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TISSUE WORLD magazine

TWM
TISSUE WORLD MAGAZINE

The independent news provider for the global tissue business

SMART CIRCULAR ECONOMY

AI AND VR ARE LEADING THE GLOBAL REVOLUTIONS 4.0 AND 5.0

Technical Theme: Converting
Machines show the way - 2019 will be rich in projects
Fabio Perini, Futura, Gambini, ICM, Maflex, MTorres and PCMC

CountryReport: France
Smart factories
WEPA Troyes and Papeco

Distribution: Special Feature
Pöyry Management Consulting, Elettric80 and Reko Automation Division

Plus...

MarketIssues
China's economic slowdown and new green regime is rippling across the world

ExitIssues
The looming issue of rapid decline in P&W

ConsumerSpeak
The case for moral fibre

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UBM

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Cover: Image of the globe getting on board with Industry 4.0, Smart Technology and Smart Circular Economy. By Contrast Creative.

▲World News: 06
"We have successfully realised a dream," Walter Schalka, Suzano chief executive, following the merger of Suzano Pulp and Paper with Fibria.

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INDUSTRY 4.0 IS UNDERWAY... WE LOOK FORWARD TO INDUSTRY 5.0

Helen Morris
Senior Editor, Tissue World Magazine

TWM goes beyond the fourth industrial revolution in this edition. Our contributors focus on the many advances which are already well established in tissue production and, to use a phrase by one of them, look at the predictable benefits which 'early adapters' of the latest technology are likely to reap in the era of the fifth industrial revolution.

What emerges clearly under the all-embracing description 'Smart' is that no area of the production process will be spared examination. From raw material source through to delivery of a month's supply of scented bathroom tissue to an individual customer's front door – 'the logistics of the last mile' as another contributor puts it – the search for best practice and maximum benefit has never been more intense.

That search is through VR, automation, data crunching, the digital economy, interprocess feasibility studies, ROI calculations, engineering layouts, drones, partnering efforts, equipment proposals, 3D printing, collaborative automation 'Landscape Assessments' and more... the terminology is expanding.

Our contributors include Paul W. Hill, business development manager at Reko Automation Division, and Vittorio Cavirani, general manager of Elettric80, for this issue's *Distribution: Special Feature*, where Pirkko Petäjä, principal of Pöyry Management Consulting, also makes a wide-ranging assessment of delivery trends which must respond to customer needs and preferences.

'Smart' production also gets a targeted focus in our *Technical Theme* on Converting, as we talk with Fabio Perini, Futura, Gambini, ICM, Maflex, MTorres and PCMC.

French customers are turning to green products

There are several words for 'Smart' in French ... the ones we prefer are élégant, or intelligent.

Our *Country Report* on France finds that élégant tissue production is well underway, with the added element of style which would be expected.

In a mature, saturated market struggling for organic growth, encouraging green shoots are appearing as more consumers are getting behind environmentally-friendly products. The emphasis is on niche tissue categories, independence, recycled paper, rapid response, flexibility, personalised and increasingly sustainable products.

We spoke to Christophe Dorin, WEPA France country manager, and French manufacturer Papeco director general Emmanuel Coulon... who explained his concept of the élégant 'circular economy' at his Normandy mill.

Fisher International also looks at one looming decision facing the whole country. With the government committed to eliminating nuclear plant produced electricity long-term, how will the mills of the future cover energy sources and costs?

Welcome to the new look TWM

Our new TWM design looks... well, smart, I'm sure you'll agree. It will be making its debut at our Tissue World Milan 2019 trade show and conference – the flagship show of Tissue World.

With over 200 exhibiting companies, more than 3,000 tissue industry professionals, and our *Smart and Sustainable – Strategies to Stay Sharp as a New Decade Dawns* conference, we at Tissue World look forward to seeing you there.

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CHINA'S ECONOMIC SLOWDOWN AND NEW GREEN REGIME IS RIPPLING ACROSS THE WORLD

More than 1,000 smaller pulp and paper mills have closed in China in five years, and more are set to follow. Simon Creasey assesses how these seismic changes will affect the West.

Simon Creasey
Industry Analyst

The recent economic slowdown in China has hit a number of relatively nascent industry sectors hard. One sector that's been particularly badly affected is the pulp and paper market. In addition to demand for pulp and paper-based goods like tissue falling as the nation's middle classes find household budgets squeezed, the Chinese government has imposed and enforced strict environmental rules, with dramatic effect.

According to an estimate by Pictet Asset Management more than 1,000 smaller pulp and paper mills have been forced to close in China over the last five years thanks to the country's "new-found environmentalism," and it's anticipated that many more will be shuttered over the coming years.

So what do these seismic changes to the Chinese pulp and paper industry mean for Western businesses who struggle to compete with Asian rivals on price?

The current situation in China is incredibly complex. Hawkins Wright, a specialist consultancy with in-depth knowledge of the country's pulp and paper market, says it splits the industry in China into two distinct categories – 'old China' and 'new China'.

The old market refers to pre-1995 when the country created around 30 million tonnes of all grades of paper and board, much of it made from rice straw and waste paper. But then in the late-1990s the country started to install large, high quality industrial machines.

"They built machines before the demand caught up," explains Roger Wright, founder of Hawkins Wright. As a result, until relatively recently it wasn't a greatly profitable sector for domestic Chinese businesses.

Wright says the household tissue market probably slightly lagged behind the wider pulp and paper industry, with producers only starting to import – and then build – large, good quality machines around ten years ago. Since then they have been making up for lost time, according to Wright.

"The production of hygienic paper has increased dramatically," he says. "China is probably the largest market in the world. They're exporting tissue in jumbo rolls to Australia and other parts of the world."

He adds that the local tissue market differs from the rest of the world as the production of tissue locally is heavily reliant on virgin pulp whereas in Europe and America around half of the tissue produced could use as much as 50% waste paper.

But where the market is similar to the rest of the world is that there has been significant consolidation and capacity rationalisation in China and some of this has been caused by the government's recent green clampdown.

"It used to be just lip service and it wasn't very well policed, but in the last two years the environment has been taken more seriously. Environmental regulations are stricter and they are being more strictly enforced."

It's as a result of this more rigorous regime that those thousand plus mills have been forced to close. However, Wright is quick to point out that these weren't conventional operations comparable to what you would typically see in Western markets.

"Sometimes these mills only operated for a few months of the year after the rice harvest when they used straw to make pulp and this would be sold locally for cash. The tissue they made was basically for wrapping or decorative purposes – it wasn't hygienic tissue. It's those old and small machines at small mills that have been closed down."

The larger Chinese manufacturers using more modern machinery have been slowly greening up their act, partly to comply with the new regulatory regime and partly

ACCORDING TO AN ESTIMATE BY PICTET ASSET MANAGEMENT MORE THAN 1,000 SMALLER PULP AND PAPER MILLS HAVE BEEN FORCED TO CLOSE IN CHINA OVER THE LAST FIVE YEARS THANKS TO THE COUNTRY'S "NEW-FOUND ENVIRONMENTALISM" AND IT'S ANTICIPATED THAT MANY MORE WILL BE SHUTTERED OVER THE COMING YEARS.

to assuage growing customer concerns about the environment, but many of them still lag behind tissue companies elsewhere in the world who put in place strict policies in this regard many years ago.

Take the example of the Gomà-Camps Group. According to Olga Rubio, the group's marketing director, environmental management is an "integral and fundamental part" of the group's activity and it is "committed to improving the quality of this management by providing the necessary resources".

"For example, the entire range of recycled tissue is made exclusively from 100% recycled paper, based on recovered raw materials and demonstrable traceability, not containing any virgin cellulose fibre," says Rubio.

"Another example of our commitment is that we work with our suppliers to improve the sustainability of all the raw materials and by-products that we currently use, with the aim of making them more and more respectful."

She adds that in the coming years the strategy of Gomà-Camps is to "continue working and striving to be more sustainable and respectful".

These are values that Frank Millward, sales and marketing director at Leicester Tissue Company, knows all too well. He says the company has one of the lowest carbon footprints in the UK for a tissue manufacturer and plans to "integrate a mill investment" in 2022 that will be as "environmental as practically possible given the technology available".

Millward adds that the company strives to exceed all benchmarks and industry initiatives. "As an example, we are striving to remove our dependence on plastic packaging and move towards friendlier alternatives. Customers and consumers are increasingly aware of the damage that we are doing to our planet and yet we still need consumables, such as toilet paper. Our customers listen to their shoppers and we listen to both. The consumer's decision drivers at point of purchase are a mixture of quality/value and environmental – depending on the demographic of the shopper. But all are important."

The environmental values espoused by the likes of Leicester Tissue Company are particularly important to household tissue brands like Better All Round, which aspire to work with suppliers that care about the impact they have on the planet, according to the businesses' founder Oday Abbosh.

"It's definitely in the top three of what we look for in a supplier which is why we have stringent criteria that suppliers must meet to work with us," says Abbosh. "First and foremost, we need all suppliers to comply with ethical trading standards and local manufacturing legislation. We're very rigorous about ongoing audits to ensure standards don't slip so all our suppliers must be open to this. If we are happy these are met, we also interrogate their environmental impact and their approach, to ensure it is aligned with our commitment to minimising our impact on the planet. Furthermore, we seek collaborative working partners who share our values and believe in the long term importance of continually reviewing working practices to grow and improve."

Working collaboratively with customers is an approach that Juan Corzo Jr, vice president at South Florida Tissue Paper Co, is a big advocate of. He says that historically the three main requests from customers were price, quality and service. "However, in recent years, we have been asked a fourth request, which is a commitment to the environment," says Corzo Jr.

As a result the company has taken a number of steps to upgrade its facility and operations to minimise the environmental impact.

"Among the changes we have made, we have changed our equipment from gas-powered to electrical; all excess tissue and towel, as well as cardboard and core stock, and all plastic not used is recycled. Also, the use of recycling bins has been implemented throughout the facility. Another area that we have improved is the reduction of printing paper for digital in communication."

The challenge for his business – as it is for businesses all over the globe – is putting these measures in place without significantly raising prices. It's a difficult juggling act particularly considering recent activity in Asia.

"Changes in the Asian supply chain have had a significant adverse impact on the cost price of fibre [raw materials] in the UK and Europe in the last 12 months," says Millward. "We are watching the position with interest – as we are Brexit - and are prepared to align our strategy when conditions become more fully transparent."

WORKING COLLABORATIVELY WITH CUSTOMERS IS AN APPROACH THAT JUAN CORZO JR, VICE PRESIDENT AT SOUTH FLORIDA TISSUE PAPER CO, IS A BIG ADVOCATE OF. HE SAYS THAT HISTORICALLY THE THREE MAIN REQUESTS FROM CUSTOMERS WERE PRICE, QUALITY AND SERVICE. "HOWEVER, IN RECENT YEARS, WE HAVE BEEN ASKED A FOURTH REQUEST, WHICH IS A COMMITMENT TO THE ENVIRONMENT," SAYS CORZO JR.

Also keeping a watching brief on Asian markets is Joan Vila, CEO of LC Paper Group. "The fact is that the price of pulp to China has fallen significantly and the gap to the price of Europe is currently $-70/t," says Vila. "It is true that environmental measures can be a support for production in Europe. We work on this aspect and have developed a footprint ratio to visualise the product difference, but our vision of the international market is that today we cannot compete for price with Indonesia or with China."

Although Western businesses may not be able to compete on price with Asian operators many believe they offer better quality products and higher standard environmental credentials, which are both things that are worth paying that little bit extra for.

"Chinese paper products were always a competition for our company, considering that some customers were willing to sacrifice quality for price," says Corzo Jr. "We also had customers that wanted to stay away from Chinese manufacturers that valued environmental responsibilities more. This allowed us to compete with Chinese products even if our price point was not where it needed to be."

At the moment many Western businesses may have the upper hand over rivals on the other side of the globe when it comes to abiding by stringent environmental standards, but as the Chinese government continues its clampdown on high polluting industry sectors, we could see this vital point of difference erode over the coming years.

GLOBAL

Suzano Pulp and Paper merges with Fibria; creates one of Brazil's largest companies

Suzano Pulp and Paper has gained approval from the European Commission to merge with Brazilian eucalyptus pulp producer Fibria.

The combining of the two companies concluded on 14 January 2019 and has created a world leading producer of eucalyptus pulp and one of Latin America's largest paper manufacturers.

Suzano Pulp & Paper paid R$30bn to Fibria's shareholders, which in turn became shareholders in Suzano, the company's new trade name.

Walter Schalka, chief executive of Suzano, said: "We have successfully realised a dream. The journey on which we now embark is driven by the aspiration to play a leading role in the advancement of society, to be a reference in the sustainable use of renewable resources and, consequently, to help build a better world, today and tomorrow."

The new company will have annual production capacity of 11 million tonnes of market pulp and 1.4 million tonnes of paper.

Suzano has sales in over 80 countries and annual exports of R$26 billion. It has 11 plants in Brazil and approximately 37,000 direct and indirect employees.

Schalka added: "We will combine technologies with an entrepreneurial spirit to go beyond, which will enable us to make a difference in society by positively impacting local communities and the billions of people around the world who use products made from our pulp every day."

The company told TWM that: "Suzano, the combined company after the merger between Suzano Papel e Celulose and Fibria, will maintain unchanged the production of the 11 plants currently in operation on the two companies."

As to whether any staff have been made redundant, Suzano said: "Occasional adjustments involving the relocation of employees between units or lay-offs have been done."

Suzano declined to comment on the number of redundancies made.

"WE HAVE SUCCESSFULLY REALISED A DREAM. THE JOURNEY ON WHICH WE NOW EMBARK IS DRIVEN BY THE ASPIRATION TO PLAY A LEADING ROLE IN THE ADVANCEMENT OF SOCIETY, TO BE A REFERENCE IN THE SUSTAINABLE USE OF RENEWABLE RESOURCES AND, CONSEQUENTLY, TO HELP BUILD A BETTER WORLD, TODAY AND TOMORROW."

