2024

Packaging Trends

ESKO

Introduction

As we look forward to 2024, we find ourselves grappling with the aftereffects of a disrupted supply chain, evolving consumer preferences, and growing demands for sustainability. Businesses must not only adjust to this transformed landscape but also position themselves to excel within it. It's imperative for packaging experts to recognize the potential for enhancing sustainability, fully harnessing technological advancements, optimizing supply chain processes, and achieving greater operational efficiency. Within the pages of this ebook, we will delve into the significant packaging trends that will shape the market in the coming year.

Our Insights

In this report you'll learn about packaging trends we foresee for 2024 and beyond. It includes insights gathered from Esko experts, among others. We surveyed over 530 packaging professionals around the world regarding future packaging trends, challenges, and opportunities for reflection.

Margin Compression & Supply Chain Factors in the Packaging Industry

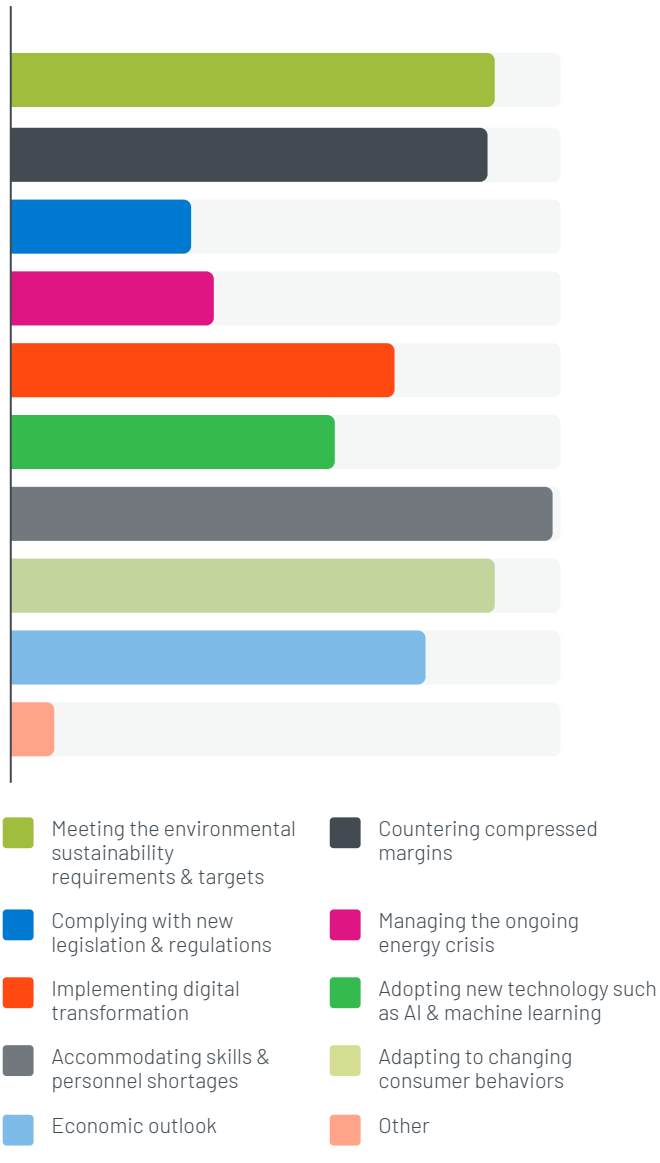
A state of permacrisis is the unsettling and persistent state of constantly staggering from one crisis to another, creating a never-ending cycle of instability and uncertainty. The concept of permacrisis holds a particularly significant relevance to the packaging industry, where it manifests as an ongoing struggle to adapt to ever-changing consumer demands and market challenges. Challenges include high prices, switching to local sourcing, and socio-economic instability, resulting in high interest rates and inflation, a chain reaction of events that stemmed directly from the COVID-19 pandemic. To navigate these challenges, the packaging industry must transition towards more efficient, resilient, and sustainable supply chain practices to mitigate margin compression. This article offers actionable insights for brand owners and packaging manufacturers to weather the storm.

Navigating the Talent Gap

An initial hurdle to success for today's businesses is having the right personnel in place. The demand for packaging expertise continues to outpace the availability of experienced workers. **46% percent of the packaging professionals surveyed say accommodating skills and personnel shortages is a top challenge for 2024.** Consequently, companies are confronted with the task of attracting, nurturing, and retaining top-tier talent. To address this looming issue, it is imperative that brand owners and packaging producers foster environments appealing to professionals seeking a dynamic career path.

For instance, with the proliferation of AI, companies may need to attract the skills of a data scientist or other IT professionals. This makes the talent gap two-dimensional: not only are the traditional production talents short in numbers (because they retired or left the industry), but also the talent that will bring the packaging industry into the near-future tech world is not currently present.

What presents the biggest challenge for your business in 2024?



Jan De Roeck

Director of Industry Relations & Strategy, Esko

The packaging industry is constantly evolving, driven by advancements in technology, changing consumer preferences, and sustainability demands. Packaging professionals with expertise in areas such as digital printing, sustainable materials, and innovative design are in particularly high demand. As Jan De Roeck, Director of Industry Relations & Strategy, Esko explains, "As technology evolves, the workforce faces significant changes, with technological innovations leading to job transformations and the rise of AI in creative roles."

Furthermore, exploring the role of diversity and inclusion in talent acquisition is critical. Diverse teams bring fresh perspectives and innovation to the industry. In a globalized and interconnected world, having a workforce that reflects diverse backgrounds, cultures, and perspectives leads to more creative problem-solving and a broader understanding of the diverse customer base packaging companies serve. Companies that actively promote diversity and inclusion not only enhance their talent pool but also create a more inclusive and forward-thinking industry. Initiatives such as diversity training, inclusive hiring practices, and fostering an inclusive workplace culture can contribute significantly to addressing the talent gap while promoting innovation and adaptability within the industry.

