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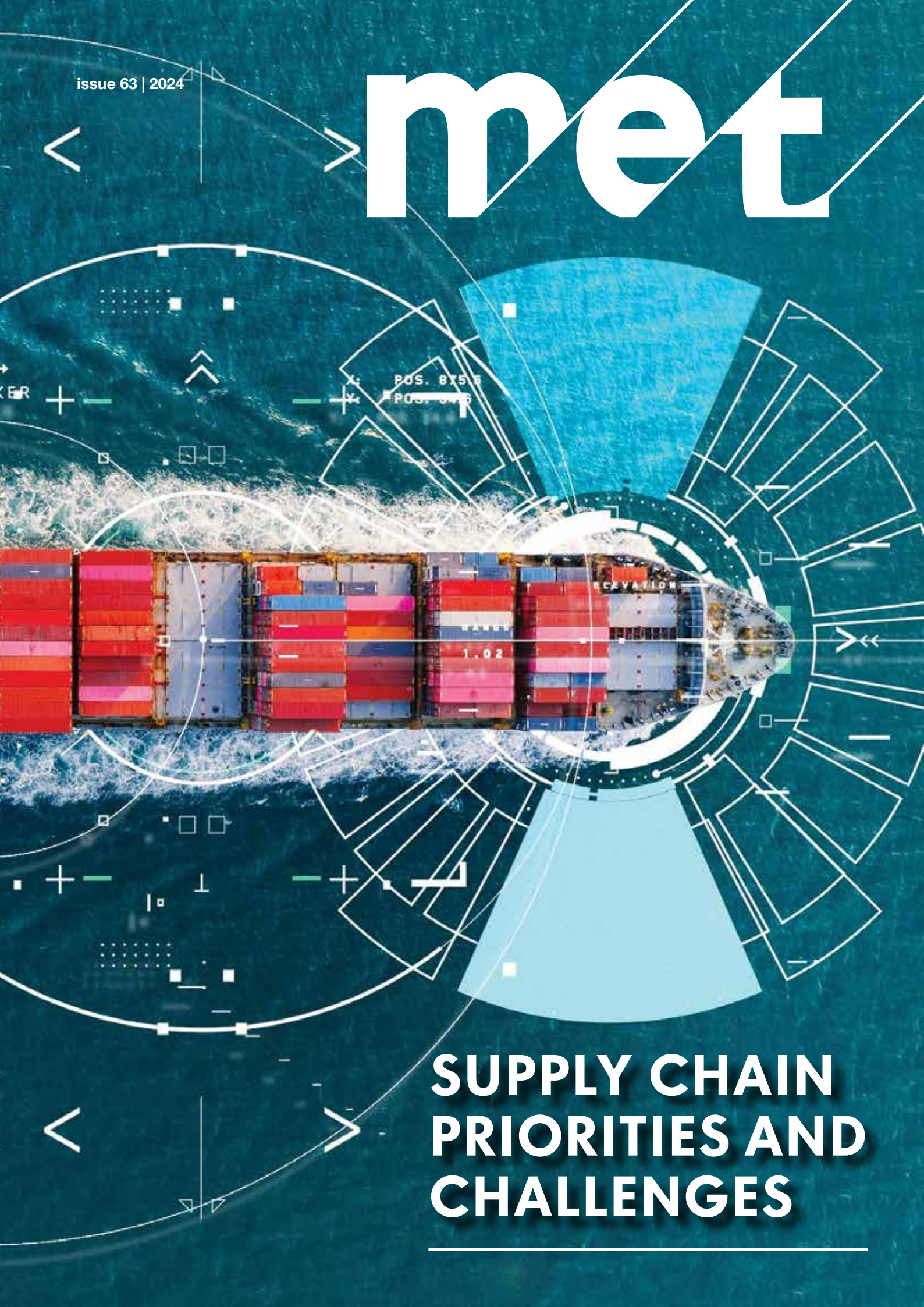

SUPPLY CHAIN PRIORITIES AND CHALLENGES

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ALGERIA

Toscotec to supply new rewinder line to Africaine Paper Mills

Toscotec will supply an OPTIMA 1800 slitter rewinder to Algerian tissue manufacturer Africaine Paper Mills (APM) at their production facility in Rouiba near Algiers. The start-up is scheduled for the fourth quarter of 2024.

Designed for high efficiency winding, the new OPTIMA 1800 slitter rewinder will process near 2,800 mm width parent reels using two unwind stands. Toscotec will also supply a complete service package with erection supervision, training, commissioning, and start-up assistance.

Belkacem Becharef, General Manager of Africaine Paper Mills, says, “This new rewinder line represents a strategic investment for APM as it will resolve bottlenecks in our operations and support our growth in the MENA market. We are happy to begin a new cooperation with Toscotec, who is renowned for its state-of-the-art technology and expertise.” Matteo Giorgio Marrano, Sales Manager at Toscotec, says: “We are confident that this project will be a stepping stone to establishing a close partnership with APM going forward. This OPTIMA rewinder will increase their production efficiency, preserve paper qualities during winding, as well as deliver maximum safety for their mill personnel.”

Belkacem Becharef, General Manager of Africaine Paper Mills.

MOROCCO

Sipat optimizes operations with ABB Quality Control System

Sipat S.A., a premium tissue manufacturer in Morocco, has successfully integrated ABB’s Quality Control System (QCS) into its operations. This implementation aims to enhance plant performance, increase efficiency, and ensure long-term reliability for two modern tissue machines.The QCS800xA system, installed on tissue machines 1 and 2, includes a High-Performance Infrared Fiber Weight sensor that monitors moisture and weight of tissues. This technology is expected to provide benefits such as non-hazardous optical measurement, reduced moisture and fiber variation, and decreased energy and fiber usage.Driss El Kendouci, General Manager of Sipat S.A., cited ABB’s market leadership and technical expertise as key factors in their decision to adopt the system. The upgrade from their legacy system was driven by the need for improved performance and productivity.ABB’s Quality Management System offers full visibility over process and system performance, enabling consistent results and quick identification of quality issues. The HPIR-FW solution provides precise measurements without using radiological isotopes, allowing operators to reduce variability, speed up start-ups and grade changes, and optimize raw material and energy usage.

Sipat tissue mill, Morocco

TURKEY

A.Celli completes installation end-of-line equipment for Akinal Tekstil's SPL11 nonwoven production line

The project included the delivery and installation of a STREAM winder, a RAPID off-line slitter rewinder, a COMBI with crane for master roll transfer, and a shaft extractor system. The SPL11 line is designed to produce 30-350 gsm 100% cotton spunlace and composites with a width of 3200 mm at an operational speed of 200 m/min.

This marks the sixth successful collaboration between A.Celli and Akinal Sentetik Tekstil (Asnonwovens) over the past two years, joining other projects such as spunmelt-wetlaid lines for composite and flushable wipes, and lamination lines for baby diaper backsheets.

Önder Doğan, Plant Manager of Akinal Sentetik Tekstil, expressed satisfaction with A.Celli's solutions, citing excellent results, top-notch service, and high-quality machinery. Akinal Sentetik Tekstil, founded in 1999, is Turkey's first spunlace nonwoven roll goods manufacturer and employs over 1,000 people at its facilities in Gaziantep.

Akinal Tekstil plant, Turkey

ANDRITZ production line for biodegradable wipes starts up at Teknomelt

ANDRITZ has successfully started up a new nonwovens production line supplied to Teknomelt Teknik Mensucat San. ve Tic. A.S. in Kahramanmaras, Türkiye. The new neXline wetlace CCP (carded-carded-pulp) line produces nonwoven roll goods for biodegradable, plastic-free wet wipes.

By combining the benefits of two technologies, spunlace and wetlaid, the line enables the use of bio- based fibers, like viscose and wood pulp, to produce a high-performance and sustainable wipe with the same technical product characteristics and performances as a conventional wipe made of synthetic fibers while protecting the environment. This perfectly supports Teknomelt's sustainable development goals and opens new growth opportunities for the company.

Salih Ziya Gümüser, General Manager at Teknomelt, says: "With this start-up we have achieved a new milestone in our production. Using ANDRITZ's Wetlace CCP technology, we produce our new BionaTM fabric brand. Made of viscose and pulp, our Biona fabrics are not only 100% biodegradable but also extra soft and highly absorbent."

Teknomelt is one of the leading manufacturers of nonwoven meltblown, spunbond, SMS and SMMS fabrics in Türkiye. The company serves a wide range of markets, exporting 45% of its production. With the new ANDRITZ Wetlace CCP line, the company is expanding its range of sustainable nonwovens production for wipes.

ANDRITZ neXline wetlace CCP at Teknomelt,Turkey.
Photo: ANDRITZ

QATAR

Zain Paper Industry launches Phase 2 with the installation of two new tissue production lines

Zain Paper Industry has launched the second phase of its tissue production park in Doha, Qatar, by installing two new complete tissue production lines (TM3 and TM4) supplied by Overmade. This expansion follows the successful completion of the first phase, which also included two identical tissue lines. The project features turn-key supply by Overmade, covering all aspects from virgin pulper to the wrapping line. Each of the four lines will produce 30,000 TPD of high-quality facial tissue using softwood and hardwood virgin fibers. The installation includes advanced features such as a water treatment plant, fiber recovery plant, and an advanced double dilution system. The OVER CR C20 machines, with a speed of 2,000 MPM and a reel trim of 2,750 mm, are designed to produce the softest facial tissue. These machines use the DYNAFLO-C headbox on the OVER FORMER CR, optimizing fiber distribution and reducing softwood requirements. Each line incorporates energy-saving solutions, including a high-efficiency hood and a steam system with an economizer.

Elie Wanna, CEO of Zain Paper Industry, emphasized the project's significance, noting that it's part of a larger development on a 123,000 m2 plot. The company has already planned a third phase, which will include two additional tissue lines (TM5 and TM6). Wanna highlighted the efficiency gains from having multiple identical lines, each dedicated to a single product, and expressed satisfaction with Overmade's collaboration and support.