WALTER SCHALKA, SUZANO CHIEF EXECUTIVE

"Overall, it was a challenging macro environment and our margins declined," K-C chief executive Michael Hsu

K-C reports "challenging environment" in Q4 results; introduces 'Strategy 2022'

Kimberly-Clark (K-C) has said net sales for the fourth quarter of 2018 decreased 1% to $4.6bn compared to the same period a year ago.

Fourth quarter operating profit was $639m in 2018 compared to $828m in 2017 and was impacted by restructuring charges and higher input costs, driven by $115m in pulp and $65m in other raw materials.

The tissue giant said changes in foreign currency exchange rates had also reduced sales.

Full-year 2018 sales increased 1% to $18.5bn; net sales in 2019 are expected to decrease between 1-2%, including a 3-4% negative impact from changes in foreign currency exchange rates.

For the full year 2018 results, the Consumer Tissue division reported net sales of $6.0bn, an increase of 1% compared to a year ago.

Fourth quarter sales for the sector were even year-on-year at $1.5bn while changes in currency rates reduced sales by 3%. Net selling prices increased 5%, while volumes decreased 2%.

Fourth quarter operating profit of $207m decreased 21% and was impacted by input cost inflation, lower volumes, higher marketing, research and general spending and other manufacturing cost increases.

Sales in North America for the sector increased 2% compared to a 4% decline the same time a year earlier. Net selling prices rose 6%, reflecting price increases and lower promotion activity. Volumes fell 3%.

Sales in developing and emerging markets decreased 3% and currency rates were unfavourable by 7%, mostly in Latin America. Sales in developed markets outside North America decreased 2%.

Chief executive Michael Hsu said: "In 2018, we returned to delivering organic sales growth and we continued to launch innovations, pursue our growth priorities and invest in our brands.

"Overall, it was a challenging macro environment and our margins declined, reflecting significant commodity inflation and currency volatility.

"Nonetheless, I'm encouraged that in response to these headwinds we achieved higher selling prices in the second half of the year."

He added the company expects the environment in 2019 to "remain challenging, although somewhat better than in 2018".

K-C will introduce its 'Strategy 2022' plan to sharpen its focus on growing its brand portfolio.

It will focus on launching differentiated product innovations and driving category development.

Focus areas will include driving ongoing supply chain productivity improvements through the FORCE programme, along with its 2018 Global Restructuring Programme.

Hsu added: "K-C Strategy 2022 is our plan to deliver balanced and sustainable growth by growing our portfolio of iconic brands, leveraging our strong cost and financial discipline and allocating capital in value-creating ways.

"We will build upon our strong foundation, sharpen our focus on the consumer and further improve our capabilities to create even more competitive advantage going forward.

"We're also establishing medium-term financial objectives associated with K-C Strategy 2022 that are appropriate and realistic in the current environment.

"Longer-term, we continue to have significant optimism in the potential of our categories."

FOURTH QUARTER OPERATING PROFIT WAS $639M IN 2018 COMPARED TO $828M IN 2017 AND WAS IMPACTED BY RESTRUCTURING CHARGES AND HIGHER INPUT COSTS, DRIVEN BY $115M IN PULP AND $65M IN OTHER RAW MATERIALS. THE TISSUE GIANT SAID CHANGES IN FOREIGN CURRENCY EXCHANGE RATES HAD ALSO REDUCED SALES.

Essity reports sales increase despite higher raw material and energy costs

Essity has reported a net sales increase of 8.5% to SEK118,500m for the full-year 2018 compared with the preceding year.

Operating profit before EBITA declined 8% to SEK 11,560m while adjusted EBITA was SEK12,935m.

Higher raw material and energy costs had a negative impact of SEK4,705m on earnings and profit for the period decreased 3% to SEK 8,552m.

Net sales for the fourth quarter of 2018 increased 8.5% compared with the corresponding period a year ago to SEK31,112m.

Higher prices in all business areas had a positive impact on organic net sales.

In Consumer Tissue, volumes declined due to restructuring measures within the scope of "Tissue Roadmap", entailing lower sales of mother reels.

The company's Consumer Tissue division reported a net sales increase of 7.4% to SEK45,125m.

Organic net sales increased 0.7% in mature markets. In emerging markets, which accounted for 44% of net sales, organic net sales increased by 5.0%.

Higher raw material and energy costs as well as higher distribution costs negatively impacted earnings.

During the year, the company said it worked with all parts of the business to increase profitability and "counteract the negative effect that significantly higher raw material and energy costs" had on earnings.

Measures implemented included:

- Investment in brands and launching 29 innovations;
- Price increase implemented in all business areas in 2018. Further price increases are expected in 2019;
- Intensified the company's efficiency improvements and restructuring of the business;
- Further restructuring measures planned as part of "Tissue Roadmap" and are continuing our work with "Cure or Kill";
- A group-wide cost-savings programme

was launched. It is expected to generate annual cost savings of approximately SEK900m, with full effect at the end of 2019. The program is proceeding as planned and for the fourth quarter of 2018, cost savings amounted to SEK18m. At the end of 2018, the annual rate amounted to about SEK150m;

- To strengthen competitiveness and increase efficiency the company made changes to its organisational structure and Executive Management Team.

The group said the European and North American retail markets showed "good growth" but with a continued high level of competition while emerging markets noted higher demand.

The European market for consumer tissue demonstrated low growth while the Chinese consumer tissue market noted higher demand.

Emtec announces TSA upgrade

Emtec Electronic has responded to customer demand and upgraded its Tissue Softness Analyser (TSA).

With the updated device and an advanced measuring method it is now possible to evaluate the impact of different fibre mix ratios by measuring handsheets to predict the softness quality of the finished tissue product.

According to the supplier, the original TSA represents "a nearly perfect simulation" of the human hand, and shows "excellent results" in measuring base tissue and finished tissue products such as toilet paper, handkerchief and facial tissue.

Before the upgrade, the device had been limited in measuring the impact of different fibre compositions of long and short fibres.

Emtec – which developed the TSA – added that the upgraded version has a new sensor design that enables the new softness measuring method for handsheets to have more accurate and reliable results.

The supplier said the new measuring method opens up possibilities for saving costs and resources, and leads to an efficiency increase in the process and product optimisation.

EMTEC ELECTRONIC HAS RESPONDED TO CUSTOMER DEMAND AND UPGRADED ITS TISSUE SOFTNESS ANALYSER (TSA). WITH THE UPDATED DEVICE AND AN ADVANCED MEASURING METHOD IT IS NOW POSSIBLE TO EVALUATE THE IMPACT OF DIFFERENT FIBRE MIX RATIOS BY MEASURING HANDSHEETS TO PREDICT THE SOFTNESS QUALITY OF THE FINISHED TISSUE PRODUCT.

Buckman announces price hike; reports rising raw material costs and constraints in supply chain

Buckman has announced a global price increase for its paper division.

The company said the increases are "being driven by rising raw materials, constraints from supply chain tightness and growing challenges associated with freight costs".

The price increases came into effect on 1 January 2019, or as contracts allowed.

The increases across each product lines include:

- Coagulants: 10 - 15%
- Flocculants: 10 - 20%
- Defoamers: 5 - 15%
- Biocides: 5 - 15%
- Alkaline cleaners: 10 - 20%

In addition to product price increases, Buckman will implement freight delivery increases in certain regions as required.

EUROPE

K-C to call off European tissue sale following reports of its potential sale; *Financial Times reports*

Kimberly-Clark (K-C) is understood to have called off its plans to sell its European tissue unit, according to the Financial Times.

It follows reports during 2018 that the tissue giant was looking to sell the unit to private equity groups.

However, the FT reported that the unit has fetched far lower than the $1.2bn asking price.

It was put up for sale last year by the New York-listed company as it seeks to reduce costs and dispose of less profitable businesses.

Besides Andrex in the UK and Ireland, brands in the company's European business include Hakle in Austria and Switzerland, and Scottex in Belgium, Italy and Spain.

K-C declined to comment.

Metsä Tissue announces renewed management team; focuses on tissue business

Metsä Group has announced a series of changes to its Metsä Tissue company to "improve internal efficiency, reduce complexity and focus on the tissue business".

Steps have been taken to "unify its mill and technology operations" and also renew its management team.

On 1 February, Jari Tiura took over the role of senior vice president, operations, and also become a member of the management team.

He joins from Stora Enso, where he was working since 2015.

As of 13 December, Riikka Joukio was appointed senior vice president, sales and marketing, consumer products, while Jani Sillanpää was appointed senior vice president, sales and marketing, AfH.

Mariusz Jedrzejewski has been appointed senior vice president, supply chain.

Christoph Zeiler has been appointed senior vice president, business development.

Esa Kaikkonen, chief executive of Metsä Tissue Corporation, said: "Metsä Tissue will commence an operational review in order to improve internal efficiency, reduce complexity and focus on the tissue business.

"At the same time, Metsä Tissue's management team will be renewed and a process based management model will be introduced.

"The appointments and changes will be made to support the efficient implementation of Metsä Tissue strategy and to accelerate the change."

In December last year, Metsä Tissue announced that Juha Tilli, its former senior vice president, AfH, decided to leave the company.

In September 2018, the company also announced a series of executive management team changes; Esa Kaikkonen was appointed chief executive of Metsä Tissue Corporation, the tissue

Latin American capacity boost: *CMPC's new TT SYD-12FT has a diameter of 3.6m and a width of 2.8m.*

and cooking paper business of Metsä Group, while Petri Helsky, who was the chief executive of Metsä Tissue Corporation since 2015, left the company.

Elsewhere, Metsä Tissue is also considering options for the sale of its napkin business in at its Stotzheim mill in Germany.

The company manufactures napkin tissue and finished goods at the plant.

Zeiler said: "The Napkin market suffers from an unprecedented cost inflation. The site in Euskirchen-Stotzheim is also affected by this.

"All alternatives, including the short-term increase in profitability, divestment or closure, will be investigated."

The Stotzheim mill has a long history of serving leading German and European retailers and wholesalers.

Metsä Tissue is one of the biggest suppliers in this segment in Germany.

The company has also announced changes in responsibilities in Metsä Tissue's mills in Stotzheim and Raubach.

Markus Claassen has been appointed vice president, napkins, to the Stotzheim mill. Claassen was previously mill manager at the Raubach mill.

Wilfried Schröder, current vice president, napkins at the Stotzheim mill, will support Claassen during the introduction period before he will leave the company.

Dirk Hamann has been appointed mill manager to the Raubach mill.

METSÄ TISSUE IS ONE OF THE BIGGEST SUPPLIERS IN THIS SEGMENT IN GERMANY. THE COMPANY HAS ALSO ANNOUNCED CHANGES IN RESPONSIBILITIES IN METSÄ TISSUE'S MILLS IN STOTZHEIM AND RAUBACH. MARKUS CLAASSEN HAS BEEN APPOINTED VICE PRESIDENT, NAPKINS, TO THE STOTZHEIM MILL. CLAASSEN WAS PREVIOUSLY MILL MANAGER AT THE RAUBACH MILL.

ARGENTINA

CMPC boosts presence in Latin America with start-up

CMPC Tissue Latam group's Papelera del Plata plant has fired up a TT SYD-12FT. Supplied by Toscotec, it is installed on PM3 at the company's Zarate mill in Argentina. It replaces an existing Steel Yankee dryer that was supplied by another manufacturer.

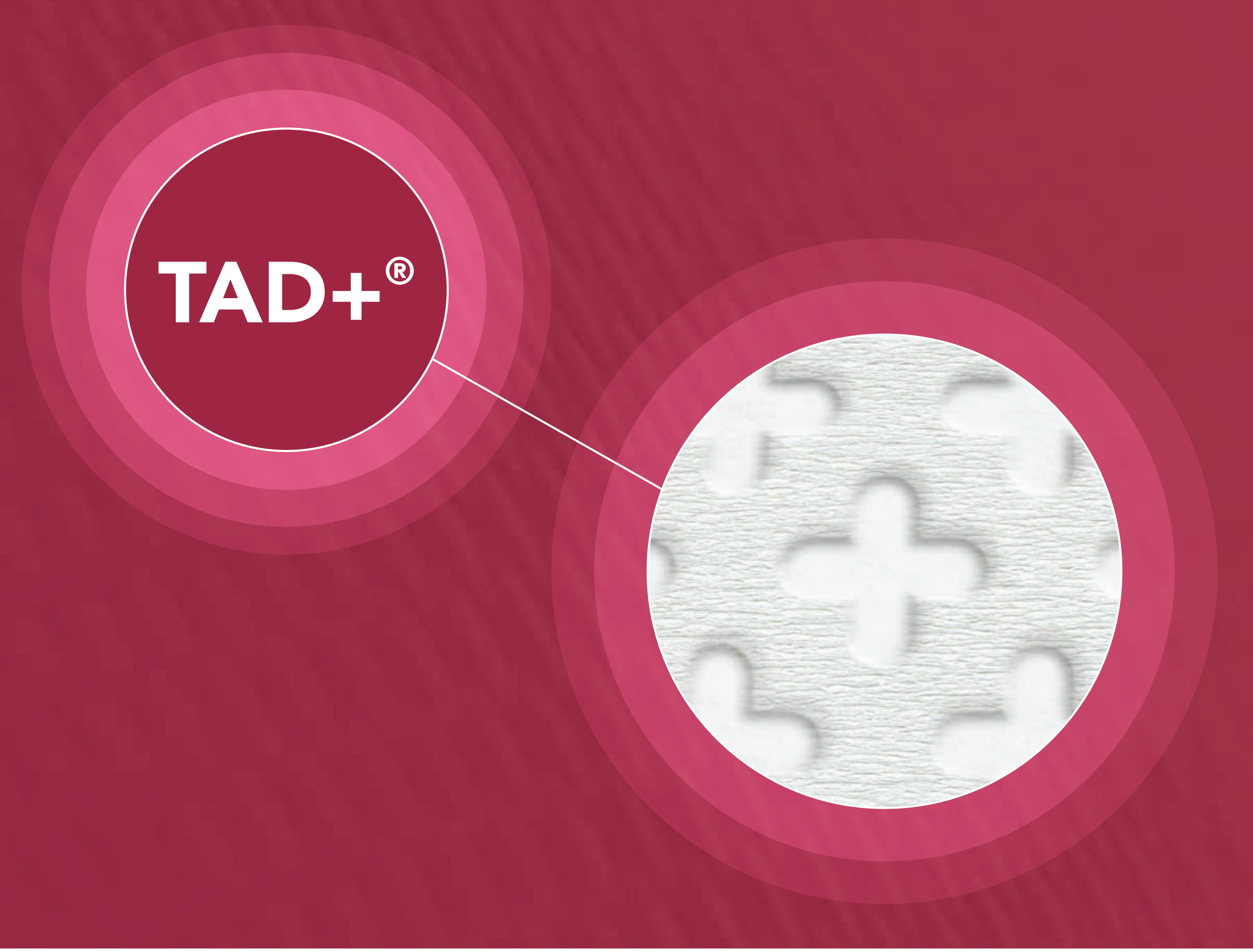
The TT SYD-12FT features a diameter of 3.6m and a width of 2.8m.