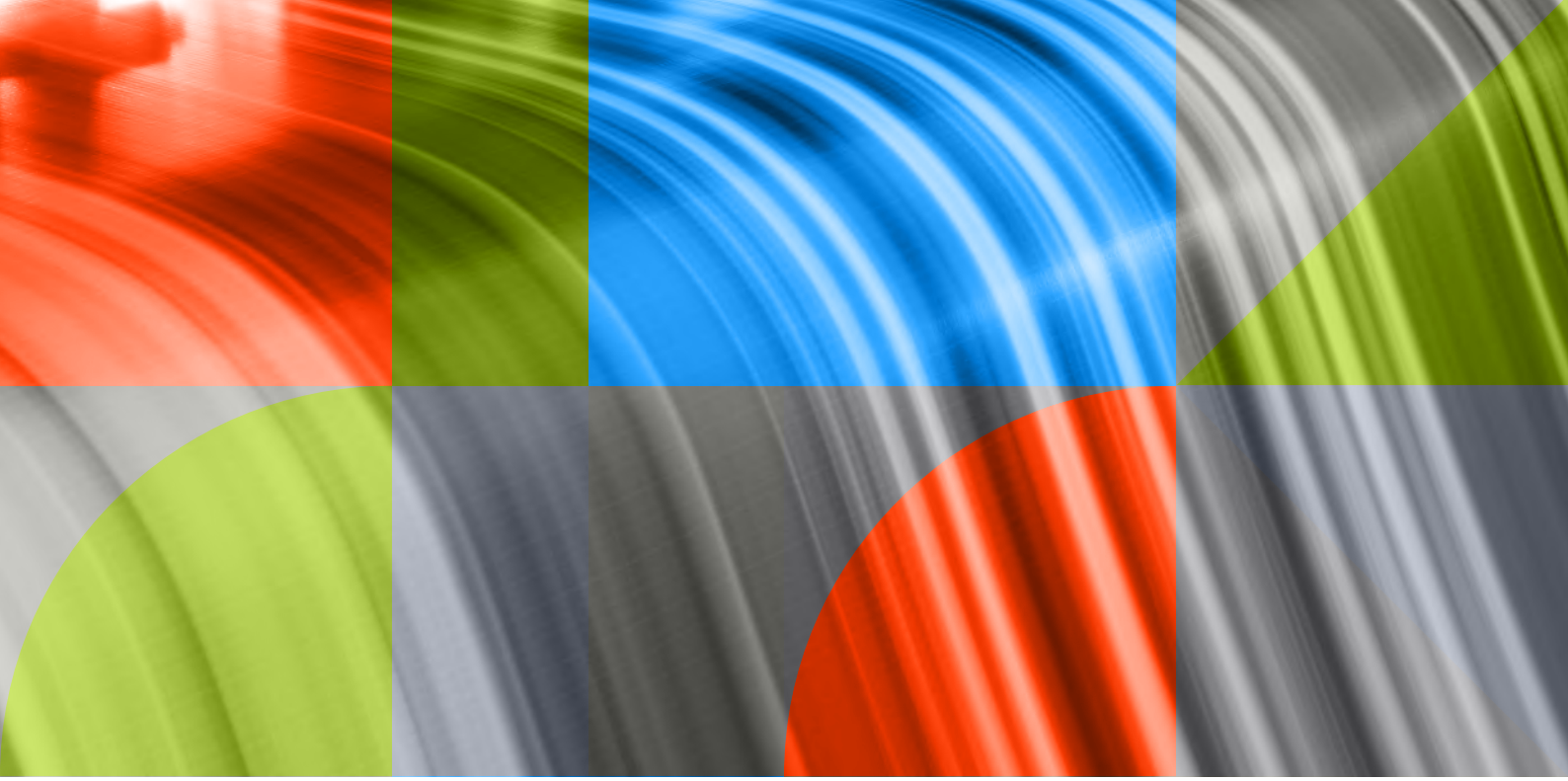
Collaborations with educational institutions and industry associations also play a pivotal role in cultivating a pipeline of not only packaging-technical skilled workers, but also specialists wvith new skills in IT related expertise like data security and data analytics.. Establishing partnerships with universities and technical schools can create internship programs, co-op opportunities, and curricula tailored to the industry's needs. Moreover, active involvement in industry associations can help connect companies with emerging talent and provide a platform for sharing best practices and industry knowledge. By taking these proactive steps, the packaging industry can not only bridge the talent gap but also foster innovation and resilience in the face of other industry problems.

Balancing Quality and Efficiency to Reduce Costs

Achieving cost reduction without compromising quality is an intricate dance that packaging brand owners and packaging converters must master. The quest to streamline operations, optimize resources, and drive down expenditures while upholding the integrity of the final product is a challenge that requires innovative thinking and strategic implementation.

Embracing technology-driven solutions is an integral aspect of this strategy. Automation of routine processes, such as material handling and quality control, can significantly cut operational costs while enhancing overall efficiency. "Supply chain issues, from raw materials to shipping, persist, making automation a vital tool to alleviate pressure on skilled professionals, enabling them to focus on their expertise," states Susie Stitzel, Director of Product Management, Esko.

Susie Stitzel
Director of Product Management, Esko



This includes, but is not limited to:

Digital Printing
Digital printing technology has revolutionized packaging by enabling on-demand and highly customized printing. This eliminates the need for expensive setup processes associated with traditional printing methods, reducing both time and material waste. This approach not only lowers costs, but also introduces new value through unique features of digital print, including personalization, variable content, and cost-effective short runs.

Artificial Intelligence
Artificial intelligence (AI) and machine learning algorithms help estimate demand, manage inventory levels, and reduce shipping costs. This enables packaging companies to make their operations more efficient by minimizing expenses and increasing the reliability of their supply chains.