Stefano Marocchio, President and CEO of Overmade, added, "We are enthusiastic about these new important multiple orders – especially because they are coming from an experienced and high demanding Tissue producer, who prepares to gain significant market shares. This allows us, in parallel, to increase our presence in a key market, and demonstrate once again Overmade's high technology level. Overmade's growth path continues with more and more prestigious installations and references, following our motto made in Italy – made in Over."

Overmade tissue production line

AUSTRIA

Acquisition completed: NAF control valves now part of ANDRITZ

Following approval by the relevant authorities, the acquisition of NAF AB business by international technology group ANDRITZ has been completed. This acquisition further strengthens the ANDRITZ product portfolio in the field of process control and automation systems for pulp and paper mills and other process plants.

ANDRITZ has successfully equipped its production plant and equipment deliveries with NAF control valves for many years. With this acquisition, the valves will be part of the ANDRITZ Intelligent Instruments portfolio, Smart Series. The NAF valves will be seamlessly integrated into the ANDRITZ Metris Asset Management suite, which provides automated monitoring of control valves to maximize plant uptime and operational stability.

Johanna Newcomb, Vice President in ANDRITZ Automation and Digitalization, says: "We are very pleased to welcome the NAF team with its valuable experience and expertise to ANDRITZ. This acquisition will further complement ANDRITZ's capabilities in Automation and Digitalization and allows us to provide high quality, reliable and safe flow control solutions and services globally, by leveraging our global presence."

COLUMBIA

C. Y. P. Del R. S.A. starts up Toscotec tissue line

Colombian tissue manufacturer C.Y.P. Del R. S.A. has started up a complete AHEAD 1.8 tissue line supplied by Toscotec at its mill in Risaralda. This is a repeat order for Toscotec who has successfully installed a TT SYD Steel Yankee Dryer at the same mill on PM1 in 2021.

Designed for optimal energy efficiency, the new AHEAD 1.8 machine features an upgraded design TT NextPress shoe press, a third-generation TT SYD Steel Yankee Dryer, and high efficiency TT Hood. The supply includes Toscotec's patented TT SAF® DD Short Approach Flow with Double Dilution to reduce electrical consumption and a TT LowMistFormer for optimal formation efficiency. The service package included the detailed engineering, erection supervision, commissioning, training, and start-up assistance.

Juan Felipe Henao Bernal, Operations Manager at C.Y.P. Del R. S.A., comments, "We were very impressed with the fast start-up curve achieved by Toscotec: in just a couple of days the new PM3 was operating at its maximum speed and delivering superior performances. We are happy with the project outcome and look forward to reaping the fruits of its energy efficiency design."

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SPAIN

ANDRITZ starts up new high-temperature Yankee hood and air system at Kartogroup

ANDRITZ has successfully started up the new high-temperature PrimeDry Hood HT and air system supplied for the rebuild of a tissue machine at Kartogroup España's mill in Burriana, Spain.

Pascual Gómez, COO of Kartogroup, said: "The rebuild will significantly reduce gas and steam consumption and lower emissions at our mill, making our production more sustainable and cost- effective. Thanks to the seamless collaboration and personalized approach of the ANDRITZ team, the entire project went smoothly and was completed on schedule."

The new equipment installed on the PM4 tissue machine features an optimized impingement distribution of the hood nozzle boxes, a heat recovery system, a state-of-the-art burner management system and Yankee head insulation. These solutions maximize the hood drying performance while reducing the specific energy consumption. They also result in increased safety and a significant reduction of CO2 emissions.

ANDRITZ's scope of supply also included installation supervision, commissioning, training, and start- up assistance.

First jumbo toilet paper roll manufactured on tissue machine PM4 after the rebuild by ANDRITZ at the Kartogroup España S.L. mill in Burriana, Spain. Photo: ANDRITZ

ITALY

Lucart Group achieves excellent results with Valmet's Perini MyLine

Lucart Group, a leading European manufacturer of thin MG papers and hygiene products, has significantly improved its production capacity, quality, and sustainability by implementing Valmet's Perini MyLine converting lines. Between 2015 and 2022, Lucart installed four Perini MyLine machines in its facilities across Europe, resulting in a 15% increase in production capacity.Key benefits of the Perini MyLine for Lucart include: flexibility to accommodate frequent product changes, quick start-up and simplified operator interface, efficient laminator-embosser for easy embossing modification, customized embossings developed in collaboration with Valmet's Engraving Solutions, and Acquabond® water-based lamination technology for eco-friendly products and cost reduction.

Lucart has also integrated Perini Proxima lines for Away from Home products, creating synergies across the group. The modularity of Valmet machinery allows for easy transfer of components between facilities and simplified training processes. Valmet's comprehensive project management and after-sales support have been crucial in ensuring minimal downtime and production continuity. This partnership has positioned Valmet as a reliable long-term partner for Lucart, offering the lowest transformation cost in the market while maintaining high-quality standards and sustainability goals.

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CHINA

GHC to increase production capacity

Chinese nonwovens manufacturer GHC has partnered with A.Celli Nonwovens and Reicofil to install a new Reicofil RF5 production line in Jinjiang, Quanzhou City. The collaboration has yielded impressive results, with GHC expressing satisfaction over the performance of A.Celli's solutions integrated into the new line.

The RF5 line, engineered to handle both spunbond nonwoven and high loft products, offers exceptional operational flexibility for processing a wide range of products and basis weights.

A.Celli's scope of supply for the 3.2 RF5 line included an E-WIND WAVE master roll winder, an E-WIND SUPER SONIC slitter rewinder with advanced features, and a fully automated R-WAY SLITTOPACK packaging system.This new production line has positioned GHC among the leading market suppliers of hygienic spunlaid materials, reflecting the company's commitment to meeting industry standards and ensuring top-quality products in the hygiene sector.

Mr. Zemin Wu, Supply Chain Director of GHC, praised A.Celli's work and the support provided by their Shanghai and Foshan offices.

Established in 2003, GHC specializes in R&D, manufacturing, and sales of nonwoven materials. The company operates two factories built to international standards, featuring cutting-edge technology including the Reicofil RF5 line. With fifteen advanced production lines and multiple post-processing machines, GHC's annual production capacity reaches approximately 60,000 tons.

GHC partners with A.Celli Nonwovens and Reicofil

VIETNAM

Xuan Mai Paper successfully starts up of A.Celli tissue rewinder

In a significant development for the Vietnamese paper industry, Xuan Mai Paper Co., Ltd. has successfully started up its new A.Celli E-WIND® T100 tissue rewinder. The equipment, supplied by A.Celli Paper at the beginning of 2024, is now fully operational and performing in line with expectations.

The state-of-the-art E-WIND® T100 rewinder comes equipped with advanced features including a winding shaft extractor, a dust removal system, and a function for using 12" cores. Since its start-up, the machine has been processing 2850 mm wide tissue paper with basis weights ranging from 13 to 45 gsm at an impressive operational speed of 1900 mpm.

Mr. Luong Nhu Huynh, Director of Xuan Mai Paper Co., Ltd., expressed his satisfaction with the new equipment, stating, "We are satisfied by the results achieved thanks to the A.Celli team and to the rewinder itself. We have produced the first roll in mid-June and its quality was already really good! We are looking forward to work again with A.Celli in the future."

A.Celli Paper starts up the E-WIND® T100 supplied to Xuan Mai Paper Co., Ltd, Vietnam

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A.Celli Celebrates 80 Years of Activity

A History of Industrial Excellence and Continuous Innovation since 1944

A.Celli Group is celebrating a historic milestone: 80 years of activity. The company, founded in 1944 by Alvaro Celli, has become one of the most significant and prestigious industrial enterprises in the Lucca and international business scene. To commemorate this important anniversary, an institutional event was held on June 27th, attended by the A.Celli Group's top executives as well as the highest institutional figures and prominent personalities from the district and the region.
During the celebration, the Group's years of history were retraced, highlighting achievements and future challenges. Memories and recollections illustrated the stages of a steady journey that has seen the company emerge in an Italy grappling with post-war reconstruction to evolve its technological value, expanding its business beyond the borders of Italy and beyond its own sector.

Today this entity, which over time has transformed into an industrial group, directly employs more than 300 people and generates more than a thousand induced jobs. Turnover in 2023 reached 200 million euros, with over 95 percent exported to more than 60 countries around the world. The group is firmly present in Asia, the Americas, China and Turkey, with two production plants in Tassignano and Rughi - dedicated to the paper and nonwoven markets, respectively - covering 25 thousand square meters and a third plant nearing completion in Porcari.

The event, essentially dedicated to the memory of the founder Alvaro and the recognition of the second entrepreneurial generation composed of Piero and Marco Celli, marks only the beginning of a cycle of multiple activities to celebrate the 80th anniversary. Over the course of a calendar year, other forms of collective commemoration will follow, such as the release of a series of documentary videos, the publication of a volume of memories and other surprises that will directly involve all employees.
The cycle of activities will culminate with the inauguration of a new production plant currently under construction. The new site represents a further step forward in the A.Celli Group's growth strategy, still firmly in the hands of the family with Mauro and Alessandro Celli at the helm of the holding. Equipped with the most modern technologies, it will allow the company to increase its efforts in the intralogistics solutions sector and respond even more efficiently to the needs of global markets.

"Reaching 80 years of activity is a milestone that testifies to the solidity, innovation, and adaptability of the A.Celli Group," says Alessandro Celli, Shareholder of Italia Technology Alliance. "A success built thanks to the dedication of the founder, the perseverance of his descendants, the professionalism of the collaborators, and the trust of clients and international partners. Today, we have taken the first step in our commemoration and celebration journey. With the inauguration of the new plant, scheduled for mid-2025, the Group is preparing to complete the year of celebrations and write new chapters of its history, continuing to represent made-in-Italy excellence around the world."

From left to right: Marcello Gozzi – Director of CTN, Tiziano Pieretti – Deputy Director of CTN, Daniele Matteini – President of CTN, present the commemorative plaque to Mauro, Alessandro, Piero, and Marco Celli of the A.Celli Group.