The scope of supply includes Toscotec's patented deckle insulation system, which allows for safe and practical application of the deckle insulation on the Yankee's heads without any machining, the drive group, support and bearings, and the main components of the steam and condensate system.

CMPC is one of the largest pulp and paper producer in Latin America, with industrial operations in eight countries.

Its products range from wood products, pulp, packaging paper and tissue and are marketed in 45 countries worldwide.

The company uses fibres originating from sustainable, certified plantations and recycled materials, and has an annual tissue capacity of 700,000 tonnes.



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UK

Leicester Tissue Company doubles capacity with £24m investment

Leicester Tissue Company (LTC) is investing in two new PCMC-supplied machines and two TMC-supplied wrappers in 2019.

Once fully up and running, the site's current 20,000tpy toilet roll and kitchen towel capacity will be increased to 40,000tpy.

The company supplies Wilkinson, Aldi, Co-op, Morrisons and Poundland and relocated to a new 110,000sq ft factory in Thurmaston in early 2018.

In 2022, a further £25m is expected to be invested in the company's own paper mill, which will be based close to the company's converting assets

LTC was launched in 2014 by chairman and chief executive Amin Tejani, who in 2010 sold his previous £300m turnover tissue business, Leicester Paper Company, to Sofidel.

Tejani started the company with his son Ayaz (chief financial officer) when he saw an opportunity to return to the industry and in response to customer demand.

Tejani told TWM: "The tissue business has been in my family's blood for over 30 years and it is a privilege to be carrying the legacy of my family forward in this industry.

"We are driving significant growth in a difficult and challenging market.

"We all know that Brexit will bring its own challenges and we are ready for them.

"The key is innovation and the support and collaborative relationship with our retail partners."

SOUTH KOREA

Kemira expands in Asian Pacific after forming joint venture in South Korea

Kemira is to establish a joint venture – Kemira Yongsan Chemicals (NewCo) - in Ulsan, Republic of Korea, with Yongsan Chemicals, a South Korean privately-owned chemicals company.

The company said the move was an important step in expanding its presence in the Asia Pacific region.

NewCo will produce dry polyacrylamide (DPAM), cationic monomer Q9 (AMD) and other chemicals that are used for retention and drainage in packaging and paper production, as well as in wastewater treatment and in sludge dewatering.

Nichlas Kavander, senior vice president, pulp & paper, Asia-Pacific, said: "The joint venture accelerates our strategy and strengthens our position as a leading global polymer producer.

"It supports Kemira's future growth, especially in Asia pacific region by providing additional polymer capacity, securing our capacity utilisation and supporting our customers better with our global delivery capability."

Kemira will make a multi-million investment in the joint venture and will have 35% minority share of the established company.

Below: *"We are driving significant growth in a difficult and challenging market," Leicester Tissue Company chairman and chief executive Amin Tejani. Pictured below – the 110,000sq ft mill in Thurmaston, UK*

A new-generation: *PartexTissue invests in an iDEAL forged Yankee Dryer*

BANGLADESH

PartexTissue boosts capacity with investment

PartexTissue has invested in an iDEAL forged YD: another new-generation Yankee.

Supplied by A.Celli Group, the latest generation Yankee is part of a complete turnkey plant project, consisting of an iDEAL-1800 Tissue Machine, a E-WIND T100 rewinder with three unwinders and the A.Celli R-WAY roll handling system.

The supplier said the iDEAL forged YD has been created using new patented technology that involves the production of the dryer cylinder shell starting from a single piece of steel shaped and worked with forging and hot rolling systems.

SWEDEN

Klippans Bruk boosts premium tissue capacity

Tissue manufacturer Klippans Bruk has invested in a roll handling and wrapping tissue line supplied by FIS Impianti.

The line will be installed at the company's Klippans Bruk mill in Klippan and is scheduled to start up in the middle of 2019.

FIS will supply a complete roll handling and wrapping line made up of a shuttle for mother rolls and shafts, special slat conveyors for tissue rolls that come from the new rewinder and tissue machine, as well as a fully automatic axial wrapping machine that wraps rolls of every different size with an automatic feeding system.

Established in 1573, Klippans Bruk produces over 40,000tpy of premium tissue.

USA

Historic Marcal mill in New Jersey, USA, devastated by fire; efforts underway to help 500 displaced employees

A devastating fire that engulfed the famous Marcal tissue mill in New Jersey on 30 January has destroyed most of the historic building.

No injuries were reported at the Elmwood Park-based plant, and the manufacturer of the Marcal tissue products - Soundview Paper Company - has launched an employment opportunities website and job fair for the site's 500 displaced employees.

TWM visited the Marcal mill for its north-eastern USA Regional Report in May/June 2016.

The site's large, lit-up red "Marcal" sign which was displayed above the mill was established by founder Nicholas Marcalus in 1932.

The company was planning for future investments and growth to further boost the site's paper-making capacity and famous brand.

Soundview president and chief executive Rob Baron said: "The fire resulted in catastrophic damage to our facility.

"We don't yet know what the future will be for Marcal; we do know that our operations in New Jersey have been devastated, resulting in the loss of employment for many of our dedicated colleagues, some of whom have given decades of service to our company."

Efforts are now underway to help the employees: "The dedicated colleagues who lost their jobs due to the fire at our mill remain our top priority."

The company has been engaged around the clock with the Governor's office, the New Jersey Department of Labour, the New Jersey Department of Human Services, Congressman William Pascrell, local officials and neighbouring non-profits to identify and secure support for its people.

A job fair was held on 8 February and it has also launched a new website page for its people to learn of hundreds of job opportunities at local businesses, as well as at companies owned by its parent company Atlas Holdings around the country.

Baron added: "Select aspects of the Soundview Paper Company/Marcal business will continue, primarily the company's Putney, Vermont operation and shipping of existing inventory to customers from Elmwood Park.

"We are increasing operations at our Vermont location, allowing us to support the iconic Marcal brand in the AfH and Home and Office markets and we are hard at work on plans to continue to bring the Marcal-branded bath tissue, paper towel and napkin products to your grocer's shelf.

"Over the last five days, we have witnessed overwhelming support for Marcal and its people from our friends in the local community, throughout the State of New Jersey and beyond.

"We have been reminded what the Marcal sign has meant to so many; that this company was not only a trusted employer and an iconic business, but a symbol of New Jersey's historic manufacturing legacy.

"We are appreciative for the outpouring of love and support which sustain all of us through this very difficult time."

The 1930s-era mill was acquired by Atlas Holdings in 2012 and the company then established Soundview Paper to manufacture recycled and virgin fibre towel and tissue products for the local AfH, private label and At-Home markets.

Improved automation: *Metsä Tissue's Mänttä mill invests in a system update and expansion*

FINLAND

Metsä Tissue boosts natural gas delivery

Metsä Tissue has invested in its Mänttä mill after signing up Valmet to supply automation for the site's liquefied natural gas delivery. Valmet will supply an automation system update and expansion for Nordic energy company Gasum's project at the plant. It will see the mill replace liquefied petroleum gas with Gasum's low-emission liquefied natural gas in the burners of the drying processes on its tissue machines. The system renewal will be delivered in June 2019.

Valmet's automation system will be used to control the burners of the drying processes and manage a gas terminal that will be connected to Valmet's data collection application.

The supplier said the delivery will standardise and optimise the tissue drying process and quality management.

Valmet's delivery includes automation controls with DNA Modbus links to the burner and gas terminal PLCs as well as necessary DNA I/O expansions on the tissue machine automation systems.

The delivery also includes DNA software updates and expansions in the process air systems and drying power control systems of the tissue machines.

Gasum will carry out the modifications needed for the fuel switch as well as all equipment installation.

FRANCE

Global Hygiène boosts capacity with investment

Global Hygiène is to increase its production capacity after signing for a complete turnkey tissue production plant.

Supplied by A.Celli Paper, the investment will take place at its Charavines plant.

The new iDEAL1800S machine will have a 2.8m width and an operating speed of 1,800mpm.

The project also includes an E-WIND T100 rewinder and a R-WAY® rollhandling system.

Luc Brami, chief executive of Global Hygiène, said that the production of Charavines is estimated at 30,000tpy and will cover the needs of the two Global Hygiène group's converting plants, in Auxonne and Vern d'Anjou.

Delivery is expected for the fourth quarter of 2019.

CHINA

Yibin Paper increases '100% bamboo' production capacity

Yibin Paper has started up three A.Celli-supplied iDEAL tissue machines.

The lines are producing unbleached tissue paper using 100% Bamboo slush pulp.

Four tissue machines are currently installed and after TM2 started-up in September, TM3 and TM4 (with a 16' Yankee) and TM5 (with 18' Yankee) have also been started-up.

With the investment, Yibin Paper aims to be China's largest bamboo pulp tissue paper producer.

The company also owns a bamboo pulp factory and its goal was to produce tissue paper without adding wood pulp from the beginning of the project.

The whole design of the plant, from stock preparation, to approach flow system and to tissue machine, was based on the use of 100% bamboo slush pulp.

THAILAND

Berli Jucker Cellox boosts production of high quality tissue paper with investment

Berli Jucker Cellox has increased its tissue capacity after purchasing an E-WIND T100 rewinder.

Supplied by A.Celli Paper, the line will be installed at the company's Prachinburi-based plant.

It will be used to produce all types of high quality tissue paper, weighing from 13 to 45gsml.

It is equipped with three unwinders and a calendar, with a maximum operating speed of 1,900mpm and a maximum diameter of the finished roll of 1.8m.


OK-3600/2860/1580 Type Full-auto Facial Tissue Folding Machine
Tissue log automatic separator
Designing speed:200 m/min or 15 logs/min
Working speed:180 m/min or 14 logs/min
To get more machine details for toilet tissue, kitchen towel, handkerchief tissue, napkin tissue, feel free to contact us directly.
OK®
欧 克
JIANGXI OK SCIENCE AND TECHNOLOGY CO.,LTD
Add: OK Science And Technology Industrial Park,
Xiushui County,Jiujiang City,Jiangxi Province
Contact: Judy Liu
E-mail: okluo@gz-ok.com
Mob/whatsapp/wechat: 0086 13928760058
Fax: +86-0792-7818088
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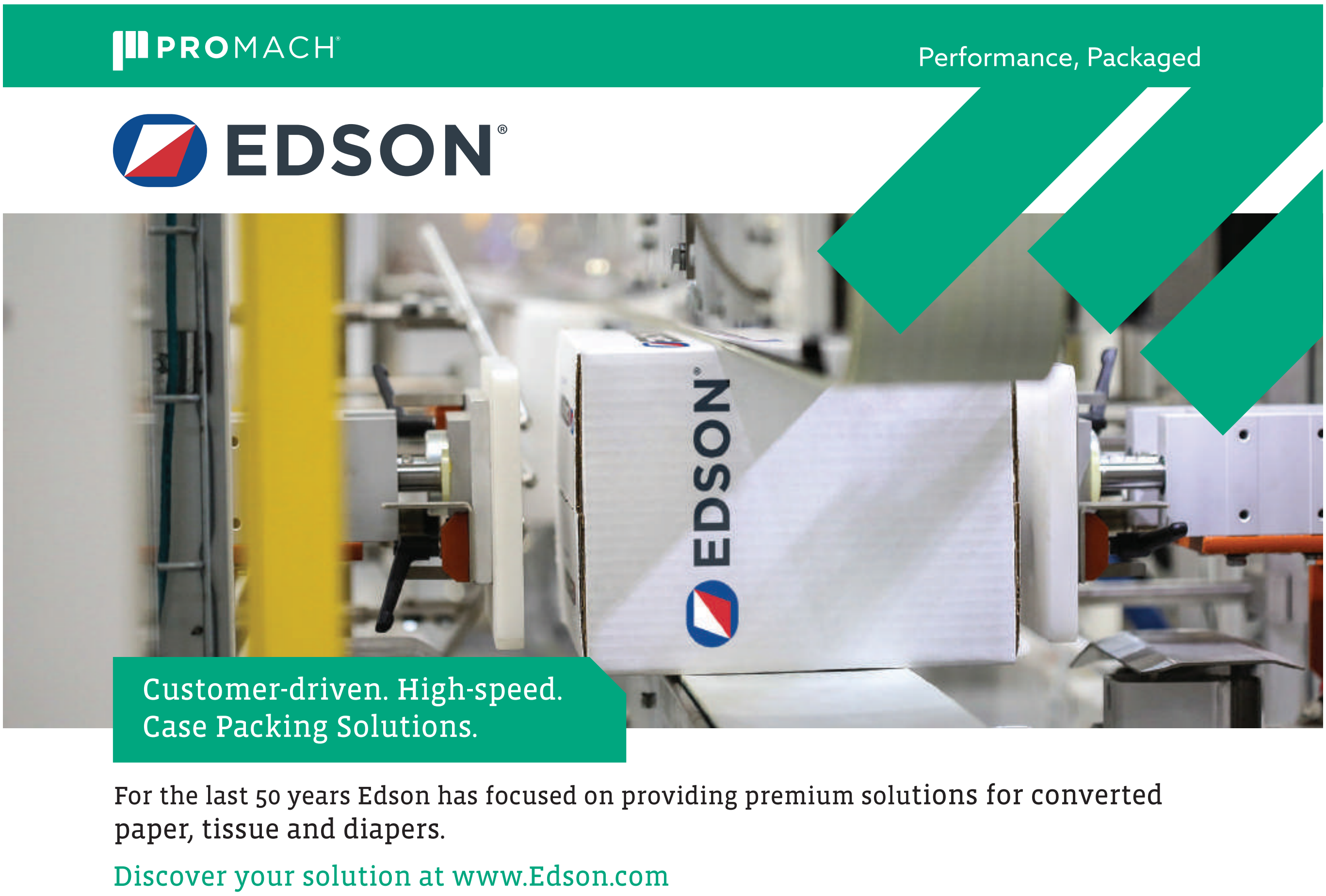

PROMACH
Performance, Packaged
EDSON®
EDSON
Customer-driven. High-speed.
Case Packing Solutions.
For the last 50 years Edson has focused on providing premium solutions for converted paper, tissue and diapers.
Discover your solution at www.Edson.com

A POST-NUCLEAR FUTURE... FRANCE FACES ITS ELECTRIC POWER GENERATION DILEMMA

The French tissue business does not have as long a history as the United States or Germany, but it continues to be unique in tissue product flair and operations. From yellow vests to ubiquitous pink toilet paper, France continues to set its own style. One of the major production differences is the nuclear electric power generation which will be discussed later.

