MARCH 2025

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+

Weaving signage & history together through art

Troubleshooting sandcarving issues

The anatomy of a pixel

How to get more customers

Apparel decorating techniques

How screen printing, direct to film, direct to garment & embroidery compare



To the Artists of Ye

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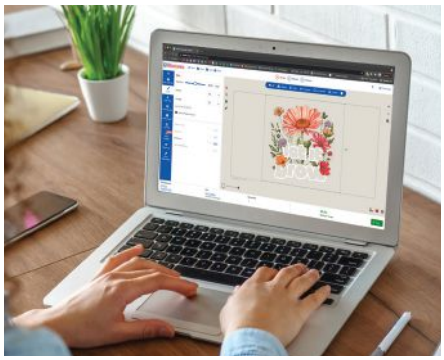
TINE CHAPEL CEILING, A PROJECT THAT TOOK FOUR
WORKED HIGH ON SCAFFOLDING, OFTEN IN
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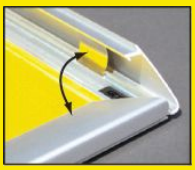
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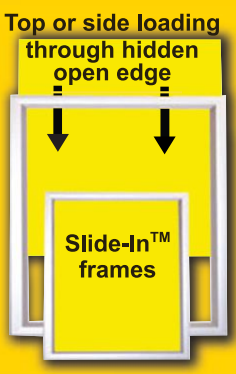
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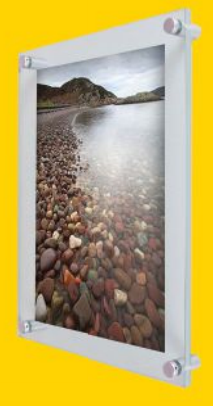




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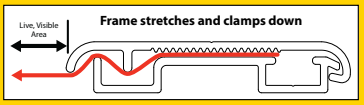
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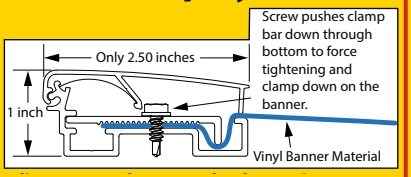






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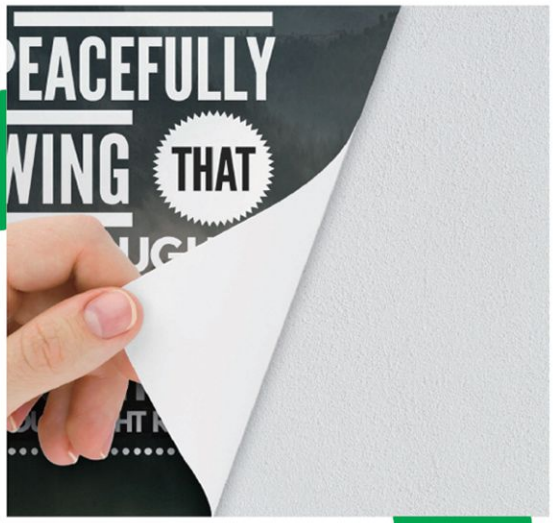
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James Anderson is the editor-in-chief of GRAPHICS PRO magazine. He can be reached at janderson@cahabamedia.com.

Back to show season

As do most trade magazine editors, I have learned to measure my career in trade show years. It always amazes me when talking with someone at a show and they mention they're on their 20-something or even 30-plus year attending the event. A January trip to Long Beach marked my first official year here at GRAPHICS PRO. I attended the 2024 show just a few weeks into my tenure and left more excited than overwhelmed about covering a new industry.

This month brings me to another round of "seconds" at the GRAPHICS PRO EXPO in Irving, Texas. I'm looking forward to walking the show floor and reconnecting with folks I've come to know over the past year. The graphics industry is vast and ever-changing, and trade shows (along with this magazine, of course) are the best place to keep up to date on industry trends. If we don't meet in Irving, there are four other opportunities this year to catch the GPX crew. Check out G-P-X.com to learn more about when and where.

Speaking of a vast and ever-changing industry, this month's issue, in my opinion, covers it pretty well.

- You'll find Paula Aven Gladych's cover story on apparel decorating techniques on page 26.
- If signage is more your speed, or the focus of your business, you don't want to miss Lauren Stern's article on page 12 that explores her company's fiber art signage at a historic apartment building in Clayton, North Carolina.
- On page 20, Liz Haas shares troubleshooting tips for sandcarving artists and craftspeople.
- Since Photoshop is a common tool for all of the industries we cover, I'm always pleased to share content from Stephen Romaniello. This month's column covers the anatomy of a pixel, a real deep dive into, essentially, the building blocks of graphic design.

That's just a sample of what we're sharing in this month's issue of GRAPHICS PRO. I hope you, as I do, learn a little something more about the industry each month.

Thanks for reading!



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INDUSTRY UPDATES

NEW HIRES & PROMOTIONS



Drew Holmgreen
PPAI

Drew Holmgreen has been named **PPAI's** next president and CEO. He succeeds **Dawn Olds**, who served as interim president and CEO of PPAI since July 2024. Holmgreen joins from Meeting Professionals International, where he served as chief experience officer.





Chris Carson & Kyle Garner
Kornit Digital

Chris Carson (left) and **Kyle Garner** (right) were appointed as senior sales executives for **Kornit Digital**. Carson was formerly the North American sales director for HP's Industrial Print business, and brings over 30 years of experience as a senior sales executive. Garner also brings more than 30 years of experience, most recently leading the Americas Strategic Accounts organization within HP's Industrial Print business.



Danielle Ullrich
FDC Graphic Films

Danielle Ullrich has been hired as **FDC Graphic Films'** Northwest sales manager. Ullrich's prior professional experience includes more than 12 years in B2B sales, including her accomplishments within the sign and graphics industry.

GIVING BACK

Fanatics raised relief funds with an 'LA Strong' collection and donated directly to the **American Red Cross** and the **LA Fire Department Foundation**.

BELLA+CANVAS launched a clothing drive for **Los Angeles wildfire** victims; the drive offered a wide range of essential clothing items to meet the needs of all age groups.

UPCOMING EVENTS

GPX Irving
March 6-8
Irving Convention Center
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GPX Indianapolis
June 19-21
Indianapolis Convention Center
g-p-x.com/in

Colorways
August 14-15
Chicago, IL
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GPX Long Beach
August 21-23
Long Beach Convention Center
g-p-x.com/ca

GPX Meadowlands
September 12-13
Meadowlands Convention Center
g-p-x.com/nj

GPX Charlotte
November 6-8
Charlotte Convention Center
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For more information on any of these news items, visit **graphics-pro.com/news**

WEBINARS

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March 13 • 12 p.m.
gpro.link/webinars

Xante
May 8 • 12 p.m.
gpro.link/webinars

ColDesi
May 28 • 12 p.m.
gpro.link/webinars

Gravotech
July 10 • 12 p.m.
gpro.link/webinars

Xante
July 24 • 12 p.m.
gpro.link/webinars

ASI
Aug. 7 • 12 p.m.
gpro.link/webinars

ColDesi
Aug. 21 • 12 p.m.
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Equipment Zone
Sept. 25 • 12 p.m.
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Xante
Oct. 2 • 12 p.m.
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ColDesi
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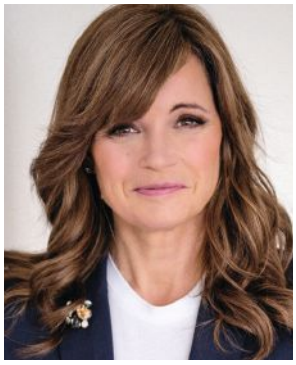


NEW HIRES & PROMOTIONS



Dan Collins
General Formulations

Dan Collins, former finishing plant manager, has been promoted to vice president of purchasing & production for **General Formulations**. Collins has more than 20 years of experience in operations, manufacturing, and multi-channel product distribution with P&L ownership.



Suzanne Simpson
Gemline

Suzanne Simpson received a promotion to the role of director of strategic accounts at **Gemline**. Simpson has been an integral part of the Gemline team for over a decade, beginning her career as a sales agent for Canada and quickly rising through the ranks.



John Seymour
ColorLogic

John Seymour has been appointed as color science lead at **ColorLogic**. An applied mathematician and color scientist, Seymour brings over 25 years of experience from QuadTech's advanced product development group, where he pioneered algorithms and instrumentation for printer color management.



Mike Aldrich
General Formulations

Mike Aldrich is the latest addition to the **General Formulations** team, as a product manager for digital print solutions. Aldrich brings over 27 years of extensive experience in the graphics industry.

NEW HIRES & PROMOTIONS



Courtney Doyle
Crystal D

Courtney Doyle has been hired as a territory manager for **Crystal D**. As a territory manager, she is responsible for building customer relationships, which includes coaching distributors on selling awards and helping their clients establish ongoing recognition programs.





Cindy Kelso & Carter Newman
Cap America

Cindy Kelso (left) has been promoted to the position of customer service training and development specialist and **Carter Newman** (right) to director of product development for **Cap America**. Kelso, a key member of the team since 2010, has consistently demonstrated exceptional professionalism, expertise, and dedication to both customers and colleagues. Newman, who joined the company in 2024, will now lead the strategic vision for Cap America's headwear line



Lauren Monnier
Vantage Apparel

Lauren Monnier, former director of product development at Club Monaco, joined **Vantage Apparel** as its new director of merchandising. With over 15 years of experience in the apparel industry, Monnier brings a wealth of knowledge and expertise in product development, production, and team leadership.

Have news to share?
Email gpeditorial@cahabamedia.com.

PARTNERSHIPS

STAHLS' Fulfill Engine, a production management platform for the custom apparel industry, announced a new collaboration with **OrderMyGear**, an e-commerce platform for selling custom-branded merchandise.

GarmentPrinter.com expanded its offerings with new partnerships for 2025: **Roland, ZSK, STS, Siser, Kern USA,** and **Cutworx.**

Gemline, a supplier in the promotional products industry, entered into an exclusive major partnership with **Ahead**, a provider of headwear, apparel, and golf accessories.

Blue Generation, a supplier of blank apparel, and **Cap America**, a headwear supplier, announced a strategic partnership.

Vantage Apparel, a provider of custom logo-branded apparel, has entered into an exclusive partnership with **iClick**, a supplier of promotional products, to expand its offering of hard goods within the Vantage webstore platform.

Imperial Headwear will continue its partnership with the **American Junior Golf Association** as the official headwear sponsor through 2026. Imperial was also named the "Official Headwear Sponsor of **Honcho Pickleball**" for the 2025 season.

Scrubwear brand **Jaanuu** established a new partnership with **S&S Activewear**, a distributor of apparel and accessories in the U.S. and Canada.

Atlantis Headwear teamed up with Swiss motorcycle team **Forward Racing** to add a headwear line to its merchandise collection.

MERGERS & ACQUISITIONS

Brook + Whittle, a provider of sustainable packaging solutions, has acquired **Stouse**, a manufacturer and supplier of decals, labels, and promotional printed items.

Koozie Group (previously BIC Graphic North America), a supplier of promotional products, will continue **Skinner & Kennedy Co.'s** 125-year promotional calendar legacy with the purchase of its product line.



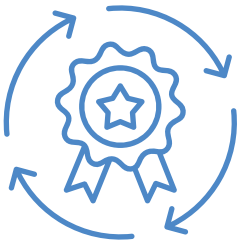
AWARDS & RECOGNITION

Gildan Activewear has been included in the **Dow Jones Sustainability North America Index**, an ESG performance ranking for publicly traded companies, for the 12th consecutive year.

Entrepreneur magazine named **Signarama** and **Fully Promoted** to its Franchise 500 list.

Nazdar's UV inks have been awarded the **GREENGUARD Gold Certification** by UL Environment's GREENGUARD Certification Program.

REBRANDS



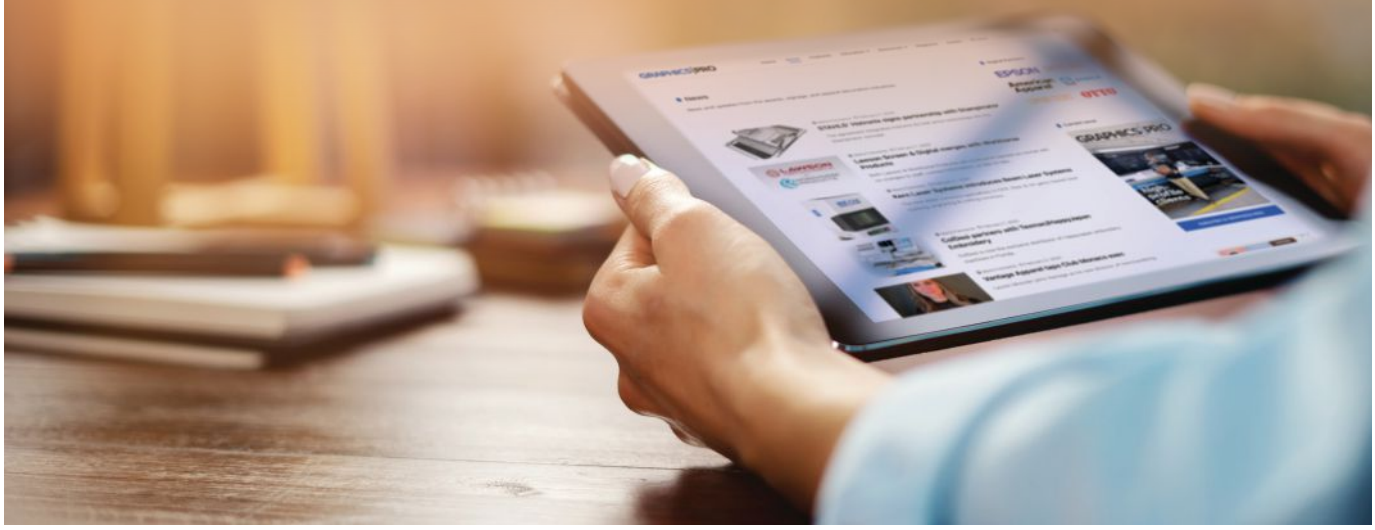
Sublimation101 has rebranded to **DyeCraft Direct**, offering a fresh wave of products and equipment.

To celebrate its 25th anniversary, **St Regis Group**, a supplier of awards, promotional products, and corporate gifts, has rebranded to **SRG**.

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Images courtesy of Lauren Stern

THREADS of TIME:

WEAVING SIGNAGE & HISTORY TOGETHER THROUGH ART

How Studio 618 blended branding, history & art for Spinning Mills Lofts

By Lauren Stern

Studio 618, a story-driven signage and wayfinding consultancy based in Charlotte, North Carolina, was commissioned to design a unique fiber art focal wall for Taft Development Group's property Spinning Mill Lofts, a refurbished historic textile mill now housing luxurious amenity spaces and 25 loft-style apartments, surrounded by eight garden-style buildings in downtown Clayton, North Carolina.

Several key factors were considered for this project, including creating a timeless design that complemented SouthPark Interiors' stunning vision for the space, incorporating Yellow Duck Marketing's clean and modern branding, honoring the building's historic textile roots, and crafting an art piece that not only enhanced the design but also told a meaningful story.

My eureka moment

I want to highlight a valuable lesson here: If you have an idea that wasn't part of your original scope of work, don't be afraid to bring it up with your client. For this project, the original scope was to design the interior and exterior signage for Spinning Mill Lofts, and focal walls weren't part of the plan. The refurbished mill had been a working textile factory from 1901 to 1976, and to me, there was something truly special about breathing new life into this building while celebrating its textile roots. SouthPark Interiors, the interior design team, thought so too. They paid homage to the history of the building by incorporating large-scale historic photographs, old plans of the area, commissioned textile artwork,



and even a small exhibit featuring historic artifacts and photographs from the property, housed on the lower level of the refurbished mill. Additionally, historic doors were highlighted with thoughtfully placed signage, further connecting the space to its rich history.

About a month into the project, I started thinking about how my consultancy could further elevate the design and deepen the connection to the building's textile history — going beyond what had already been done by incorporating my own creative voice through fiber art wall hangings. So, as I often do, I began brainstorming during one of my daily walks with Dewey (my dog and the true creative spirit behind my consultancy) and the idea of combining Spinning Mill's logo with fiber art was born.

I wasn't sure if the client, Taft Development Group, would be interested in this idea for two reasons:

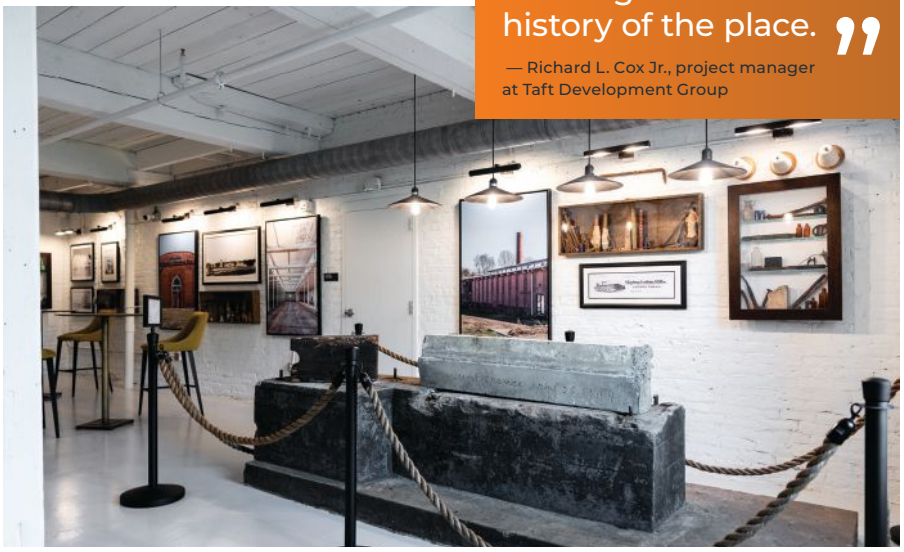
1 It wasn't in the original scope, and I wasn't entirely sure what the end result would cost.

2 I had never made anything like this before, and they hadn't commissioned a piece like this either. While I've created weavings for friends, clients, and customers across the country, and sold my pieces at art fairs, I had never made something this custom or challenging. I was already feeling imposter syndrome creeping in before I even shared the idea with the client.

I shook off the negative thoughts and decided to pitch my vision to the client. To my surprise, they were really interested! I showed them several sketches of how the piece could look in various colorways and techniques, as well as examples of different types of yarn and fiber elements I wanted to incorporate such as vintage wooden textile spools, hand-spun yarn from textile creators all over the world, and unique materials such as hand-spun newspaper yarn and T-shirt material. Aside from signing off on the sketch and reviewing the types of materials to be used, they gave me free rein. I



> "Lauren's fiber art interpretation of the Spinning Mill Lofts logo is a true statement piece and the perfect complement to this historic adaptive reuse project. It adds color and warmth to the old mill building while creatively drawing on the textile history of the place."
>
> — Richard L. Cox Jr., project manager at Taft Development Group



really appreciated that they trusted me completely with this element. This was a great lesson for two reasons:

1 I've always wanted to find a way to incorporate my passion for fiber art into my consultancy as a service. If I hadn't spoken up, I would have missed the opportunity.

2 You never know which hobbies or passions might be relevant to your business. Whether it's photography, illustration, painting, or weaving like mine, make your relevant skill sets known to your employers or clients. You might be able to combine your passions with your work.