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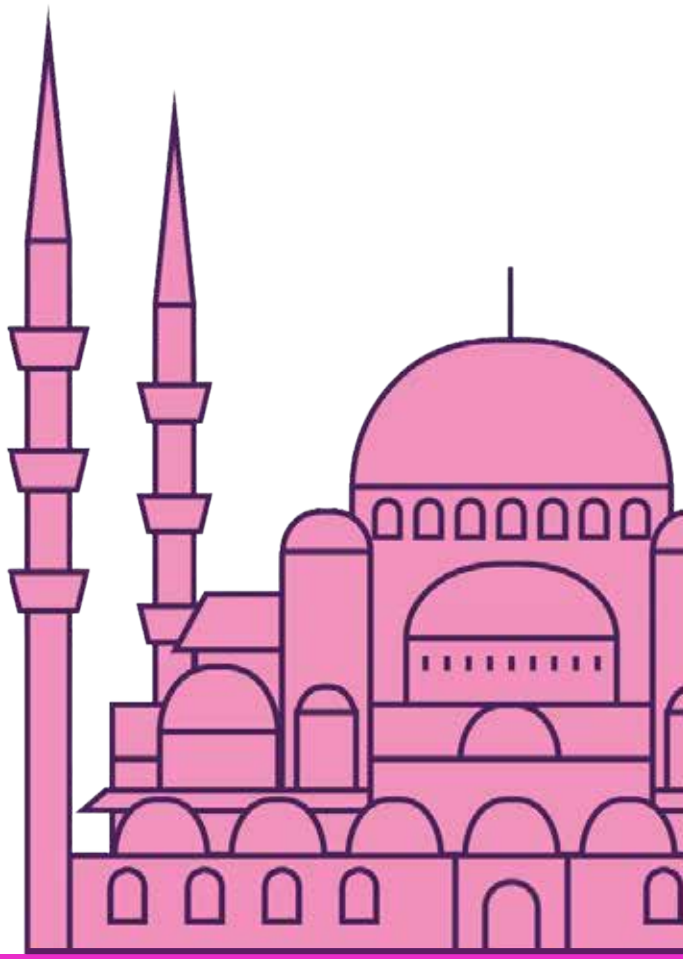

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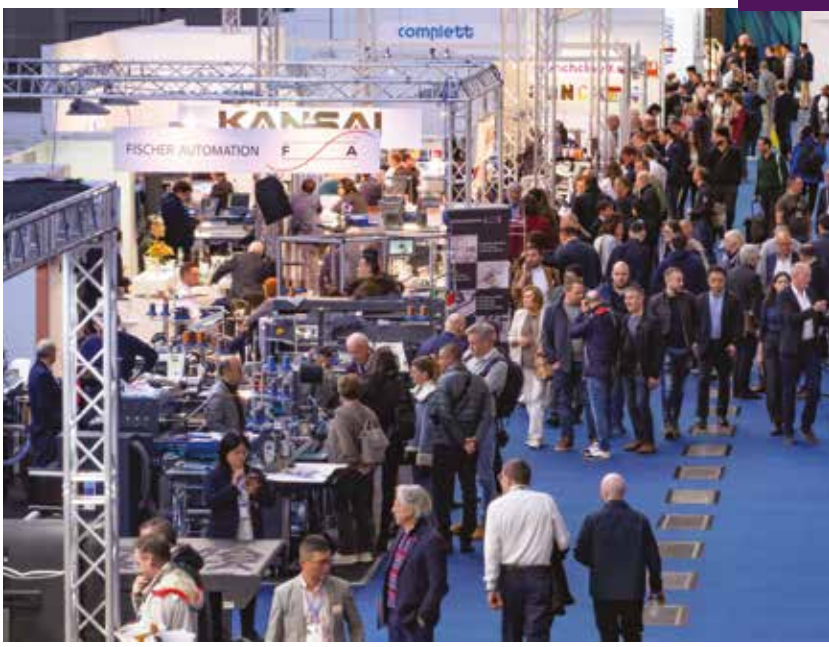
Techtextil and Texprocess 2024
A SHOWCASE OF TEXTILE INNOVATION AND SUSTAINABILITY

Helena Engqvist
Engqvist Consulting

The 20th Techtextil exhibition, held alongside Texprocess, took place in Frankfurt, Germany from April 23-26, 2024. This premier international trade fair for technical textiles, nonwovens, functional apparel textiles, and textile technologies brought together 1,700 exhibitors from 53 countries and attracted 38,000 visitors from 102 countries.

Helena Engqvist, representing our magazine, attended the event, gaining valuable insights into the latest innovations and trends shaping the industry. Through her direct engagement with exhibitors and attendees, Helena gathered essential information that enhanced our magazine's coverage of this dynamic sector. Her expertise and observations highlighted key advancements in sustainability, recycling, and technology showcased at Techtextil and Texprocess 2024.



Exhibition Highlights
The event showcased a comprehensive range of textile solutions, raw materials, and cutting-edge innovations across 12 application areas. Exhibitors from 53 countries—including Germany, Italy, Turkey, France, China, Egypt, Indonesia, Kosovo, Luxembourg, Moldova, Thailand, the United Kingdom, Greece, Spain, Portugal, Belgium, the Netherlands, Switzerland, Austria, Poland, Sweden, Norway, and Finland—underscored the truly global nature of the textile industry. This diverse international presence reinforced the exhibition's vital role as a key platform for innovation, collaboration, and progress within the sector.

The exhibition featured a strong focus on sustainability, recycling, and technological innovations across all segments of the textile industry. A notable addition was a panel discussion exploring new opportunities presented by Artificial Intelligence in textile production, processing, and recycling.

The extensive range of information presented related to textiles, nonwovens, fibers, other materials, production technologies, and final products, included: nonwovens based on numerous technologies and made of man-made fibres, glass fibres, natural fibres, and other fibres, textile technologies on display also encompassed woven fabrics, laid webs, sawings, braidings, knitted fabrics, tapes, belts, nets, and textile bonding systems. This comprehensive showcase highlighted the breadth and depth of innovation across the entire textile manufacturing spectrum.

KEY EXHIBITORS AND INNOVATIONS

ANDRITZ (AUSTRIA)

ANDRITZ presented its innovative nonwovens production and textile solutions. Key highlights included:

- Automated Textile Sorting Process: developed in partnership with recycling company Nouvelles Fibres Textiles and waste sorting specialist Pellenc ST, capable of sorting garments by composition and color for both post-consumer and post-industrial waste markets. The automated textile sorting line can process textile waste to produce recycled fibers for the spinning, nonwovens, and composites industries.
- Natural Fiber Processing: focused on eco-friendly bast fibers such as hemp, kenaf, and jute, offering solutions for decorticating bast fiber straw for further cottonizing and respinning processes
- Durable Nonwovens Technologies: featured needlepunch, airlay, and wetlaid processes, including the new neXloom Elliptica-type DF-4 needleloom which processes lightweight nonwovens at high speeds while ensuring visual quality.
- Airlay Technology: highlighted applications in automotive, building insulation, and furniture industries, capable of processing various fibers and non-fiber particles.
- Wetlaid Technology: showcased tailored solutions for processing technical fibers like carbon, metal, aramid, glass, and micro glass fibers, as well as fiber blends. These customized wetlaid production lines are designed for technical applications in various industries, including transportation, aerospace, hydrogen, battery, filtration, and construction.
- Retrofit and Upgrades: offered options for upgrading existing nonwoven production lines to optimize energy use and enhance product quality.

AUTEFA (Germany)

AUTEFA, a leading supplier of turnkey nonwoven systems and machinery, presented innovations in nonwovens technology with a clear focus on sustainability.
Their offerings include:

- Needle punching lines
- Aerodynamic web forming lines
- Spunlace and thermobonding lines

AUTEFA emphasized energy efficiency, fiber selection, life cycle management, and emissions reduction in their technologies.

NIRI (UK)

NIRI supports innovations for a sustainable future, offering:

- R&D services
- Market assessment
- Application development for fibers, nonwovens, and advanced materials

Their expertise spans multiple sectors, with unique R&D capabilities to accelerate products to market. NIRI's sustainability designs include transitions to circular economy biodegradable products.

Mogul (Turkey)

Mogul presented several technologies, including spunbond, spunlace nonwoven, wipes, artificial leather.
Mogul diverse range demonstrates their versatility in nonwoven production.

Kansan (Turkey)

Kansan showcased their new business area, Kansan Materials (KM), which focuses on eco-friendly and sustainable Wetlaid Nonwoven manufacturing.
Their new technology features energy-efficient, high-performance systems for applications in wipes, medical, healthcare, filtration, absorbent hygiene, construction, and automotive sectors.

Kansan Materials' new wetlaid technology introduces several significant improvements over traditional nonwoven production methods. Some key advancements include:

- KM AQUAFORMER: An efficient headbox unit for multi-fiber nonwoven production, offering 20% energy efficiency in this unit alone.
- KM RECOVERY SYSTEM: A filtration system offering cost savings in water and raw material usage, eliminating the need for harmful chemicals.
- KM TAD DRYER: An energy-efficient through-air dryer with multiple functions following the latest technology.

Beaulieu Fibers (Belgium/Italy)

Beaulieu Fibers, producer of polyolefin fibers and BICO polyester/polyolefin fibers, displayed impact themes focusing on:

- CO2 and raw material savings
- Circularity
- Fossil-free materials
- Collaborations for sustainable living

Beaulieu Fibers emphasized that sustainability needs vary across industries, and there's no one-size-fits-all solution. They are committed to developing a range of solutions to address diverse sustainability requirements of various stakeholders.

They offer recyclable, high-performance, renewable, and bio-circular fibers, all made in Europe. These features align with customer targets, green initiatives, and sustainability expectations.

Global Nonwoven (Turkey)

Global Nonwoven, based in Turkey, showcased a wide range of technical textile innovation solutions based on spunlace, meltblown, spunbond, and laminates. The company focuses on research and innovation in nonwoven technical textile solutions, aiming to combine multiple functionalities in a single nonwoven medium for targeted performance.