Despite being a major economic power in Europe, France has not enjoyed the strong, export-driven economy that countries such as Germany – which is the continent's largest national economy - has. Its population growth has been noticeably flat (Figure 1). Population growth expressed as cumulative average growth rate (CAGR) from 2012 to 2018 was 0.5% compared to 1% for a similar period in Germany. However, France's economy grew more slowly than Germany. The GDP index line in Figure 1 shows a CAGR of 1.4 % versus 2% CAGR in Germany over a similar period, and small differences at this end of the scale are noteworthy.

France has experienced a significantly higher unemployment rate, peaking at 10.4% in 2015 (Figure 2). This is about twice the unemployment rate experienced in Germany over the same period. Figure 2 shows French unemployment trending down below 9% in 2018, but the cost of living made a jump in 2017. This progress on unemployment is good but still almost double Germany's results. The steep increase in the cost of living as employment improved is a worrying trend that appears to be reflected in widespread protests.

Figure 3 shows that France is generally in balance between production (chart line) and consumption (represented by the bars). France imports about 7% of its overall tissue requirements, and its total consumption of tissue at about 14kg per capita is somewhat lower than Germany, the United Kingdom, or the Nordic countries, but otherwise similar to the rest of western Europe. This indicates that there is room for France's tissue business to grow organically despite the prolonged population growth if supported by product use habits and the overall economy.

Bruce Janda
Senior consultant, Fisher International

DESPITE BEING A MAJOR ECONOMIC POWER IN EUROPE, FRANCE HAS NOT ENJOYED THE STRONG, EXPORT-DRIVEN ECONOMY THAT COUNTRIES SUCH AS GERMANY – WHICH IS THE CONTINENT'S LARGEST NATIONAL ECONOMY - HAS. ITS POPULATION GROWTH HAS BEEN NOTICEABLY FLAT. POPULATION GROWTH EXPRESSED AS CUMULATIVE AVERAGE GROWTH RATE (CAGR) FROM 2012 TO 2018 WAS 0.5% COMPARED TO 1% FOR A SIMILAR PERIOD IN GERMANY.

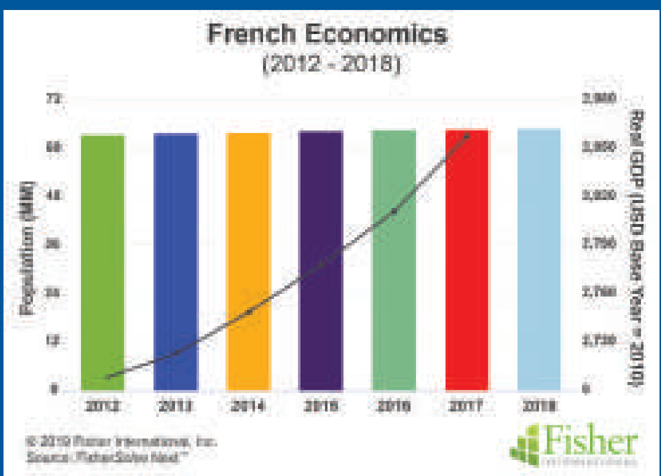


Figure 1

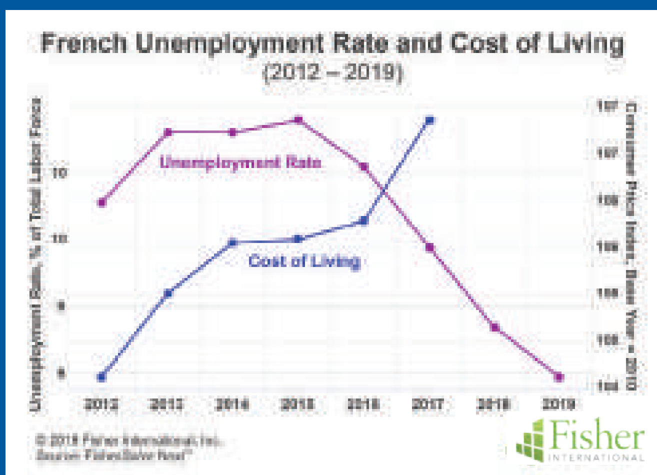
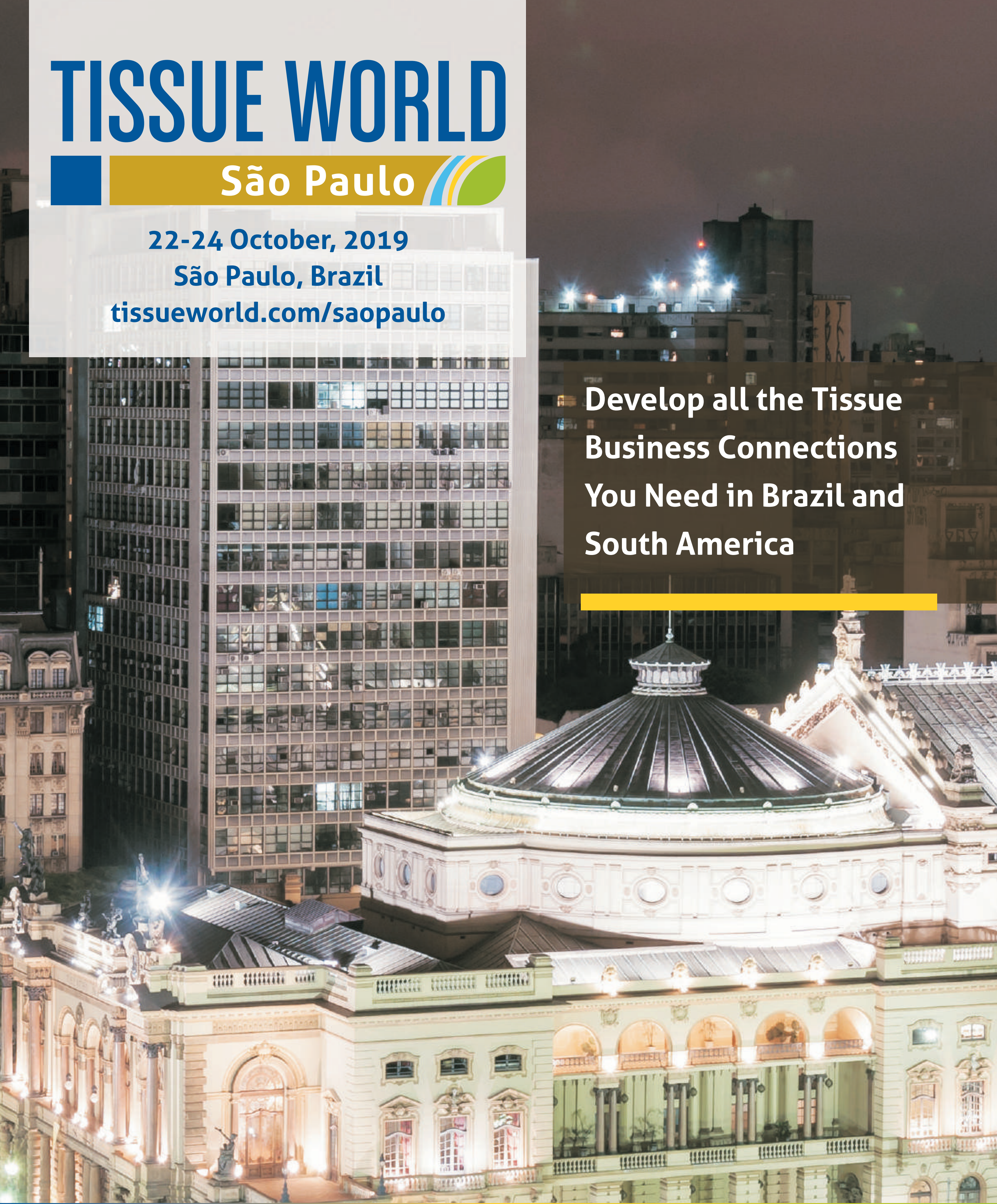


Figure 2



France's slow growth in population and the economy have only supported the addition of three new tissue machines in the period 2007 to 2018, but there are indications of a potential new project announcement in 2019. Figure 4 shows the timeline of the French tissue machines coming online.

France's relative volume of tissue products is shown in Figure 5. As expected, consumer bath, or toilet paper, makes up the overwhelming volume share, followed by consumer towels. Facial tissue is a robust sector with much higher use of packet pack formats than North America. France also has a smaller but healthy commercial or AfH tissue business.

French tissue makers purchase most of their fibre furnish. The consumer tissue grade is almost all purchased fibre as shown in Figure 6. Commercial tissue consumes a larger percentage of internally generated deinked furnish. Specialty tissue is mostly purchased fibre.

Most of French tissue production is based on purchased kraft pulp. Figure 7 shows the relative volumes of kraft hardwood/softwood to the deinked and other non-deinked pulps for each tissue grade. It is interesting to see a little BCTMP used in both consumer and specialty tissue grades.

French tissue production includes structured technology such as Through-Air-Drying (TAD) as shown in Figure 8. The advanced technology is focused on the consumer grade, especially kitchen roll towels. Advanced technology does not play a role in the commercial grade, unlike North America where it has growing application in high-end washroom hand towels.

A group of eight other European countries were chosen to provide a comparison of the French tissue business to neighbouring and in some cases similarly sized tissue producers. Figure 9 provides a contrast of average machine technical age and average machine speed for each country. The size of the bubbles represents the tissue production capacity of each country. France is a similarly sized tissue business to Poland, Spain, and Turkey. Belgium, Hungary, Greece, Czech Republic, and Russia are all somewhat smaller tissue producers. The chart shows that France has a relatively high average technical age for its tissue machines, but they are currently achieving high-speed production.

The relative country average cost per tonne position for the same set of eight references and France is shown in Figure 10. France is in a relatively high-cost position compared to the other larger producers in the set. Russia is in a position to have low-cost fibre sources. However, the other larger producers import mostly market pulp like France. Digging deeper into the cost differences, labour costs per tonne are significantly higher in France than in the other countries compared here. Only Belgium comes close to France's labour costs.

Figure 11 shows the viability rating for France against the same set of reference countries. Similar to the cost chart in Figure 10, France comes out with slightly higher risk than the other larger producers. The key factors that increase France's risk rating are the higher costs and older machine technical age.

Sustainability has become a critical social and political concern in Europe. Water consumption and average water risk are plotted in Figure 12. In this bubble chart, the size of the