Design and Prototyping
Collaborative design platforms and 3D prototyping technologies allow packaging companies to rapidly iterate and refine packaging designs. This not only reduces the time-to-market but also ensures that the final product meets quality standards. By minimizing design flaws and costly revisions, companies can save both time and resources. Through leveraging these innovative technologies and processes, expenses are lowered, product quality is enhanced, and companies remain competitive in a rapidly evolving market.

Scaling Up Operations: Meeting Demand with Precision

Unpredictable demand spikes and rapidly changing consumer trends require brands and packaging manufacturers to adapt quickly and effectively. Yet, scaling their operations is no simple task. Strategies for scaling operations encompass various dimensions, from investing in advanced production equipment to optimizing supply chain logistics. Leveraging data-driven insights to predict demand patterns can empower decision-makers to make informed choices regarding production capacity expansion.

Waste Reduction

Sustainable scaling means minimizing waste in the production process. Companies can achieve this by implementing lean manufacturing principles and embracing technology-driven process optimization. By reducing overproduction and streamlining operations, less material goes to waste, which not only benefits the environment but also lowers costs and improves profit margins. As Chris Janczar, WebCenter Product Manager, Esko, aptly notes, "Cost optimization requires a careful balance between short-term gains and long-term investments to achieve the best outcomes."

Energy Efficiency

Scaling up often means increased energy consumption. However, businesses can offset this by investing in **energy-efficient equipment and practices.** For example, **LED technology** can help lower the carbon footprint of larger flexo plate production facilities. Adopting renewable energy sources can further reduce the environmental impact of scaling operations.

Supply Chain Sustainability

Sustainability should extend beyond the production facility and into the entire supply chain. Collaboration with packaging suppliers to prioritize eco-friendly practices, such as responsible sourcing of raw materials and reducing emissions during transportation, will resonate with environmentally conscious consumers.

Navigating the confluence of skills shortages, cost constraints, and the need to scale is a multifaceted challenge that demands both ingenuity and collaboration. By embracing strategies that prioritize talent acquisition, cost-consciousness, efficiency, quality, innovation and sustainability, brands and packaging converters will meet the demands of what is likely to be a complex 2024 marketplace.

Chris Janczar
WebCenter Product Manager, Esko

Digital Transformation in the Packaging Industry: Increasing Efficiency, Reducing Costs, and Driving Sustainability

In the dynamic world of packaging, where innovation is the driving force, digital transformation continues to be a revolutionary game-changer now and in the future. As we peer into the landscape of 2024, it becomes evident that digital transformation is not just the continuation of a fleeting trend; it's a profound revolution reshaping the packaging industry. In this article, we will explore the impact of digitization on the packaging sector and delve into how companies can harness its power to not only stay competitive but drive efficiency, cost reduction, and sustainability.

Current Landscape

Digital transformation has firmly entrenched itself as a game-changing force within the packaging industry. Its effects have proven overwhelmingly positive, particularly in terms of enhancing workflow. In today's fast-paced market, companies embracing digital technologies are achieving streamlined processes, reduced lead times, and enhanced collaboration throughout the supply chain.

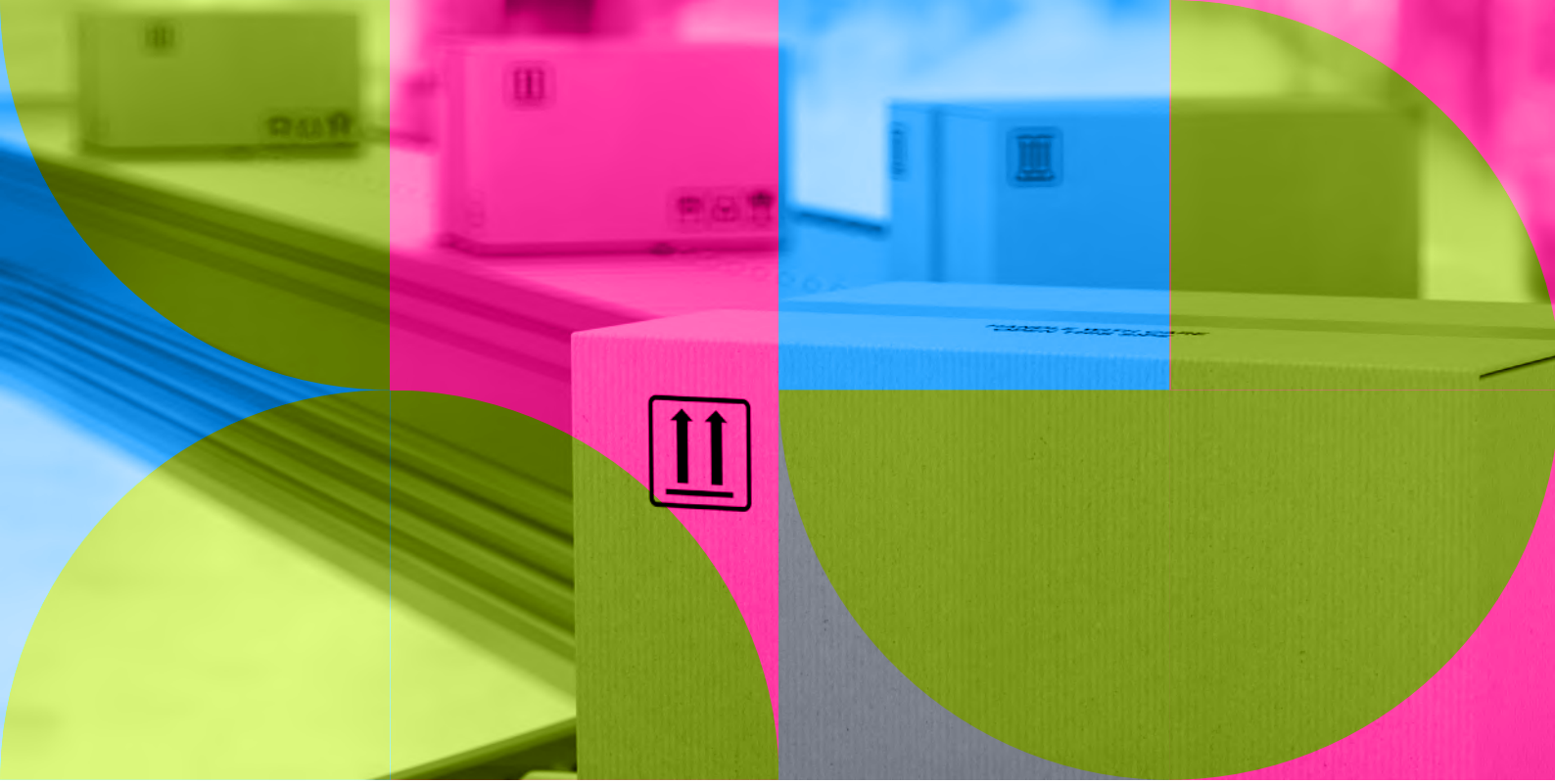
The adoption of digital tools has enabled companies to gain real-time insights into their operations, allowing for data-driven decision-making. Such transparency and control have become invaluable assets, especially in a world where adaptability is key.