Global Nonwoven sustainability-oriented approach includes:

- Using recycled polymers, mainly polypropylene and polyethylene, in nonwoven production.
- Incorporating renewable resource-originated fibers to support biodegradability and biocompatibility of single-use products.
- Utilizing renewable biopolymers like PLA and PBS to promote biodegradability of single-use consumables.
- Developing superior performance consumables for hazardous materials spill control and cleaning goods.

ANDRITZ booth at Techtextil 2024.
Photo: ANDRITZ

Lenzing (Austria)

Lenzing, a leading supplier of regenerated cellulose fibers for the textile and nonwoven industries, showcased their high-quality viscose and cellulose-based fibers. The company is working to make the textile and nonwovens industries more sustainable through many initiatives:

In line with its “Better Growth” strategy, Lenzing is advancing recycling initiatives to accelerate the transition from a linear to a circular economy model in the textile and nonwovens sectors. The company is advancing economically viable and scalable solutions to address the global textile waste problem:

- Collaborating with Swedish pulp producer Södra to develop industrial-scale processes for recycling used textiles
- Expanding REFIBRA™ technology to include LENZING™ ECOVERO™ fibers, which contain a minimum of 20% recycled textile waste from cellulose-rich materials or polyester-cotton blends

Lenzing has recently modernized its production sites in Indonesia, focusing on:

- Upgrading capacities for ecologically responsible specialty fibers
- Significantly reducing specific emissions
- Expanding existing offer of viscose, modal, and lyocell fibers with the internationally recognized EU Ecolabel, to include the branded specialty viscose fibers LENZING™ ECOVERO™ and VEOCEL™, produced at the Indonesian site.

Lenzing received recognition from various rating agencies for its sustainability performance, achieving a triple “A” rating from CDP for the third consecutive year, placing it among only ten companies worldwide to earn this distinction. Additionally, Lenzing was awarded platinum status in the EcoVadis CSR rating, ranking in the top 1% of assessed companies globally. MSCI also awarded Lenzing an “AA” rating for the third time in a row, positioning it among the top eight percent of rated companies in its peer group.

Other Exhibitors

- Tesil Fibers (Czech Republic): Showcased polyester fibers
- Technomelt (Turkey): Presented innovative nonwovens based on spunbond, meltblown, and composites
- Nurteks textile (Turkey): Displayed Broche nonwovens for various applications
- FiberPartner ApS (Denmark): Shared information about polyester variants
- Pfeiffer: Exhibited various textile materials and technologies

Innovation Awards

The exhibition also featured Innovation Awards, recognizing outstanding contributions in sustainability and recycling technologies. Winners included Revolvtech, Technische Universität Dresden, Heraeus Precious Metals, LunaMicro, DTIF, Norafin Industries, SA Dynamics, CITEVE, Centexbel, Veit, Mikkelsen Innovation, Juki Central Europe, Dürkopp Adler, Valvan, and Technische Universität Dresden.

Techtextil and Texprocess 2024 demonstrated the textile industry’s commitment to innovation, sustainability, and technological advancement, setting the stage for future developments in this dynamic sector.

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SUPPLY CHAIN PRIORITIES AND CHALLENGES

Organizations are prioritizing preparedness against ongoing uncertainty

With each new year comes a new (and/or continuing) set of supply chain successes and challenges. In 2024, geopolitical developments and technological advances continue to impact how supply chains and companies conduct business.

In its 10th annual Supply Chain Management Priorities and Challenges research, APQC asked supply chain professionals about their expectations and trends for 2024. With input from 352 participants representing more than 22 industries APQC evaluated: how supply chains performed in 2023, changes and trends impacting supply chains, the biggest obstacles to improving supply chains, and organizational focus areas and priorities for supply chains in 2024.

Following is a summary of key research findings in each of these areas.

'Uncertainty' is the word of the year for 2024

Today's supply chains are complex networks being impacted by risks and challenges on multiple fronts, from labor disputes to extreme weather events, political elections, geopolitical conflict, and beyond. Facing strong headwinds from these ongoing and often unpredictable disruptions, supply chains in 2023 did not perform as well as one might have hoped. For example, fewer than four out of every 10 organizations reported achieving their annual business goals in 2023.

If 2023 was a hard year for supply chains, 2024 shows signs of being just as challenging and perhaps even more uncertain. Beyond the "known unknowns"—that is, risks with known or at least quantifiable probabilities—supply chains face plenty of "unknown unknowns" in 2024.

Supply chains are capable of withstanding uncertainty

Severe disruptions are putting supply chains and their leaders in the spotlight like never before—which also means there are plenty of opportunities to rise to the occasion. In many ways, supply chain professionals have already been doing just that.

In the face of some of the most crippling business disruptions to date, supply chains bent but did not break. Organizations continued to move freight around the world. Life-saving medicines and vaccines found their recipients. Most households even had access to an adequate supply of toilet paper. Along the way, the emergence of technologies like supplier risk notification systems enabled organizations to bounce back faster from disruption and in some cases avoid it entirely.

Simply put, supply chain professionals have the intelligence, the technology, and now the experience with disruption to achieve their business goals even when the 'unknown unknowns' materialize. To do so, they need to remain focused on:

- Making better decisions by leveraging advanced analytics and increased supply chain digitization;
- shoring up the foundation with stronger data management and process standardization;
- staying aware of changes in the external environment like emerging technologies, changing sustainability regulations, and geopolitical developments;
- collaborating and communicating with internal and external stakeholders; and
- prioritizing innovation as a core organizational goal.

Supply chain professionals that stay focused in these ways will be in a better position to deliver on key organizational priorities, and more broadly, help the business withstand whatever the future might bring. This article will help orient professionals to the trends and challenges they will need to consider in their business.

2023 was not an easy year

2023 proved to be more challenging than expected for many organizations. While there has been some progress in specific areas, such as customer service and return on investment (ROI), a significant portion of respondents reported underperforming compared to previous years. In fact, fewer than four in ten organizations achieved their business goals for the year. Equally concerning is the decline in respondents who believe their performance matches or exceeds that of their peers and competitors (Figure1).

These drops in performance reflect the ongoing turmoil that supply chains faced and are currently facing. To achieve sustained improvement in 2024, organizations will need to further enhance their adaptability and resilience in the face of disruption.

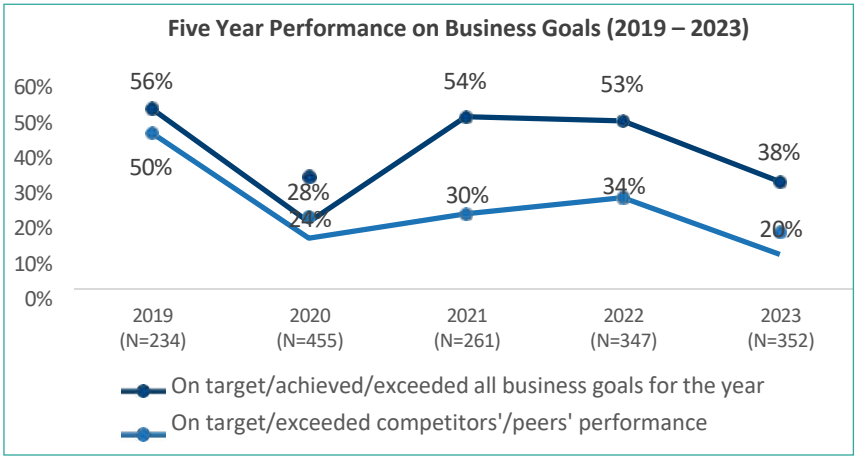


Figure 1

Changes and challenges to supply chain

Many of the top trends, obstacles, and challenges that participants anticipate facing in 2024 are related to technology. For example, big data and analytics is at the top of the list and has been for the previous three years.

While emerging technologies are helping supply chain professionals make sense of ever-increasing amounts of data, keeping pace with all the data from internal and external sources continues to be a challenge.

Below are additional trends, obstacles, and challenges that respondents see coming.

Top trends anticipated to impact supply chain

Respondents anticipate that the trends shown in Figure 2 will impact supply chains over the next three years: It makes sense to see supply chain digitization only slightly behind big data and analytics as a trend that will impact supply chains in 2024. As organizations continue to integrate physical processes with digital data and tools, they need to ensure that they are achieving a sufficient return on their investments.

Strengthening foundational data and processes are in the third and fourth spots for anticipated impacts on supply chain. In its first year on the survey, data management highlights the importance of having well-managed underlying data models, clear data governance, and more critical data-related processes. If the underlying data is not reliable, the decisions the organization makes based on that data are questionable. Just as organizations need a good data foundation, they also need a solid process foundation to maximize efficiency and technology investments. Standardized processes are also a key for effective business continuity plans as organizations cope with continued uncertainties and rapid changes in the external environment.

Changes in legal and regulatory requirements and pressure from other stakeholders (e.g., customers, investors) are driving the impact of sustainability and environmental and social issues on supply chains. But as organizations make public Net Zero promises, many of them are scrambling to create an actionable plan to hit those targets in time, especially for the more complex Scope 3 emissions from the value chain.

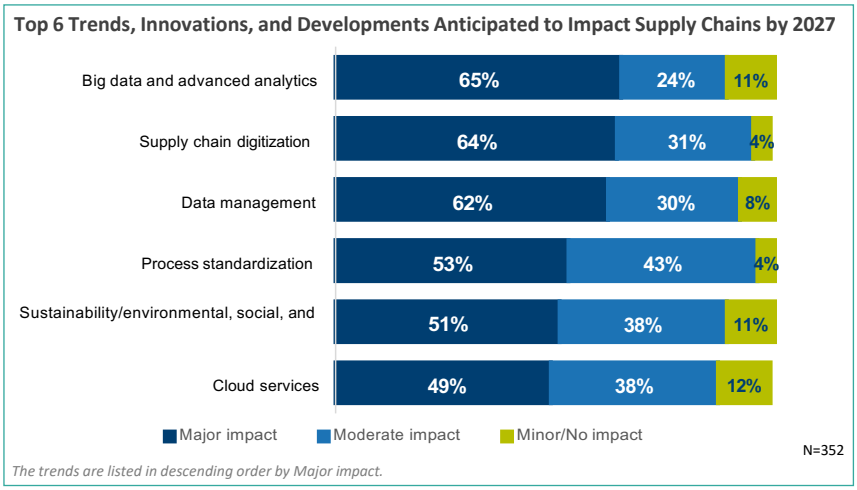


Figure 2

More trends with greater impact
Along with the trends shown in Figure 2, respondents also anticipate that their supply chains will see major impacts from:

- Global trade/geopolitical risks (43 percent of respondents),
- cybersecurity (43 percent),
- artificial intelligence (AI)/generative AI (42 percent),
- robotic process automation (23 percent), and
- blockchain (12 percent).