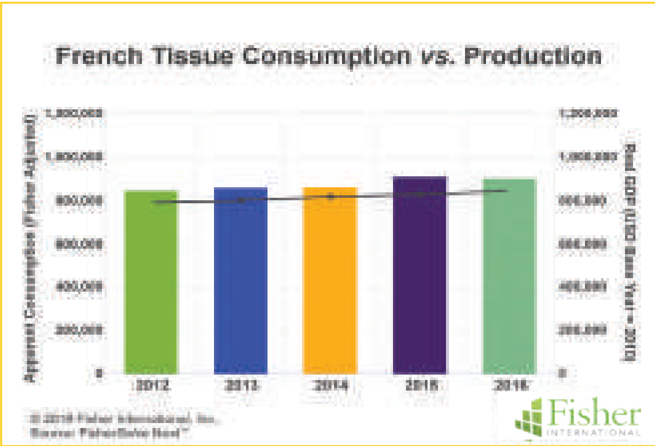


Figure 3

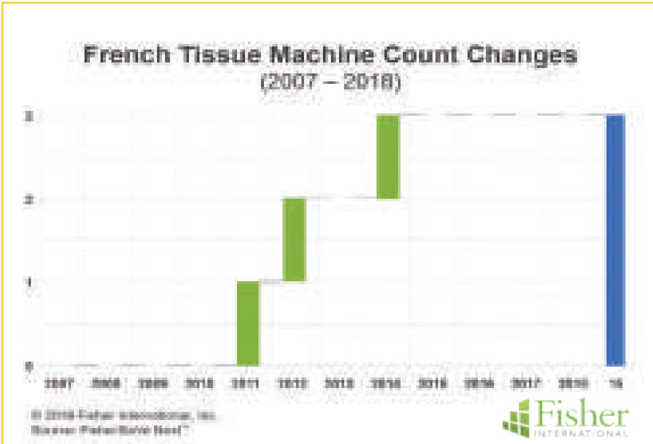


Figure 4

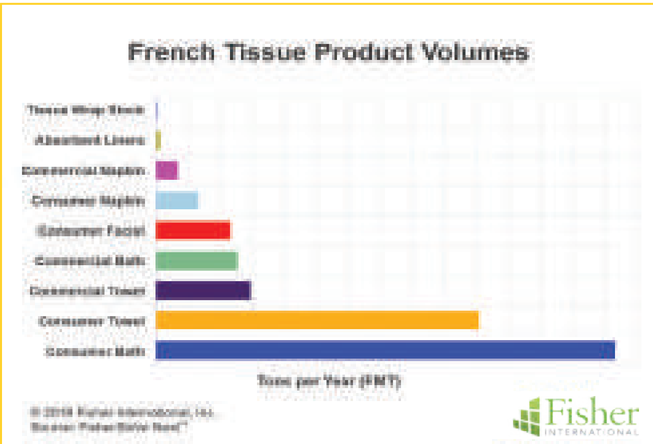


Figure 5

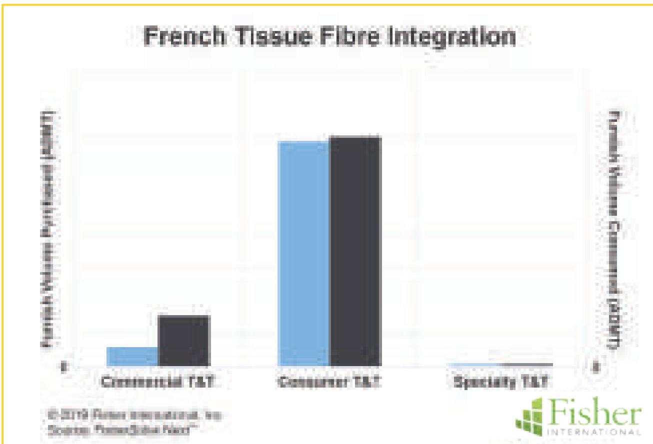


Figure 6

bubble again represents the relative capacity of each country's tissue business. The X-axis shows the average water consumption per ton of tissue produced. The Y-axis shows the FisherSolve Next water risk index for future availability. All reference countries, except Russia, had low-water consumption per tonne of tissue produced compared to North America. Minimising water consumption requires both operational discipline and capital investment. Most European countries tend to lead the global tissue industry in this sustainability factor. France has a relatively low water risk ranking. Comparing countrywide averages for water risk can overlook significant local factors, but France looks well-positioned for water sources in the future.

For overall energy consumption, Figure 13 shows that France consumes a significant amount of energy in its tissue production. However, this doesn't tell the whole story. France has low carbon emission nuclear electrical energy and the cost of this electrical energy is only slightly higher than the other large producers. The cost of fuel and steam in France is relatively high for Europe.

Figure 14 shows the country average tissue carbon emissions per tonne, calculated on a gate-to-gate basis. That basis excludes carbon emissions resulting from producing fibre that is shipped into the mills. Here we see that France is the lowest carbon emitter in the set due to the low average carbon content of its mostly nuclear power plants. If carbon emissions become a significant cost or marketability factor, France is exceptionally well positioned at this point.

In conclusion, France's tissue business is reasonably competitive and positioned for the immediate future. Its tissue production is focused on the domestic market with small amounts of imports to balance consumption with production. Tissue making capacity has kept up with the slower population and demand growth. French tissue machines are fast but have a higher technical age compared to their reference set.

The country has several advanced tissue technology machines, including TAD. These are applied to produce superior consumer towels (kitchen rolls).

There is also low water risk and low water consumption compared to peers. French tissue energy consumption is average for Europe, but costs of fuel and steam are on the high side of the reference set. Carbon emissions are very low due to the high percentage of nuclear power generated electricity. However, France's government has announced plans to eliminate nuclear power over the long term. This move is applauded by neighbours like Germany but also at odds with reducing carbon emissions and global warming.

The question is how France will position its energy sources and costs in the post-nuclear and carbon-neutral future expressed in its goals?

Labour costs are higher than in Germany and

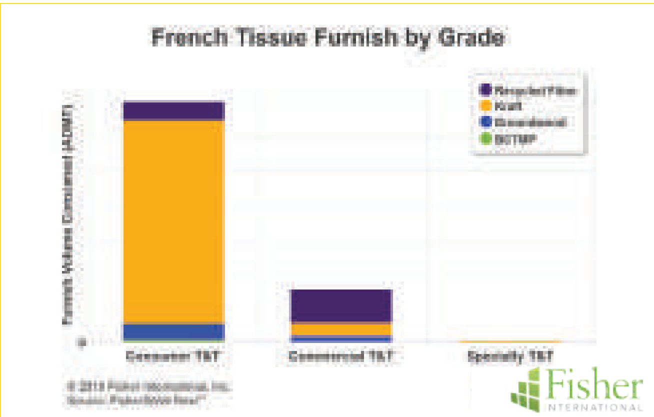


Figure 7

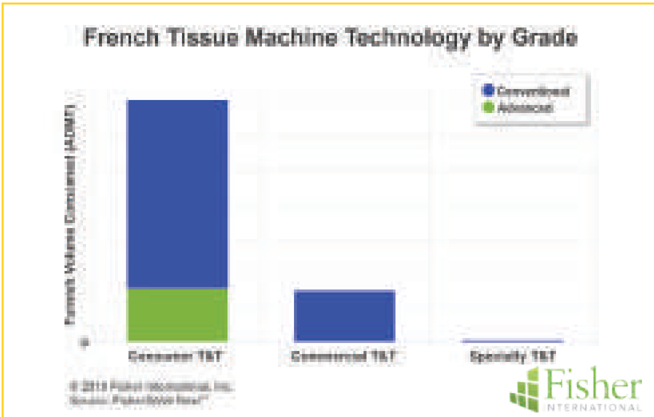


Figure 8

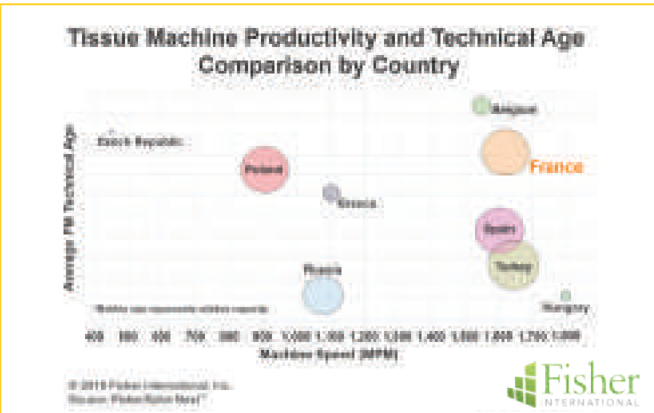


Figure 9

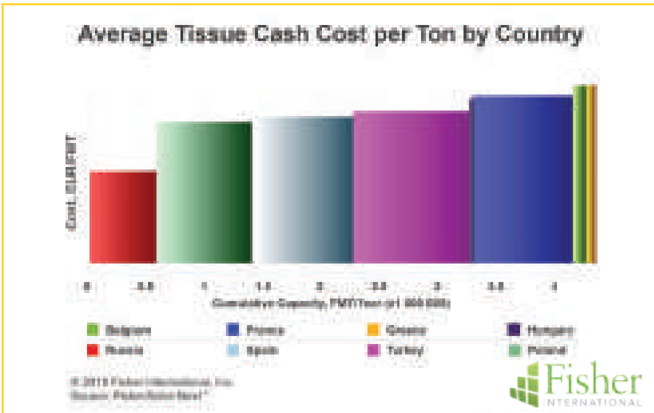


Figure 10

the comparison country set selected for this report. Combined with the increasing consumer inflation, this is one of the sources of labour unrest expressed in current protests.

This analysis used industry averages by country for comparisons and there is considerable variation within France as well as within any country's population of tissue machines. Strategic plans depend on details; it's important to look closely at individual companies, mills, and machines when predicting future actions.

This article presented a static picture summary; France is currently experiencing demonstrations expressing frustration with the economic factors of unemployment and consumer price inflation. The net results are unclear at this point. Fibre prices, exchange rates and environmental regulations will change, giving some participants advantages and others difficulties; tissue companies will continue to change hands and perhaps consolidate; neighbouring countries may invest in tissue making capacity, affecting France's imports; consumer preferences will continue to evolve, making TAD either more critical or less – and future pulp and energy prices will change TAD adoption, too.

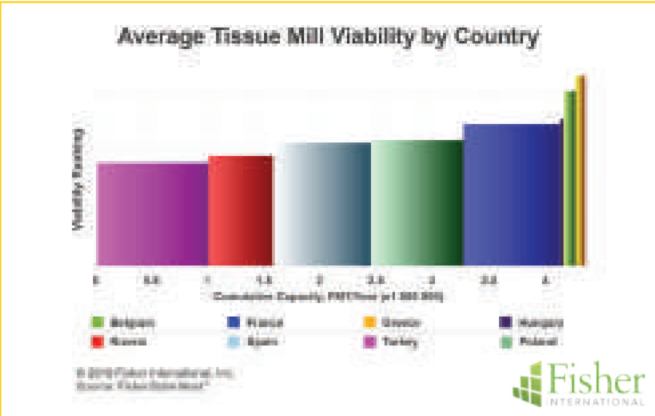


Figure 11

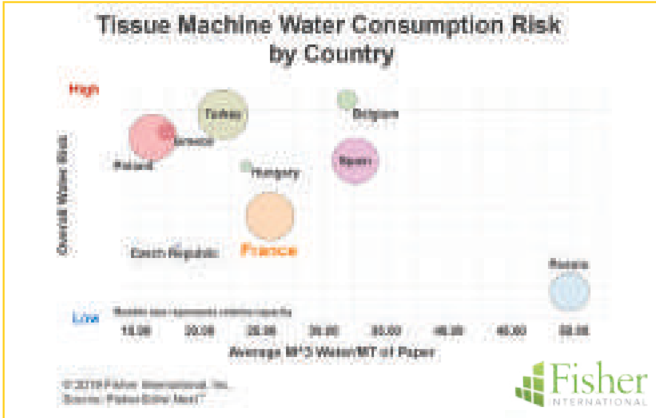


Figure 12

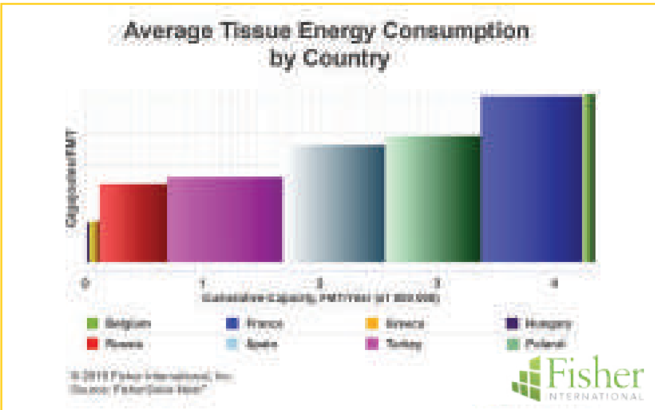


Figure 13

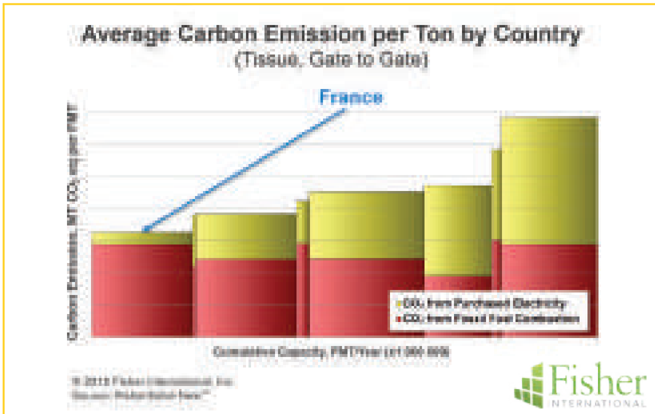


Figure 14

About Fisher International, Inc.

Fisher International, by virtue of its deep expertise in the pulp and paper industry, provides insights, intelligence, benchmarking, and modeling across myriad scenarios. By arming companies with the knowledge that will help them gain a better understanding of their strengths and help identify weaknesses, Fisher is helping businesses stave off challenges and better position themselves for long-term growth. For more information, visit www.fisheri.com, email info@fisheri.com or call +1 203.854.5390 (USA)

RETAIL TISSUE IN FRANCE: FINDING POCKETS OF GROWTH IN A HIGHLY MATURE MARKET

Retail tissue in France recorded sluggish volume sales growth in 2018 to reach 616,000 tonnes. Forecasts for the next five years are not much more optimistic. Indeed, retail tissue sales are projected to register a 0.6% volume CAGR over the next five years in the Hexagon.

Saturated market with little room for significant future growth

With 9.5kg per capita in retail tissue consumption in 2018, compared to the Western European average of 8.7kg, France is as a mature tissue market. This high per capita consumption means that there is little room for further organic growth and household penetration.

In such a saturated market, growth in retail tissue is driven by fundamentals such as population and GDP growth. With that in mind, it should be noted that the country is currently registering slow population growth, with only a slight increase of +0.4% in 2018. Population projections for the next five years through 2023 show a similar trend, with year-on-year growth of 0.3-0.4%.

As a direct consequence of the factors previously mentioned, the unmet market potential, ie the extent to which the retail tissue market could grow in the country in the future, remains limited. According to Euromonitor International estimates, opportunities for incremental consumer tissue sales in France stand at USD375 million, or about 81,000 tonnes in volume. By comparison, some other countries in the region might offer more room for growth, with estimated potential of USD634 and 189,000 tonnes in Germany and estimated USD573 million and 178,000 tonnes in Italy.

