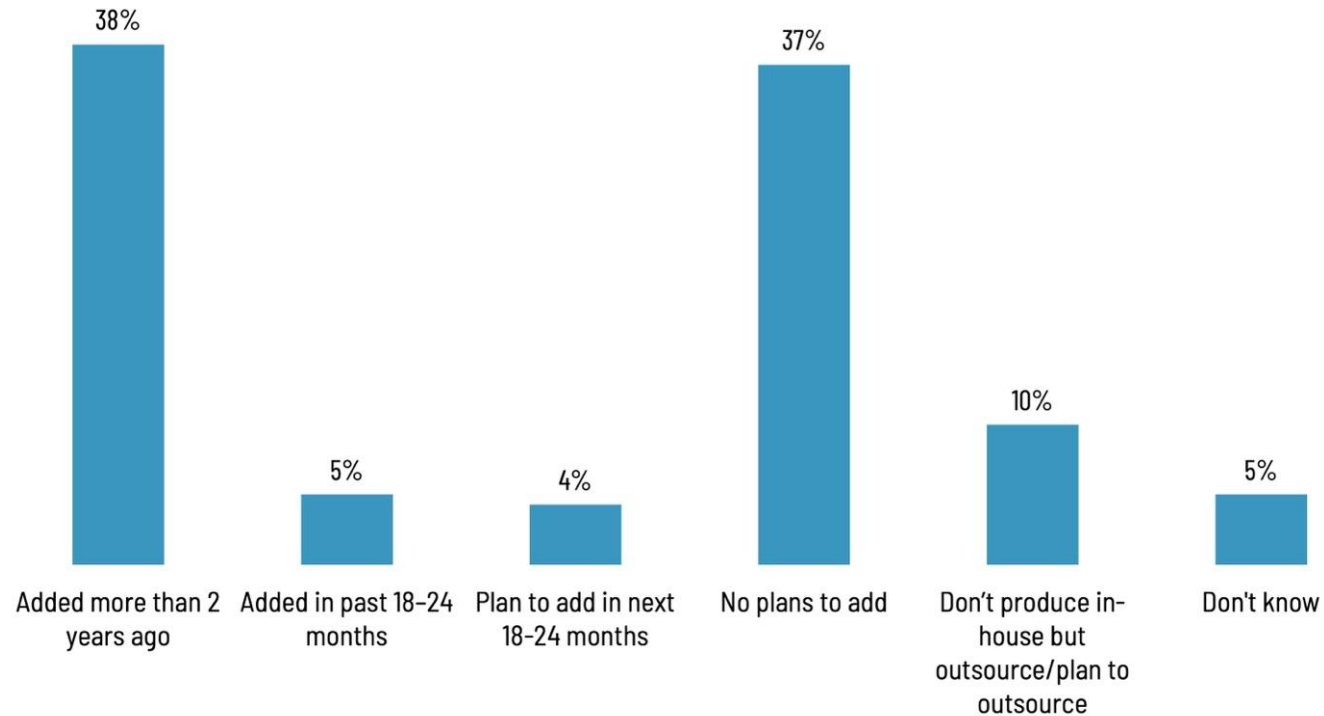
“Adding Wide-Format Printing Capabilities” as a New Business Opportunity



WhatTheyThink Business Outlook Survey, 2016–2024

The “Never Wides”