> This is more than art; this hand-woven piece helps tell the story of, not only this building, but the community. We were very intentional as we were breathing life back into this former textile mill and this piece is no different. Lauren bought into our vision and beautifully celebrated the building's history through the materials she used in her fiber art. As one of the first things you see when entering the space, its impact is quite significant and lasting.
>
> — Emily Hiott, VP/director of design at SouthPark Interiors

Blending branding with art

I had the idea for the materiality, but how was it going to take shape? Drawing from the clean, modern branding of Yellow Duck Marketing provided a simple solution. I thought it would be fun to take the "mill" icon from the logo and use it to house the piece, effectively serving as the loom. The loom consisted of two parts: the first was a thin, painted aluminum makeshift loom with routed holes around the perimeter. The second was a dimensional 1 ½" frame that covered all the exposed holes. The goal was to enclose the weaving so that the mechanics of how it was made and adhered to the back of the loom would remain unseen. The weaving is intentionally dimensional, popping out of the frame to add depth and interest from all angles. Painted aluminum dimensional letters spelling out "Spinning Mill Lofts" are installed to the right of the piece, mounted at the same distance as the loom. The Yellow Duck team was thrilled with the incorporation of their logo into this art piece. It elevates the branding to a whole new level and ties all the elements together.

According to Amanda Adams Thomson, director of account services at Yellow Duck Marketing, "The custom fiber art piece is an energetic representation of the brand that weaves in our architecturally-inspired logo concept and the rich textile history of the mill. The handmade detailing brought character, interest, and really a piece of historical storytelling through one of the main corridors of the leasing center. This unique piece both honored the roots of Spinning Mill while celebrating the unique characteristics of the community the mill is now home to."

Prototyping & its importance

This element was created in stages and involved extensive prototyping, sketches, and meetings to perfect the details. A traditional loom I use for textile weavings has notched edges where the warp (the vertical string that holds the weaving) is threaded. However, due to the geometry of this loom, the warping method had to be adapted. This wasn't a run-of-the-mill project, so finding the right fabricator — someone capable of thinking outside the box — was essential.

I worked closely with SignArt to lay out the loom for their CNC router and specified the holes to be routed into the aluminum frame. They provided me with a full-size section of the loom to ensure there were no issues before fabrication. Creating a prototype was crucial — during this stage, I encountered a few challenges:

1. I had to sew each vertical section separately. Otherwise, the string would get stuck in the holes.
2. When adding the textiles, I realized the sections at the edges of the loom needed to overlap slightly so the top frame could cover the gaps.
3. The prototype section didn't have a vertical stand, so I had to work on it hunched over my kitchen table. This was painful, so when the full piece was made, I requested vertical legs to keep it upright, allowing me to weave like I would on a traditional loom — this literally saved my back.

The prototyping process was time-consuming, but it was essential. Without it, mistakes could have been made, but we were able to resolve





all issues beforehand, which was invaluable. Both my client and I agree that the fabricator did an excellent job executing our design. So, remember: Prototyping is important, especially for something as complex as this.

The luxury of time

Something that you don't get with most projects is ample time to work on them. I had the luxury of time for this project, working on it throughout the summer of 2023. I could have finished it faster, but the client didn't need the piece until all the finishes and furnishings were in place. This allowed me to be intentional with my approach. If something didn't look right, I could remove it and start over. Creating this piece took over 60 hours, not including the time spent hand-knitting and braiding dozens of cords that were interwoven throughout the piece, as well as sewing vintage wooden textile spools into it. These elements were time-consuming but essential for adding depth and dimensionality. I truly appreciated having the time to perfect it. Additionally, since the colors in each section needed to flow seamlessly, I was able to tackle one section at a time, ensuring everything blended smoothly. While I could create a piece like this in less time, having more time meant less stress and a more thoughtful result.

Why artful focal walls are a good investment

Whether you're developing a new building or upgrading an existing one, investing in artful focal walls is always a smart choice. Adding unique and intentional focal walls can help you achieve several important goals:

1 **Bring life to your space & tell a story**: What key features do you want to highlight? For example, if you're enhancing a fitness center, a dynamic mural emphasizing movement and color can be impactful. In a game room, a design that evokes playfulness can elevate the visitor experience. Consider hiring an experiential designer — this decision can positively impact your project. In this case, the focal wall was inspired by the textile history of the refurbished mill. The design "wove" together the building's rich history and unique branding, blending the past with the present.

2 **Elevate existing design features**: A focal wall can highlight a building's unique design elements. For example, this building features industrial details, such as exposed metal architectural details and industrial-style lighting. These elements are reflected in the signage family, while the loom's materiality ties into the overall design. The color palette — warm oranges, yellows, and greens combined with natural grays, tans, and whites — was directly



inspired by the beautiful palette of SouthPark Interiors. This focal wall tells a deeper story by incorporating these design elements, as well as the building's textile history, in a creative and unexpected way.

3 **Enhance your space without overspending**: While artful focal walls can vary in cost, they don't have to be expensive. I've worked with fabricators who have priced out focal walls I've designed, ranging from $5,000 for a simple two-dimensional graphic to over $40,000 for a full-scale, three-dimensional installation. The cost largely depends on the complexity of the design, including its level of detail, scale, and intricacy — especially for custom-made pieces. Materials and fabrication methods can be adjusted to fit your budget. For example, if real wood isn't feasible, laminate can be a great alternative. Dream big, and the fabrication and materials can evolve to match your budget.

Think about this: with the increasing number of new multifamily buildings being constructed to meet housing demand, investing in unique experiential graphics, like artful focal walls, can set your building apart from the competition. Do you want to make a positive first impression? Do you want people to return? I was a renter for over 15 years, and during that time, I encountered countless cookie-cutter multifamily buildings that lacked

character, which made me hesitant to rent. When a building doesn't invest in creating a warm, unique experience, it reflects poorly on them. Your residents' experience matters — whether they're visiting for the first time or living there for years. Negative experiences stick with people, so it's essential to ensure yours stands out in a positive way. This is an opportunity to differentiate your building from others, and surprisingly, the addition of artful focal walls can make a significant impact. Ultimately, they offer a chance to tell a unique story and help your building stand out from the competition.

An intentional approach

Every project my consultancy works on follows the same approach. If I had to sum up what Studio 618 strives for in one word, it would be "intention." Intentionality is key. Whether it's a three-level garage featuring artful murals, a custom signage and wayfinding system for a luxury condominium, or a custom fiber art focal wall reflecting the history of a refurbished textile mill-turned-apartment community like the one featured in this article, there must always be thoughtful consideration behind the design. What is the rationale for each design choice? It can't just be because I like it. Every element I create has a substantial reason behind it.

Before starting my own business, I learned the importance of design strategy and storytelling at my previous company, and I brought that approach with me to Studio 618. It's about focusing on the **why** before the **how**. Bringing intentionality to the forefront of a project enhances its meaning and gives it purpose. It can even become part of the story for residents and tenants, as it did for this project, providing the client with a narrative to share about the inspiration behind the design and how it connects to their building's unique history.

No other multifamily building will have a focal wall like this one. While it's possible to replicate the idea, blending in the distinct branding from Yellow Duck Marketing, the stunning interior design from SouthPark Interiors, the intricate fiber art by Studio 618, and the final, flawlessly fabricated piece by SignArt, it will never be the same. That's what makes this art piece so special: the story, the intention behind it, and how it seamlessly blends so many elements together to create something truly unique.



> "After 113 years in the sign industry, this piece was a first for SignArt. Starting with Lauren's unique design concept, we engineered and custom-fabricated a working loom for her to incorporate her textiles into the finished product. It was truly rewarding to translate her vision into a successful project."
>
> — Josh Intoppa, account executive at SignArt

Final thoughts

Now that the project is complete, I can confidently say it was intimidating. This was my first custom fiber art piece of this scale, shape, and material variety, and my first for a commercial client. Placed prominently in the lobby, it's the first thing you see when entering the refurbished textile mill and serves as a key photo opportunity for new residents. I'll admit that, throughout the design process, I experienced moments of imposter syndrome. Designing something that fit the scale, location, and tone of the building was challenging. But the end result was a success, and I'm proud to have created something unique that combines my passion for fiber art and experiential design. I'm also grateful for the courage to speak up about an idea outside the original scope. This piece helped me grow both as a fiber artist and an experiential designer, and I was fortunate to have had the opportunity to work on something of this scale and on a project as historically rich as this one. **GP**



Lauren Stern is the owner and experiential designer at Studio 618, a Charlotte, North Carolina-based consultancy specializing in story-driven signage and wayfinding. She transforms ordinary spaces into extraordinary experiences and authored "Signs Have Much to Say," a children's book about the importance of signage, available on Amazon. Learn more at studio618design.com.

It's been interesting!

By Bill Mattes

Scan here to register!

I've been in trade shows and conventions for more than 40 years. For 35 of those years, the industry hadn't changed much. Simply put, companies marketed the same way, attendees came to shows to see "stuff," orders were written, and everyone was happy.

Then COVID-19 came and interrupted the way people did business.

Now, we have generational pushes, plus technology and competition with webinars, influencers, social media platforms — the list goes on. It's made the events and trade show industries reach back and create something that makes them stand out from the noise of today's world.









Events and trade shows need to create experiential aspects of their offerings that speak to the attendees and the exhibitors. These experiential pieces must have value but also align themselves well with the generational demographics of the attendee and exhibitor base. Someone in their mid-20s might not be interested in the same thing as someone in their mid-50s. If they are, then chances are they may prefer to learn in completely different ways. The experience needs to reflect and resonate with each and every demographic.

As GRAPHICS PRO EXPO continues to grow its offerings, our guiding light is to give each and every stakeholder something they can take away from attending: a best practice, a networking moment, having a beer with a friend — there are many ways to bridge the "experience river." Our team at GPX hopes you continue to join us on this journey of bringing new experiences to all of you. It's going to be a fun ride. GP



Bill Mattes is Cahaba Media Group's director of events, overseeing GRAPHICS PRO EXPO. Reach him at bmattes@cahabamedia.com.



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Images courtesy of Signarama

How signage can bolster small home-services businesses

Vehicle wraps & yard signs make a difference for home delivery & service providers

By Mike Reese

Ventura's Water Store in Ventura, California, decided to test the impact of vehicle wraps on its home delivery and retail services. They started with one wrap. After six weeks, they saw such an increase in phone calls and business in the delivery van's area that they purchased five more wraps. Now, every time they buy a new van, they have it wrapped, creating a fleet of traveling billboards. The vans also serve as giant monument signs when parked near the street in the retail store's lot, earning thousands of impressions each day.

Without question, vehicle graphics and wraps offer the best return on investment in signage for small home-services businesses, which tend to have limited marketing budgets and are often operated in residential areas or industrial complexes. In these locations, digital signage is either not allowed or won't produce the desired return because the business isn't in a high-traffic area.

I'm also seeing more interest in reflective vinyl being used in conjunction with vehicle graphics and yard signs — part of a comprehensive signage strategy that enables small businesses to fully enhance their local presence and gain a competitive edge.

The key to any signage package lies in utilizing a strategy combining professional design, strategic placement, and a willingness to adapt to seasonal needs and emerging trends.

Attention is the intention

As the signage industry evolves, we're seeing customers increasingly

turn to creative strategies and innovative messaging for their small home-services businesses.

Reflective vinyl incorporated into vehicle graphics and yard signs improves visibility and safety while maintaining marketing effectiveness — and is especially useful during winter months with reduced daylight hours. Lately, we've seen more of an interest in this in conjunction with vehicle graphics and yard signs.



Signage can be more effectively used to promote other services offered when a QR code and phone number are incorporated into the design of the wrap or sign, with a call to action such as "Check out these other services we offer" or similar messaging. Today, a QR code provides customers with a "fast pass" to quickly research and contact the company. This simple addition can add tremendous value to any sign or vehicle wrap and can often lead to a more immediate sale.

The most effective combination of signage elements are vehicle wraps (either full or partial) and yard signs posted at every completed project where appropriate. More personal, eye-catching graphics can be utilized in these instances to gain more attention from passersby.

Temporary signs, such as A-frames or yard signs, can significantly boost a business' exposure. By placing them at active project sites, contractors can attract attention from nearby residents

and generate new leads. Asking the client to allow yard signs to remain on-site for a week after completion can further extend the marketing window.

Tips for creating signs with impact

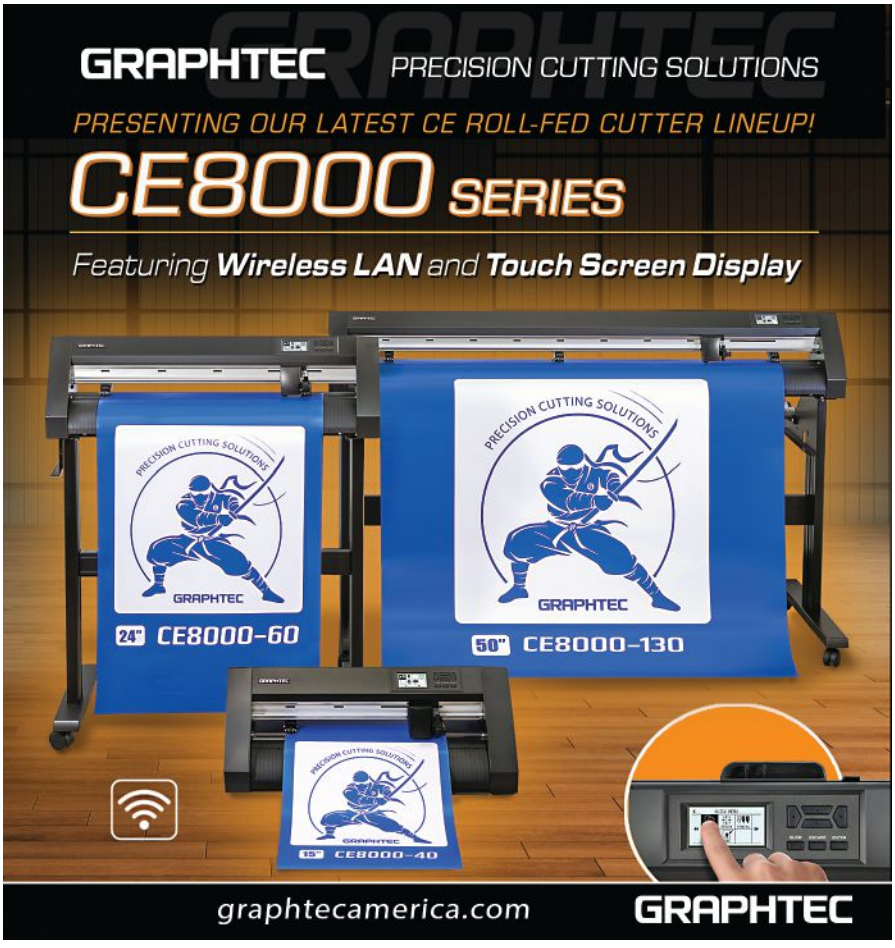
- Keeping it simple and straightforward, with the company logo prominent, is imperative. If the company name and logo don't provide a clear message as to what the business specifically does, include a small, prioritized list of services with the company's website, QR code, and possibly a phone number.
- If a company's budget is really limited, put the graphics on the back or rear of the vehicle. The tailgate of a truck or the back of the van will get more views from vehicles following behind for miles and will get more impressions than a side graphic zipping past for a few seconds.
- Consider changing all or part of the wrap seasonally, to emphasize what the most current needs of the community may be. A snow-removal service can start advertising just before winter, for instance, by adding small magnets or vinyl graphics directly to all sides of a company vehicle.
- One of the more common mistakes is trying to include too much information in the signage. Another mistake is when a customer's logo doesn't emphasize or obviously state what the company does. Take a company with a name like "Bob's Mobile Auto Repair." The words "Mobile Auto Repair" are what future customers are looking for, not "Bob's," so they should be larger or otherwise made to stand out.

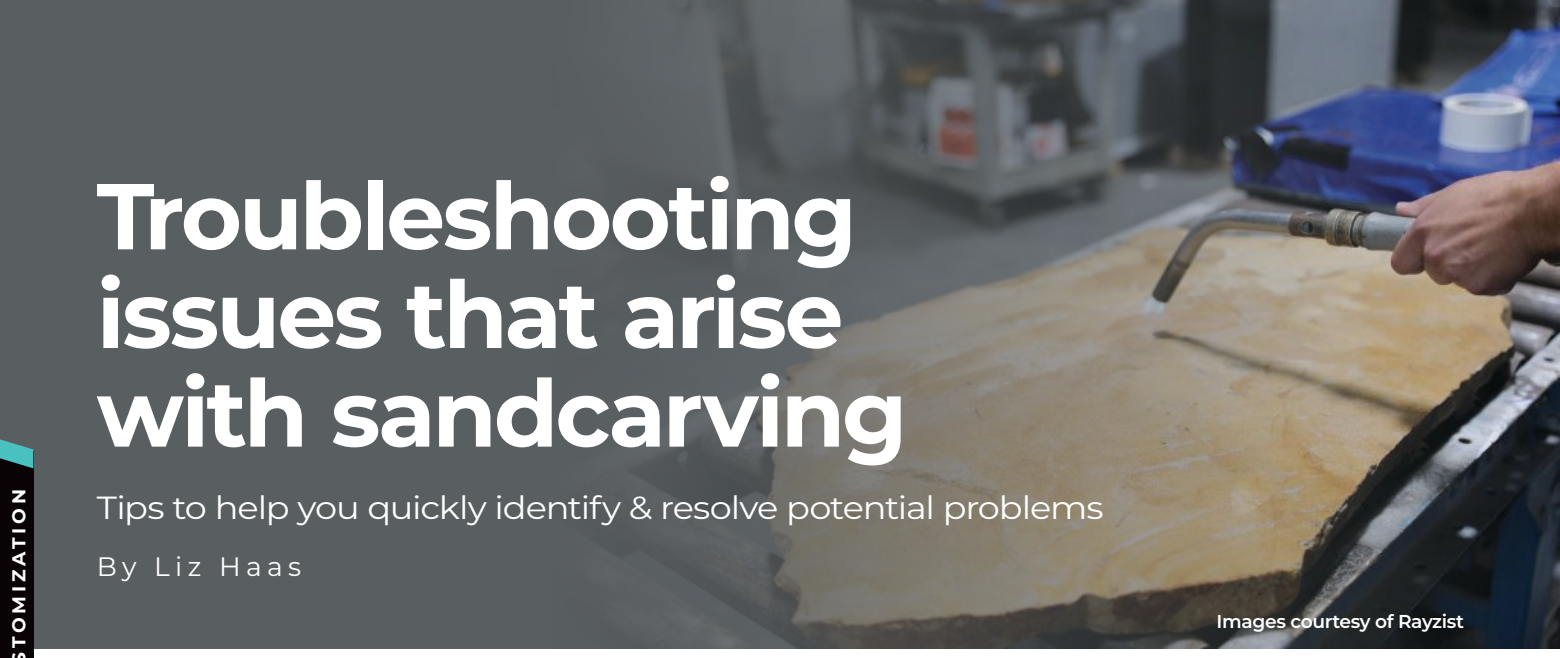
For small home-services businesses, signage represents a unique opportunity to boost visibility, attract customers, and ultimately drive growth. In an increasingly digital world, the tangible presence of effective signage continues to play a crucial role in a small business' success. Investing in quality signage isn't just an option but a necessity for growth and long-term success.

Design is everything. Having a professionally designed sign or vehicle wrap is critical to making a memorable first impression and gives the company more credibility than a poorly designed wrap or sign. Professionally designed and produced signs and vehicle wraps provide a lasting impression of the company. GP



Mike Reese is a seasoned entrepreneur and community leader based in Ventura, California, where he has served as owner and CEO of Signarama Ventura since 2000. Beyond the business, Mike is deeply involved in community service, currently serving on the board of directors for caregivers in Ventura as well as for the National Volunteer Caregiving Network.