Manon Quilleré
Research analyst,
Euromonitor International

Strong presence of private label reflects market commoditisation and need for innovation

As consumer tissue is largely commoditised in France, many consumers often perceive different products and brands as undistinguishable in terms of basic attributes. This notably explains the strong presence of private label in retail tissue in the country, which tend to have a wide variety of entry-level and lower priced products to consumers looking for cheaper solutions. In recent years, however, private label lines have also been developing value-

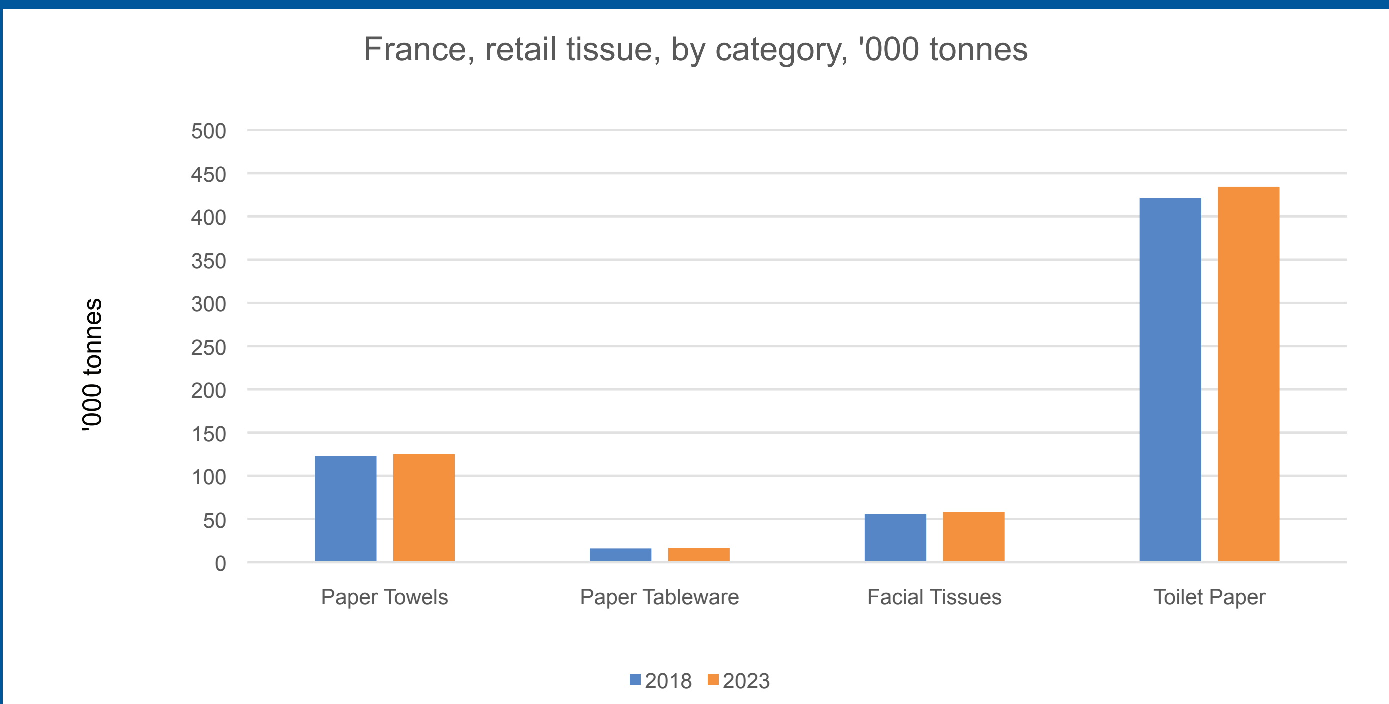


Table 1: France, retail volume, '000 tonnes, by category, 2018/2023


FABIO PERINI
KÖRBER SOLUTIONS
TISSUE DATA
CLOUD
LINE 986
Runtime analysis
03:46 h
02:21 h
00:24 h
Display
Spread
100+
LINES
always connected and monitored in real time
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NEXT?
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added solutions to fit the needs of consumers who are looking for a combination of price and quality, thereby also competing better with branded products. In 2018, private label held a 60% value share of consumer tissue sales in the country.

As private label accounts for a major part of the consumer tissue competitive landscape in France, manufacturers of branded products need to continue to focus on meaningful innovation to stimulate consumer demand. Value-added innovation also becomes crucial to support consumer spending in view of price increases implemented by manufacturers across tissue products to compensate for the continuing rise in input costs.

Despite many challenges, some factors remain encouraging and could contribute to growth in retail tissue in France in the coming years.

IN RECENT YEARS, FRENCH CONSUMERS HAVE INCREASINGLY PAID ATTENTION TO CONSUMER PRODUCT COMPOSITION AND INGREDIENTS, THE PROVENANCE OF MATERIALS, AS WELL AS THE IMPACT OF THE PAPER INDUSTRY ON THE ENVIRONMENT. CONSEQUENTLY, TO DIFFERENTIATE THEMSELVES AND HAVE A POSITIVE BRAND IMAGE, TISSUE PLAYERS HAVE A GROWING INTEREST IN COMMUNICATING ENVIRONMENTAL ISSUES AND DEVELOPING PRODUCTS POSITIONED AS MORE ECO-FRIENDLY.

Table 3: Competitive environment, % value share of sales by companies and private label

Socio-economic changes could positively impact the development of retail tissue

Socio-economic factors look rather promising for the coming years in France and are likely to benefit sales of retail tissue in the country. Indeed, GDP per capita amounted to USD42,267 in 2018 and is set to grow at an average annual rate of 1.6% in the forecast period, to reach USD46,008 in 2023. Additionally, the unemployment rate is projected to decrease by 5.5% between 2018 and 2023. Those factors can create additional room for manoeuvre and entice French consumers into buying premium quality tissue products with added-value features and at a higher price point.

Moist toilet wipes hold some growth potential

Some retail tissue categories are projected to be somewhat more dynamic than others, such as for instance, moist toilet wipes. The category is indeed set to register a 20% volume CAGR in the next five years. Lotus has been aiming to disrupt a once lethargic niche occupied by a few modest local players. Since the launch in 2016, Lotus moist toilet paper has revitalised the category, which is positioned as complementary to dry toilet paper and boasts elements of sustainability positioning.

The importance of integrating sustainability into innovation and go-to-market strategies

In recent years, French consumers have increasingly paid attention to consumer product composition and ingredients, the provenance of materials, as well as the impact of the paper industry on the environment. Consequently, to differentiate themselves and have a positive brand image, tissue players have a growing interest in communicating environmental issues and developing products positioned as more eco-friendly. Integrating sustainability into key strategies and communicating will become even more important to both consumers and the industry.

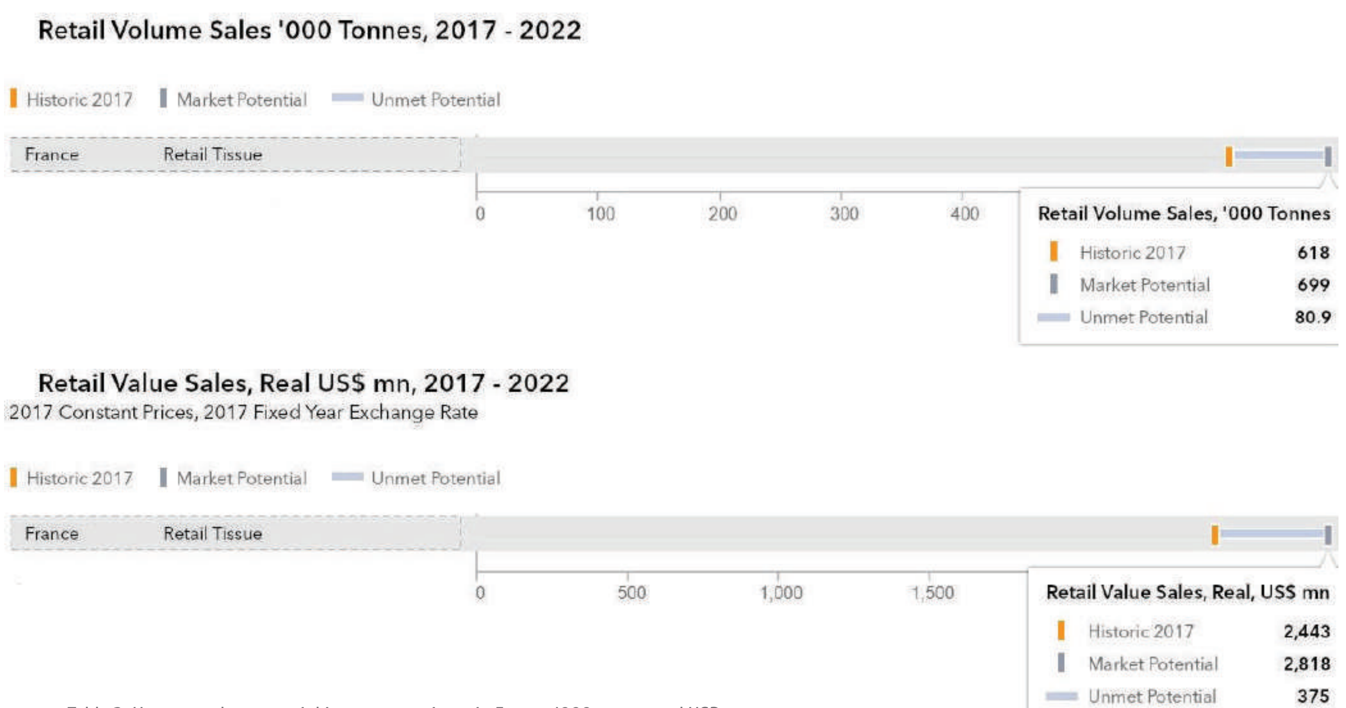


Table 2: Unmet market potential in consumer tissue in France, '000 tonnes and USD

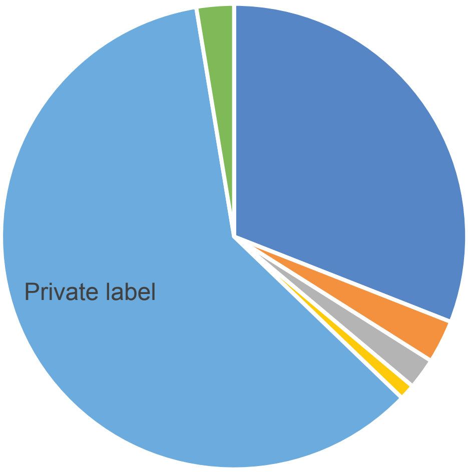


Table 3: Competitive environment, % value share of sales by companies and private label

Euromonitor consumer surveys conducted in 2017 indicated that 37% of French consumers considered "environmentally/ethically conscious" an influential product feature in household essentials, and 22% of respondents indicated a willingness to pay more for products positioned as "environmentally/ ethically conscious", indicative of opportunities for the industry to drive innovation and consumer communication in environmentally friendly tissue products.

The latest innovations in sustainable products include a new private label line from Casino, the fifth largest grocery retailer in France. In late-2017 the retailer introduced a new product under its "La Bonne Idée!" private label line – a toilet paper without a tube. The traditional cardboard tube is replaced by a smaller toilet paper roll. Similarly, at the beginning of 2018, Lotus eliminated cardboard tubes from its new Moltonel products. According to Essity, this innovation reduces waste – both in terms of tube and packaging – by 60%, and CO_2 emissions by 5%.

In addition to product innovation, tissue players are increasingly set to communicate on sustainability. FSC-certification is likely to be increasingly emphasised, whether it is on companies' websites or directly on the product packaging.

Finding growth through meaningful innovation and relevant communication strategies

Overall, the market conditions in France remain difficult for consumer tissue, and significant opportunities for organic growth are limited. The growth in branded product sales is further constricted by the high level of private label penetration, which put additional pressure on pricing. However, despite saturation and commoditisation of consumer tissue, many French consumers are willing to embrace innovation if it is meaningful and adds tangible value to the products and their experience with the products. The latter will become even more important as price increases in Western Europe will likely gain momentum in the coming years.

Sustainability in all its forms is one path that can help product manufacturers to stand out and drive value, especially in view of some consumers' willingness to pay more for such products. From sustainable manufacturing practices to meaningful changes to product attributes, including fibre sourcing, the "green" trend creates opportunities for product differentiation and higher price points in consumer tissue. These need to come with relevant consumer communication strategies to convey product benefits and thus to attract and retain consumers.

THE LATEST INNOVATIONS IN SUSTAINABLE PRODUCTS INCLUDE A NEW PRIVATE LABEL LINE FROM CASINO, THE FIFTH LARGEST GROCERY RETAILER IN FRANCE. IN LATE-2017 THE RETAILER INTRODUCED A NEW PRODUCT UNDER ITS "LA BONNE IDÉE!" PRIVATE LABEL LINE – A TOILET PAPER WITHOUT A TUBE. THE TRADITIONAL CARDBOARD TUBE IS REPLACED BY A SMALLER TOILET PAPER ROLL. SIMILARLY, AT THE BEGINNING OF 2018, LOTUS ELIMINATED CARDBOARD TUBES FROM ITS NEW MOLTONEL PRODUCTS.

WEPA PLANS FOR VIVE LA DIFFERENCE IN THE FRENCH MARKET

WEPA France is investing while some competitors are selling or restructuring. Country Manager Christophe Dorin spoke to TWM Senior Editor Helen Morris.

It has taken a series of significant acquisitions and tissue machine start-ups during the course of the last few years to enable the family-owned German tissue manufacturer WEPA Group to claim the third position in the European tissue market.

This has included the takeover of all shares of the UK-based joint venture Northwood & WEPA in July 2018, the acquisition of Netherlands-based Van Houtum Group in 2017, the start-up of a PM in Piechowice, Poland, in 2017, and the start-up of what was at the time in 2016 the largest TT SYD ever installed in Europe: a Toscotec-supplied TT SYD-18FT at its Cassino mill in Italy. WEPA Lille also began production on an AHEAD-2.0 Crescent Former tissue machine in August 2015 and an AHEAD-2.0S TM was started-up in Giershagen, Germany, in October 2015.

Crucial to its progress was strengthening its presence in the French tissue market and the company significantly increased its capacity there when it acquired the site in Troyes in 2015, based next to a beautiful medieval town based in the Grand Est region of north eastern France. The area is known for its narrow cobbled streets, colourful timbered 16th century houses, gothic churches, and champagne.