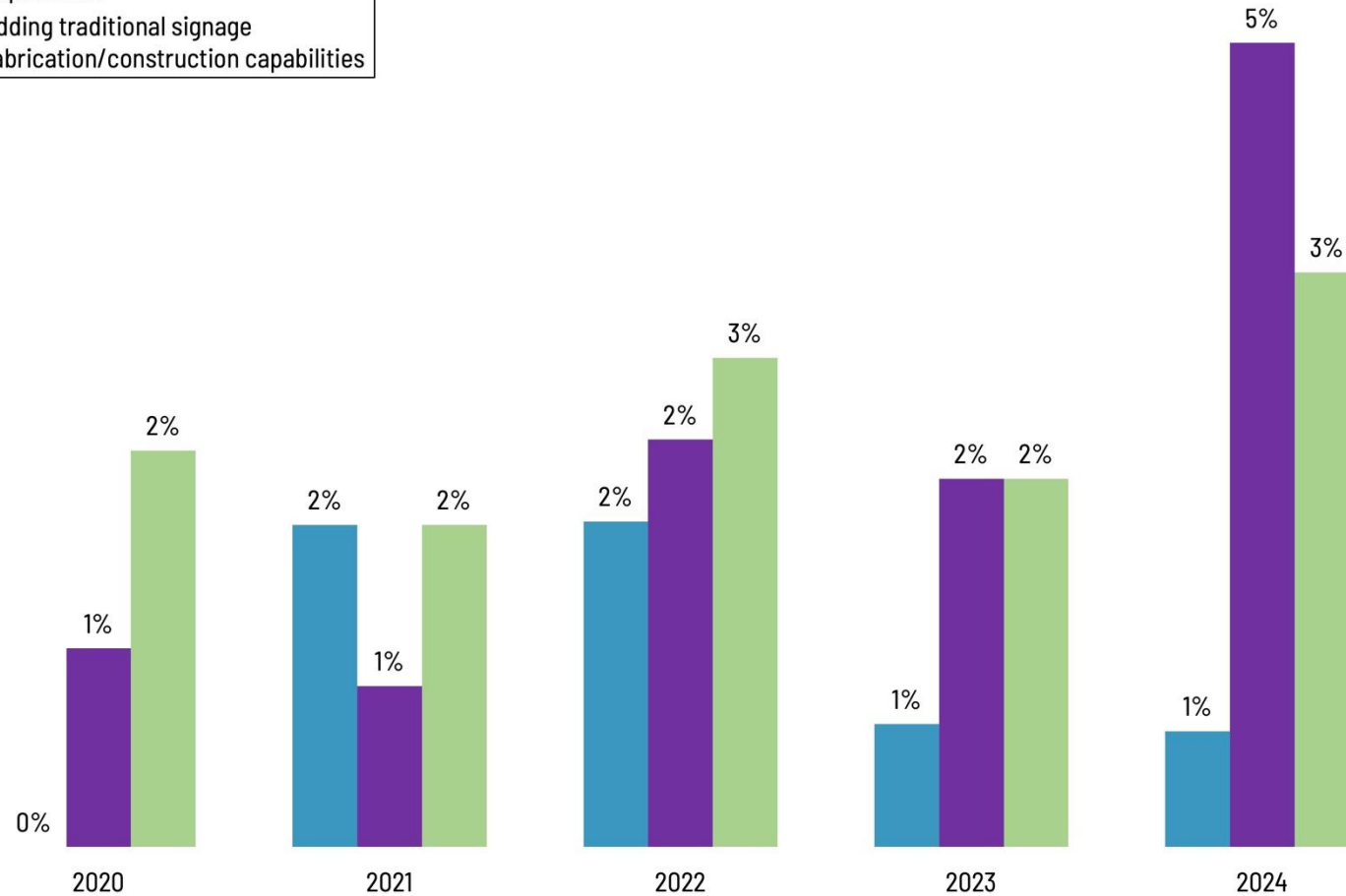
Wide-Format Printing (like Signs, Displays, Banners)