Some trends may continue to grow in their severity and impact throughout the year. For example, maritime shipping in 2024 is even more volatile than it was at the time of the survey due to conflict in and around the Red Sea.

Obstacles to improvement of supply chain processes

When APQC asked respondents about the obstacles standing between them and supply chain process improvement, two of the top three obstacles were related to technology (Figure 3). Without foundational elements like data management, new technology will only accelerate problems that already exist in a process. A lack of collaboration between supply chains and other functions (or externally) can be just as damaging and continues to persist as a top obstacle for the third year in a row.

New technology requires change management
Respondents said that the top obstacle to improving supply chain processes in 2024 is the implementation of new technologies (for example, AI, drones, Internet of Things [IoT] sensors, etc.). This ranking reflects the increased need for change management, as organizations reckon with the ways in which new technologies require process changes, new roles, new forms of governance, and more. Far from being 'plug and play,' many important forms of supply chain technology like risk notification systems are only as good as the data, processes, and governance that sit at their foundation.

Supply chains continue to suffer from a lack of collaboration
Lack of collaboration was the top obstacle to supply chain improvement in 2022 and remains the second most common obstacle since 2023. While a lack of collaboration is challenging for any area of the business, it can be toxic in a supply chain context. Disconnects in the supply chain can lead to ripple effects that impact customers and their ability to receive orders on time in full, damage-free, and with accurate documentation. Supply chain leaders need effective internal and external collaboration to be resilient and responsive to change, especially with increased uncertainty in 2024.

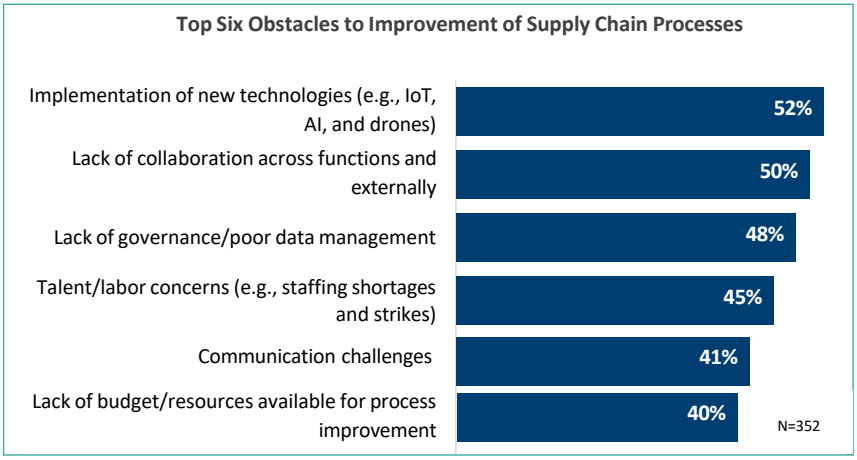


Figure 3

Governance and data management are foundational
Nearly half of respondents (48 percent) said that a lack of governance and/or poor data management practices were an obstacle to process improvement. Governance and data quality are intimately linked: Someone in the organization needs to be formally accountable for ensuring the availability, quality, and security of data that is vital for supply chain.

Lapses in governance and other poor data management practices can quickly cause problems for supply chains. For example, no matter how advanced an organization's analytics tools are, forecasts built from bad data can still lead decision makers in the wrong direction or keep them from identifying key opportunities. At the very least, supply chain processes become less efficient when decision makers must check and re-check the numbers because the data is unreliable.

Overcoming obstacles
Flexibility is a virtue for supply chains—especially in times of change and uncertainty. Fortunately, more organizations than in any other year of APQC's survey (84 percent) report that they have evaluated and modified their supply chain strategy to help head off the obstacles they are facing. For some industries like aerospace and pharmaceuticals, the challenges of 2023 led as many as 89 percent of organizations to modify their strategies. Other industries like automotive (75 percent) saw relatively fewer organizations shifting their strategies.

2024 Supply chain priorities and focus areas

The findings in this section encompass overall supply chain management as well as supply chain planning, sourcing and procurement, innovation, and logistics. After highlighting the priorities and focus areas for each of these broader topics, APQC provides recommended resources for further reading.

Overall supply chain
APQC asked respondents to identify where their organizations are investing resources, innovation, and hiring for the supply chain as a whole in 2024 (Figure 4). Supply chain planning remains in the top spot for at least the fifth year (selected by 90 percent of respondents, a 4-percentage point increase). With the continued challenges facing supply chains, that should be no surprise.

All other areas of supply chain saw double digit increases in the percentage of organizations focusing and investing for 2024. Compared to 2023,

- sourcing and procurement increased by 13 percentage points;
- innovation increased by 14 percentage points;

- logistics and inventory management increased by 15 percentage points;
- order management jumped 21 percentage points;
- product development surged by 25 percentage points; and
- manufacturing grew by 12 percentage points.

Supply chain planning
Respondents focusing on supply chain planning indicated integrated business planning and demand planning and forecasting as their top two priority areas. To address disruptions and global uncertainty, companies need to pull their resources together to ensure that they align business goals and supply chain operations. This leads to the creation of an effective consensus forecast and supports scenario planning to prepare for potential disruptions.

Organizations intend to conduct benchmarking against similar companies, improve collaboration, implement new technologies, and standardize processes to start addressing their supply chain planning priorities.

Other top focus areas for supply chain planning include sales and operations planning, automation and digitization, and analytics and measurement.

Drive success with actionable strategies
APQC also asked respondents to identify the most actionable strategies for supply chain planning.

Evaluating and comparing their organization's performance through benchmarking emerged as the top actionable strategy (61 percent of respondents). Many organizations recognize the importance of benchmarking their supply chains to evaluate how they compare to their competitors and other peers, to identify opportunities for process improvement, and to continually monitor key business drivers.

Other highly actionable strategies for respondents include:
- improving collaboration and communication (55 percent),
- implementing new technologies and capabilities (51 percent),

Figure 4

- standardizing processes (51 percent),
- improving forecast accuracy (47 percent).

These strategies certainly make sense in the context of focus areas like integrated business planning.

Collaboration and communication are foundational for the ability to work efficiently across business areas and silos. New technologies and capabilities help provide key insights for integrated business planning and related activities like forecasting. However, without standardized processes, organizations may not see the benefits they were expecting. These strategies are all valuable and mutually reinforcing.

Sourcing and procurement
Supplier/vendor relationship management (SRM) has been the top focus area within sourcing and procurement since 2021 and that trend continued in our 2024 survey (32 percent of respondents). Multiple disruptions and ongoing challenges have made it clear that an organization's success and the success of its suppliers are intimately connected. With this recognition, there is a greater interest in improving supplier relationships to focus on collaboration and the pursuit of mutually beneficial goals.

Other important focus areas in sourcing and procurement include risk mitigation (29 percent), sustainability (27 percent), automation and digitization (25 percent), and advanced analytics (20 percent). With increasing regulation related to sustainability, disclosures that were voluntary in the past have now become required. For example, many businesses now must disclose and verify their suppliers' sustainability data or face the threat of financial penalties or disrupted shipments.

The top three priorities for sourcing and procurement in 2024 include implementing new technologies and capabilities, standardizing processes, and identifying and implementing best practices.

Procurement technologies include AI, IoT, robotic process automation (RPA), and big data and analytics.

Innovation
Innovation helps organizations stay ahead of the curve even when facing rapid changes, multiple disruptions, and constant technological advancements in a globalized world. The top focus area for innovation in 2024 is operational/process innovation, which enables organizations to find new and more effective ways of going to market and operating their supply chains. Organizations are also focusing their innovation efforts on product and service innovation (30 percent), creativity (28 percent), automation and digitization (27 percent), and improving collaboration (25 percent).

The large difference between the percentage of respondents selecting operational or process innovation and those selecting product and service innovation, reveals the desire organizations have to find better ways to drive more effective supply chains versus introducing new products or services. To make these process improvements stick, leaders must adopt change management practices that address staff concerns and resistance.

Organizations intend to integrate innovation into organizational goals and implement new technology and capabilities to meet their priorities. They also intend to increase open innovation ecosystem collaboration, embrace new business models, and identify and implement best practices.

Overall, companies are looking for new, more collaborative ways to innovate and drive supply chain and enterprise-wide improvements.

Logistics
In line with the past several years, inventory management continues to be the top focus area in logistics (51 percent of respondents). It makes sense to see inventory management continually in the top spot: In addition to cost savings, optimized inventory management can help with cash flow and customer satisfaction.

Supply chain visibility emerged as a close second for 2024 (47 percent). Visibility across the entire supply chain—including second- and third-tier suppliers—can help an organization to anticipate and mitigate disruptions to make faster, more data-driven decisions in the face of uncertainty. Warehousing (17 percent), sustainability/green logistics (16 percent), and advanced analytics (16 percent) also emerged as focus areas for participants.

To improve inventory management and increase supply chain visibility in 2024, about two thirds of organizations are prioritizing inventory optimization and identifying and implementing best practices. About half are planning to engage in benchmarking and standardizing processes.

As organizations seek to optimize inventory management, leading-edge technologies like supplier risk notification systems are helping to drive deeper visibility and, in some cases, even anticipate disruptions before they happen. These technologies, along with deeper collaboration and communication with stakeholders, enable the scalability and traceability required for competitive logistics.

Other focus areas

This report concentrates on the top four focus areas, but supply chain professionals must stay attuned to other supply chain functions as well. Additional trending focus areas for respondents included order management, product development, and manufacturing.