Troubleshooting issues that arise with sandcarving

Tips to help you quickly identify & resolve potential problems

By Liz Haas

Images courtesy of Rayzist

Sandcarving is a versatile and efficient method for etching a variety of materials, offering precision and depth control to enhance perceived value. The process is straightforward — start the machine, apply the mask to your product, and begin carving. However, challenges can arise, particularly during high-production periods or peak seasons. Understanding common issues and their solutions allows for a smoother process and consistent results. This article provides troubleshooting techniques and applications to help sandcarvers quickly identify and resolve potential problems, ensuring efficiency.

Artwork prints are not opaque

The issue is that most do not realize they have light prints. The photoresist film washes out, your design appears, and you move on to sandcarving. A dense opaque print will result in a fast wash and provide the best detail achievable with photoresist film. A light print will result in a long washout, which can compromise the detail of the images. There are a couple of methods to test your print.



One is to place your print of the cylinder of the exposure unit (use UV protection glasses) or a light table. Do you see light passing through the artwork? The print will appear to be black just by looking at it, but viewing the print under light will give you the true test. The second method is placing an unexposed strip of photoresist film on the washout board. Time the washout — this should be the exact time of your washout, exposing your print film. If you find you are washing longer than the wash test, you may be dealing with light prints. The artwork is the most important part of having a good photomask, which makes a printer an important tool in the process.

We highly recommend inkjet printers because of the print settings options. Adjust the printer settings to print dark on inkjet film. This is important especially when purchasing a new printer. Take the time to go through each setting and determine which setting prints the darkest. In addition to checking the printer settings, artwork should always be set up in CMYK mode with CMY at 0% and K at 100% versus RGB mode. This will ensure the graphic is set up in 100% black.

There are several printers on the market today and searching for a printer can be overwhelming. Printers are vital to producing a photoresist mask/stencil, so it is important to have a good printer for the photoresist process. Another method of ensuring you are achieving a quality print is to invest in a rip software.

Reactivating self-stick photoresist film

Self-stick film is a water-based resist known for its flexibility and repositionable feature. Apply the self-stick photomask to the substrate, apply pressure to secure it in place, and if it is not aligned correctly, remove and apply again. Since self-stick photoresist film is water based, it can be affected by the environment. Entering winter and dry climates can affect a self-stick photoresist film. If you are working in a humid environment, the self-stick photoresist film feels very sticky because there is moisture in the air. A dry climate, such as during winter months, will cause the self-stick film to feel less tacky than normal.

A great feature of self-stick photoresist film is that you can reactivate the adhesive via moisture. Simply place the photomask on a damp, lint-free cloth and hold for a few seconds. Flip it over and the moisture has reactivated the self-stick properties in the film. The photomask is tacky and ready to use.

Inconsistent mixture of the blasting stream

The ideal blasting stream is 50% air and 50% abrasive. This 50/50 (equal parts) stream is a consistent flow, allowing an efficient etch. An inconsistent flow results in flooding the nozzle with abrasive or air. Blasting with a higher percentage of air will overtake the blasting stream and may cause the photomask to lift.



Flooding of the abrasive results in sand taking over the blasting stream, providing less power behind the media. You want a steady blasting stream packed with power to sandcarve efficiently and quickly.

An inconsistent blasting stream can begin to start when your nozzle is worn. The opening of the nozzle may start a 3/32", but after a while the 3/32" becomes a 1/8" or larger. This larger opening will cause either more abrasive or air in the blasting stream. Test the nozzle by keeping a 1/8" drill bit by the sandcarving system. Drop the 1/8" drill bit in the opening of the nozzle. If there is wiggle room, then you have a worn nozzle, and it is time to replace.

Worn abrasive will also contribute to an inconsistent blasting stream. The abrasive breaks down over time and the grit reduces in size after several recycles. As it reduces, the abrasive starts to flood through the nozzle — or a big burst of media — while blasting. New abrasive has the consistency of sugar or salt. After several recycles, the abrasive starts to break down and feels like flour. Worn abrasive will result in slower etching time. It is ideal to replace your abrasive when you change the nozzle.

Compressor maintenance

The air compressor is the lifeline to your sandcarving system. The operation of the sandcarving system is dependent on the quality of the compressor.

As we enter into the busy season, the compressor will increase in operation. Continuous operation requires maintenance. Draining the compressor is a priority. The compressor generates condensation during operation, and as the condensation builds in the belly of the tank, if it is not drained, the moisture will carry over into your hoses, foot pedal, and pressure pot.



Some sandcarving systems provide a moisture separator on the regulator, but it is not sufficient to capture excess moisture. In these photos above, we had a customer that was experiencing moisture in the airline. Once the compressor was completely drained of water, the moisture problem was resolved.

We recommend adding a moisture separator to your compressor and draining your tank often. There are a few methods to draining your compressor tank. One is installing a timed electric auto drain. The second is adding a manual valve to drain the moisture. Lastly, manually drain the moisture by the release valve (see compressor manual).

Issues with sandcarving stone

A common issue we see is the photomask will not adhere to stone or unpolished surfaces such as stone. Photoresist will not adhere to unpolished surface stone such as natural stone, brick, or concrete. A solution to get the photomask to stick to the unpolished surface is to heat the stone until it is hot to the touch. Stone has moisture and it draws to the surface with heat. Heat is generated while sandcarving. It is important to heat the surface prior to applying the photomask stencil.

A mini torch from a local hardware store or a heat gun will draw the moisture to the surface. Once the stone is hot to the touch, apply the photomask stencil. A 5-mil or 6-mil photoresist film and extra adhesive with brush-on adhesive is recommended for sandcarving stone. The photomask should be resistant to etch deep into the stone surface if desired.



Visibility

Similar to compressor maintenance, changing the viewing glass is often overlooked. Changing the sandcarving window should be replaced when the glass starts to look frosted. The best way to order the inside window glass is through a local glass store. Usually, you can get a few pieces to have as a backup. It is usually a better price and there is no chance of it getting damaged in shipping. Once the window is frosted, it is time to replace it. Visibility is key to see the process of your etching.

Back up

It is so important to have replacement parts on hand. This will save money on express shipping a part and no downtime waiting for parts to arrive. We recommend keeping a nozzle, blast hose, abrasive, and foot switch valve kit (rubber tube sleeve) on hand. After a couple of years of sandcarving, it doesn't hurt to keep a foot pedal on hand too.

By following these troubleshooting tips, you can minimize production issues and maintain a smooth sandcarving process. Proper maintenance and preparation ensure efficiency, quality, and a stress-free sandcarving operation. GP



Liz Haas has been a teacher, trainer, and show coordinator for Rayzist Photomask for 15 years. For the past 10 years, she has actively taught workshops on the photoresist and the sandcarving process.

How to run a bamboo cutting board

By John Morman

This month's article is a basic "how-to" for new engravers, using a relatively simple project as a guide. I'm going to run a bamboo cutting board. Please note that this is how I do it, and I'm not saying it is how you have to do it. (Bear in mind different machines may have different built-in features, and I can only show what my machines have.)

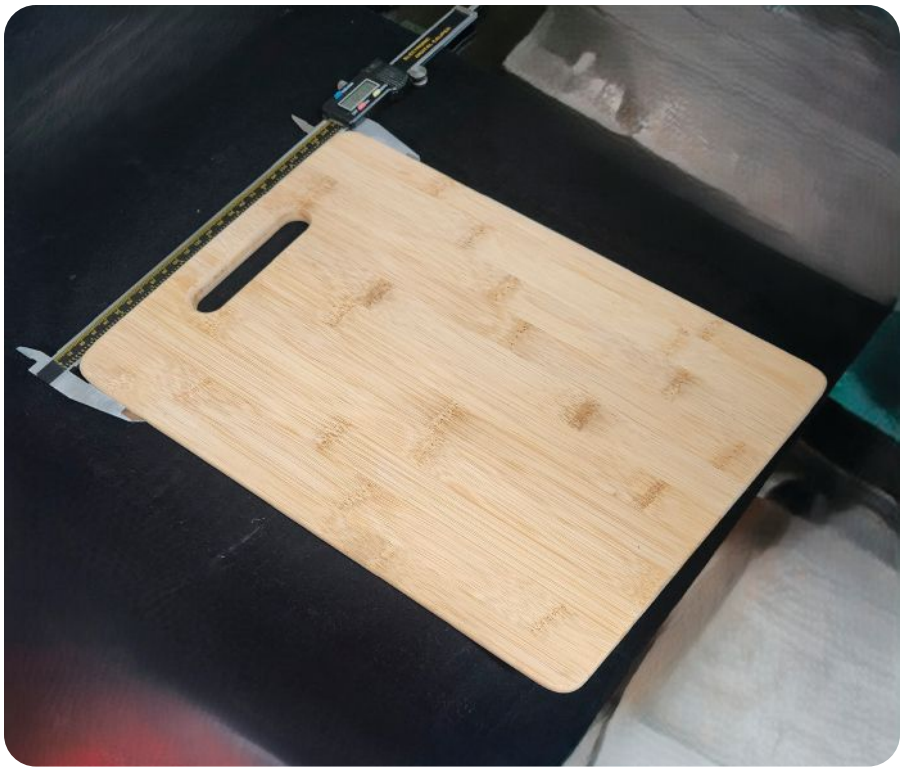
1 First of all, get your machine ready. Clean the optics and the bed. Position your piece on the bed and line it up where you want it — this is usually going to be at zero for the X & Y axes. The cutting board has radiused edges, which can make aligning the board a bit tricky if you have relatively thin X & Y rulers. I have several straight-edged pieces of varying heights to accommodate "taller" workpieces, which I secure to the rulers, allowing me to position the cutting board leading edges to a true zero position.

2 Measure your cutting board. Remember that the blankware we buy is made to nominal sizes. Manufacturing tolerances can vary widely — sometimes by as much as 1/8" in any direction, which affects where your graphic will be centered. I find it easier to create a template and adjust it to correct any dimensional changes.



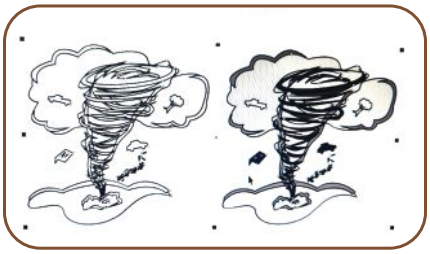
3 Focus the piece. My machines came with a focus tool, which I never particularly cared for. I cut a piece of 1/8" sheet stock to the correct focal length, which I find much easier to use. There are different tricks for different materials that can help improve the finished product — in the case of bamboo, I focus to the focal length, then raise the bed a further .060" for the first pass. I then raise it another .060" for a second pass.

4 Prepare the graphic. You will have different ways to do this depending on your graphics software. If you want, you can sketch yourself and copy, then import it into your graphics software, or you can draw your design directly into your software using a freehand tool — if you have one. There may be additional tools available to you that will help you "smooth out" anomalies. If you're not particularly artistic, there are several websites that allow the use of "free" graphics — some may require attribution, and some not. If I can't draw it myself satisfactorily, I will download a graphic to use as a guideline to redraw it, making changes or adjustments to get the finished design I want.



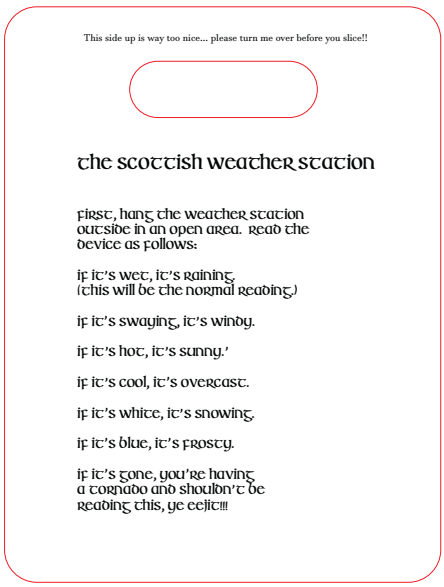
Note: You should consider bamboo a hardwood, although technically, it's grass. As such, the manufacturing process can create inconsistent surfaces. You can have very light pieces, very dark pieces, or a mixture of the two. Sometimes, you come across areas that contain fillers or heavily-cemented areas. The surface finish can be uneven. All of these factors can affect your engraving, so when selecting shading for the finished graphic, be very careful. If you are going to use a two-pass approach, remember to adjust your shading accordingly. Remember to save!

5 Prepare and set the text font, size, and justification — left, right, or center. This is reasonably simple. When placing in an engraving environment, there are a couple of things to remember. Not all fonts will allow you to use your punctuation marks, but this isn't a problem. First, write in the text. If your chosen font doesn't place the punctuation marks, remember to leave a one-character space so you can insert them later. Then, go through your font library and choose a font that will allow you to use punctuation marks and that resembles your main font. Select the appropriate mark and drag it into the space you've left. When you're done, choose "group" in your software to complete the text.

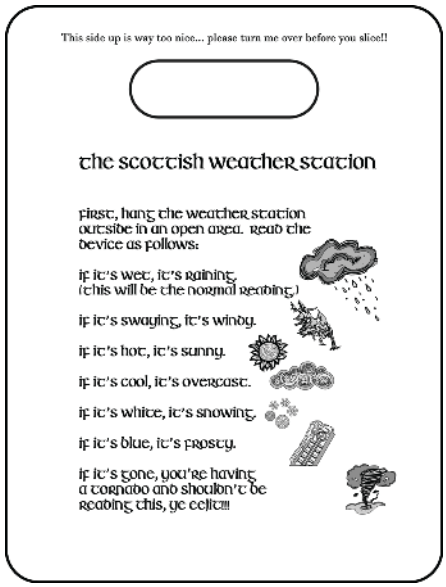


6 Position your text on the cutting board. If you're combining text with the graphic you selected earlier, retrieve it and place it within the template. You may or may not need to adjust the dimensions of either to get the "right proportions."

7 OK — as I said at the beginning, I run a second pass with bamboo at









the same settings. If the bamboo is a darker shade, I'll reduce power or increase speed to avoid getting an "overdone" piece. (As an aside, I use the two-pass approach with regular wood too. I focus to the actual focal length for the first pass at my regular settings, then raise the piece about .050" and run at slightly lower settings to achieve an almost 3D effect.)

I hope this guide will work for you with whatever machine you have. Less sophisticated machines or software will take more practice and "tweaking" and may not work at all without a good deal of effort. However, more sophisticated machines and software can pose their own challenges, too! It is possible to be "spoiled for choice," and a lot of time can be wasted by trying almost endless combinations of speed, PPI, power, shading, outlines, and so on. Keep your "mistakes" — we all make them, but for newcomers in particular, it can save you a lot of money by having something to work with. As always, good luck and make money! **GP**



John Morman is the owner of Celtic Tides in Lexington, Virginia. He and his wife, Mary Jo, have been running the shop since 2005. John started laser engraving in 2003.

5 questions *with...* Christine Geronimo



Christine Geronimo is the owner of Midnight Supply Company, a screen print shop and merchandise fulfillment business. Much of her work over the past 10 years has revolved around branded apparel and building on the growth that it provides to independent artists in Seattle.

1 The second-annual Colorways summit is Aug. 14 & 15 in Chicago. What inspired you to form the organization?

Being a Filipino woman in a white male-dominated industry has not always made me feel a true sense of community. I wanted to bring forth a space that other women of color could feel seen and experience empowerment. We are constantly underrepresented in many aspects like management and ownership roles, down to being selected to speak at conferences, podcasts, and awards for women in print. I am inspired by the personal stories of other women of color who have experienced instances of discrimination, how they've been able to persevere and run successful businesses, so I put this summit together to continue to keep us inspired.

2 How did you get your start in the industry?

I started as a client of the print shop. I was working with independent musicians in the Seattle area, helping them to produce merchandise for their albums, shows, and tours. The opportunity came up, through my network in the music scene, to manage an already existing print shop. I managed it for two years before the owners offered to sell me the company.

3 What's your favorite project you've worked on?

One of my favorite projects that I've worked on was the album merchandise for an artist named Steve Lacy. We set up his e-commerce website, printed all the merchandise, and sold out within hours. This led to us producing all the merchandise for his fall tour, which ended up being the biggest order we've ever had.

4 In your opinion, what is the most challenging aspect of the industry?

Screen printing, ha-ha! So many details and factors go into printing one shirt. Not many people know what goes into the set up.

5 How does working with clients and causes you believe in impact your business?

Staying true to who I am, building on organic relationships with our clients and supporting the community around me has only had a positive impact on my business. We surround ourselves with people and companies that we like and this creates an environment that continues to keep me motivated and inspired. I want to continue to support small businesses and creative artists because that's who supported me when I started. **GP**



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Images courtesy of M&R Printing Equipment

Apparel decorating techniques

By Paula Aven Gladych

How screen printing, direct to film, direct to garment & embroidery compare

The apparel decoration industry continues to evolve and innovate while using some of the same applications it has used for decades. Do you have 1,000 T-shirts you need printed? Screen printing is your most economical choice. Do you have a small order for apparel? Direct-to-garment (DTG) printing may make more sense. Want something a little more professional or luxurious? Consider embroidery.

The newest technique, which has been gaining in popularity, is direct-to-film (DTF) printing or direct-transfer film. That is the process of printing a design onto heat-transfer film that is then applied to a garment with a heat press. What makes the technique so popular is that companies that know they will need future apparel with the design can proactively purchase additional transfers that can be applied at a future date.

Screen printing

Screen printing has been around for hundreds of years, but it wasn't until the 1980s that the process became more automated. Now, screen printing is accessible to home-based businesses as well as commercial print operations.

Screen printing is a process in which ink is forced through a mesh screen onto a surface using a blade or squeegee. A stencil blocks the areas that should not be printed. Each color requires a separate stencil and screen, which can be time-consuming.

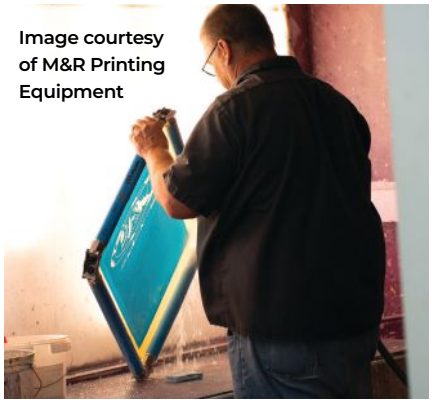


Image courtesy of M&R Printing Equipment

M&R Printing Equipment makes several automatic textile presses that allow screen printers to operate in places that couldn't accommodate them in the past. These oval automatic presses are modular, enabling users to configure a single press with more than 50 printheads and do multiple screen-printing jobs simultaneously.

"Screen printing is like the standard for a lot of garment decorating," said Cody Corsano, print applications manager for M&R Printing Equipment. But the invention of digital inkjet and DTF have started cutting into its market share. That's why the company has expanded its offerings to include DTF and DTG printers.

"The thing with screen printing is it is very process-oriented. If you are not following the process correctly, it is hard to get a commercially acceptable print," Corsano said. "But in my opinion, it is one of the most versatile ways to print."

Screen printing can be applied to any type of fabric because there are inks in the market that are specifically formulated for them.