"Digital transformation is forging new connections across processes, unleashing the potential for automating tasks that were once purely manual," states Chris Janczar.

Automation and Data

One of the most thrilling features of digital transformation is the role of automation and data. Advancements in connectivity, artificial intelligence, and data analytics are propelling the packaging industry to new heights. Automation is the cornerstone of this transformation, promising significant time and cost savings.

Automation optimizes manufacturing processes, from design and prototyping to production and distribution. This not only leads to cost reductions, but also minimizes the risk of errors and mitigates against deficiencies in quality. By leveraging data, companies can fine-tune production schedules, minimize waste, and elevate quality control, all contributing to a competitive edge in the market. According to Chris Janczar,"Automation not only streamlines processes by eliminating inefficiencies but also empowers human capital to focus on value-added tasks. This dual benefit enables businesses to grow and innovate."



Smart Packaging and IoT Integration

Brand owners are increasingly incorporating Internet of Things (IoT) sensors and smart packaging solutions. These sensors monitor parameters such as temperature, humidity, and product freshness, offering real-time data and improved supply chain visibility. This minimizes waste and product recalls and enhances product quality while optimizing costs.

Additionally, for packaging converters, IoT sensors and data analytics enable predictive maintenance for packaging machinery. By monitoring equipment performance in real-time, companies can identify and address maintenance needs before a breakdown occurs. This minimizes unplanned downtime, reduces waste due to production interruptions, and extends the lifespan of machinery.

Robotics and Automation

Robotic systems are currently used in packaging operations for a variety of functions, including quality control and material handling. These machines operate efficiently, cutting down on errors and personnel costs. Advanced computer vision systems on quality control robots enable them to spot flaws and guarantee that packaging adheres to specific requirements.

Digital Printing and Customization

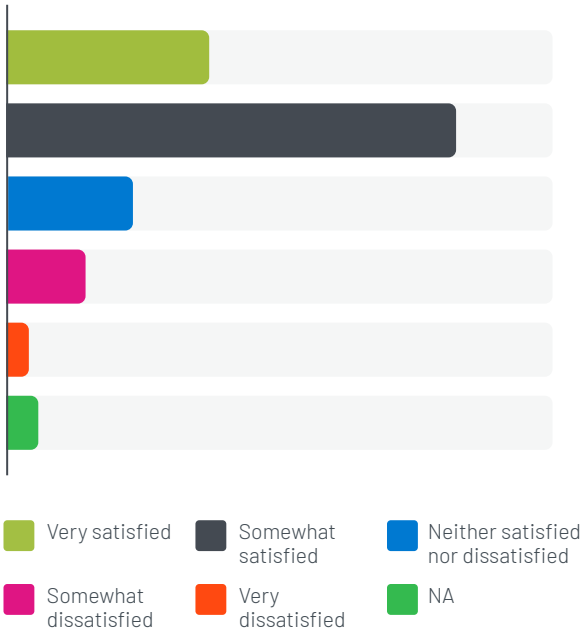
By enabling on-demand and highly customizable printing, digital printing has transformed the packaging industry. As a result, there is no longer a need for the costly setup procedures involved with conventional printing techniques, which saves both time and resources. This strategy reduces expenses while simultaneously improving packaging quality.

In-House Processes

Digital transformation empowers brand owners to bring diverse packaging processes in-house, increasing control and efficiency. In the past, certain tasks were outsourced due to their complexity or specialized nature. However, with digital tools and technologies, businesses can now accomplish high-end tasks internally. Companies are putting more emphasis on this, as many are unsatisfied with the current state of affairs. For instance, **49% of respondents are only somewhat satisfied with how they currently manage packaging content and/or artwork.**

This shift toward in-house capabilities allows packaging manufacturers to achieve greater customization, faster response times, and a more comprehensive understanding of the product lifecycle. Companies can now design, prototype, test, and produce packaging solutions entirely within their own facilities, offering a level of agility and control that was once unimaginable. As Juan Da Silva, Senior Sales Director, Latin America, Esko, explains, "Smaller and medium-sized converters now have the opportunity to bring processes in-house, enabling them to engage with brands they couldn't before."

How satisfied are you with how your company is currently managing packaging content and/or artwork?



Juan Da Silva
Senior Sales Director, Latin America, Esko

Sustainability

In the packaging realm, sustainability is not merely a buzzword; it's a major driving force for further digital transformation. As consumers become increasingly eco-conscious, companies face growing pressure to adopt sustainable practices. By leveraging digital technologies, businesses optimize supply chains to reduce carbon footprints and waste **(McKinsey)**. Packaging materials are designed with sustainability in mind, ensuring environmental responsibility throughout the product's lifecycle. Digital tools facilitate tracking and reporting on sustainability metrics, enabling companies to fulfill their commitments to a greener future.