Order Management
Nearly half of respondents (46 percent) reported that automation and digitization is the top area of focus in order management in 2024. Identifying and implementing best practices (the top priority within order management) can help to reduce non-value-added time for customer service representatives and minimize errors resulting from manual data entry. Reducing order cycle time is also a critical priority because it can improve on-time delivery rates and customer satisfaction levels.

Product Development
An organization's supply chain and product development function must collaborate for organizations to remain competitive in an uncertain environment. Within product development, new product development continues to be a top focus area for respondents (37 percent). From idea generation to concept testing, product introduction, and beyond, it requires significant resources and collaboration to bring a new product to market. Additional focus areas like product management and planning (30 percent), portfolio management (28 percent), and product design (27 percent) will help deliver and manage new products for organizations and their supply chains.

Manufacturing
Disruptions across the world have posed challenges to manufacturing organizations and their supply chains over the last year. It is thus no surprise to see that managing supply chain disruptions is the top focus area for manufacturing in 2024. These disruptions not only include those that would prevent fully manufactured products from going out the door, but also those that would prevent raw materials from a supplier reaching the manufacturing organization.

Moving forward in 2024: Prepare for uncertainty

Many organizations failed to achieve their business goals in 2023 due to constant disruption, and 2024 is also off to a turbulent start. Respondents anticipate more trends to have a deep impact on supply chains this year, including cybersecurity threats, geopolitical conflict, and artificial intelligence. To better withstand uncertainty, organizations are seeking to optimize their inventory and gain deeper visibility into their supply chains.

Whether you are focused on these priorities or something else, it's important not to neglect foundational elements of supply chain management like change management, data quality, and collaboration with internal and external partners.

Get the most from your technology

In 2024, many of the most impactful supply chain trends—and obstacles—are related to technology. Tools like supplier risk notification systems are critical for optimizing inventory and creating more flexible supply chains. But new technology can't fix bad process management or poor data quality. To ensure that you are getting the most from your technology investments:

- prioritize ongoing data management with a focus on data availability, quality, and security;
- optimize and standardize processes before applying technology; and
- develop and execute a change management plan as an integral part of any technology implementation.

Collaborate to innovate and improve your supply chain

Respondents said that a lack of collaboration is one of the greatest obstacles to supply chain improvement in 2024. At the same time, many organizations recognize the value of internal and external collaboration for improving and innovating supply chains. For example, respondents see collaboration as foundational for success in supply chain planning and as a key priority for strengthening innovation in supply chain. Form partnerships and look for opportunities to collaborate with your ecosystem both inside and outside of your organization.

THE NEW MIA PRE-CONFIGURED SOLUTIONS ENHANCE BW CONVERTING'S WIDE RANGE OF PCMC TISSUE CONVERTING LINES

In today's competitive world, understanding, predicting and exceeding customer expectations is not always an easy or obvious task, even for leading companies that have been in the market for over 100 years.

Linea AMICA MIA 2.0

In order to adapt to changing market needs and to meet today's challenges and those of the future, it is imperative for companies to diversify and expand their product range in order to be able to offer solutions and experiences tailored to customer needs: lines and machines where innovation meets efficiency and production quality.

The BW Converting Hygiene segment makes a unique global offer available to customers, comprised of standard and customized solutions covering the entire hygiene and tissue converting and packaging process.

Standing out thus becomes the leitmotif for PCMC (now part of BW Converting's

Hygiene market segment), and through its range of Mia roll lines, can offer an innovative combination of complete, preconfigured and balanced solutions for quick commissioning.

The first solution offered is Amica Mia, a line whose beating heart is the proven Amica Matrix rewinder that to date accounts for more than 200 installations worldwide.

Available at a speed of 450 meters per minute and 30 cycles, Amica Mia can produce toilet rolls or kitchen towels with diameters ranging from 90mm to 160mm. The two unwinders supplied accept reels with a maximum diameter of 2 meters, and the embosser-laminator unit is equipped with the Quick-Change steel roll change system (355mm diameter), which affords great reliability, efficiency and flexibility. The Amica Matrix rewinder ensures winding quality and changeover adaptability even in the case of paper reels with different characteristics – a rather common situation with small-to-medium converters that do not have integrated plants and find themselves sourcing raw material from different suppliers. The high reliability of the Amica changeover system leads to minimizing operator set-up interventions while ensuring operational stability comparable to high-end lines.

Downstream of the line we find the tail sealer, the accumulator and the Prolog LT model log saw capable of 240 cuts per minute on 4 lanes. Completing the supply is the TDS corewinder, which with a speed of 120 meters per minute, is capable of producing far more cores than the 30 needed to feed the rewinder at its maximum cycles.

An important feature of Amica Mia, common to all PCMC product lines, is its expandability. The modularity of the components makes it possible to increase line speed up to 550 meters per minute and 40 cycles or expand the range of roll diameters up to 200mm. This opportunity to upgrade the line ensures the customer that their initial investment can be easily adapted to meet market changes and/or changing production needs.

The Amica Mia 2.0 line is a solution that, again based on the Amica Matrix rewinder, offers even more performance suitable for a wider range of products. Speeds of 600 meters per minute, up to 40 cycles, diameters from 90mm to 200mm, unwinders for reels with diameters of up to 2.5 meters, and an embosser with 420mm diameter steel rolls offer the possibility of varying production from toilet rolls to kitchen towel rolls with extreme ease. And all this is achieved thanks to the two pairs of steel rolls already included in the basic line configuration and the pressure control on the operator panel that allow quick recall of previously saved parameters.

Amica Mia 2.0's configuration and performance place it in a market segment that seems to be more vital today for medium-sized companies, for which production change flexibility is more important than pure speed.

Completing the range of these preconfigured solutions is Forte Mia, a line also capable of up to 600 meters per minute and 40 cycles, but with the winding quality that the Forte provides, a high-end rewinder whose winding profile is unparalleled on the market. A perfect pick-up on the cardboard core, stable formation and a uniform winding profile along the entire length of the log, along with bulky embossing that remains unaltered to the end are just some of the inimitable features of PCMC-made Forte technology.

Although it was previously reserved for high-speed lines and dedicated product ranges, PCMC recently decided to also make the Forte rewinder available to market segments for which speeds of 500 and 600 meters per minute are more appreciated. The result is the development of the Forte Series, which maintains the simplicity and quality features of the Forte changeover system, while some design solutions have been revised, such as a new perforation section and a drive adapted to the new speeds.

On Forte Mia lines, flexibility in product changeover is ensured by the standard use of SmartTouch®, the new operator interface that simplifies control of line parameters and ensures repeatability. Developed for intuitive use, SmartTouch® offers a system navigation mode that is very close to devices that are commonly used nowadays, such as smartphones and tablets, allowing the operator to intuitively move within the management pages and to access parameters from multiple locations on the machine.

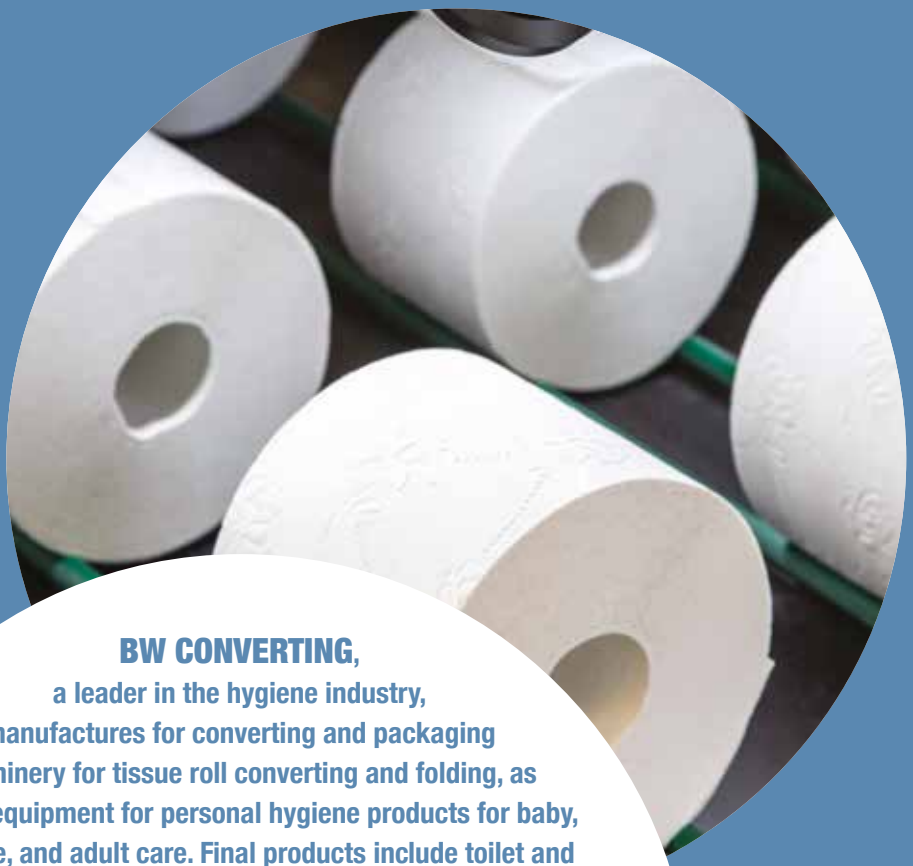
Linea Forte Mia

In addition, Forte Mia offers the possibility of integrating from the very beginning, or after the line is started up, the system to produce BRT/HHT cardboard-free rolls with the traditional hole maintained: INVISIBLE-O. The new technology can transform social habits, make daily life easier and safeguard the environment. The development of coreless products should definitely be considered the most important market trend in recent years. Waste reduction, 100% toilet paper from first to last sheet, recyclable packaging, energy saving, reduction of CO2 emissions, and optimization of transportation are just some of the advantages offered by the innovative PCMC technology.

Officially launched in 2018, INVISIBLE-O is increasingly asserting itself with several installations in both Europe and the Middle East and allows the manufacturer to reduce risks due to recent market fluctuations in sourcing raw material for the production of cores, such as paper and chemicals. The line's ability to switch from producing rolls with a cardboard core to coreless rolls in 20 minutes gives the converter the widest possible product catalog for their market.