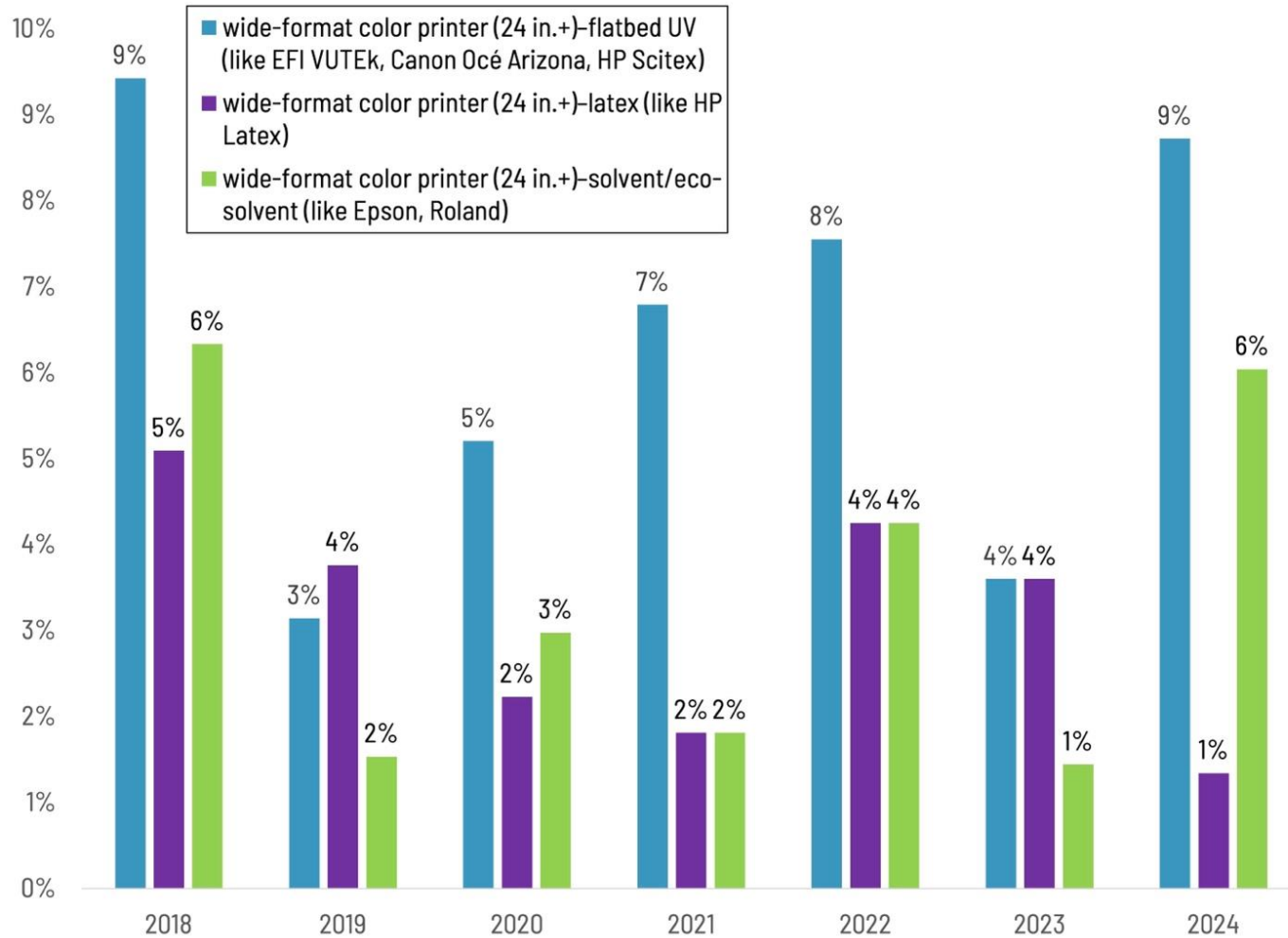
Survey Says!

New Business Opportunities

- adding dynamic digital signage (DDS) capabilities
- adding vehicle graphics/wrapping capabilities
- adding traditional signage fabrication/construction capabilities



Survey Says!



WhatTheyThink Business Outlook Surveys, 2016-2024

Survey Says!

Adding other kinds of display/signage-adjacent capabilities has been a mixed bag:

- Adding “industrial printing” capabilities peaked in 2022, but was down in 2024
- Adding traditional signage is not an overwhelming opportunity
 - Primarily the purview of specific sign companies
 - A resource-intensive application area that a shop isn’t going to dabble in as a kind of value-added service
 - You’re either a sign shop or you’re not
- Adding vehicle graphics peaked in 2024
 - It’s the kind of thing shops can add
 - The trick is finding installers, but the printing is not out of the grasp of your average wide-format shop

Survey Says!

What about textiles?

- “Adding textile/fabric printing” peaked at 7% in 2018
- Since 2021, we’ve asked about specific textile printing sub-sectors, such as:
 - Soft signage (peaked at 6% in 2022)
 - Décor/furnishings (peaked at 4% in 2022)
 - Apparel (never hit more than 3%)

Survey Says!

And labels and packaging?