Reusable and Recyclable Packaging Solutions

Sustainable packaging solutions, such as reusable and recyclable materials, not only align with environmental goals but also yield long-term cost savings. Companies will continue to explore different materials to lessen the carbon footprint of their packaging. Reusable containers and **paper-based, biodegradable, and naturally decomposing** forms of packaging, together with innovative recycling processes, will reduce waste and disposal costs.

Energy-Efficient Manufacturing

Energy-efficient machinery and practices in manufacturing facilities significantly reduce operational costs. Investments in equipment upgrades, like LED lighting and energy-efficient heating and cooling systems, lower utility expenses while promoting a conducive working environment.

Advanced Materials and Lightweighting

Innovations in packaging materials allow companies to reduce **material usage** while maintaining or enhancing packaging strength and integrity. Lightweight materials such as bioplastics and advanced composites not only lower material costs but also align with environmentally conscious consumer preferences.

Digital transformation is far from a fleeting trend. It is a transformative force that has been reshaping and will continue to shape the packaging industry. From automation and data-driven processes to in-house capabilities and sustainability initiatives, companies embracing new opportunities for digitization are positioned for success in 2024 and beyond.

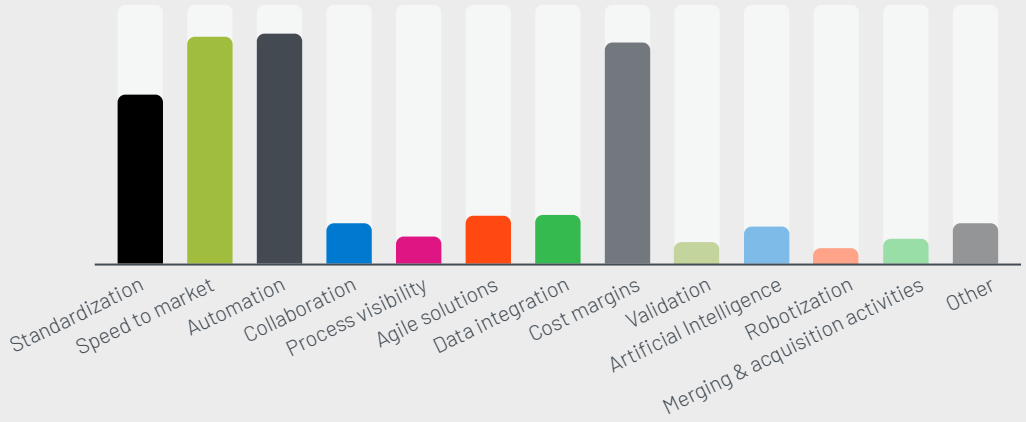
Revolutionizing Packaging with AI, Machine Learning, and Automation

The packaging industry is undergoing a remarkable transformation, due largely in part to the integration of artificial intelligence (AI), Machine Learning (ML), and automation. These cutting-edge technologies are not just streamlining processes; they are reshaping the very essence of packaging itself. In fact, **42% of those surveyed believe automation will have the biggest impact on their industry in 2024.** Join us as we discuss the profound impact of AI, machine learning, and automation are anticipated to have on the future of packaging.

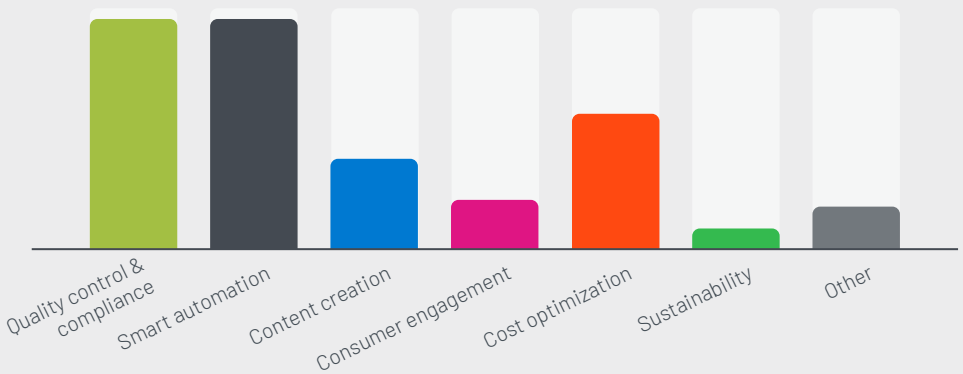
AI and Robotic Impact

Artificial intelligence and robotics will continue to be formidable players in the packaging industry. From automated assembly lines to intelligent sorting systems, robots are revolutionizing the way products are packaged and processed. These robotic systems work tirelessly, ensuring precision, consistency, and speed, all while reducing the risk of human errors and their associated costs. Robots are already being used to pick and place, box, inspect, and palletize. **AI and machine learning solutions are expected to likely help the respondents' organizations the most in 2 categories, quality control and compliance and smart automation, each reflecting 29% of the responses.** The packaging industry will continue to experience a paradigm shift, where tasks once performed exclusively by humans are now more efficiently executed by AI-driven machines.

Which technology do you think could have the most impact on packaging in your industry in 2024?



In which area will AI & machine learning solutions help your organization the most?



Process Optimization

Complex and time-consuming tasks that used to require meticulous oversight can now be managed efficiently by machines. Thus, one of the standout benefits of AI and automation is the **optimization of production processes**. With machine learning algorithms constantly improving, these systems adapt and evolve, becoming even more proficient over time. However, that's not all AI and ML algorithms can do. According to Richard Roth, VP of EMEA Commercial Suppliers Management, Esko, "AI's role today centers on process optimization, but its true potential lies in shaping creative endeavors tomorrow."