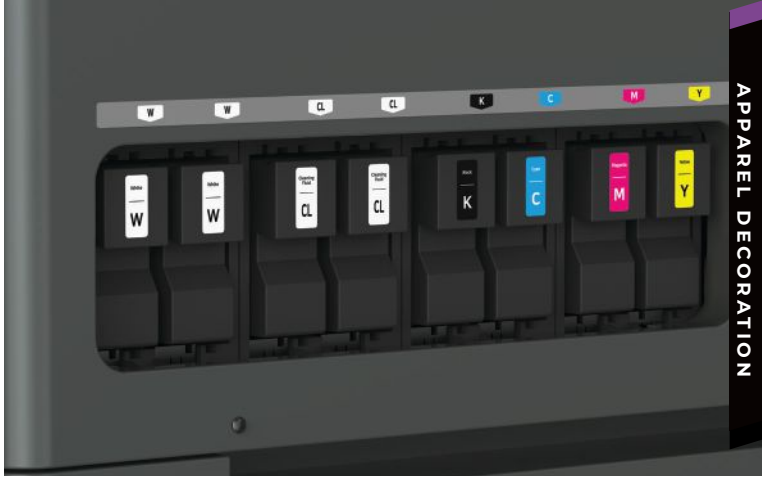
It also has low setup costs. Once a silk screen stencil is made, it can be



Image courtesy of DTG Connection



Images courtesy of DTG Connection



used to print a large number of items, lowering the print cost per item. Screens are inexpensive and can be reclaimed and reused for hundreds of prints. Another benefit is durability. Screen printing lays down a thicker layer of ink that keeps prints from fading as quickly in direct sunlight.

The cost of entry is very low. Individuals can get into screen printing for a few thousand dollars, including a small press, ink, tools, adhesives, screens, cleaning supplies, and a small printer to make the stencils.

Because screen-printed graphics need to be cured, a small flash dryer or heat gun can do the job.

Screen printing works best for simple designs. If a client wants a photo reproduction, DTG or DTF is the way to go. It also takes time to make the screens, which can become cost-prohibitive for smaller print runs.

Screen printing can also be used to print designs on film, which can be transferred to apparel using heat.

"Everybody is saying digital will kill screen printing, but screen printing is still here. Now they are saying DTF is going to kill screen printing. It all depends," Corsano said. "To say it is not shifting would be just as crazy."

Direct to garment

DTG printers were a game changer when they were first introduced in 1996. Most of the first DTG machines were modified Epson paper printers. Epson is still a major player in DTG and DTF, offering smaller entry-level inkjet printers for as little as $7,000, and more expensive equipment





Images courtesy of Insta Graphic Systems



that is purpose-built for textile printing, including the printheads.

DTG is "really attractive if you are printing on 100% cotton," said Karl Tipre, owner of DTG Connection. "It breathes, is a soft hand, and is a quick direct-to-print process."

DTG ink and print quality are hard to beat, he added, because they create nice, vibrant prints. To print directly onto a shirt, it needs to be pretreated. Print shops can pretreat their own shirts or purchase pretreated shirts for 60 cents to $1 more, which allows them to print anywhere they want. "It smooths out the DTG process," Tipre said. "Then you don't have to buy a new, expensive treatment machine, which is one more thing to clean and maintain. I'm a big fan of that."

DTG printers use water-based pigment inks, which is a clean process. Prints do need to go through a heat press to set the design.

Digital printing is faster than screen printing. Once the design is uploaded to the printing software, all an operator has to do is press a button and watch it do the job. Many DTG printers can also be used for DTF.

Direct to film

DTF is one of the most economical ways to enter the apparel decoration market. DTF printing systems range in price from $5,000 for a desktop version to $100,000 for a high-volume variety.

"That's pretty cheap compared with setting up an entire screen-printing operation," said Greg Farmer, a sales executive at Insta Graphic Systems.

Just about anyone can get into DTF printing, all it takes is an inkjet printer that uses both color and white inks. When the design is printed on the transfer film, it starts with the colors, followed by a layer of white ink. A layer of powdered adhesive is placed over the top of the design before it is heat-cured.

Once the transfer is cured, it can be immediately applied to a textile using a heat press. Roll-to-roll printers make the process go much more quickly.

One of the downsides to DTF is that the powdered adhesive can get everywhere, so operators need to use gloves and wear a mask. It is also a good idea to place the printer in a well-ventilated area. Farmer said he would not want to put a DTF printer in his house.

Insta Graphic Systems also sells screen-printed heat transfers, which produce a better-quality print than DTF, he said, but are messier and more time-consuming to produce.

"That is where DTF is finding its niche," Farmer said. And although DTF is not quite at the quality of screen-printed transfers, "It is catching up pretty quickly. I would say it is still not there yet

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Image courtesy of Barudan America

with durability compared to screen-printed transfers, but it won't be very long" before it improves, he said.

Some big-name printer manufacturers are starting to make DTF printers, including Epson and Mimaki. Many shops like the process because it is versatile, and the transfers can be placed on many different fabrics.

"It boils down to the adhesive," Farmer said. Some substrates require a different adhesive to work effectively. "People who know what they're doing will experiment with different inks and adhesives and will find their own formula that works for them whatever the customer application is, whatever it might be."

The upside of DTF is that the transfers can be printed on demand and the process only requires one operator, who doesn't have to babysit the machine. "Most systems out there can run autonomously," Farmer said.

"Some of the people getting these systems are able to take on jobs they were not able to do before," he said. If a shop is working with a brand that is selling custom prints on its website, the seller doesn't have to order 500 shirts at once. It can order single prints for the same cost in materials per shirt as if they ordered 10,000 shirts, Farmer said.

Shops can get into DTF for less than $3,000. All they need is a heat press. They can order their DTF transfers online or purchase their own DTF printer.

Embroidery

Embroidery has always been a popular apparel decoration technique for baseball caps, apparel with college teams or sports logos, or corporate wear.

"I don't see it slowing down any," said Bob Stone, VP of sales for Barudan America. "It's a small industry as industries go, but it has still been pretty popular in the years I've been here. I don't see it slowing down, especially in the states."

Just about any article of clothing can be embroidered. The only necessary improvement is the type of backing that is used. Thinner fabric will need a thicker backing so there is something solid for the embroidery needles to work through.

It costs about $16,000 to get started in the industry and there is a slight learning curve, Stone said. "Embroidery is not hard to learn, but it takes a bit of time to become an embroiderer," he said. "We can teach you to operate the machine in an hour, but like screen printing, there are little nuances you need to know for your work to come out good."

Stone added that, like anything else, "You learn by making mistakes along the way."

In the past, shops would have to take classes in person, but online training makes it easier for people to get up to speed quickly, although there is still a learning curve, he said.







Images courtesy of Barudan America

It is important to use good thread and good bobbins. "If you try to buy cheap thread, cheap bobbins, or cheap backing, you will get poor results," Stone said. "Start with a good machine, good supplies, and 99% of the time, it works out really well."

The downside to embroidery machines is the software. If a design is not digitized correctly, "You will have a mess on your hands. You can get away with more sloppiness in screen printing if it is not as precise," he said.

Embroidered designs have to be built in a particular way because the design has to be sewn in a particular order or sequence, or the design will be out of registration or look bad. The general rule is that everything starts from the center of the design and is sewn outward. You can't just produce the design by sewing left to right because the needles will begin to push the design to the right. It will pucker the material, especially if incorrect backing material is used.

Monogramming is another embroidery technique that goes in and out of popularity. For a while, women wanted monogrammed handbags, and men wanted monogrammed shirt cuffs or collars. Where embroidery still reigns supreme is in the personalization market. People can go online and order personalized apparel, backpacks, or even Christmas stockings.

Out of the four apparel decoration techniques, the quickest and cheapest option for entry into the space is DTF. The learning curve is less steep than some of the other options, and it can be used to personalize objects, such as mugs, as well. If a shop decides to purchase an apparel printer, a small DTG/DTF hybrid is a great option, as it doesn't take up much space or require a ton of cleanup afterward. Screen printing will always be an option for larger apparel orders and simple designs, and it is fairly easy to master. Embroidery makes a nice alternative to printing and appeals to a different subset of clients. **GP**



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GRAPHICS PRO

Tour de Palm Springs

Bike race raises funds for many

By Lon Winters

Images courtesy of Lon Winters.



As I write this month's article, we are usually running the Dolphin Cancer Challenge job. Bad news. Our client, Primal, didn't get the merch order this year. It's usually a big project and helps Q1. We can't do much about that, but we do have another project that is new this year and is a biking event for charity as well.

The Tour de Palm Springs is one of the largest and most festive cycling charity events in the U.S. Every year, 10,000 cyclists from nearly every state and several countries participate. Since 1998, with the help of thousands of volunteers, the Tour de Palm Springs has raised nearly $4 million and contributed to over 150 local nonprofit organizations. The original bike event in Palm Springs, California, had 5-, 15-, 25-, and 50-mile rides. The first event, at the time called Spokes for Different Folks, featured 400 riders. (We kind of like the original name.) It raised a humble $20,000. After the first ride, the not-for-profit organization Coachella Valley Serving People In Need was established. The first official Tour de Palm Springs was the next year and included 1,000 riders and a 100-mile ride was added. By 2015, $180,00 was donated to 80 charities.

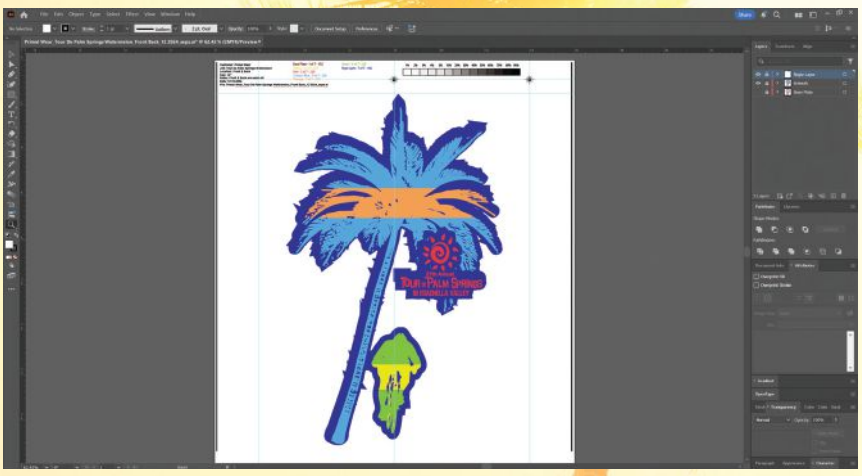
We're not sure about a 100-mile ride. The shorter walk distances may be for us. Primal Wear, a three-plus decade customer, provides the merch for this and other biking events and are a sponsor. Primal is an aggressive cycling apparel brand. We handle the screen-printed apparel for them. We are lucky enough to make our contribution in this way. Primal usually provides

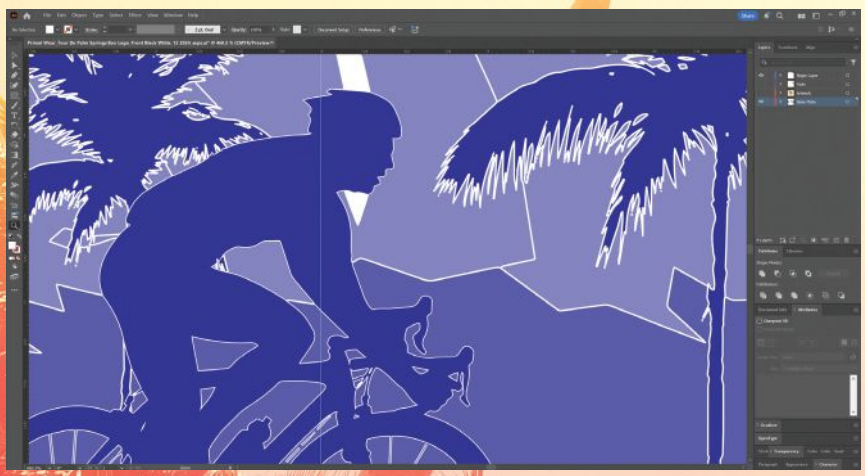
us vector art ready to separate. This time, however, was a bit different. Two designs were provided that looked as if they were traced using an automated tool. One image for white and black and one for watermelon. After opening new art boards in Illustrator and placing our designs in separate files, we could massage, or, in this case, rebuild the art. Besides the poor traces, upon further examination we had way too many colors. For the cycle sunset image, we went to the Color Panel Options and selected Add Used Colors to place the colors in the design to our palette. We counted about 32. For practical purposes, we decided we would print eight screens, including two of white and black. We selected the colors that were most obvious and made them spot colors, grouped them together, and stuck them on their own layers. We could then identify the additional colors and put them on each layer of similar color.

Next, we tackled our white printer, or base plate. We used the base and black of the substrate to help create several colors of maroon by selecting these areas and applying variable halftone percentages. This also minimized stucco texture, keeping the inks smooth during wet-on-wet printing. The black show-through helped us build the darker tones. We added a gutter separating the colors on the base to keep it clean on press. The sun was made up of six colors. We used a bright yellow from the image at 100% and printed a variable gradient of red on top. We selected the pieces of the sun individually and changed their opacity in the transparency option. We chose from top 10%, 20%, 40%, 50%, 80%, and 100% respectively. That gave us enough change from color to color and created that gold-to-orange-to-red blend with just the two screens.

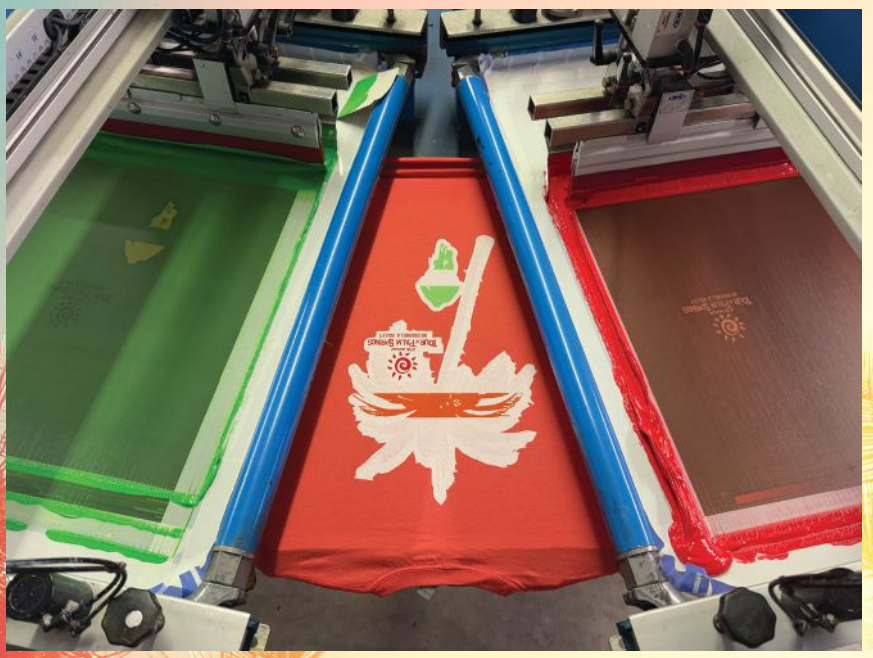
The second image wasn't quite as complicated. We still did a little work to the white printer. This was seven colors. The ink colors were a bit