- Packaging has been of more interest than labels
 - Respondents who see new business opportunities in adding packaging printing capabilities averaged about 8–9% since 2016—peaking at 13% in 2021
 - A lot of the same equipment they use for display work (i.e., flatbed printers) can also be used for packaging, such as corrugated materials

Display Graphics & Signage: 2025–26 Outlook

- AI
 - Design
 - More for inspiration than to replace humans
 - Tools like Adobe Firefly are helping these businesses generate design ideas
 - Sales
 - AI can be used for “role-playing” to help salespeople have better conversations with prospective customers
 - Sign franchises in particular are educating franchisees on AI for these various purposes
 - The idea is not to replace anyone with AI, but to use it as a tool to be more productive
- Automation
 - Not just software automation but things like robotics (i.e., arms for loading and unloading boards)
 - Keypoint Intelligence conducted a short survey at the In-Plant Printing and Mailing Association (IPMA) Conference
 - More than 50% of respondents were already thinking seriously about robotics even before any sessions were held on the topic

Display Graphics & Signage: 2025–26 Outlook

- Diversification
 - Becoming important not just for commercial printers but display graphics producers
 - The same equipment can produce display graphics as well as packaging, POP, etc.,
 - Wide-format equipment—esp. UV units—long been used to print on 3D objects
 - Roland, to name one vendor, has officially branded their UV flatbeds as “VersaObject,” indicating their suitability for printing on objects
- Education
 - For signmakers, education has become a major vertical—more than it ever was
 - Not just colleges, but middle schools, high schools, grammar schools, religious schools
 - Schools at all levels have become more competitive than they used to be
 - The overall look of the institution is a big part of student recruitment and retention.

FASTSIGNS Project of the Year



FASTSIGNS' 2025 Project of the Year was won by FASTSIGNS Missoula, Mont., who revamped the University of Montana's Lodge Dining Center.



Display Graphics & Signage: 2025–26 Outlook

- Economy
 - The print business is often at the mercy of overall economic conditions—and there are signs of trouble
 - GDP growth has been pretty good, but slowing compared to 2024.
 - The job market is showing signs of weakening (bad August report)
 - Inflation is on the rise
 - How this will impact demand for print—and the business conditions of print providers, particularly in the display graphics space—remains to be seen.
- Electricity
 - Looming issue will be increasing electricity costs
 - Part of it due to growth of AI data centers—electricity hogs that increase overall demand for power
 - Another part of it is shift away from less expensive renewable sources like wind and solar and back to more expensive sources like oil, gas, and coal
 - A lot of what our industry does requires electricity unless we go back to Gutenberg hand presses

Display Graphics & Signage: 2025–26 Outlook

- Employment
 - Two sides to the employment issue:
 - Production staff shortages, but more entrepreneurial business owners, especially in franchises
 - New business formation spiked in 2020 (The Great Resignation)
 - Current Census Bureau data show that it's down from its peak, but still at historic highs
 - Many of these new businesses are in traditional wide-format and signage verticals like retail
 - New businesses represent good opportunities for new customers
- Real Estate
 - American Institute of Architects (AIA)/Deltek Architecture Billings Index (ABI) is a leading indicator for new commercial real estate investment—and thus potential new signage projects
 - In July 2025, demand for design services continued to be relatively sluggish
 - The Billings Index has been below 50 for the last year and a half except for October 2024 (anything below 50 is poor)
 - Inflation and a slowing job market were cited as the big issues.
 - Rule of thumb: this index leads actual commercial real estate investment by about 9–12 months
 - Commercial real estate development will continue to be a bit soft as we head through the end of 2025 and into 2026

Display Graphics & Signage: 2025–26 Outlook

- Tariffs
 - Recent “tariffopolooza” will impact display graphics producers and signmakers
 - Traditional signmakers use a lot of aluminum construction materials which have already been subject to tariffs (we saw this in 2017)
 - Don’t know that US trade policy uncertainty is leading many businesses to forestall major capital investments until things settle down
 - But then no small number of companies are saying “Damn the torpedoes—full speed ahead!”
 - There is a potential bright side
 - Tariff-induced inflation may very well be a one-time shock to the system
 - Prices go up, things are tight for a bit, but gradually businesses and consumers adapt
 - As long as tariffs don’t increase, inflation levels off
 - Fingers crossed