Richard Roth
VP of EMEA Commercial Suppliers Management, Esko

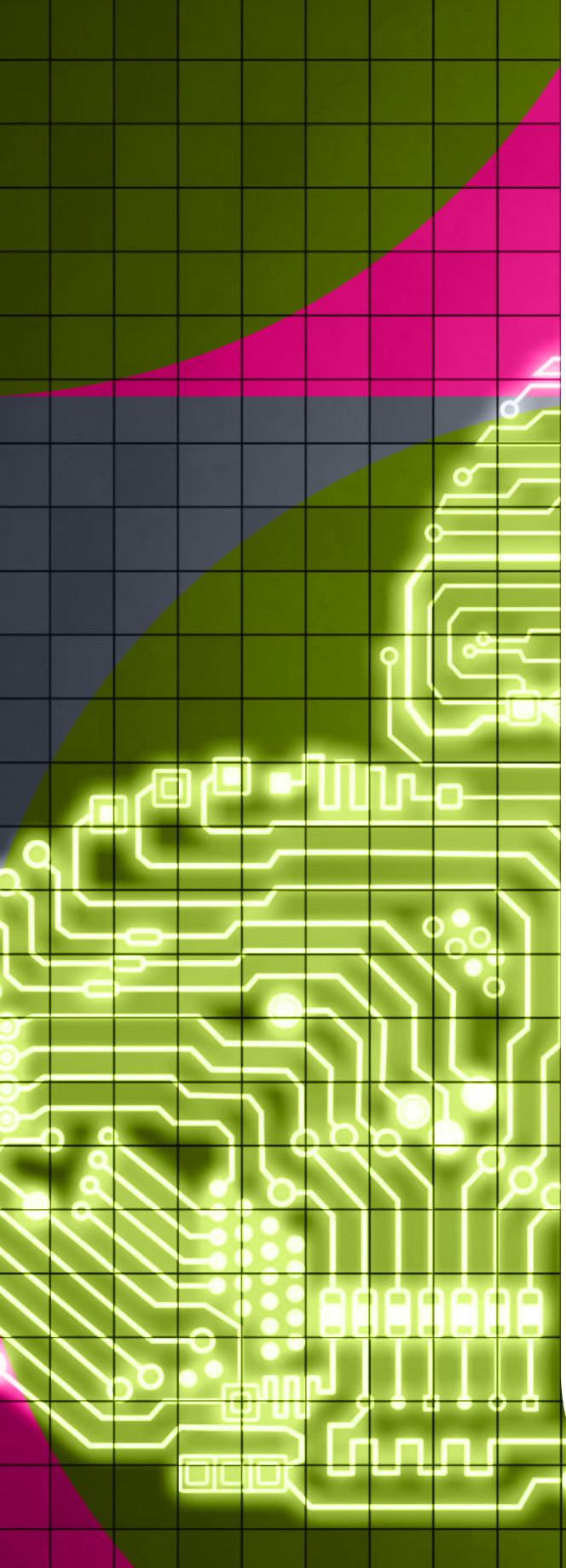
Leveraging 3D & Automation

AI and creativity go hand in hand. **Automated Packshots** combines artwork with 3D modeling to produce images that predict how the packaging will look before it's even produced. Generating packshots automatically saves costs by eliminating the need for physical prototypes. Going a step further, companies can implement 3D software that enables them to **create virtual environments** and place their products next to the competition on a virtual store shelf. This means packaging can be tailored to resonate with target audiences more effectively, leading to increased consumer engagement and, ultimately, sales.

With AI-generated prototypes and AR and VR software, companies now have the power to experiment with various designs and concepts quickly and cost-effectively. For example, collaborative design platforms and 3D prototyping technologies allow for rapid iteration and refinement of packaging designs. This not only reduces time-to-market but also ensures the final product meets quality standards, minimizing design flaws and costly revisions. "The increasing digitalization of interactions, from 3D to virtual reality promises to reshape design and how designers work," says Susie Stitzel, Director of Product Management, Esko.

Changing Job Landscape

As AI and automation become integral to packaging processes, the job landscape is undergoing a profound transformation. Specifically, smaller brands are leveraging these technologies to bring tasks in-house, reducing reliance on external suppliers and, consequently, costs. While some traditional roles may be automated or evolve to incorporate AI-related responsibilities, new job opportunities in AI and robotics maintenance and programming are emerging. The packaging industry is at the forefront of this workforce evolution.



Digital Visibility

In an age of data-driven decision-making, AI and automation play a pivotal role in enhancing digital visibility throughout the packaging process. These technologies provide real-time insights into production, allowing for better tracking, monitoring, and optimization. Whether it's predictive maintenance to prevent machine downtime or AI-driven quality control, digital visibility is giving packaging companies a competitive edge by reducing waste, maintaining workflow consistency, and improving overall efficiency.