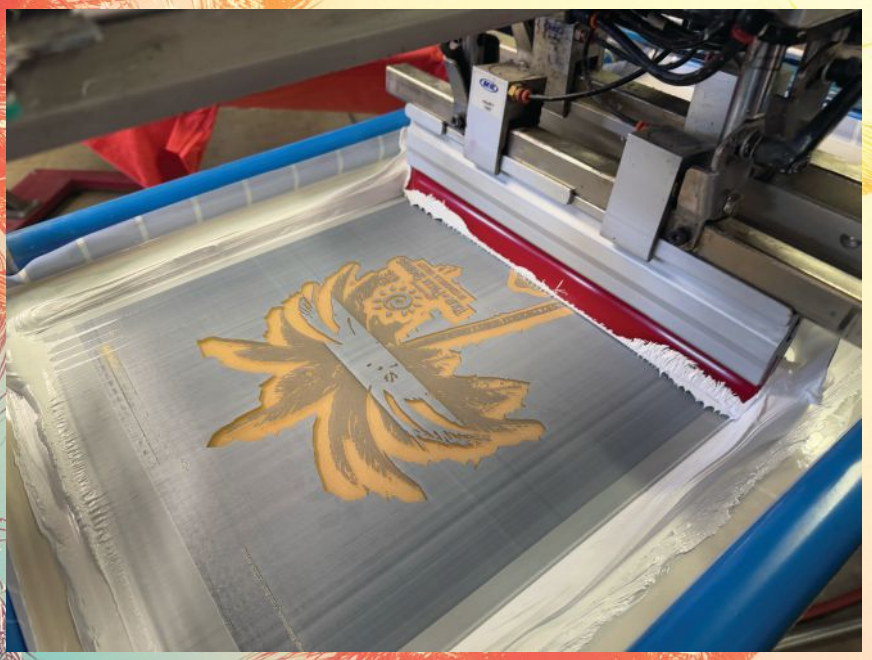


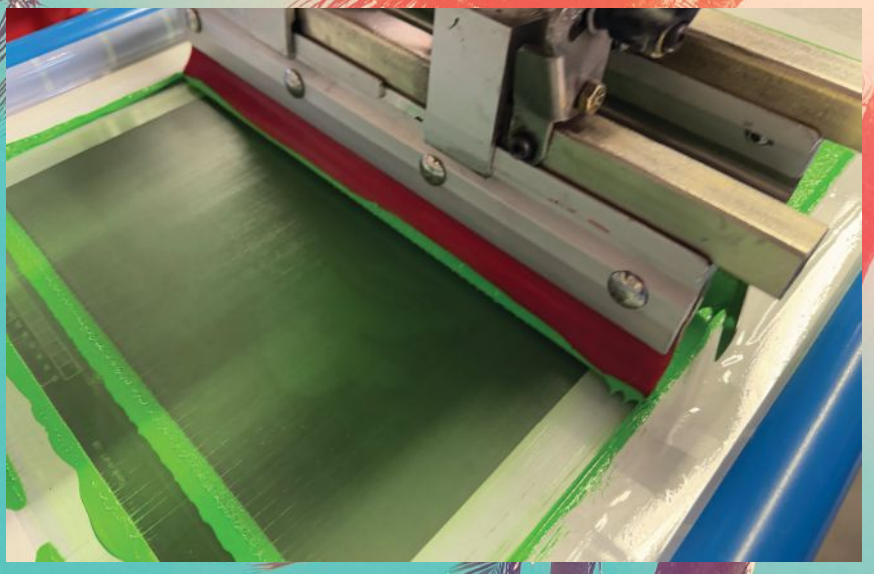


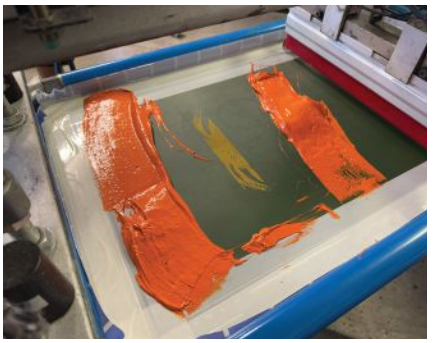


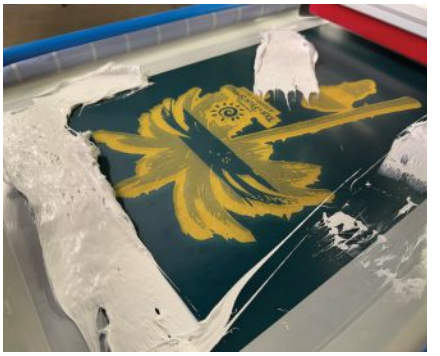








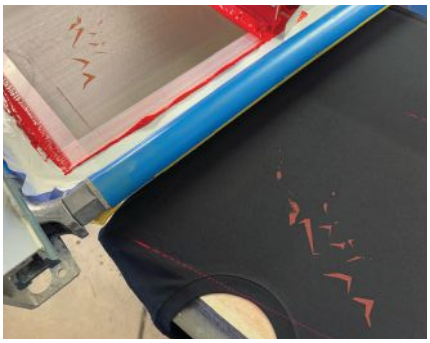


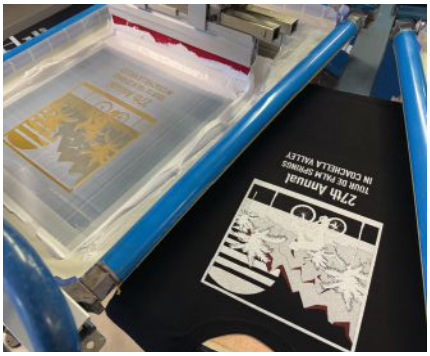


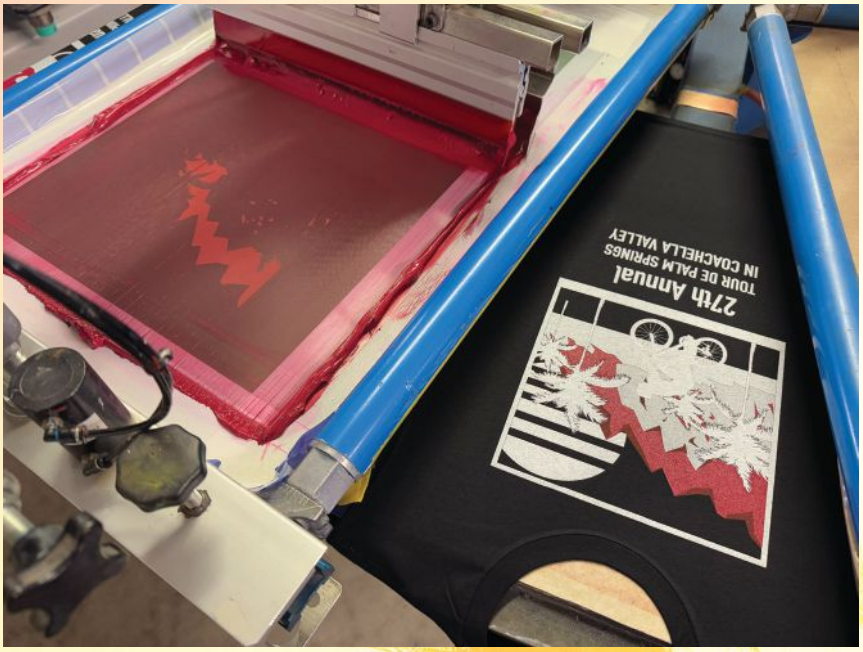
tropical and we completely knocked out the base from the red and orange to print on watermelon. We pushed the white back to 70% opacity for the blue and 80% on the green so they had some place to go and wouldn't smear on press. We added our choke and gutters to the white between colors.

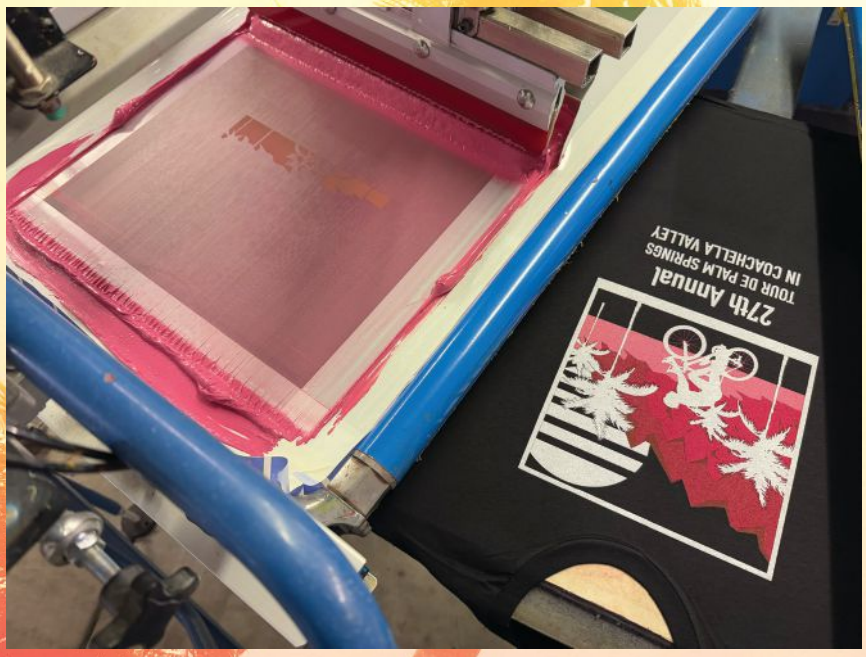
For the less complicated palm tree design, the orange screen was first on an N-228 screen mesh and printed directly on the garment, which would lift or split on the white printer which was next on an N-102. We flashed and then ran the dark red type direct as well as the green, and finally the blue palm tree wet-on-wet on N-272s. After flashing, we printed the highlight white and lastly yellow — also on N-272s.

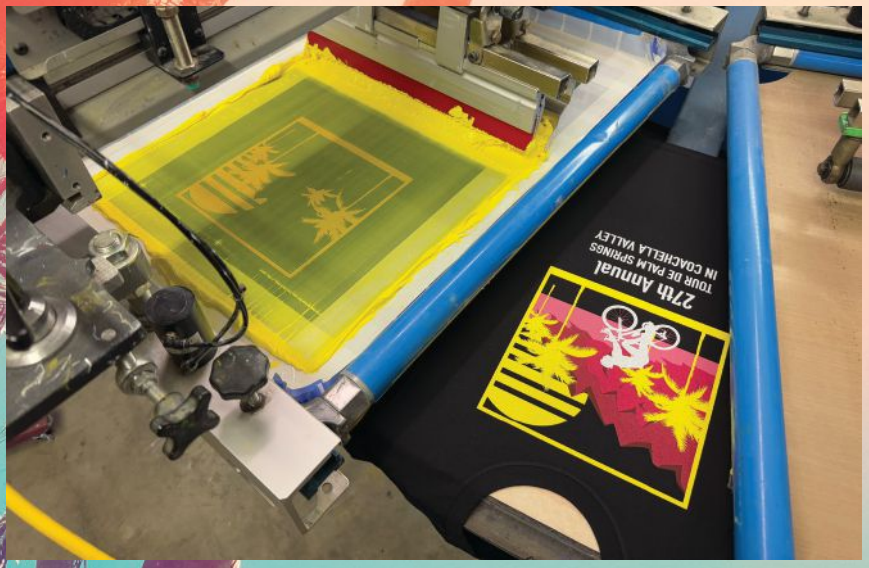
Another challenge printing the sunset rider was the bright yellow on black. The white printer went on an N-102 mesh with a 20% EOM (emulsion over mesh) stencil for a deliberate ink deposit and ran 100% under that yellow. That alone wasn't enough as this was a large run, and ink would likely reduce in opacity. We chose an athletic lemon yellow that had a lot of body. The print order started with the mountain tops, which was the darkest red directly on the fabric and natural split on the white printer next in line followed by a flash. We











printed three reds in a row, darkest to lightest. The first two darker tones went on N-272s to minimize ink deposit. WE put the brightest color on lower mesh N-228 to help maintain the brightness. After flashing, we placed our yellow down, then a final flash followed by the last two colors, the halftone red and the highlight white.

The Tour de Palm Springs in Coachella Valley is set to return for its 27th year, promising another unforgettable weekend of cycling, community, and charitable giving. Taking place on Feb. 8 in downtown Palm Springs, this event has once again honored first responders and veterans with a variety of rides and walks suited for all fitness levels. This event touches the lives of many. **GP**



Lon Winters is founder and president of Colorado-based Graphic Elephants, an apparel decorating studio and international consulting firm. He was inducted into the Academy of Screen and Digital Printing Technologies in 2013 and is widely recognized for his contribution to the graphic printing industry. Learn more at graphicelephants.com.

How to open an online store & grow your business PART 1

By Matthew Rhome



Opening an online store allows small business owners to stay competitive, open new markets, and increase revenue streams. With customers increasingly shopping online, having a digital storefront is no longer optional; it's an absolute necessity. An online presence not only helps businesses reach a wider audience but also provides the convenience and accessibility that modern consumers expect.

Building your online presence is easier than you think. Start small by creating a simple website or social media page to showcase your products or services. Take advantage of free tools, such as website builders, social media platforms, and email marketing to get started without breaking the bank. As you gain confidence and experience, gradually expand your e-commerce presence by adding features like a product catalog or customer reviews. Every small step forward not only strengthens your brand but also helps your business reach more customers worldwide, opening new opportunities for growth and success.

When you're ready to start, choose a platform that fits your needs and begin exploring the exciting world of online business. You can start small with minimal or no investment and gradually build as you gain experience and confidence. With a wealth of resources like tutorials, tools, and online communities available, it's easier than ever to learn the ropes and grow your business. Take it one step at a time, and before long, you'll be on your way to creating something truly fulfilling while boosting your revenue.

Opening an online store could be a game changer

Are you a business owner relying solely on in-person sales? An aspiring artist with a standout design? Or someone who dreams of offering products without the hassle of owning or maintaining production equipment? If so, starting an online store could be the game changer you need.

An online store allows you to scale your small business, reach a global audience, and operate 24/7. Whether you're a retailer, a crafter, or a service provider, it opens the door to new opportunities, multiple revenue streams, and greater financial growth while making your products or designs accessible to everyone.

The internet has evolved beyond mere convenience; it's where your customers shop. If your business isn't selling products online, you could be missing out on a significant share of the market.

Why you should start selling online today

There are several compelling reasons to open an online store, but here are three of the most important ones:

1 Reach more customers

Brick-and-mortar stores are often restricted to serving a local customer base or those willing to visit in person. In contrast, an online store eliminates these geographic limitations, allowing your business to reach a global audience. Additionally, operating online spares you the significant costs of maintaining a physical location. Your store becomes accessible anywhere with an internet connection, offering unparalleled convenience and reach.

Imagine you've created an amazing T-shirt design but you live in a small town where your reach is limited to local customers. By setting up a digital storefront, you can completely transform your business, allowing you to showcase your unique products to customers nationwide, or even worldwide. With the power of the internet, you can reach audiences you might never have connected with otherwise.

2 Offer more products

Expanding your store online allows you to tap into additional revenue streams. Beyond selling current products, you can offer other items with your unique designs.

Mix things up. Imagine offering seasonal designs or exclusives not available in your store. By using an online store linked with a fulfillment partner, you can offer additional products without requiring more

production space, inventory, or equipment expense.

What if your customer is planning a family reunion, with relatives scattered across the country? An online store provides the perfect solution, allowing each family member to choose their preferred shirt, select the right size, pay for it, and have it delivered directly to their doorstep before the big event. By offering additional products such as bumper stickers, sweatshirts, tote bags, or other branded merchandise through a linked fulfillment partner, you can expand your product line without the need to handle production yourself. These partnerships help expand your product offerings while aligning with your brand, giving customers more choices and ways to connect with your business. This not only creates new revenue opportunities but also helps strengthen customer loyalty and satisfaction by offering additional products.

3 Operate 24/7

Physical stores have set operating hours, often limiting when customers can browse and make purchases. In contrast, your online store is open 24/7, providing the ultimate convenience for shoppers to explore and buy products anytime, whether it's early in the morning, late at night, at work, or at home. This around-the-clock accessibility ensures you never miss a potential sale and makes shopping easier for customers with varying schedules and in different time zones.

Imagine making money while you sleep. By linking your store with a reliable fulfillment partner, your customers' orders could already be produced, packaged, and shipped by the time you wake up. This means less stress and more efficiency for you, as the entire process runs seamlessly in the background. Success lies in understanding your customer's needs and delivering exactly what they want, quickly and effortlessly, while freeing yourself to focus on growing your business and improving your products. With the right systems in place, you can create a business that works for you around the clock.

Types of web stores

Before you start setting up a web store, you should have a clear understanding of the different types available to guarantee the perfect match for your business. Generally, web stores fall into three main categories: hosted, self-hosted, and specialized platforms. By understanding these types of web stores, you can choose the right option to align with your resources, technical capabilities, and long-term vision.

- **Hosted web stores**
  Hosted web stores, also known as SaaS (software as a service) platforms, are managed by third-party providers. These platforms offer user-friendly interfaces, comprehensive support, and pre-designed templates, making them ideal for beginners or small businesses. Since the hosting is taken care of, you don't need to worry about managing servers or complex technical aspects. However, you may still need to manage shipping and payment services.

- **Self-hosted web stores**
  Self-hosted web stores provide more flexibility and control, as they allow businesses to build and manage their stores. While they require more technical expertise, self-hosted options ensure greater customization and scalability for businesses with unique needs or rapid growth expectations. However, managing hosting, security, and maintenance on your own can be a significant challenge for a small business.

- **Specialized web stores**
  Beyond hosted and self-hosted options, there are other web store types tailored for specific purposes. For instance, multi-vendor marketplaces allow individual sellers to list products on a shared platform. Similarly, social commerce platforms and shops leverage the power of social media, enabling businesses to sell directly through these channels. Each option caters to unique business models and audiences, offering versatility for different goals.

- **Fulfillment-based web stores**
  For a hassle-free option, consider using a service that provides an all-in-one solution and a free web store. These platforms offer a no-cost online store and even handle fulfillment for you. Simply upload your artwork, and they'll take care of printing, packing, and shipping your products. Many services also manage payment processing, making it even easier. All you need to do is set your prices, and they'll send you the profits after deducting the cost of the item and shipping.

  The appeal of these stores lies in their ability to offer a wide range of printed products, from T-shirts and caps to stickers and signs, all while requiring minimal effort from you. All you need to do is provide your artwork or design, and they take care of everything else, including production, packaging, shipping, and payment. This seamless process allows you to focus on your creativity and vision without worrying about the logistics of bringing your products to life.

  Consistently delivering quality products and reliable shipping is very important for the success of your online store. Negative reviews can quickly harm your reputation. When starting out, consider using an e-commerce platform that partners with a trusted fulfillment service to streamline operations and ensure customer satisfaction. **GP**



Matthew Rhome, a DTG industry pioneer, launched the first commercially available DTG Printer, "Revolution," obtaining the first U.S. Patent for DTG printer technology. With over 45 years in garment decoration, his contributions greatly influenced DTG's success at Brother International and Epson America. Matthew has excelled in printer technology, business ownership, invention, and equipment design.



Shifting the embroidery professional mindset

From operator to entrepreneur

By Jennifer Cox

As embroidery professionals, we know the sounds and the rhythms of our machines intimately — the hum of the needles, the intricacy of each layer forming, one after another, and the satisfaction of a completed and flawless design. But there's a pivotal moment in every successful embroidery business owner's journey when you realize that technical skill alone won't take you to the next level. It's transformation from being a machine operator to becoming an entrepreneur. When you make this shift, the ripple effect is truly impressive. The switch isn't just about titles; it's about a mindset overhaul that revolutionizes how you run your business.

So, how do you move from machine operator to entrepreneur? It starts with understanding how you see yourself and your role in your business. When someone asks you the ever-popular question, "What do you do?" how do you respond? Grab a pen and paper, write down how you answer this question, right now (no cheating, do not read ahead yet). Go ahead, I will wait while you write down your answer.

Your answer provides excellent insight into how you see yourself and your role as an embroidery and apparel decoration professional. How you think about yourself, and more importantly, how you identify your role in your business, is critical to your ability to achieve success.

Some of the most common answers are:

- I do embroidery
- I have an embroidery machine
- I run an embroidery business
- I own [insert your business name here]

Unfortunately, these responses probably do not mean much to the person with whom you are speaking. The word embroidery often makes people think of an older woman holding a needle and thread and making something pretty and old-fashioned. That is certainly not what we do! Unless your business is in a retail or high-traffic area and has excellent signage, your company name may not be one they recognize, doing you little good when you mention it by name. If you answered the question above in a way that is similar to any of the examples listed, it is likely that you are in the machine operator mindset, and making your business decisions from this perspective.

The machine operator mindset focuses on production, precision, and technical excellence. As an embroidery machine operator, you're in the trenches, perfecting thread tension, adjusting machine settings, hooping the next run, and ensuring that every design is just right. This is critical work. Unfortunately, it is also very limiting. You are tied to the machine, and the level of profit for your business hinges entirely on your ability to keep that machine running.

An entrepreneurial mindset

As a business owner and entrepreneur, your focus broadens from running your equipment to strategizing growth, building client relationships, building your brand, and maximizing profitability. It's about seeing your

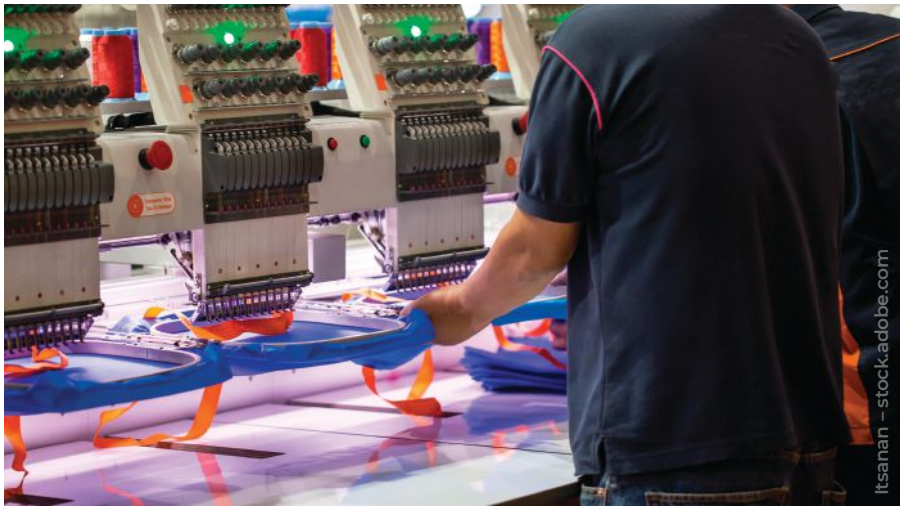


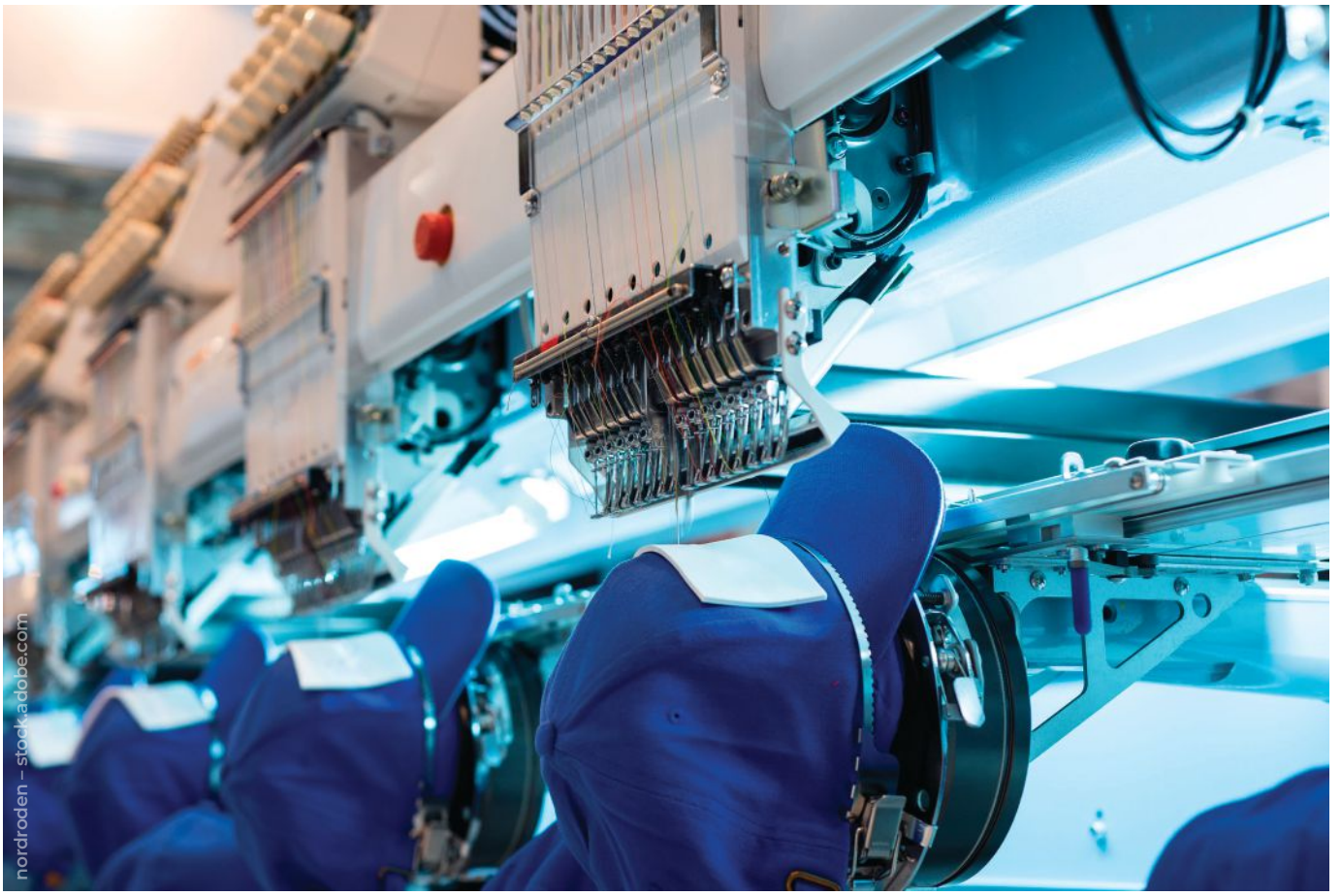
work as a pivotal component of a bigger picture — the success of your business. You own a business, and your product is the embroidered and decorated apparel and products. It may seem like a minor difference. Reframing how you think of yourself in relation to your business will trigger changes in how you make decisons, how you spend your time, and reprioritzes the work you do each day. It leads to long-term success.