Textiles & Apparel

Scaling
Sustainability



Incremental Improvements

- Digital Printing Technologies see incremental improvements post-drupa 2024
- Wide array of solutions available for business starting up or adding to a digital textile printing platform
 - We'll review a variety of available options
- Sustainability news
 - Regulatory actions
 - Waste reduction
 - Fiber-to-fiber recycling
 - Supply chain issues/reshoring-near shoring
 - Tariffs

Key Suppliers of Digital Textile Printing Technology

- Durst
- EFI Reggiani
- Epson
- HP
- Kornit Digital
- Mimaki
- Mutoh
- Ricoh
- Manufacturers in China/India
 - Color Inkjet Group (India)
 - HPRT (China)

EFI Reggiani

- Broad selection of technology
 - Analog/digital solutions
 - Mezzera Pre- and Post-treatment (washing, dyeing, bleaching, mercerizing, denim)
 - Single-pass/Multi-pass
 - BOLT XS (1,615 sq ft/min)
 - TERRA/ecoTERRA (7,759 sq ft/hr)
 - HYPER (33,906 sq ft/hr)
 - POWER (14,854 sq ft/hr)
 - COLORS (7,685 sq ft/hr)
 - FabriVU w/inline sublimation
 - Wide range of proprietary inks



Kornit Digital

- Direct-to-garment/direct-to-fabric solutions
 - Presto MAX DTF
 - Atlas MAX PLUS/MAX Poly DTG
 - Eco-friendly NeoPigment Robusto ink and water-based pigment inks
- Aggressive partnering strategy for end-to-end solutions; e.g.:
 - MAS ACME (optimizing supply chain/manufacturing efficiency)
 - Gooten (POD/fulfillment)
 - OGAT/Cimpress
 - Custom Ink



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Epson

- SureColor F6470, F9570, F10070 Series, and F11070 Series dye sublimation printers
 - From 820 sq ft/hr to 2,700 sq ft/hr
- Just launched: SureColor F1070 Business Edition, hybrid DTFilm/DTG (also available in Standard Edition)
- UltraChrome DS inks
- Fiery Acquisition



WhatTheyTh!nk

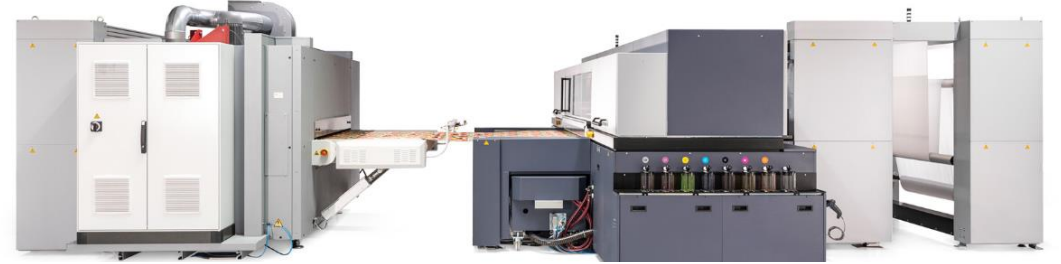
Mimaki

- Diverse range of digital textile printers
 - TX-300P series for on-demand production of woven/knit fabrics. Supports 5 ink types. (710 sq ft/hr)
 - TxF300 Series DTFilm printers
 - Tiger600-1800TS, dye sub (5,920 sq ft/hr)
 - TS330-1600 dye sub (4 units recently installed in Italy)(up to 1,453 sq ft/hr)



Durst

- DTFabric and dye sub offerings
 - Alpha 330 designed for both DTFabric and transfer paper printing (15,608 sq ft/hr)
 - Alpha dye sub edition (8,073 sq ft/hr)
 - P5 TEX iSUB series (in-line sublimation) (up to 4,542 sq ft/hr)
- Virtual Showroom



Ricoh

- DTG and DTFilm printers
 - Ricoh Ri 2000 Garment Printer (Ricoh's fastest DTG/DTFilm printer, as little as 10 seconds per shirt)
 - Ricoh Ri 4000 DTG/DTF (prints on poly and cotton)
 - Ricoh Ri 100Lt entry level DTG/DTF