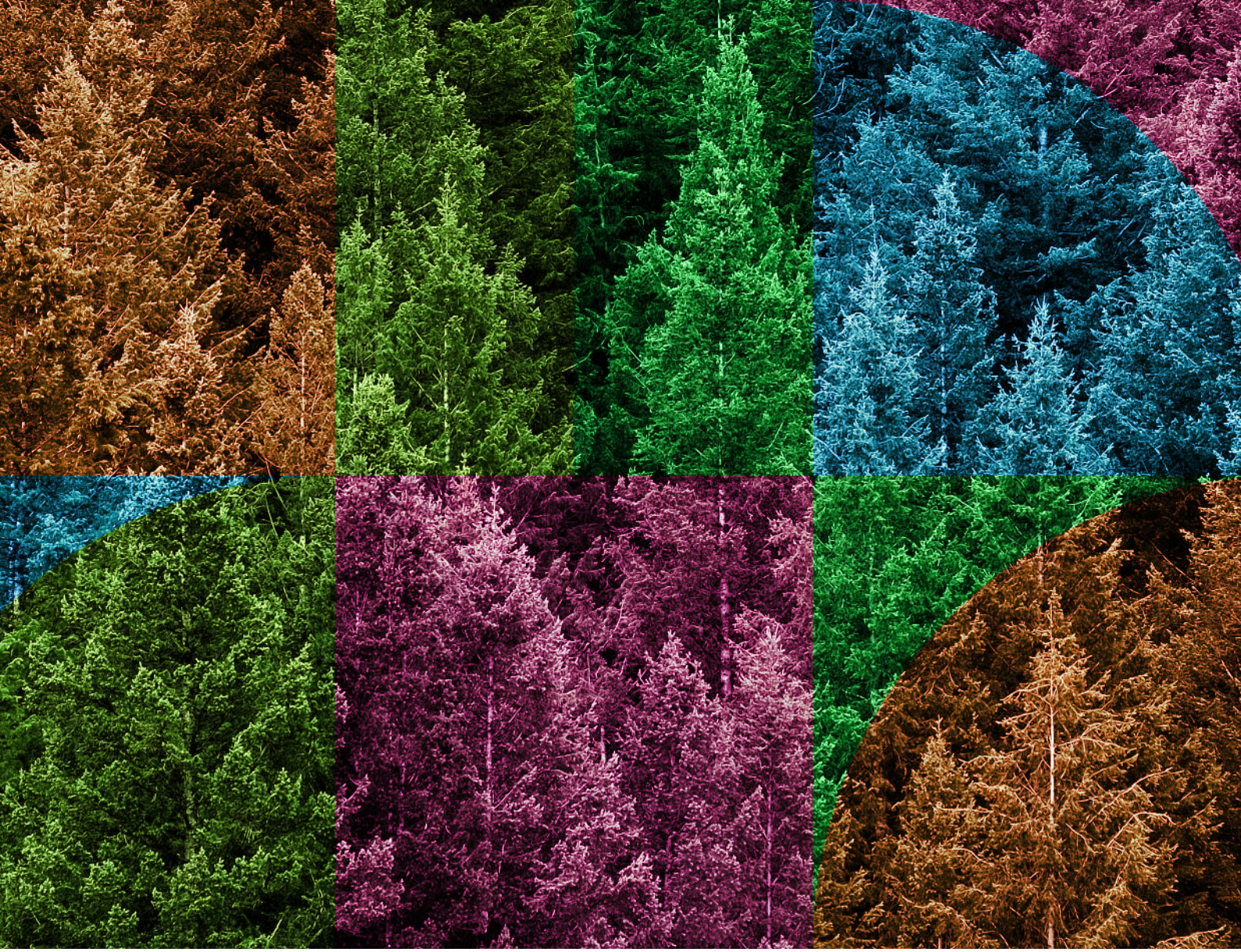
The Cloud + AI

AI and cloud computing will be used in tandem to effectively manage and retrieve data. This partnership helps companies by enhancing the performance of AI devices and enabling the collection and analysis of unstructured data. Although scaling up by combining AI and the cloud is not without its difficulties, it is a natural development. Businesses should make the most of the cloud's potential to maximize their digital operations (Bloomberg). "The shift to cloud computing is enabling the development of advanced technologies like AI search and quality control, offering scalability and efficiency previously unattainable," opines Susie Stitzel.

Challenges and Ethical Considerations

As AI permeates our everyday lives, the packaging industry must remain mindful of the potential drawbacks of this technology. Collecting and processing vast amounts of data has the potential to impact the privacy and use of customer information. Technology leaders embed data security in the DNA and architectural basis of their solutions Ensuring AI systems are transparent, accountable, and unbiased is critical to maintaining consumer trust and avoiding unintended consequences.

AI, machine learning, and automation are expected to continue to cause a tremendous revolution in the packaging sector. From optimizing processes to enhancing creative design, these technologies are pushing the boundaries of what packaging can achieve. As the job landscape evolves and digital visibility continues to improve, it's clear that AI, ML, and automation are the future of packaging.



Sustainability in Packaging—2024 and Beyond

Sustainability has emerged as a central theme in the global packaging industry. While it is not new, the importance of sustainability in packaging in 2024 and beyond cannot be overstated. Brands and packaging converters are not only recognizing the environmental imperative but also responding to increasing consumer demand and regulatory pressures for eco-friendly solutions.

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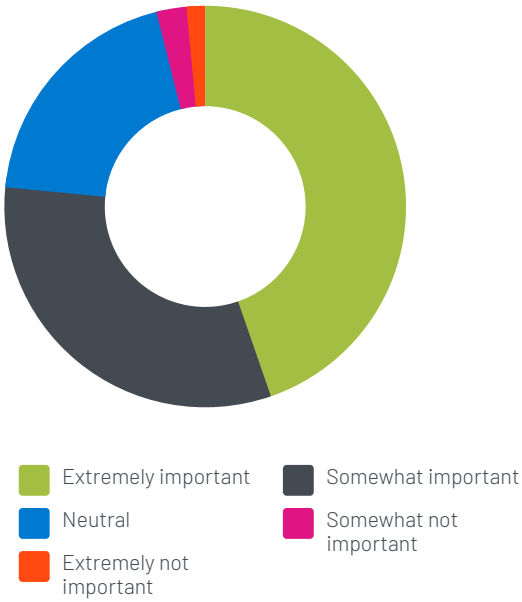
Companies across the globe are acknowledging their ethical obligation to develop packaging solutions that have a minimal impact on the environment. **45% of our survey respondents said sustainability will be extremely important to their company in 2024.** This commitment extends beyond mere lip service, as more and more consumers are scrutinizing the environmental footprint of products and their packaging. Not to be outdone, governments and regulatory bodies are tightening the reins on packaging waste and carbon emissions as well, recognizing their importance. "Sustainability is driving innovation in packaging, with a focus on optimizing materials, transportation, and reducing waste," states Jijo Dominic, VP of Product Management

Jijo Dominic
VP of Product Management, Esko

How important will environmental sustainability be to your company for packaging in 2024?