Entrepreneurs think big and they think ahead. They are not just focused on the here and now. They think about what's possible in the future as much or more than they think about what is scheduled on the equipment this week. Entrepreneurs ask questions like, "How can I get in front of more potential customers?" "How can I serve my customers better?" "What would the next level of my business look like?" and "How can I take my business to that next level?"

There is a key difference between the operator mindset and the entrepreneurial mindset. Operators work in their business, while entrepreneurs work on their business. Making the transition may not be easy, but it is certainly worth it. Your passion for embroidery can fuel a thriving business that not only creates decorated apparel and products, but also enhances your customers' brands and creates lasting partnerships with your customers.

When you adopt an entrepreneurial mindset, you start to see your business through your customers' eyes. You realize that your value isn't just in producing high-quality embroidery; it's in solving your customers' problems, offering creative solutions, and exceeding their expectations. Perhaps your customers need a faster turnaround time for a specific order, or unique apparel options, or design expertise they can't find anywhere





else. Entrepreneurs look for and then deliver on these needs. Machine operators sell shirts and hats.

As you transition into the role of a business owner, you become a partner in helping your customers' businesses shine. Your embroidered and decorated apparel and products go beyond colorful threads and needles — the things you create become a statement, a representation of their brand values, and a key element in the company's success story. Your customers match your mindset shift, evolving from thinking of you as their "shirt guy" to thinking of you as part of their marketing and branding team, filling a key role in that capacity. There is a domino effect that leads to growth and collective success.

Machine operators usually try to do it all themselves, as "No one else can do it like I do." Entrepreneurs recognize the power of building a team. By learning to let go of the need to create every single stitch, you can delegate some of the day-to-day production, freeing yourself up to focus on growing your business. Even if you have no employees, you can find contract shops with whom you can build relationships so that you can depend on them to create the work as well as you would and meet the order deadlines as you would. If you do have staff, spending the time to bring them up to your level of satisfaction is the best investment of your time you can make.

Once you make the shift to an entrepreneurial mindset, you are no longer limited by the number of hours you can spend at your machine. You can think about scaling your business, developing new marketing, or streamlining your order process with a better system. These things not only increase your income but also build a business that can thrive without your constant presence running your equipment.

> **"Remember, stepping back doesn't mean losing control — it means gaining the freedom to craft your ideal business."**



One of the hardest parts of this transition is letting go of the equipment. It can feel like losing a piece of your identity; at least it did for me. Remember, stepping back doesn't mean losing control — it means gaining the freedom to craft your ideal business. Your time is better spent steering the ship than rowing it.

So many of the embroidery professionals I work with feel unprepared and unqualified to run the business side of their companies. The good news is that you do not have to figure it out alone. There are so many resources available to you, from industry groups to online courses, to help you master marketing, financial management, and sales. Invest in yourself and develop your business skills as wholeheartedly as you invest in your equipment.

I have worked with so many embroidery business owners and helped them make this shift. It is inspiring to speak with them several months or a year later and hear that they have grown their business by 25%, 50%, or more. It is possible to have a single-head embroidery machine and generate $100,000, $200,000, or even $500,000 in sales when you have the entrepreneurial mindset and trust your production partners. When you learn to trust your desire to say "Yes," to your customers and know that you can find a way to deliver, even if you do not create a single stitch yourself. Other decorators have let go of the digitizing, and found someone to create their embroidery design files, freeing up as much as 20 hours a week for them to make sales and run their machines. That one change pushed their sales from $27,000 to nearly $75,000 in just under a year.

This pivotal shift is not just about changing how you work; it's about changing how you see yourself and the role you have in your business. Going from "I do embroidery" to "I'm a business owner. We offer branded apparel and products" is a powerful transformation. It opens the door to building something long term and bigger than yourself.

Transitioning from operator to entrepreneur is a shift that requires courage, effort, and a willingness to embrace change. The rewards are extraordinary. When you start thinking like a business owner, you'll not only transform your business but potentially, also your life.

Your machine may be at the heart of your work, but being an entrepreneur is the soul of your success. Take the first step today, and watch the ripple effect unfold. **GP**



Jennifer Cox is a co-founder and president of the National Network of Embroidery Professionals (NNEP), an organization that supports embroidery and apparel decoration professionals with programs and services designed to increase profitability and production.





GPX

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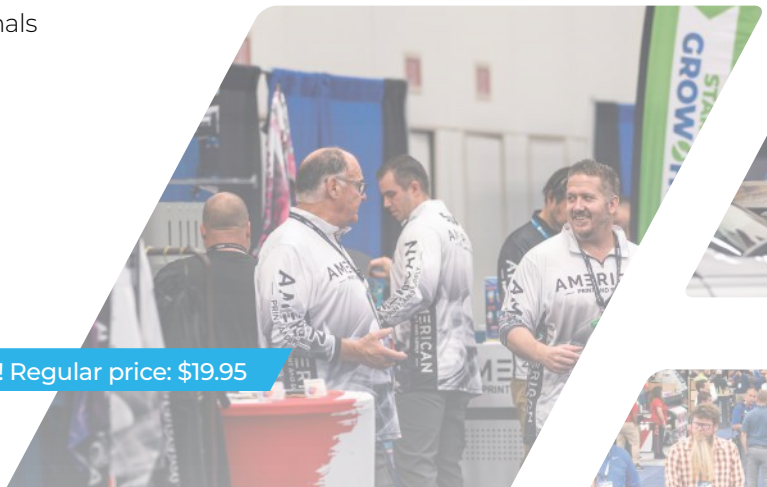
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START HERE These classes are geared toward people who are brand new to a discipline or have some graphics experience but are looking to learn the fundamental techniques and/or add new profit centers in related markets.

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Classes are offered the day before the show starts, through Saturday, March 8, in all-day and 90-minute sessions.

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Please visit **g-p-x.com/tx** for class descriptions.

WEDNESDAY, MARCH 5

10 a.m. — 4 p.m.

Hirsch Solutions LLC – Building a Successful Apparel Decorating Business

THURSDAY, MARCH 6

8 — 9:30 a.m.

Epilog Laser – Laser Mastery: Engraving Essentials for Beginners START HERE

8:30 — 9:30 a.m.

Graphics Industry CEO Panel

11 a.m. — 12:30 p.m.

JDS Industries – Troubleshooting Sublimation START HERE

TheMagicTouch USA – How to Maximize Your Profits Using the Crio Powderless DTF PLUS START HERE

1 — 2:30 p.m.

Trotec Laser Inc – Enhance Your Business with Laser Solutions START HERE

GSG – Expand Your Business with DTF Printing START HERE

Human Resources: What Small Businesses Need to Know

4 — 5:30 p.m.

CorelTRAINER – CorelDRAW is Easy! Let's See Exactly How! START HERE

FRIDAY, MARCH 7

8 — 9:30 a.m.

Procolored Technology Inc – Dive into Color: Procolored Printer Quickstart START HERE

Inktavo – Maximizing Shop Efficiency and Sales for Apparel Decoration and Signage Businesses

Managing a Major Swag Portfolio

11 a.m. — 12:30 p.m.

IKONICS Imaging – From Skills to Sales: Hands-On Sandcarving Strategies for High-Margin Markets START HERE

PDS Equipment – Current 2025 Business Development Strategies for Laser, UV Print, DTF, HTV, and Embroidery

1 — 2:30 p.m.

Advertising Specialty Institute (ASI) – Profit with Promo: START HERE Expanding Your Business Through Promo Product Sales

Transfer Express – Apparel Printing Made Easy START HERE

1 — 2:30 p.m.

Restylers International – 1 + 1 = 20 - Two Simple Steps to Add 20% to Your Bottom Line PRO

SATURDAY, MARCH 8

8 — 9:30 a.m.

GPX University – Beyond 6 Figures: Strategies to Scale Beyond the Blueprint, *with Stan Banks*

GRAPHICS PRO– AI Revisited: A Playbook for Transforming Your Business Operations, *with Marshall Atkinson*

GRAPHICS PRO – Lessons in Apparel Decor: Your Guide to Screenprinting in 2025, Part 1, *with Lon Winters*

11 a.m. — 12:30 p.m.

GRAPHICS PRO – Marketing Better in 2025: Grow Profits with Clarity and Connection, *with Aaron Montgomery*

GRAPHICS PRO – From $500K to $1M: What You Need to Do to Take Your Shop to the Next Level in 2025, *with Marshall Atkinson*

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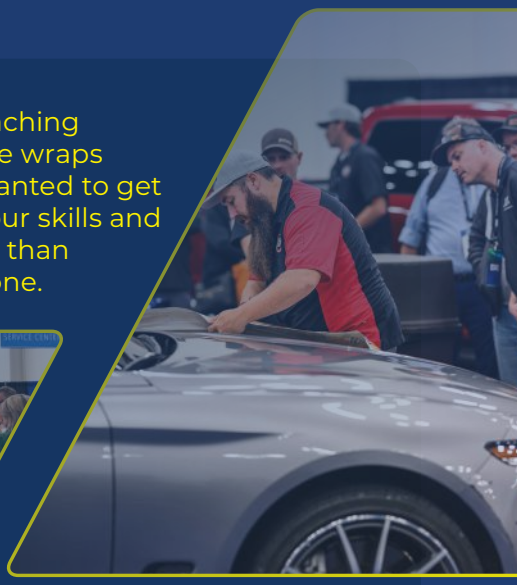
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How to get more customers

Tried-&-true techniques that work

By Howard Potter

As a small, or even larger, shop are you finding it harder to land more customers while keeping your production moving? Our company has been around for 22 years and we have been very fortunate to grow at a minimum average of 15% each year. But it was luck that landed us all of the extra work.

In our industry, most shops employ one to five staff members and larger shops are 15 to 30 staff strong for the most part, before you get to be the size of the monster companies that employ 50 to 100 plus staff.

Our company employs upwards of 30 staff and did around $3.5 million in sales in 2024. In the two years before that, we grew by a total of 42% in sales. Year-round, we market in multiple ways and do not spend more than $10,000 per year to do so. Multiple factors are key to this success:

- Customer service is your No. 1 asset, no matter the size of your company. Always be transparent with your customers, even when your company is hitting growing pains. Customers appreciate the honesty and being part of the growth.
- Never let a customer wait longer than 24 hours for a quote. If more time is needed, then make them aware that you are working on it.
- Give product away year-round that has your logo on it and shows off your quality.
- Send bulk emails promoting sales and blind cc your customers on the email. Typically, if you email



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50 to 100 customers you can drum up one to four new orders for 15 minutes of work. You can save the email to repurpose later.

- Create sales flyers of your most popular items and share them on your website. Try to hold the pricing year-round. This makes buying easier for your customers.
- When packing your orders, print out sales flyers and put them with the order to help promote the next sale of another product.
- Make products with your company logo on them and create preset raffle baskets to donate to fundraisers.
- Use your social media to not only show your work, but tag your customers in your posts, so that your feed and theirs promotes you both with the potential of reaching a wider audience.
- If you have a company vehicle, make sure it at least has your name and website on it. Not promoting what you do, in my opinion, makes people curious and they will look you up.
- If you tell customers your production time is 10 to 12 business days, work needs to be done one to three days ahead of schedule.
- If you have a great customer who is always ordering or sending you customers, throw in something with their logo on it for free on their next order.
- Be sure to include all your contact info and your social media links in the signature of your email. This will help drive traffic to your page.
- If you are working on an important project for a customer, post it on social media. That is a good time to sponsor the post to drive more likes and follows to your page. Typically, don't spend less than $100 per post for no longer than seven days.
- Look into promoting your company at home shows and work to be a sponsor of it by donating tote bags or something of that sort. Most



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people that go to a home show are looking for companies in other industries and often do not expect to see you there. Many of the companies exhibiting at home shows and all their vendors are potential customers. Cross-market to both.

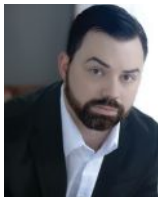
- Never promote being the cheapest and only focus on promoting quality products, top notch customer service, and turnaround times. More and more people are looking for quality and this will help you stand out from your competition.
- When spending money on giveaway items for shows, focus on quality and not quantity. Sure, give a middle-level quality pen away, but then keep a couple dozen much nicer items under your table and give them to people you think have a 75% chance of landing.

Something we started doing over 15 years ago is budgeting for customer errors. Customers at times will give wrong information or not pay attention to your proof and accidently approve it, rendering the order to be wrong even though it is not your fault. We budget $10,000 a year for these mistakes. If a customer admits fault and is respectful, we will replace either half or the whole order at no charge and make them aware that we can only do this once to help them out and next time they must pay closer attention. This helps you not only keep a customer happy but gives you a customer for life in most cases.

You do not need everyone to be your customer. Having a lot of customers is great, but it can also be a curse as well. Producing more artwork, more setups, and more people from whom to collect payments. It is true that you should not have one customer that is more than 20% of your entire company sales. We do not have one that is even 5% of our overall sales. Always maintain control and go after customers who will order a minimum of $5,000 to $10,000 per year and your goal should always be to get to an average of 85% per week in reorders using the same artwork.

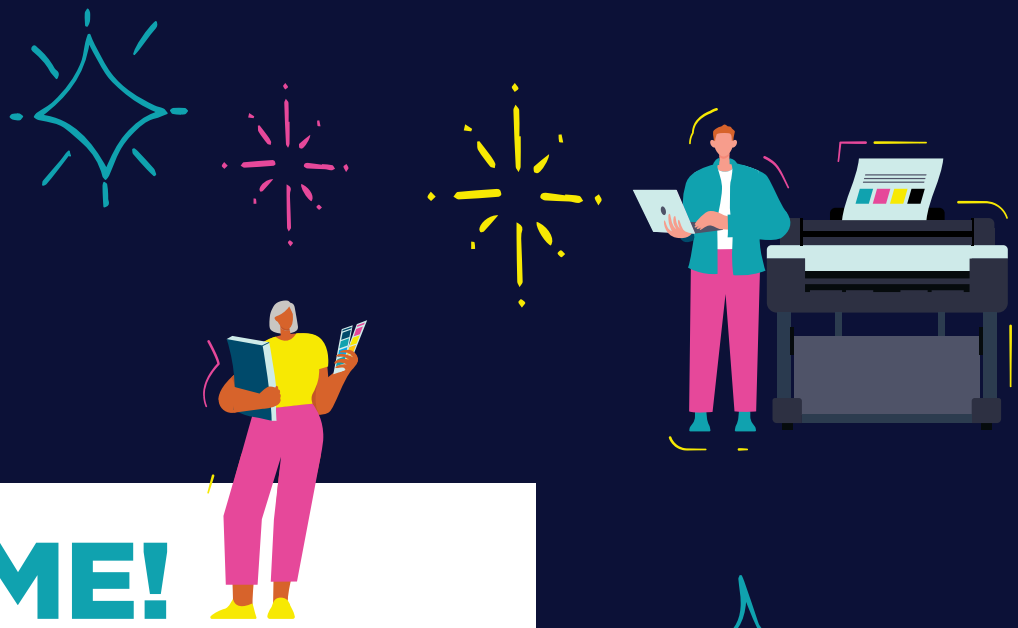
When you look back at the above, you will see a lot of this knowledge is a common-sense approach and nothing special. The average marketing firm will try and get you to spend 7% of your annual revenue for this information. The key to any company is good old-fashioned hard work, treat people how you want to be treated, and simply show you care.

Twenty-two years ago, we started our company from a 14' X 14' room in our home and around 40 companies were in the same line of work. Now, most of them are gone. Others have never grown, and we are the largest family-owned company in and around our community doing what we do. The key has always been consistency. Being consistent with our message of quality, customer service, and turnaround time. If you pursue that over being the cheapest, you build a loyal following little by little. **GP**



Howard Potter is the co-owner and CEO of A&P Master Images, along with his wife, Amanda Potter. Their company offers graphic design, screen printing, embroidery, sublimation, vinyl graphics, and promotional items. Learn more at masteryourimage.com.

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The anatomy of a pixel

A bit about bit depth

By Stephen Romaniello

Let's have a look at the humble pixel. The term pixel, short for "picture element," is the smallest visible unit of a digital image. It is the building block of what is seen on screen and what is output to the printer. These tiny squares, when combined, form an image on a screen or other digital medium. Pixels reside on a grid in which matrix determines how much detail the image contains. Each pixel represents a single point of light in an image and can display a specific color and brightness.

Pixel facts

Pixels are used in various contexts — on images, monitors, and sensors. A pixel's color is usually determined by combining values of red, green, and blue light. When these three hues are overlaid in varying intensities, they can potentially create a wide range of colors.