Christophe Dorin, country manager, WEPA France, joined WEPA in 2016 and, speaking in excellent English, says the purchase of Troyes was to reinforce the company's presence in the country: "The location here and production … it was a substantial step and the position for WEPA became much stronger because of it. We are located centrally in France, so we have a large customer base on our doorstep in both the centre and south. The WEPA Lille site is servicing northern France and Belgium with these two sites it means we have a very strong geographical footprint, and optimised logistical costs."

Troyes has one tissue machine producing

"WE ARE LOCATED CENTRALLY IN FRANCE, SO WE HAVE A LARGE CUSTOMER BASE ON OUR DOORSTEP IN BOTH THE CENTRE AND SOUTH. THE WEPA LILLE SITE IS SERVICING NORTHERN FRANCE AND BELGIUM WITH THESE TWO SITES IT MEANS WE HAVE A VERY STRONG GEOGRAPHICAL FOOTPRINT, AND OPTIMISED LOGISTICAL COSTS."

European expansion: WEPA Group's Troyes site was purchased from Lucart in 2015 to reinforce the company's presence across the continent

32,000tpy of consumer tissue products and there are four converting lines for toilet paper and two for facial tissue at the 250-staffed site. Products are mainly sold to the consumer sector, predominantly as private labels to European retailers.

"The French tissue market is still brand-driven with strong national brands," Dorin says. "While countries such as Germany have a very high level of private label products, it's not quite at that level here yet ... it's about 70% private label here and the market value is also lower."

He adds that it is also necessary to produce a full range of products for French customers: "We need to adapt and be flexible so we can accommodate this demand. The competition has done a good job in marketing their brands for decades but WEPA does have some competitive advantages. Our business strategy has an overall sustainable orientation and the focus lies on alternative products that can bring value to our customers. The Hybrid Fair Fibre concept, for example, is a combination of recycled fibre and pure pulp from responsible sources. It's a sustainable but resilient product range made with 30% recycled fibre improving the environmental footprint by 20%."

Dorin says environmental issues are getting more important for French consumers, but that it's not yet at the level of importance as seen in the German and Scandinavian countries: "Environmentally-friendly products continue to be a strong opportunity for WEPA France to push in that direction. We are producing Eco-friendly products at Troyes and we also have a range of environmental certifications including the EU Ecolabel, ISO 14001 and ISO 50001. We're really seeing the benefits of using hybrid fibres and of our logistics optimisation. It gives us a competitive advantage in the French market."

The French tissue market has not seen a lot of new capacity come on stream in the past few years. Instead, Dorin says there have been some closures: "One of the challenges is the increasing number of tissue products coming across the border from Spain. However, with our two sites we are well positioned in the market and produce close to our customers. This has not only a positive effect on our logistics but also makes sense from an ecological point of view."

The country's tissue market remains flat, with growth at just 1% increase year-on-year. "Our sector is not impacted by any changes in the economy," Dorin adds. "But this year and last have been very challenging with the pulp price increases. As a result, we are seeing very different behaviour from competitors. Some are trying to sell their business or announcing restructuring measures."

"THE FRENCH TISSUE MARKET IS STILL BRAND-DRIVEN WITH STRONG NATIONAL BRANDS, WHILE COUNTRIES SUCH AS GERMANY HAVE A VERY HIGH LEVEL OF PRIVATE LABEL PRODUCTS, IT'S NOT QUITE AT THAT LEVEL HERE YET… IT'S ABOUT 70% PRIVATE LABEL HERE AND THE MARKET VALUE IS ALSO LOWER."

"We always prioritise attracting staff to work for us, as well as working partnerships, to build strong business relationships. And we are looking for opportunities for further investments," he adds.

The group has spent €50m in its sites in France over the past few years, including a new converting line at the Troyes site: "Capacity-wise, we are well positioned to supply the big players. Any further investment would be for the productivity side where we continuously look for improvement."

Product variety: *each customer in the French market has a specific range of demands, which means the site needs to adapt and be flexible in order to accommodate a full range of products*

NICHE TISSUE... INDEPENDENCE, RECYCLED PAPER, RAPID RESPONSE, FLEXIBILITY, PERSONALISED AND INCREASINGLY GREEN PRODUCTS

French manufacturer Papeco director general Emmanuel Coulon explains his smart circular economy concept at his Normandy mill. Report: TWM Senior Editor Helen Morris.

"When I joined my main aim was to prioritise customer service." Papeco director general Emmanuel Coulon

THE FORMER SCOTT PAPER-OWNED MILL WAS ACQUIRED BY COULON'S FATHER IN 1990, WHEN HE CREATED PAPECO. COULON STARTED WORKING AT THE COMPANY IN 2007 – HIS FIRST ROLE IN THE TISSUE SECTOR, HAVING HAD A BACKGROUND IN ENGINEERING. HE IS NOW THE MAIN SHAREHOLDER, AND SEVERAL OF THE PLANT'S 57 STAFF ALSO HAVE SHARES IN THE BUSINESS.

Independent family-owned tissue manufacturer Papeco is fortunate to have a very picturesque location for its tissue mill. Located in Orval in the very western tip of Normandy on the banks of the beautiful La Sienne estuary, the mill was created in 1924 by two French associates who had a holiday home nearby (the site had been a water mill, but the owners saw that there was a lot of demand locally for paper products, and so turned the site into a paper mill.)

Director general Emmanuel Coulon says from his desk that the location is of great benefit for the company. The former Scott Paper-owned mill was acquired by Coulon's father in 1990, when he created Papeco. Coulon started working at the company in 2007 – his first role in the tissue sector, having had a background in engineering.

He is now the main shareholder, and several of the plant's 57 staff also have shares in the business. Previously the site had just been used to manufacture toilet roll for the consumer market, but Coulon and his father worked to diversify its product offering to also include kitchen towel for industrial use.

Now, 60% of the site's 9,000tpy production for industrial kitchen towel, 20% for toilet paper and 20% for medical sheets, in 1, 2 and 3ply.

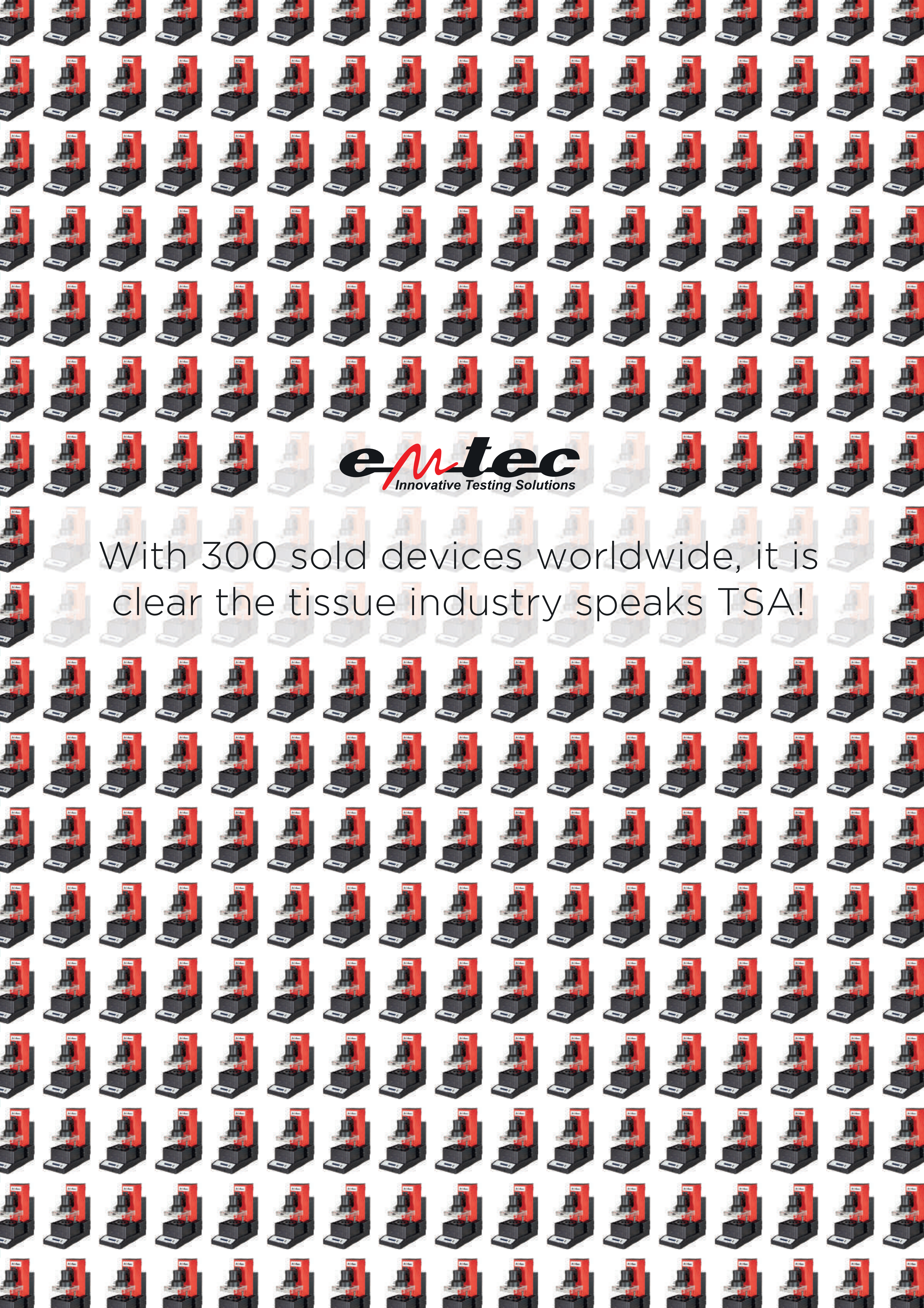
An independent and inventive spirit is key for the business, especially in the flat French tissue market which is seeing annual growth of just 1-2%. Papeco has a small part of the market share in France and its main production is of high-quality economy private label tissue products for the AfH market.

It doesn't have any branded products, and uses recycled fibres in 80% of its products.

When Coulon arrived in 2007, he explains he wanted to start a new strategy ... "We had to invest. We don't want to do the big volumes, we would like to keep our independence and all the flexibility that comes with that. But we want to grow.

"When I joined my main aim was to prioritise customer service. Because we are smaller, we can respond directly to our customer's needs and this type of customer service is vital to what we do, it is our main objective."

Coulon has overseen several substantial investments at the site and on its 2.4m wide paper machine, which was bought second-hand in 2000. It has had a lot of upgrades including a new Headbox, a new press section, as well as a new rewinder from Valmet. There are three converting lines: one for folded tissue supplied by


emtec
Innovative Testing Solutions
With 300 sold devices worldwide, it is clear the tissue industry speaks TSA!

DCM Machine, one for toilet tissue and medical sheets, and another for industrial rolls, both of which were supplied by Fabio Perini.

A fourth converting line was invested in last year – also supplied by Fabio Perini – and it is expected to start producing industrial rolls in 2020 along with the modernisation of a section of the current plant that will house it.

"I am open to more new technology and we are considering investing in a new paper machine," he adds. "But not just yet, that's a big, big step, so it would need to be in five years or so. A new paper machine would mean we are producing three times what we currently manufacture, so we need to be completely ready for that. We just need to be flexible and open, and any investment we will work again to make sure we reduce our energy consumption."

Over the past decade, investing in sustainable and energy efficient operations and practices has become a vital selling point for the business. The changes have made it operate more leanly and efficiently, whilst also offering the company a strong selling point to French retailers: "Environmental issues are very big in France ... it's very popular with the consumers".

Papeco has worked to gain ECO Label for 90% of its products. The mill is also ISO 14001 and ISO 50001 certified. Environmental aspects "is one of our strongest selling points, and is a very strong commercial argument for our customers"

"The main opportunities for us are 'Smart Circular Economy'," Coulon adds. "We want to design our facilities so that they produce very little waste and pollution. Our challenge is to find a model to continuously be able to get recycled paper and sell our products to the customers that reflect our vision. We will continue to look at this continuous loop and evolution and increase our environmental efforts."

Achieving the green certifications has been very important for the site: "It has all been a very big project for a site out size, but it has offered a guarantee to our customers – that whilst we may be small, we are serious about our products. And certainly, getting the Eco Labels has improved our margins. Quite simply, it is a better way to work, and it is a very strong way to differentiate ourselves with our competitors."

Investments have also been made in Industry 4.0 and Coulon is still in the process of adapting it to the mill to "give us and our customers even more flexibility". "When we invested in the new converting line, our main concern was for it to be flexible. We needed a machine with a quick change around and to have easy communication with IT and production."

Personalised products are a key selling point and the company's size means it is able to very quickly to customer requests, he adds. "We have a great level of flexibility in what we can do and we produce only in response to demand.

"We don't have overcapacity as a company, so we are looking to slowly and steadily grow... selling more into the French market, and also expanding into the areas we currently export to (Belgium, a little into northern Africa and also into French territories abroad). It's not an objective for us to export more as we just don't currently have the capacity and our prices wouldn't be so good if we exported."

***Smart technologies:** investments have also been made in Industry 4.0 and the company is still in the process of adapting it to the mill to give it and its customers even more flexibility*

COULON HAS OVERSEEN SEVERAL SUBSTANTIAL INVESTMENTS AT THE SITE AND ON ITS 2.4M WIDE PAPER MACHINE, WHICH WAS BOUGHT SECOND-HAND IN 2000. IT HAS HAD A LOT OF UPGRADES INCLUDING A NEW HEADBOX, A NEW PRESS SECTION, AS WELL AS A NEW REWINDER FROM VALMET.

As the company works mainly with recycled fibres, it has largely avoided any pulp price hikes: "Recycled paper is more attractive for us, especially when the pulp prices are so high. But we have to react quickly. We make good products, mainly economy, but with recycled paper. Because it's recycled our prices are usually lower. In France, virgin pulp is used the most, there are only a very few that are using recycled.

"So our strategy will continue to be to promote high-quality recycled products. We are quite unique in that sense. We will continue to stay in our place and build a long-term relationship with our customers, developing innovative and environmentally-friendly products."