Materials Optimization: Reducing Waste and Enhancing Recyclability

Optimizing material choices, designs, and alternatives involves a comprehensive approach to reduce waste, promote recyclability, and increase circularity. Innovations in materials science have paved the way for biodegradable and compostable packaging materials that minimize harm to the environment. The adoption of lightweight materials can significantly reduce transportation costs and carbon emissions. Companies therefore have a full panoply of options available to them to put the environment first.

As sustainability standards and certifications continue to evolve, companies must ensure their packaging materials and practices align with the latest environmental requirements. Different regions may have distinct sustainability benchmarks, and companies need to tailor their strategies accordingly to remain in compliance.

Single-Use Plastics Bans & Eco-Friendly Materials

Globally, there is a growing movement to **ban or restrict single-use plastics**. A primary way to accomplish this goal is to adopt eco-friendly packaging materials. This reduces the carbon footprint and aligns with eco-conscious consumers' preferences. For example, materials such as recycled paper, biodegradable plastics, and sustainable textiles are gaining popularity for their minimal impact on the environment. When it comes to sustainable packaging, the options are plentiful. Sustainability is the future, and the future is now, explains Jijo Dominic, "Sustainability efforts span across packaging types, with a focus on recyclable materials, greener plastics, and finding solutions for compostable packaging."

Recycling and Closed-Loop Systems

Another sustainable strategy is the implementation of recycling programs and closed-loop systems. Brands retrieve used packaging from consumers and recycle it into new products. This not only reduces the demand for virgin materials but also demonstrates a commitment to circular economic principles, such as **mitigating waste and pollution, designing products for reuse, and promoting regeneration.** As Jan De Roeck, Director of Industry Relations & Strategy, Esko, noted, "Sustainability is the top trend, with a focus on progressing towards a circular economy, a value chain which recycles post-consumer packaging waste and turns that into new raw materials. It's time for the recyclers to actively participate in this value chain."

Extended Producer Responsibility (EPR)
Many regions are implementing EPR programs, shifting the responsibility for packaging waste management from consumers to manufacturers. This places greater emphasis on companies to design packaging with recycling and sustainability in mind.

Transportation and Logistics: A Critical Component

Sustainability in packaging goes beyond the product itself; it encompasses the entire supply chain. In 2024, companies must prioritize the optimization of shipping and logistical processes to contribute to reduced carbon footprints. From efficient route planning to the use of green transportation options, every aspect of logistics should be examined to reduce environmental impacts. This will not only result in cost savings but also enhance a company's reputation as a responsible steward of the environment.

Consumer Engagement: The Key to Success

Consumer education must also be part of a company's sustainability strategy. Brand owners and packaging manufacturers must communicate their commitment to eco-friendly practices and transparency. For example, "When [consumers were] asked what would convince them to consider buying more responsible products, Mintel research reveals the top response (at 41%) is "labelling that provides a score of how environmentally friendly it is (e.g. colour coded, 1-5 score)"" (**Mintel**). Obviously, companies' claims relating to environmental sustainability must be specific and true. Misleading or even false claims, known as **greenwashing**, damage consumer trust.

Transparency is a vital aspect of sustainability in packaging. Consumers are increasingly seeking clear and easily accessible information about the products they consume, their origins, and the sustainability of both the product and its packaging. In this context, technology plays a critical role in simplifying content and claims on packaging. Companies can leverage Content Management tools, such as Esko's **WebCenter**, to efficiently convey important information. Content Management allows for the seamless integration of regulatory information and sustainability

claims on packaging, making it easier for consumers to understand the environmental impact and origins of the products they choose. Regulatory information is particularly significant in ensuring compliance with evolving sustainability standards and certifications, which vary by region. By using technology-driven content management solutions, companies will enhance transparency, build consumer trust, and demonstrate their commitment to eco-friendly practices in an increasingly eco-conscious marketplace.

The EU Green Claims Directive

In March of 2023, the European Commission introduced the Green Claims Directive, which addresses greenwashing and other deceptive messaging. This directive provides a framework for how companies should validate their environmental assertions. These are referred to as any message or representation used in commercial communications suggesting that a product or business has a positive environmental impact, is less harmful to the environment than others, or has improved its environmental impact over time.

It's clear sustainability in packaging is not just a passing trend; it is a fundamental shift that is reshaping the industry. Companies will continue to strengthen their commitment to environmental responsibility, optimize materials and processes, and engage with consumers on sustainability issues. Those who embrace these principles will not only contribute to a greener future, but also thrive in an increasingly eco-conscious marketplace.

Conclusion

In conclusion, 2024 presents both challenges and promising opportunities for companies in the packaging industry. While navigating disruptions in the supply chain, evolving consumer preferences, and heightened sustainability demands may be daunting, it is also a year filled with great potential awaiting to be realized. As addressed in this ebook, by leveraging technological advancements, optimizing supply chain processes, and enhancing operational efficiency, packaging experts can position themselves to excel in 2024.

About Us

Esko helps its customers make the best packaging for billions of consumers. Our product portfolio supports and manages the packaging and print processes for brands, retailers, designers, premedia and trade shops, packaging manufacturers, and converters.

Esko solutions are used in product content and packaging management, asset management, artwork creation, structural design, prepress, 3D visualization, flexo plate making, workflow automation, quality assurance, sample-making, palletization, supply chain collaboration and/or the production of signage and displays.

The Esko family includes Enfocus, with its PDF quality control tools and automation solutions and MediaBeacon, with its digital asset management (DAM) solutions.

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X-Rite Pantone is the global leader in color science and technology. The Company develops, manufactures, markets, and supports innovative color solutions through measurement systems, software, color standards and services.

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