Resolution

There are three types of resolutions that are essential for understanding how digital images work. *Image resolution* describes pixels in digital photos or graphics. It is measured by the number of pixels per linear inch (PPI) in an image. The more pixels there are in an image, the more detail can be displayed or printed. 300 PPI images are usually used for print output to achieve a high level of detail and sharpness. 72 PPI images are used for web and video due to their smaller file sizes. **(Fig. 1)**

Screen resolution, on digital displays like phones, TVs, and monitors, counts the number of pixels on a fixed screen. If you look closely at a monitor with a magnifying-glass, you will see a grid of tiny squares. Each one of these squares independently displays colored light. The size of a screen pixel depends on the resolution and physical size of the display. Higher resolutions on the same screen size result in smaller pixels, leading to sharper images. The pixel density is also measured in PPI and indicates how many pixels fit within a given inch of the screen. Higher pixel densities produce finer detail.

Sensor resolution is the ability of light sensors on scanners and digital cameras to capture light to create images. They are usually configured in an array of panels that capture and separate the red, green, and blue color data. **(Fig. 2)**

Printer resolution measured in dots per inch (DPI) indicates the number of ink dots that a printhead can produce. The more dots the finer the print.

Bit depth

Now that we've analyzed how pixels fit into the scheme of digital images, let's dissect the pixel and see what's inside. *Bit depth* refers to the number of bits used to represent the color or brightness information of a single pixel in a digital image. It determines the range of colors or shades that can be displayed or captured, impacting the range of colors, shades, or detail.



Figure 1: The same image at 72 PPI (left) and 300PPI (right).

Images are computed using a binary system of numerical data. In this system, there are two numbers used to describe color: zeros and ones. Let's say that each number represents a light switch that can be turned on or off. Zero equals off, and one equals on. Images that contain 1 bit of information or a *bitmap* image can support two colors: black (off) or white (on). Images like this are frequently used for line art where there are areas of only white or black. **(Fig. 3)**

Grayscale

Grayscale images have a range of tonality from the very darkest (black) to the midtones (gray) to the brightest (white). These images contain 8 bits of information in each pixel. More information, more colors! Each bit is either zero or one — on or off (remember our on/off switches). Two multiplied by itself eight times equals 256 ($2^8 = 256$). That is the number of shades of gray that potentially produce a wide range of tonality, rendering shadows, midtones, and highlights with precise detail. On screen and in print, these images resemble black and white photos **(Fig. 4)**.

Indexed color

Indexed color (IC) is a method of representing images using a limited color table and an indexing system to save space and simplify processing. While IC is efficient for graphics with fewer colors, it's not suitable for complex or high-resolution images where color accuracy and detail are essential.

The IC model is primarily used to reduce file size and simplify color representation by limiting the number of colors in an image. Instead of storing full color information for each pixel, as with RGB values, IC uses a table that points to a predefined list of colors.

The characteristics of IC include a color table **(Fig. 5)** that is a collection of specific colors used in

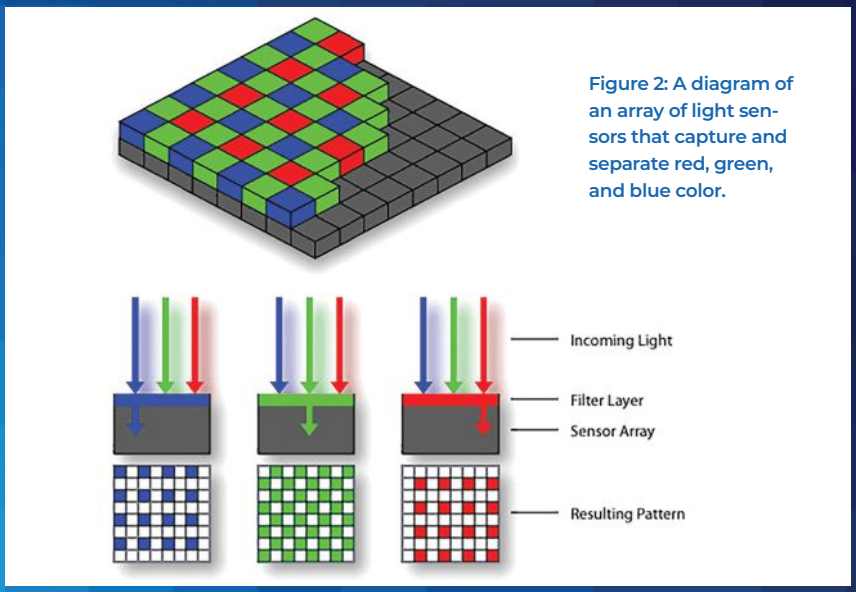


Figure 2: A diagram of an array of light sensors that capture and separate red, green, and blue color.



Figure 3: A line art image with areas of only black and white.



Figure 4: On screen and in print, grayscale images resemble black and white photos. Image credit: Michael Garlington

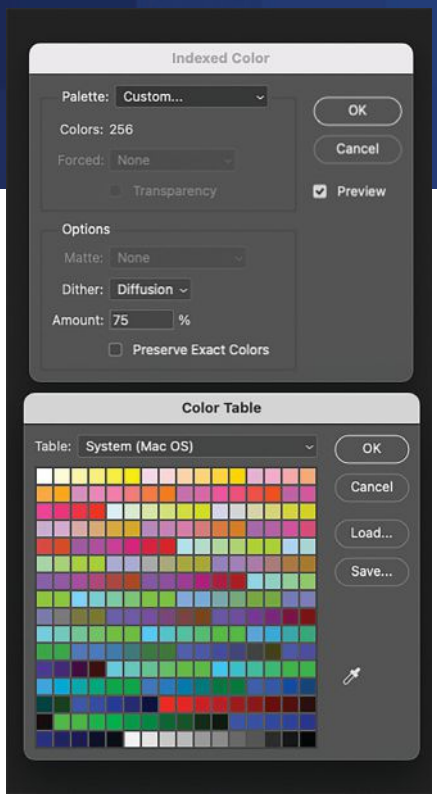


Figure 5: Indexed color images are configured from a color table.

the image. Each color in the palette is stored with its corresponding RGB (or other color model) values.

Instead of storing the full color value, a pixel index is used. Each pixel contains an index that refers to a specific color in the table. For example, pixel value three might point to the fourth color in the table, which could be a shade of red (e.g., RGB: 225, 35, 35).

The number of colors in the palette depends on the bit depth. The maximum indexed color, 8 bit IC, supports up to 256 colors ($2^8 = 256$). 4 bit IC supports up to 16 colors ($2^4 = 16$).

Advantages

The main advantage of converting an image to IC is to reduce file size. Since each pixel stores an index instead of the full color information, IC images are more compact, saving storage space and bandwidth. IC images are commonly used in web graphics to reduce file size, making them suitable for animations and simple graphics on websites. Common web formats like GIF and PNG use color tables to configure images **(Fig. 6)**. IC is also used in 2D game apps where file size and simplicity are critical, and in images with a limited color range, such as logos, icons, or line art.

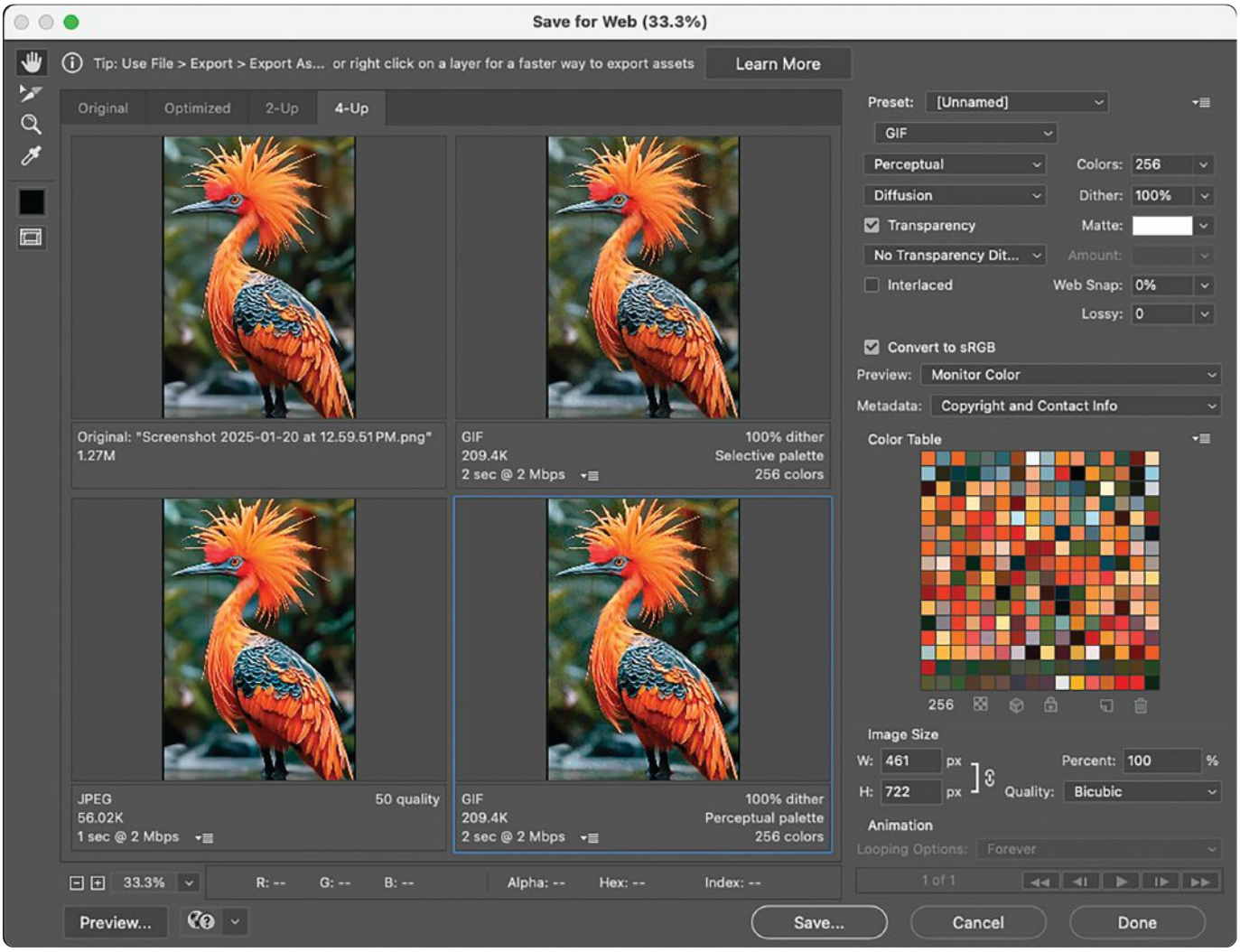


Figure 6: Common web formats like GIF and some PNG images use indexed color to reduce file size.

Limitations

IC images can only use colors present in the palette, limiting their ability to represent detailed, high-quality photos or images with smooth gradients. Editing IC images can be challenging since the color palette is fixed. Adding new colors often requires redefining the palette. Color photographs that have millions of subtle color variations are not well-suited for IC because it compromises visual fidelity.

RGB

To explain how color images are produced, we need to present the concept of *color channels*. All digital images contain at least one color channel. Bitmap, grayscale, and indexed color images have a single channel, but colored images are composed three or more channels. *RGB*, the most common color model, contains a red, green, and blue channel. **(Fig. 7)** The channels separate the color information gathered by the sensors on a scanner or digital camera. Each color channel is actually a grayscale image with the potential of containing 256 shades of light. When these channels are super-imposed upon each other, they can potentially produce 16,777,216 colors, or (256^3).

HDR

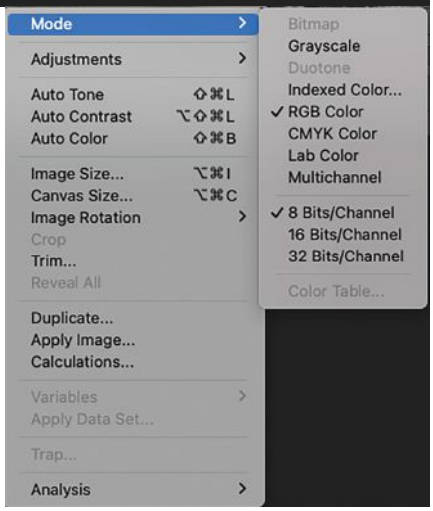
High bit images such as 16 bit color images contain 16 bits of color information per pixel per channel and can generate more than 35 billion colors. 32 bit images called *high dynamic range* (HDR) have capability of producing trillions of colors. More color information in the image produces smoother color transitions and more detail in the shadows and highlights at the expense of much larger file sizes.

Many photographers and graphic professionals claim that images scanned or captured in 16 or 32 bit color have superior color relationships when they are converted to 8 bit color for output.



Figure 7: RGB, the most common color model, contains a red, green, and blue channel.

Figure 8: Printers and monitors cannot recognize billions or trillions of colors and, therefore, 16 and 32 bit images need to be converted to 8 bit in the image editing software prior to publishing.



The bottom line is that monitors and printers cannot recognize billions or trillion of colors and therefore 16 and 32 bit images need to be converted to 8 bit in the image editing software prior to publishing. **(Fig. 8)** This is where the claim of the photographers and graphic professionals is put to the test and where you should decide whether it's worth the effort. In general, most of your full-color images will be RGBs but remember that higher bit depths lead to smoother gradients, better color accuracy, and more realistic rendering. Low bit-depth and low-resolution images can result in banding and pixelization, where smooth transitions between colors or shades become abrupt or ragged.

Quality versus efficiency

In the digital graphics workflow, the quality of your image depends on how much information those tiny pixels contain. Bit depth determines how your image on screen and in print will be realized. For efficiency sake it may be necessary to assign smaller bit depths and resolutions to reduce file size and speed up the download time when publishing images to video or the web.

For print however, maintaining the ideal resolution and millions (or more) colors will help assure the quality of your output. **GP**



Stephen Romaniello is an artist and educator who has seen the evolution of digital graphics since the beginning of the digital revolution in the 1980s. He is CEO of GlobalEye Systems, a graphics software and creative imaging consultancy, and founder of Gorilla Geeks, a creative consulting firm.



AI-powered *wish list*

By Marshall Atkinson

Right now, we are living the worst possible version of artificial intelligence (AI) that our future selves will ever use. Think about it. Everything that happens tomorrow will be better than what is available today.

So, I thought it might be fun to put together a wish list of 20 ideas for the industry around the notion of AI and see what might shake out. Maybe some of this stuff exists in some version, but not at the levels, I will suggest.

Bonus points — what's your take on this?

AI-powered automated design generation

Fun fact: I discussed this with a group of shop owners a week ago. In this scenario, websites and online ordering platforms don't use buttons. Instead, everything is ordered using voice-activated systems.

Customers simply state what they want: "A neon-colored tiger design with 'Spring Break' at the top on a black T-shirt." A moment later, four mockups of the design are instantly sent to the customer for approval.

The customer chooses the third one by voicing their choice and adding the year 2035 to the art. The artwork is instantly changed. Their account is charged with the approval. The garment is decorated and on its way to the customer the same day.

If this seems far-fetched, we already use voice commands on our phones, and AI design generators like Midjourney use word prompts to create images.

Prepress & file optimization

In the future, AI systems will automatically separate colors, adjust ink densities, and optimize artwork for different print methods (screen printing, direct-to-film printing, direct-to-garment printing, sublimation, etc.) and different substrates.

The beauty of this process is that it will reduce human error, speed up the prepress process, and ensure art files are optimized for print without excessive manual adjustments.

Smart ink mixing & color matching

If you have tried printing the same design on multiple substrates, fabric types, or shirt colors, you know what a challenge it can be. Currently, digital color profiles shift when printers are used, and adjustments must be made to restore the approved color gamut to its original state.

In the future, color adjustments will be made on the fly as the devices will have a built-in color spectrophotometer. This device will read and calculate for ΔE and use AI to adjust the color management settings to build in consistent color matching.

Sales & customer support assistants

Imagine one of your sales team is on the phone with a customer. They are at an impasse for the order. But luckily, your shop has an AI-driven support system installed.

While on the phone, the AI sales support pushes a few key scenarios and sales closing tips to your computer screen. The system is connected and understands the conversation. Performance metrics are automatically tracked.

The obvious benefit was increasing the sale conversion rate, but the system could also track all critical sales KPIs. Measuring what's working and what's not working can help leaders implement meaningful change.

Fully automated print shops

Let's face it: Running a shop and sticking to a schedule can be tricky. There are so many factors involved that it doesn't take much to throw everything off track.

Enter AI. AI can predict what needs to happen based on what is getting completed now. This is how it will control and optimize the entire production floor, from scheduling jobs to real-time print adjustments.

To accomplish this, shops must fully integrate with data-measuring devices, motion cameras, and sensors. Connectivity will make this happen.

Smart inventory & supply chain management

Since shops will have a system built that tracks and schedules orders using AI, it won't be difficult for the AI

system to predict demand, automate inventory replenishment, and suggest the best suppliers based on pricing, delivery speed, and quality metrics.

The impact will be tremendous, as this will reduce labor, eliminate stock shortages and overpurchasing, and genuinely impact profit margins.

Today, we already have online stores that can auto-order inventory when something is triggered. The future version of this will complete the circle and predict what's needed based on sales and other metrics.

Personalized apparel recommendations

In the future, everyone could have a personal avatar that knows their garment sizes and preferences. This information is automatically transferred when shopping or signing up for an event.

Different options can be instantly curated for the buyer based on body type, personal preferences, and design parameters. The system might even show an upsell garment, such as a hoodie, as a choice.

Using a customer's purchase history, body metrics, and curated taste choices, the system could offer hyper-relevant products built on the fly. Everything is bespoke to the customer, which eliminates massive inventory problems.

Adjustable equipment

The equipment we use will be more sophisticated in the future. Machines for all decoration types will self-calibrate based on fabric type, design, and environmental conditions.

Cameras and sensors will keep track of registration and color profiles, while other adjustments will be made on the fly. All without human intervention.

Order management will tighten up as quantities per size will be automatically tracked, and performance numbers will be charted with an AI-generated KPI dashboard.

The benefit will be a massive reduction in human error, quality consistency, and minimizing training time for staff.

Quality inspection

As mentioned, equipment manufacturers will embed quality control systems into all production equipment in the industry.

Cameras and sensors will use AI to analyze every print, every stitch in embroidery, and every placement for heat-applied transfers. All misalignment, color shifts, sewing issues, or inconsistencies will be resolved on the fly in production.

Self-adjusting equipment will eliminate costly errors and misprints and ensure higher customer satisfaction.

Predictive equipment maintenance

One constant struggle that many shops face today is remembering to handle equipment preventative maintenance chores.

In the future, machine systems built-in with AI will monitor usage and detect wear patterns, predicting when parts need replacing before they fail.

As Murphy's Law dictates, machines break down right before something important is due. With AI systems, the part can be automatically ordered in time to be replaced before it becomes a problem.

Augmented reality mockups & virtual try-ons

Well, we are already here for this one. Currently, you can use your phone and live images of yourself to try on eyewear and clothes at many online retailers.

Can you imagine where this technology might be in 10 years? For example, stores could have a display like a mirror that shows you what you might look like wearing an outfit as you walk by. Who knows?

I like the notion that this will continue to improve and help reduce order errors, increase consumer confidence in purchases, and enhance the e-commerce experience.

Pricing algorithms

For the sake of argument, let's say that your shop's system knows every nugget of information regarding how things run and work. The combo of a live P&L with shop KPI metrics. It's all in there.

It also has access to the marketplace. Competitor pricing, material costs, shipping, and even buying trends. All of that is put into a giant business blender and mixed for a complex, but incredibly rich AI-optimized pricing algorithm.

When customers order, pricing is based on a constant live-feed update. You set the net profit margin you wish to achieve, and the algorithm automatically sets optimal price points to achieve your goals. This is not spreadsheet-based but responsive to the outside world, so you consistently hit the margins you set. Adjustments happen in real-time without your involvement.