In today's global economic scenario, the word "change" has become more than a cliché: it is an inescapable reality that companies must face on a daily basis. Improving customers' success by ensuring that they achieve the desired goals and results in using their product or service becomes the top priority for BW Converting, of which PCMC is a part.

And this is precisely the direction of PCMC's strategic evolution, which, with its new Mia preconfigured solutions, proves once again that it listens to the market and is capable of meeting the real needs of its customers.



BW CONVERTING,
a leader in the hygiene industry, manufactures for converting and packaging machinery for tissue roll converting and folding, as well as equipment for personal hygiene products for baby, feminine, and adult care. Final products include toilet and kitchen rolls, hand towels, facial tissues, handkerchiefs, wet and dry wipes, baby/adult diapers and pants, feminine hygiene products, light incontinence products, and underpads.
We also develop embossing patterns and produce embossing rolls for a wide range of products.

The BW Converting Hygiene segments unifies the product brands Paper Converting Machine Company (PCMC), Winkler+Dünnebier (W+D), STAX Technologies and Northern Engraving and Machine under one global organization.

For more information, visit bwconverting.com.

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STAX Technologies TISSUE PACKAGING SOLUTIONS

Winkler + Dünnebier

Northern Engraving and Machine

VOLPAK AND LECTA TEST ECO-FRIENDLY PAPER-BASED PACKAGING MATERIALS

Volpak, a Coesia company, specialized in horizontal form-fill-seal solutions for the packaging industry, and Lecta, a premier European manufacturer and distributor of specialty papers, have embarked on a collaborative project aimed at testing and validating sustainable materials for packaging applications.

Origins and objectives of the partnership

The partnership between Volpak and Lecta originated from a shared commitment to innovation and sustainability. With the packaging industry moving towards more environmentally friendly solutions, it is essential for manufacturers to adapt and innovate. Lecta, with its expertise in specialty papers, recognized the importance of collaborating with Volpak to ensure that these new materials can be effectively utilized on existing packaging machinery. This collaboration aims to bridge the gap between material innovation and practical application, ensuring that eco-friendly papers meet the operational requirements of modern packaging lines.

Sustainability and market trends

The shift towards sustainable packaging is being driven by both regulatory pressures and consumer demand. According to a Bain & Company report, 71% of European consumers and a similar percentage of US consumers express a preference for purchasing sustainable products, with many favoring products that use minimal or recyclable packaging (Bain). Additionally, a study by NIQ and McKinsey found that 92% of shoppers consider sustainability an important factor when choosing a brand, highlighting the growing consumer expectation for eco-friendly packaging solutions (NIQ).
By focusing on paper-based packaging, which is recyclable and aligns with circular economy principles, Volpak and Lecta are addressing these consumer preferences and contributing to a reduction in the environmental impact of packaging.

Development of eco-friendly papers

Lecta has already introduced barrier products to the market, which are suitable for a variety of packaging applications. These include flow packs, sachets, and wrapping materials, such as butter wrappers. The company continues to innovate, combining different barrier properties and heat-sealability to meet specific packaging needs.

Lecta has been at the forefront of developing specialty and graphic papers that cater to diverse industrial needs. The company has leveraged its technological know-how and production capabilities to create new functional metallized, uncoated and coated one side papers with barrier properties. These papers are designed to maintain eco-friendly characteristics while providing essential protections, such as barriers against water vapor, grease, oxygen, and alcohol. Notably, these papers are recyclable and can be processed in standard paper recycling circuits, aligning with the principles of a circular economy.

Applications and potential markets

The primary focus of this joint project is to explore the use of Lecta's sustainable papers in flexible packaging. Potential applications span various sectors. The versatility of these new papers also extends to food service items, including cups, demonstrating their broad applicability.

Testing at Volpak's Pouch Lab

Volpak's role in this project involves conducting rigorous tests to assess the performance of these materials in real-world scenarios. These tests are carried out within Volpak's "pouch lab," an internal research and development facility designed to evaluate the machinability and durability of new materials. The pouch lab allows Volpak to simulate actual production conditions, ensuring that the environmentally friendly papers can be seamlessly integrated into existing packaging processes without compromising efficiency or quality.

Project timelines and ongoing testing

The collaboration is structured around a series of phases, beginning with the initial development and testing of the materials. Currently, both companies are engaged in extensive trials involving actual products to evaluate the effectiveness of the new papers. These tests are crucial for identifying any potential improvements and obtaining the necessary certifications for commercial use. Volpak and Lecta are committed to a continuous process of innovation. Lecta's product, innovation, and factory teams are dedicated to expanding the range of barrier products and enhancing their performance. Simultaneously, Volpak is leveraging its technical expertise and market insights to ensure that these materials meet the high standards required for packaging applications.

World's first fully electric tissue machine announced by Toscotec and Fortissue

Fortissue and Toscotec at Toscotec's headquarters in Lucca (from left to right): Gabriele Romanini, Toscotec Sales Manager; Natália Ferreira, Fortissue; Nuno Ribeiro, Fortissue Owner; Marco Dalle Piagge, Toscotec Sales Director; Hugo Ribeiro, Fortissue Executive Director.

Portuguese tissue manufacturer Fortissue is partnering with Toscotec for a groundbreaking project on PM1 at its facility in Viana do Castelo, Northern Portugal. The Toscotec-supplied AHEAD line started up in 2015 (PM1) will be upgraded by Toscotec to become the first tissue machine in the world to operate at 2,000 m/min entirely on electricity. The project is scheduled to be completed by the end of 2024.

Groundbreaking zero-carbon design

Equipped with Toscotec's TT NextPress shoe press, this high-performance machine will be fully upgraded after nine years of efficient operations to meet the goal of making tissue production more sustainable. Toscotec will install a fully electrical air system including e-powered TT Hood with multiple stages of heat recovery. TT Swing will ensure maximum flexibility by giving the choice of the operation modes from full cascading to hybrid depending on the specific production needs. TT Turbodryer will harness the heat recovered from the air system to improve the shoe press de- watering effect and increase post-press dryness. Finally, the new e-powered TT SteamBooster will generate 100% of the steam necessary for the TT SYD Steel Yankee Dryer by recovering the heat present in the hoods exhaust air together with high-efficiency electric steam generation.

Carbon emission reductions and high flexibility

The energy needed for PM1's operation will be generated 100% from electricity. The mill will have the flexibility of choosing to get power from the Portuguese grid or by using 100% renewable energy coming from its solar and wind plants. The corresponding greenhouse gas (GHG) emission reductions will amount to minus 20% in case the tissue line operates from the grid, and net zero GHG emissions if it runs on renewable energy both for its electric and thermal requirements.

Nuno Ribeiro, Owner of Fortissue, says: "At Fortissue we are proud to be spearheading the energy transition of the tissue industry. This groundbreaking project will pave the way for a new generation of production lines with top performances that also meet the sustainability requirements put forth by tissue consumers in the European market and beyond".

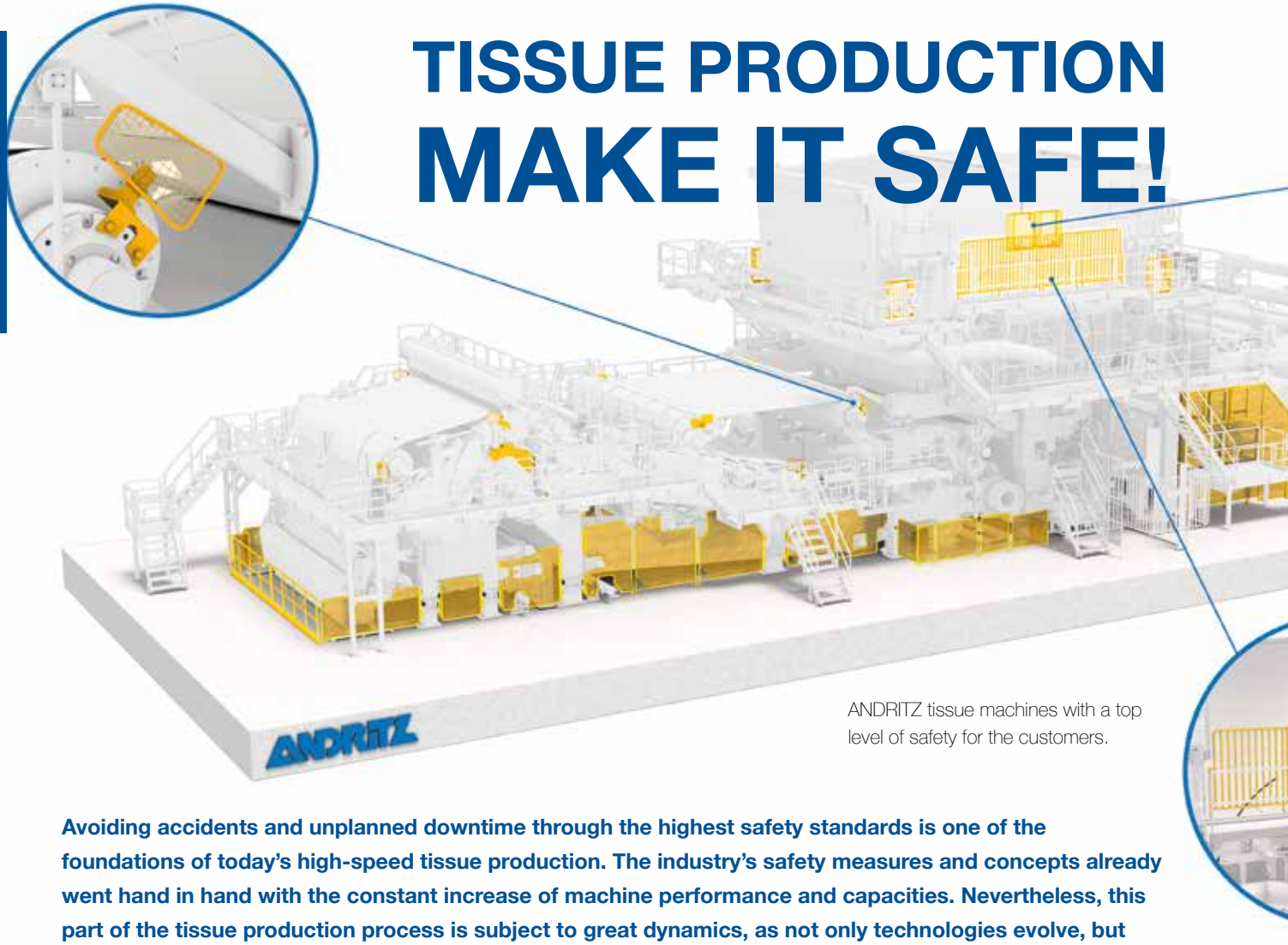
Gabriele Romanini, Toscotec's Sales Manager, says: "Toscotec's partnership with Fortissue has come a long way in the past 10 years and we are delighted that they selected us for this pioneering project. PM1 was state-of-art when it came online, and we are now working to take it to a whole new level to become the first high-performance tissue line in the world to run on green electricity".