Regulatory Actions

- Extended Producer Responsibility regulations being implemented around the globe
 - Makes clothing brands and retailers financially responsible for managing their products' waste, including collection, reuse, and recycling at the end of life.
 - EU, California, New York, Washington, Hawaii, Massachusetts, Oregon, either passed or are exploring EPR regs
 - If products are sold in the region, brands/retailers are responsible even if they have no physical location in the region
 - Do regs apply to you? More info here: <https://h2compliance.com/navigating-the-expanding-landscape-of-us-textile-epr-in-2025-beyond-california/>

Reshoring/Near Shoring

- Reshoring apparel manufacturing to the U.S. is easier for DTG/DTF operations
- Apparel manufacturing requiring cut-and-sew still facing barriers
- Near Shoring in Mexico, the Caribbean and Latin America offers opportunities: faster time to market, less transport time/cost, smaller environmental footprint
- Tariffs and de minimis elimination will impact U.S. imports, most heavily likely from China and India
 - Chinese apparel imports to the US already declining significantly due to high tariffs
- Amazon establishing a distribution hub in the Dominican Republic, flights from Miami; not clear how this will affect tariffs longer term ... can items be shipped directly to the DR without going through the U.S.? Not clear yet.

Recycling...

- EPR regs will drive more downcycling/upcycling/recycling of textile products
- Polyester fabrics have a 54% to 70% market share, depending on source data. (includes polyester blends like poly/cotton)
- Apparel recycling complicated – most fabrics are not mono fiber and it can be difficult to determine composition and/or separate fibers
- Many yarn manufacturers use some level of recycled content, fewer use bio-based fibers, but demand for that is growing (renewable feedstocks)
- Textile waste can be ground to produce insulation, mattress stuffing, etc; landfill diversion

Textile-to-Textile Recycling

- One of the more exciting areas of textile research (IMHO)
- A variety of projects initiated, but scaling can take time and \$\$\$, including:
 - Circ: polycotton recycler launched its 1st commercial-scale facility in France (operations to commence in 2028) Projected capacity: 70K metric tons separating polyester and cellulose into usable regenerated materials
 - Reju: Two facilities, Germany/Netherlands, goal: recycling the equivalent of 300 million garments/year
 - Ambercycle: Based in LA, producing Cycora, a yarn made of upcycled polyester; establishing a facility in China
 - Loop: Canada/India: 2027 launch to recycle plastic waste and polyester textiles into new materials
- But ... mechanical recycling process is destructive and requires adding more than 50% virgin fibers to make usable yarns

Fiber-to-Fiber Recycling

- New tech out of University of Nebraska-Lincoln takes it to the next level
 - Chemical recycling removes dyes, separates natural and synthetic blends, creates high quality fibers
 - Reducing usage of virgin materials by recycling in a closed-loop system reduces microplastic pollution
 - Separates dyes for reuse without damaging fibers
 - Recycles, instead of disposing of, chemistry
 - Results in usable mono-fiber yarns (i.e., polyester, elastin, cotton, etc.)
 - Requires set-up of collection and sorting sites
- Patent-pending process designed to be industrially scalable

The Bottom Line

- Digital textile printing is relatively mature but continues incremental improvements
- Suppliers to the industry are working to create end-to-end workflows using proprietary technology or through partnerships
- It is not clear what the long-term impact of tariffs will be, but ...
 - Reshoring apparel manufacturing to the U.S. or Europe faces barriers
- In an ideal world ...
 - Apparel would be manufactured on demand, close to point of need, using digital technologies
 - Consumers would demand sustainable, high-quality textile-based products
 - Textile products would be primarily comprised of recycled content
- The challenge: Driving major change in textiles & apparel is a slow process!

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Q&A

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questions!

questions
are a burden to others
answers
a prison for oneself

Technology Outlook Finishes!

- September 12—Finishing, presented by Patrick Henry and Richard Romano, sponsored by Tecnav

And coming up:

- September 24—GelatoConnect 2025 Peak Season Playbook

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Thanks for joining us!