Hyper-personalized marketing

In the future, when your personal stats and metrics are known to everyone, AI will create hyper-targeted marketing campaigns based on an individual's consumer behavior, needs and wants, and ordering history.

Marketing systems automatically adjust ad spending, create marketing assets, and send marketing outreach to current and potential customers. Except now, every marketing post or outreach effort will be based on a person.

Customer retention & loyalty programs

As all the data points regarding a customer's purchasing history will be available, the AI marketing programs will track customer interactions and create personalized incentives to keep them engaged.

Everything is in the data set. Interactions, behaviors, win/loss

sales for past outreach — the whole enchilada. The AI tool will know what works best for each person, and create strategies based on the person's buying habits and information. This will increase repeat business and customer lifetime value.

Content for social media & websites

Again, there are amazing tools on the market that can help you create social media posts and other marketing assets. You probably know about them, but let's not discuss them now.

Instead, in 10 years, websites and online stores will have AI hooked up to completely and automatically serve users a curated, personal experience. AI will power layouts, colors, themes, offerings, and other elements to give users an experience completely tailored to them. A different person might go on that site and have a unique experience tailored to them.

AI will use data, personal history, and other factors to build content that provides the best experience for each user.

Sustainability & waste reduction

As the world economy moves into more sustainable initiatives, AI will help industries push toward better ways of creating products and bringing them to market.

As AI can do wonders with data, industries will optimize material usage, recommend eco-friendly alternatives, calculate carbon footprints, and connect recyclers with manufacturers.

It isn't a secret that sustainable businesses are often the most profitable. Ten years from now, AI will help connect the dots on how to build a more sustainable business, reduce waste, and improve everyone's environmental impact without sacrificing profit.

Voice-activated production control

Currently, the equipment in our industry operates with control panels, buttons, switches, and screens that the operator uses. That probably won't go away.

But wouldn't it be nice if you could voice-activate a setting or control in production with equipment?

"Slow the speed down by one."

"Change the squeegee angle on the head four to nine degrees."

"Decrease the flash time by one second."

Instead of stopping to change a setting and possibly having to walk around to the far side of the press, the equipment can be dialed in with voice-activated commands. AI-assisted controls could help streamline workflow and increase shop efficiency.

Consumer trend prediction

Here's the improvement: AI could analyze market trends, social media, and historical sales data to offer predictions on what styles, colors, and designs are about to be popular.

Again, here's another use for connecting data and metrics to make a difference for businesses in the industry. This will allow businesses to keep ahead of trends, iterate designs, and offer a better experience for customers by changing offerings to more popular ideas.

Bulk order management & customization

If you have ever produced shirts for an athletic league, you know how quick and complex keeping the names, numbers, and personalization details organized and ready for production is.

Ten years from now, the industry's shop systems will be organized entirely, making this work easier with minimal manual intervention. AI will completely take over and set the orders up to be produced with minimal effort. The system will use the order information to create the names and numbers, create the art, print the DTF transfers, cut the sheets down, and prep production for on-time delivery.

This will reduce setup time, human error, and decrease the time it takes to produce these orders.

AI-optimized shipping

Our final point concerns shipping, as we are discussing using data and information with AI. The shipment data is already known at the time of order entry.

The size and quantity of the packages, weight, and package dimensions are all pre-determined. Post-production, shipping labels are generated easily without weighing cartons or selecting anything in the system. The information needed is already there.

AI will automatically select the best shipping method based on cost, delivery speed, shipping account, and order urgency. This will include drone deliveries for local routes.

AI will help reduce shipping expenses and improve on-time deliveries.

Final thoughts on AI for the decorated apparel industry

My crystal ball may be a bit cloudy in some of these areas. However, by 2035, AI will no longer be a novelty in the industry; it will be a necessity.

In the next 10 years, businesses that embrace automation, data-driven decision-making, AI art generation, enhanced AI customer experiences, and AI-driven tools in production will dominate the market, while those who resist may struggle to compete.

The time is now to start integrating AI at as many stages of your process as possible, from design and production to marketing and logistics. Don't wait to try to catch up. Make your mistakes now and learn how AI can help you become faster, more efficient, and more profitable than ever before. GP



Marshall Atkinson lives and works in Mesa, Arizona. He is a frequent contributor to industry magazines and a popular trade show educator. Recognized for his industry education contributions, he was elected to the Academy of Screen and Digital Printing Technologies in 2020.

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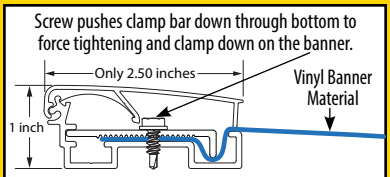
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The secret sauce of apparel decoration:

Stand out with innovation

By Aaron Montgomery

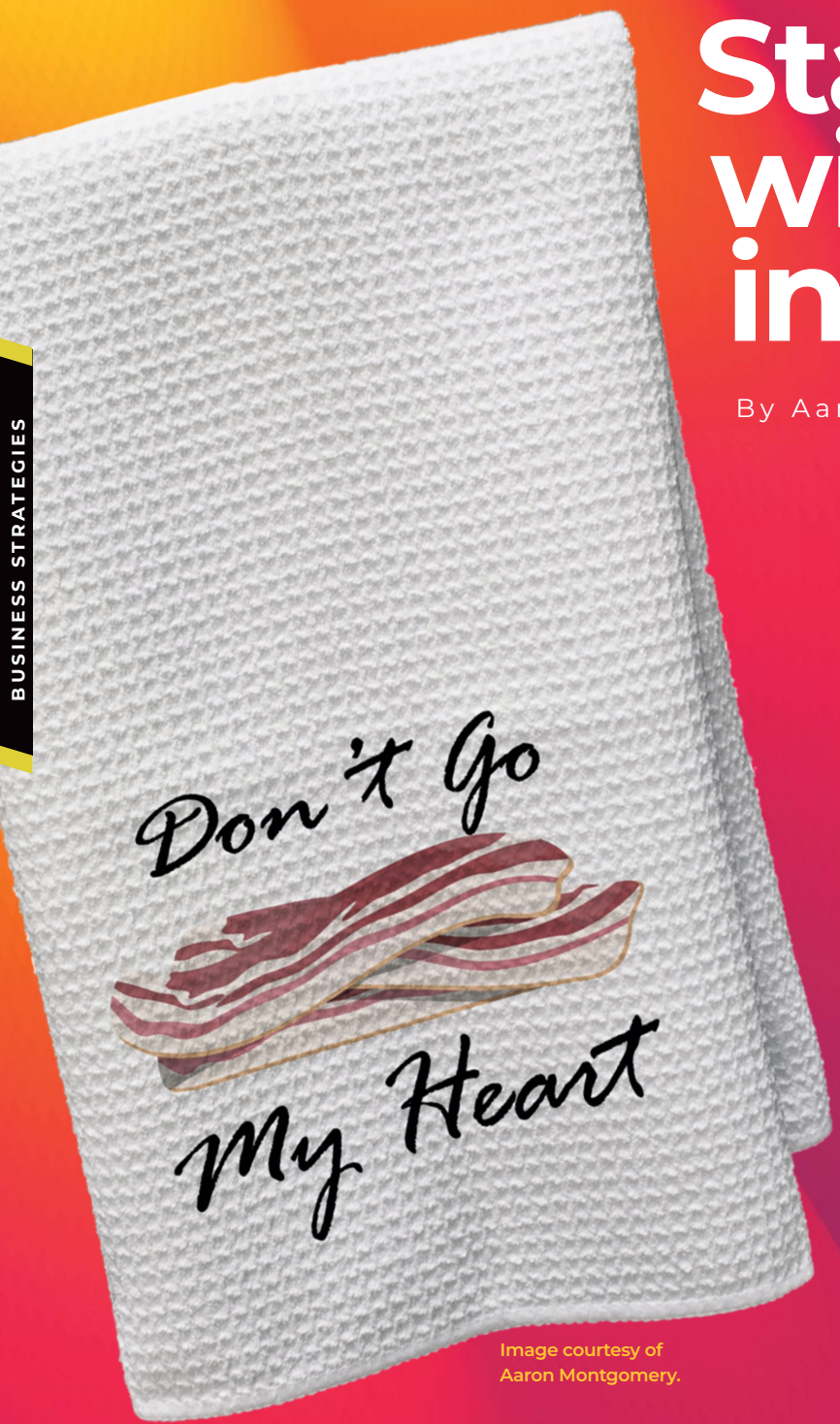


Image courtesy of Aaron Montgomery.

One major issue many of my partners that I work with in our mastermind programs faced was standing out. A new person up the street getting a new toy and starting to offer similar products or having challenges competing with other online sources is a real issue many decorators face. But my partners know that it is not about competing, it is about standing out so that there is no competition. In a world where anyone with a heat press and an internet connection can start an apparel business, standing out is more important than ever. Customers are looking for something different — something unique, high-quality, and memorable. If your business still relies on the same old techniques as everyone else, you're missing a massive opportunity to create products that people love and, more importantly, are willing to pay a premium for.

The good news is innovation is your secret sauce, and your opportunities are only limited by your imagination. There are ways to stand out, from



Image courtesy of Aaron Montgomery.

designs, innovative services, and more. Customers don't just want decorated apparel; they want something that makes them feel special. By incorporating innovative decorating techniques into your process, you can elevate your brand, increase perceived value, and turn first-time buyers into lifelong customers.

Why it matters

The market is crowded, and competition is fierce. When customers browse apparel, they're often comparing multiple brands, whether they realize it or not. If your designs and decoration methods look the same as everything else they've seen, they have no reason to choose you over another business. If you only offer basic printing services and don't look at your ideal customers' overall needs, you could be missing out. But when you introduce a fresh approach, your products and services become more than just apparel; they become conversation pieces.

Innovation in decoration techniques also impacts pricing. I have many conversations throughout the week about the pricing pressure decorators are dealing with when it comes to inflation. Businesses that offer more advanced, high-end decoration methods and services can charge significantly more. Customers perceive greater value in intricate, multi-layered designs, and they're often willing to pay extra for something that looks and feels unique. They will pay more if your service solves a problem beyond the basic printing need.

The power of mixed media

With the rise of direct-to-film (DTF) transfers, more and more people are offering apparel. Etsy is littered with sellers, and they all look the exact same because they are all buying the same preprinted gang sheets from your friendly neighborhood transfer supplier. Those suppliers



Images courtesy of Siser North America | So Stephanie Says.





all bought a machine with dreams of selling transfers to others only to find there is a race to the bottom of the pricing barrel. But you don't have to be involved in that race and can stand out by combining multiple decoration techniques to create depth and contrast. Mixed media is all about layering different processes, like pairing screen printing with embroidery, combining DTF with heat transfer vinyl (HTV), or using puff embroidery on top of a soft print. These combinations not only create a visually striking effect but also add texture, making the design more interactive and engaging.

Mixed media allows decorators to move beyond flat, one-dimensional designs and experiment with layering techniques that command higher price points. The best part? You don't have to overhaul your entire production process to get started. Begin with small test runs, see how your customers respond, and gradually integrate mixed media into your core offerings.

Sublimation with texture

Sublimation printing has been around for a while, but pairing it with textured materials is an emerging trend that's making waves. Typically, sublimation is used for polyester-based garments, embedding ink directly into the fabric for a smooth, permanent print. However, when applied to textured fabrics like waffle weave, canvas, or brushed poly, it creates a unique dimensional effect that adds depth to the design.

For businesses offering athleisure or performance wear, sublimation remains a top choice because of its durability and vibrant color reproduction. But by experimenting with new fabric textures, decorators can create fresh, high-end looks that go beyond the standard polyester tee. This simple adjustment can make a significant difference in how a product is perceived and valued.

Innovative services that set your business apart

Beyond decoration techniques, offering unique services can further separate you from the competition. Many apparel decorators focus solely on printing, but those who introduce added-value services can build stronger relationships with customers and increase repeat business. Here are three quick ways you can stand out immediately.

1 **Custom packaging & branding:** Going back to a statement I made earlier, "Customers don't just want decorated apparel; they want something that makes them feel special." Packaging and their experience opening a product can make all the difference. Customers love the unboxing experience, and thoughtful branding can elevate a product from "just another T-shirt" to a high-end retail experience with minimal extra



Images courtesy of Aaron Montgomery.

costs. If you are doing business-to-business work, consider packaging employee uniforms or other items they will be giving away with their logo branded on it. From stickers all the way to custom-printed tissue paper with the client's logo. Also consider branded hanging tags and neck labels as a way to remind people where they got their new favorite shirt. One of my favorite examples is a friend of mine, Joe Ortinau from Ortinau Art in Ohio. His tagline speaks to the quality they strive for: "We print shirts that deserve hangers." When I received an order it came with a laser engraved wooden clothes hanger.


fizkes – stock.adobe.com

2 Subscription & pre-order programs: Want to keep customers coming back? Offer a subscription service where they receive exclusive apparel every month or quarter. Limited-edition designs and exclusive releases create demand while ensuring steady, recurring revenue. For brands selling directly to consumers, pre-order programs allow customers to reserve exclusive designs before they go into production, creating a sense of urgency and exclusivity. Check out the story of a guy named Johnny Cupcake. He stands out so much that there are 2,000-plus people who have his logo tattooed on their bodies. I met him at an event and he said one of the ways they stand out is through offering limited-edition prints.

3 Live printing & on-demand customization: Live printing at events is a game changer. Customers love seeing their apparel made right in front of them, and offering on-demand customization (like adding a name or number to a T-shirt) can increase engagement and sales. There are some unique challenges to this, yes, but with planning and some forethought, the action of getting a custom-made T-shirt will drive your potential customers to stand in line for you. This service works well at trade shows, concerts, and corporate events, giving attendees a unique experience while promoting your brand. For example, I was at a local fundraiser last year and a local screen-printing shop had a four-color manual screen-printing press set up so people got to pull (or push) their own squeegee to buy a simple two-color print for $40. There was a line in the way of the line to get food and drinks, because spending $40 on a simple T-shirt was so popular. On top of that, the screen-printing company gave back to the event host, so it was a win-win for everyone.

Bring innovation to your business

The most successful apparel decorators aren't just following trends. They are innovating and setting the trends and bright ideas everyone will try to copy. Embracing innovative decoration techniques and services, you can create more value, charge higher prices, and build a brand that customers love.

Don't feel like you need to implement everything at once. Pick one new technique or service, test it out, and gradually introduce more as your business grows. Customers appreciate quality and creativity. When you introduce decoration methods and services that elevate your offerings, they're willing to pay for it. Finding ways to push beyond the basics can set your business apart and position you as a leader in the industry.

So, what's your next move? Choose one new technique or service, test it on a small batch of products, and see how your audience responds. The more you innovate, the more memorable your brand becomes. In a crowded market, that's the real secret to success. **GP**

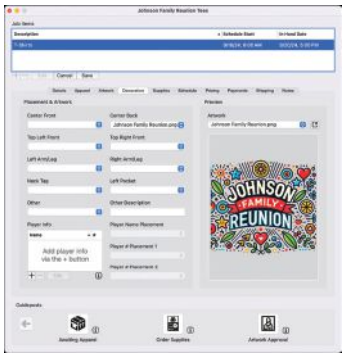


Aaron Montgomery's company, Our Success Group, assists with business plans and pricing strategies, as well as customer service and marketing. He is the author of "The FUNdamentals of Business Success" and the co-founder of a facilitated six-month mastermind collective called Radical Goal-Getters. Aaron also co-hosts the 2 Regular Guys podcast.



Independent Trading Co. midweight quarter-zip

The SS4600QZ Midweight Quarter-Zip sweatshirt from Independent Trading Co. is made from an 8.5-ounce fleece composed of 80% cotton/20% polyester in a 280-gram weight. Offered in a standard fit, the shirt features a No. 5 metal zipper, 1" X 1" ribbing at the cuffs and waistband, and split-stitch double-needle sewing on all seams. The twill neck tape and tear-away neck tape are designed to make the shirt retail-friendly. It comes in eight colors including seven solids and one heather. Sizes range from extra small to 3XL. **independenttradingco.com**



Sherpa app

The Sherpa app is developed to revolutionize your screen-printing shop with an all-in-one management solution designed specifically for decorators. The app is said to effortlessly manage every step, from capturing detailed customer specifications to tracking orders and payments. With the included Customer Portal, communication is streamlined and clients are empowered to place orders that integrate into Sherpa. Jobs can be moved to production with Sidekick for iPad, offering real-time updates and next-step guidance to keep operators on track and productive. **ministryofbits.com/sherpa**



Epson's first direct-to-film printer

Epson launched the new SureColor G-Series product line and its first wide-format DTFilm printer – the SureColor G6070. The compact SureColor G6070 features a front-loading media design that supports a generous 35.4" print width to fit more transfers per roll and enables the production of oversized graphics. Leveraging a PrecisionCore Micro TFP printhead with Nozzle Verification Technology, as well as a large-capacity sealed-ink-pack system featuring new UltraChrome DF inks, the printer is engineered to deliver professional-grade prints with vibrant colors and crisp, detailed clarity. The SureColor G6070 includes an automated maintenance system and fabric printhead wiper cleaning system designed to help ensure sellable, high-quality prints continuously, without constant monitoring of the printer. According to the manufacturer, the SureColor G6070 requires just a few minutes of upkeep each week to keep the printer running smoothly, minimizing downtime and increasing production capabilities. **epson.com/SCG6070**



Avery Dennison's Supreme Wrapping Film colors

Avery Dennison Graphics has launched two Supreme Wrapping Film color collections previously only available in Europe. The Yiannimize Series was created in collaboration with the UK's celebrity car customizer Yianni Charalambous, better known as Yiannimize.

The new Yiannimize Series features four shades: Gloss Metallic Vibrant Violet, Gloss Pearl Tutu Pink, Gloss Pure Red, and Satin Metallic Spy Grey. The Road Trip Memories Series includes: Satin Metallic Flamingo Dance, Satin Jade, and Gloss Misty Grey. Yiannimize Series colors are only available in the European length of 25 meters (60" x 27.34 yd). Road Trip Memories Series colors are available in standard 60" x 25 yd North American sizes. Both options enable installers to cover large panels with just one piece of material and have fewer seams. **graphics.averydennison.com/swf**

TY-300 DTF printer from Roland DGA



Roland DGA has announced the North American launch of the Roland DG TY-300 – a direct-to-film (DTF) printer engineered for image quality, productivity, and cost-efficiency. According to the manufacturer, the TY-300 delivers detailed transfer graphics for apparel customization at speeds up to four times faster than competitive models.

The TY-300 boasts newly developed printheads designed to allow for the precise expression of fine lines, small letters, and detailed designs, as well as highly accurate photo reproduction. The staggered layout of the two large printheads enables printing white, essential for apparel printing, with high productivity of 133 square feet per hour in Production mode. To prevent printhead nozzle loss, the printheads are automatically cleaned according to the customer's frequency of use. In addition, customers can replace caps, wipers, wiper cleaners, and the flushing sponge around the printheads themselves instead of having to call a service technician. **rolanddga.com/TY-300**

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Denny is shown here wearing our **TX407GD** Long Sleeve Heavy Thermal Crewneck in 'Dolphin Blue' & **HF-04** 14 oz Heavy Fleece Sweatpants in 'Ash'.

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- Dolphin Blue
- Beige
- Creme
- White

HF-04

- Unisex
  XS | S | M | L | XL | 2XL | 3XL
- Pre-washed for a no-shrink true fit
- 14 oz/yd² Heavy Fleece
- Piece Dyed
- Oversized Fit
- 100% Cotton

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