Fortissue and Toscotec at Toscotec's headquarters in Lucca (from left to right): Gabriele Romanini, Toscotec Sales Manager; Natália Ferreira, Fortissue; Nuno Ribeiro, Fortissue Owner; Marco Dalle Piagge, Toscotec Sales Director; Hugo Ribeiro, Fortissue Executive Director.

About Fortissue

Established in 2015 in Alvarães, Northern Portugal, Fortissue is a tissue producer with an annual production capacity of approximately 35,000 tons of paper. It is part of the Ghost Group, which includes three companies: Suavecel, Nunex Worldwide and Fortissue. With over 20 years of experience in the personal hygiene market, the Ghost Group employs more than 300 staff and focuses its investments on the best available technology worldwide, in order to deliver high quality products, while optimizing energy and water consumption and guaranteeing zero waste of raw materials.

TISSUE PRODUCTION MAKE IT SAFE!



ANDRITZ tissue machines with a top level of safety for the customers.

Avoiding accidents and unplanned downtime through the highest safety standards is one of the foundations of today's high-speed tissue production. The industry's safety measures and concepts already went hand in hand with the constant increase of machine performance and capacities. Nevertheless, this part of the tissue production process is subject to great dynamics, as not only technologies evolve, but also awareness of the importance of safety increases and the regulatory framework changes. In addition, the understanding and interpreting of the guidelines often varies by country and by supplier!

"Safety is quite a complex area for us as machine suppliers," says Thomas Nager, Machine Safety Expert, ANDRITZ, "On the one hand we want to supply the safest tissue machines on the market, however on the other hand we also want them to be the most productive machines when it comes to ease of operation. We try to live a culture that combines those two, often remarkably divergent, topics."

ANDRITZ has gone to great lengths not only to comply with machine safety regulations, but also to go beyond them to ensure that every customer enjoys the highest level of safety in every machine the company supplies. ANDRITZ follows three main principles when it comes to tissue machine safety:

- A safe machine ensures the safety of the operating personnel and the surrounding environment
- A safe machine is the basis for a reliable process to create maximum output
- A safe machine is obligatory to fulfill legal requirements

"The first and most fundamental of our principles when supplying tissue technology is that obviously we don't want any operators to be hurt," continues Nager, "The second is reliability and machine performance, and third on the list is regulations and legal requirements."

"Currently, European safety standards are the most detailed for tissue making and finishing machines. The basis for ANDRITZ machines is the risk assessment in combination with the standards. For the European market, additionally, the Machine Directive, as well as the Electro-magnetic Compatibility Directive (EMC), Low Voltage Directive (LVD) and Pressure Equipment Directive (PED) and their harmonized standards must be fulfilled. Products in compliance with these directives are identified by the CE ma (Conformité Européenne) which signifies, that the products sold have been assessed to meet the legal requirements for health and safety."

ANDRITZ communicates with the customer already in the sales phase about the implications of the risk assessment and the most advantageous route to take. "There are always discussions early on about the CE mark for the European market, and whether, for instance, the whole plant must have a CE mark, or individual machines only. As an example, a tissue machine needs a CE mark of its own, as does a pressure vessel such as a Yankee. ANDRITZ's advice is to have individual CE marks, as updating in the future tends to be easier and more flexible than with a mark covering the whole plant, even it is not necessary according to the machine directive." explains Nager.

In addition to CE markings on new supplied machines, ANDRITZ provides audits on older machines to ensure, that these machines comply with the current regulations. Furthermore, safety advice will be issued if it comes to major rebuild projects.

Other countries and regions also have their own conformity markings including the USA and Canada (e.g. UL for electrical components), China (e.g. CCC) and Russia and Eurasia (e.g. EAC). "Of course, all additional requirements in any given country or region will be respected and taken into account when delivering ANDRITZ tissue machines," adds Nager.

Under the European Machine Directive, which is the legal basis for machine safety in Europe, every machine that is placed on the market must have a risk assessment which is the core tool to ensure that safety has been seriously taken into account. This means identifying where any hazard areas may occur and taking defined steps to make those areas safe.

"This is not simply a case of ticking boxes," says Nager. "This really is about reducing risks in the work environment, often in tight spaces. For example, it is quite common in the tissue industry for space to be a problem, and squeezing a machine into a tight area. If this happens, it is particularly challenging that people are kept at a safe distance away from the hazardous areas."

"We are working closely with our customers to improve the safety of their tissue production process, for example: Which safety elements need to be eliminated or by-passed; which kind of smart solutions can we offer or develop conjointly to create a safe environment?"

The ABC of safety on ANDRITZ tissue machines

The risk assessment ensures that nothing is left out or forgotten when it comes to all aspects of safety on tissue machines. ANDRITZ realizes this with its high competence in various fields, fully understanding the mechanical demands and with all process know-how in house. This involves making a list of all important factors relating to risk on a tissue machine and defining measures how to mitigate these risks.

"These standards are split into A-, B-, and C-standards" explains Nager. "A-standards are general safety related standards, such as ISO 12100 which defines what a risk assessment must contain; B-standards are more precise, related to different types of risk and C-standards which break the safety topic down to individual components such as tissue making equipment."

"This is complex and difficult to do, however this long list ensures that every area is covered, and no part of the machine or process is left out or forgotten."

But essentially making tissue machines safe is not all about lists and standards. Ultimately, the aim is to identify any risk area and make it as safe as possible while at the same time allowing full and maximum efficiency of production to take place. This is where ANDRITZ expertise comes into its own.

Getting down to basics

There are three areas ANDRITZ concentrates on to ensure all parameters are covered when it comes to machine safety and maximum usability:

- An inherently safe design – "safety by design"
- Guards and fences where interaction is not necessary during operation
- Functional safety where interaction is necessary during operation

Nager says, "The basic approach to making tissue machines safe is that first of all we try to avoid a hazard location altogether, for example by avoiding the interaction between human and machine. This is making the machine inherently safe.

However, we all know that tissue production is a labor-intensive activity and it's not possible to avoid hazardous areas completely. This means, that dangerous areas, for instance roll nips, must have nip guards, and other areas need a fence to avoid operators getting too close. We have also carried out a lot of work on the design of machines at ANDRITZ where the operator is able to avoid a hazardous area altogether by being able to carry out a task without entering a hazardous zone, for example by being able to pull out a lubrication point on the machine."

The third area is the important one of functional safety where interaction is necessary during operation, quite common when operators need to check the quality of the tissue being produced. Nager says, "The reel section is where operators always like to go in and touch and feel the quality of the paper being produced. For this case, ANDRITZ has designed certain movements and interlocks within the machine where it is possible, to enter the reel section at given intervals and perform tasks safely. Another example I would like to point out is our fully cantilevered shoe press concept, which allows for faster felt and shoe press belt changes while greatly increasing the safety of this process."

Fully cantilevered shoe press for safety and efficiency.

> It must be noted that functional safety, although an important asset, is costly at the outset and has to be maintained on a regular basis.

“It must be noted that functional safety, although an important asset, is costly at the outset and has to be maintained on a regular basis.”

The subject of safety while carrying out cleaning and maintenance tasks is also an important factor, particularly in tissue making. “Both cleaning and maintenance are very relevant areas when it comes to safety of operation,” says Nager. “Tissue production requires a high level of cleaning. We have focused our efforts in making sure that not only areas of the machine are more accessible for cleaning and maintenance, but we also have specially designed CE marked lifting equipment to avoid any accidents or injuries during maintenance such as roll changes.”

Future challenges

Safety and the attitude toward safety have come a long way in the last decades. However, there is still work to be done when it comes to regional approaches to safety. “Improvements in safety have increased over the last 25 years, “common sense” used to be an integral part of the safety concept,” says Nager. “Now safety relies much more on the machine to keep people safe, in a way to take out the human element, and safety engineers are working more and more to prevent operators from manipulating the safety measures put in place, for instance disabling guards to make the job easier.”

One important factor ANDRITZ is working on as a global company is the fact that in different regions there is a different approach to safety. Nevertheless, ANDRITZ is always providing the very best safety solution for the respective market with additional features to choose from.

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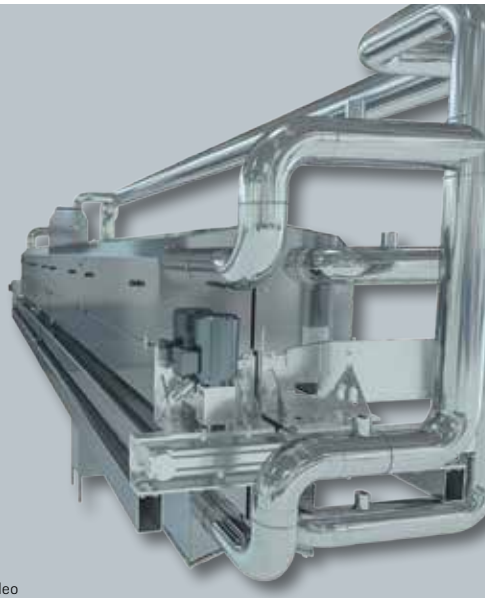

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