Around France, several new tissue machines are planned to come on stream in the next few years. Will there be overcapacity in the market? "All the new tissue machine investments that will come on stream in the next few years will be for virgin pulp.... It will be a lot of new capacity, so it is uncertain at the moment how this will change the dynamics of the marketplace. Georgia-Pacific has also exited the market here... so there has been a lot of changes. But our strategy is clear. We are trying to maintain our position in our current market sector and we want to remain independent. One of our main challenges in the future will be where we can find the necessary raw material. The consumption of this type of paper is flat, and decreasing even further. In 10 years time, it may be from other sources. But we will continue to equip ourselves as well as we can to be able to maintain our independence and ability to adapt to changing market conditions."

THE LONG AND THE SHORT OF IT... A CASE OF MORAL FIBRE

Alexandra Stuthridge lives in Vancouver, Canada, and is the technical business manager of the BioProducts Institute (BPI), a globally-leading research cluster at the University of British Columbia (UBC). BPI is focused on advanced bio-based materials, chemicals and energy.

"I have vivid and fond memories of the tissue paper manufactured in New Zealand, especially when I was a young girl. My grandfather worked in the Caxton Paper Mill in Kawerau and back then, before more stringent modern-day safety standards, we would often visit him at work. He would take us through the mill and show us all the equipment operating and each of the different products they produced. We always were given samples that we could take home. It was a staple in Kawerau households for the kids to have paper on a roll to use for drawing and projects etc. I remember I was particularly amazed at how strong tissue was for such a very soft product.

"Perhaps it is the growing distance from childhood, but I have found in recent times that the quality of tissue products seems to have changed. It is still soft but not as durable as I expect. For example, I wear contact lenses and find I can no longer use standard tissues for watery eyes because the tissues release small fibres that can be an irritant with the lenses. I have since learnt that this change in quality may be because there has been a switch from long to short fibres in the tissue manufacturing process, possibly because of increases in use of recycled fibres in these products.

"Notwithstanding this, I am still very attached to these products as an avid user of tissues, paper towels, napkins and, of course, toilet paper. While I am not really committed to particular brands, having products that are thick, strong and soft are imperative and, in my mind, not negotiable! Nevertheless, my preference is for environmentally-friendly tissue products generated by a sustainable, bio-based materials industry. I believe we as consumers can all help in many small ways to save our planet (which really does need saving), and I am more than prepared to pay more for "greener" products - like I do with my food.

"We are very lucky that Canada offers the variety of tissues which allows us the luxury of a choice of products that fulfil both my demanding needs for both quality and sustainability. This is clearly a critical requirement since, while other paper products may make way for on-line digital media, tissues and tissue products will never be replaced by my iPad!"

CONVERTING TECHNICAL THEME: 2019 WILL BE RICH IN PROJECTS TO FIND THE LEADING EDGE

In terms of optimal maintenance and process, analysing what the machines are telling us gives enormous added-value. TWM asked the world's leading converting machinery suppliers – Fabio Perini, Futura, Gambini, ICM, Maflex, MTorres and PCMC – to explain their latest advances.

Carlo Berti, sales director, Gambini

TWM/1: What new converting machine technologies will be leading the marketplace in 2019?

Alessandro Granucci, sales manager EMEA, Fabio Perini: "In an overall macroeconomic environment that sees on the one hand the cost of raw materials increasing and on the other the prices of the finished products on the shelf remaining stable, above all in mature markets, investments in new machinery will become more and more attentive and our customers will try to extend the life cycle of their capital assets. So we envisage a 2019

Alessandro Granucci, sales manager EMEA, Fabio Perini

Giovacchino Giurlani, chief technical officer, Futura

Walter Tamarri, sales and marketing director, PCMC Italia

Çınar Ulusoy, general manager, Innovative Converting Machinery (ICM)

Fabio Berti, area sales manager, Maflex

Enrico Ruglioni, European sales director – tissue, MTorres rich in projects focused on optimising production efficiency and reducing operational costs. With this view in mind, analysing the data coming from the production lines and from individual machines becomes an enormous added-value because they allow our customers to immediately identify and analyse improvement points as far as maintenance and process are concerned.

"We began helping our worldwide customers in this realm already in the course of last year, providing them with our 'Digital Tissue' solution comprised of a set of HW and SW solutions capable of analysing efficiencies and improving the production processes of complete converting and packaging lines. In the last six months of 2018 we started-up several collaborations with the world's major tissue producers to collect and analyse data coming from over 60 production lines comprised of Fabio Perini machines. As of today, the results are very promising and spur customers to increase their investments in digital solutions to develop their smart and integrated factories."

"OUR TECHNOLOGY HAS ALWAYS AFFORDED FLEXIBLE LINES OFFERING THE WIDEST PRODUCTION WINDOW AS FAR AS BOTH THE TYPE OF TISSUE TO BE CONVERTED AND THE TYPE OF PRODUCT (TOILET ROLLS AND KITCHEN TOWELS) TO MANUFACTURE AND TO PACKAGE ARE CONCERNED. IT IS NOT BY CHANCE THAT IN JUNE 2018 WE PRESENTED OUR NEW CONSTELLATION S6 IN A COMPLETE CONVERTING AND PACKAGING LINE."

ALESSANDRO GRANUCCI

Giovacchino Giurlani, chief technical officer, Futura: "Continuous technological progress is fully expected in the converting sector today and this will continue to be the case in 2019, with the added element of digitalisation, through which the data collected from the machine's production history can be used to advantage.

"This information, when used to establish trends and define appropriate courses of action, allows us to plan maintenance, optimise performance and intervene before a problem arises, thus reducing downtime and maximising OEE.

"For us at Futura, efficiency and process control are core perameters, not only because they make life easier for operators, but also because of the positive impact on productivity and output. It is about making the line simpler and safer to operate, while offering the consumer a product of superior quality, fully traceable and guaranteed."

Carlo Berti, sales director, Gambini: "The new converting technologies have to be innovative and able to maximise the whole efficiency of the lines while ensuring the high quality of the rolls produced.

"Today, Gambini is focusing on the development of increasingly advanced and cutting-edge technologies, especially in the areas of embossing and rewinding, in order to respond to the increase of the raw materials' costs that force converters to become more and more competitive.

"Therefore, nowadays it is becoming progressively important to use converting lines able to optimise the production

"ALL MACHINES OF THE TOUCHMAX FAMILY ALLOW THE MANUFACTURING OF MANY DIFFERENT PRODUCTS WITH EASILY INTERCHANGEABLE PATTERNS BY SELECTING EMBOSSING ROLLS FROM THE HMI CONTROL PANEL. THE FACT THAT IT IS NOT NECESSARY TO REPLACE, ASSEMBLE OR REMOVE ROLLS TO SWITCH FROM ONE EMBOSSING PATTERN TO ANOTHER, MEANS THAT ALL OPERATIONS ARE CARRIED OUT IN COMPLETE SAFETY."

CARLO BERTI

process, drastically reduce downtimes and guarantee the minimum environmental impact with a strong energy saving."

Çınar Ulusoy, general manager, Innovative Converting Machinery (ICM): "Artificial intelligence, cloud technologies and applications are nowadays leading technologies that have influence in all parts of the machinery industry. As an Innovative Converting Machinery manufacturer, we are also observing, applying and following these technologies."

Fabio Berti, area sales manager, Maflex: "Maflex has already achieved top levels in terms of technology, reliability and flexibility. We have always been known for our reliable industrial converting lines. The demand for consumer converting machines increased last year and it will rise in 2019. Our R&D keeps improving our automatic consumer converting lines in order to meet this demand. Our lines are equipped with the latest technologies on the market. We have already started down the road of extreme flexibility. After our HERMES, the most extreme flexible automatic rewinder in the market, this year we will show our new HERACLE Embosser Laminator. It is equipped with an automatic roll change system performed by the operator panel."

Enrico Ruglioni, European sales director – tissue, MTorres: "The market trend that we are experiencing directly is a higher request to maximise flexibility. The challenge, from a manufacturer's point of view, is to manage to offer the highest level of line flexibility without sacrificing efficiency, while still keeping machines simple to operate."

Walter Tamarri, sales and marketing director, PCMC Italia: "We believe that technologies that improve safety, enhance sustainability, and address E-commerce trends will lead the marketplace in 2019.

"The combination of our INVISIBLE-O and FORTE rewinder creates a perfect NO CORE ROLL, capable of combining a great technological idea with the traditional concept of a toilet roll but without altering the consumption habits of the product, yielding economic and environmental advantages at the same time. This technology allowed tissue manufacturer Essity to win the "Product of the Year" award for marketing innovation in France.

"For every action there is an environmental impact; the end user is becoming more conscious and starting to choose products that entail less waste. NO CORE ROLL is 100% usable paper all the way to the end and the consumer uses all the money they spent. This special attention is not only on the roll and on its use but also on the production process itself."

TWM/2: What features are you incorporating to minimise downtime between changes in print design, embossing design or roll format?

Granucci: "For Fabio Perini, product change is a holistic process developed together with our customers that starts from the marketing aspect up to the shelf. Discussion together with the customer's marketing is always a key moment and after the product to be launched on the market is identified, through 3D simulators and pilot lines we are able to present a finished product that, once approved, is manufactured on the production lines. And all in an extremely short span of time.

"Our technology has always afforded flexible lines offering the widest production window as far as both the type of tissue to be converted and the type of product (toilet rolls and kitchen towels) to manufacture and to package are concerned. It is not by chance that in June 2018 we presented our new Constellation S6 in a complete converting and packaging line, making product and pack change without interrupting the production flow."

Giurlani: "Futura has always focused on giving its lines maximum flexibility. Our printer, the first in the sector with independent motors, remains the benchmark in terms of flexibility, including where the design follows the sheet perforations, as is now the case in many markets.

"The JOI embosser has also been developed with particular attention paid to flexibility and can in fact make most of the products demanded by the market simply by changing the embossing rolls, without the need to make mechanical changes, remove or reassemble parts or move from nested to point-to-point for example. With Andromeda's robotic system, roll change is fully automated, adding maximum safety to flexibility."

Berti (Carlo): "TouchMax is the Gambini brand for a range of innovative and flexible embosser-laminators, which is nowadays a benchmark for tissue converters. It allows maximising the efficiency of the production process while greatly reducing downtime in terms of easy product changeover, versatility and always guaranteeing high performances.

"The TouchMax family is comprised of the TouchMax (for formats up to 2.8m), the TouchMax.Large (for formats up to 3.6m) and the TouchMax.Twin, which has a double set-up and the possibility to add Point-to-Point and Point-to-Flat configurations.

"All machines of the TouchMax family are completely automatic and allow the manufacturing of many different products with easily interchangeable patterns by selecting embossing rolls from the HMI control panel. The fact that it is not necessary to replace, assemble or remove rolls to switch from one embossing pattern to another, means that all operations are carried out in complete safety for the operator in "zero time".

"TouchMax represents the best answer to satisfy the tissue converters' needs to maximise production capacity, minimising costs and operating time; in full respect of an easy-to-use philosophy, safety, flexibility and modularity."

Ulusoy: "Digitalisation is the future to minimise downtime between changes in printing design. Single minute and tool-less applications will be more involved in the change-overs."

Berti (Fabio): "The strategy of Maflex is focused on flexibility in all our machines. We have designed our machines to be more automated which results in reduced

downtime. We rely on our close relationship with our customers and respond to their feedback as to how our machinery needs to meet their current and future product specifications, production schedule complexities, and need for minimal maintenance downtime.

"Our fully automatic continuous rewinder HERMES, thanks to our precise log transfer system, allows the operator to do all product format modifications by panel. This includes core diameter, sheet length, sheet count and log diameter. We are currently concentrating on our Embosser Laminator HERACLE, with an automatic roll change system which can change the rolls without breaking the paper. The non-running rolls are stored in an area that allows for an unlimited possibility of patterns to be used. These machines along with our push button change-overs for our tail sealers and our electronic universal clamp on log saws, makes us the most flexible leader on the market."

Ruglioni: "We have been continuously working on these three topics, and came out with state of the art solutions. In terms of the printing process with our PRINTECH machine, taking advantage of its gearless technology and cantilevered assembly of the cliché rollers, their replacement is easy and fast being completely tool-less and with a high level of automatisation. Touching the topic of embossing with our MULTIFUNCTION embosser/laminator we brought the concept of flexibility, not only in changing embossing pattern, but even extending the concept to radical changes as, for instance, when a changeover of lamination is required (i.e. from point to point to nested and vice versa). With the same principle, we extended this flexibility even to different roll formats, including automating even the procedure of switching from one paper format to another different one."

Tamarri: "PCMC has developed different systems for pattern changeover; A.R.C.O., Automatic Rolls Change Over, available for the NT Series Laminators, an intelligent system to manage the rolls from outside the protection guards, in a condition of total safety and without the need to break the web and re-threading. A.R.C.O. is also equipped with a vertical warehouse positioned downstream of the embosser for the storage of steel rolls in order to optimise and share the rolls with other lines on the floor.

"Our innovative process embosser-laminator OMNIA was recently introduced into the American market. It includes an option for automatic steel roll removal for an easy vertical pick for the pattern change, a hydraulic-free embosser, all in a compact footprint.

"PCMC Packaging has also introduced a closed-loop motorised adjustments system to provide quick and repeatable change from one format to another. This sturdy and reliable closed loop positioning insures that operators can quickly restore machine settings to proven recipe values, avoiding the need for further adjustments after a changeover. To further assist operators, changeovers are choreographed via operator interface screens that provide step-by-step instructions with operator verification.

"PCMC has focused its energy also on the upstream section of the line, finding solutions to adjust parent reel formats, increase productivity and reduce downtime."

TWM/3: Which particular automation features distinguish your converting technology, and how do they improve production efficiency?

Granucci: "In the realm of 'Digital Tissue', our Tissue Data Cloud "package" allows connecting the production line with our Cloud service for data collection and analysis, providing indications for improvements to increase Overall Equipment Effectiveness (OEE).

"Just a few months after the launch of this service, over 60 are the lines connected, and this provides us with an immediate and concrete understanding of the advantages of digitalisation. It is a service that processes data through different performance indicators that give the customer immediate visibility of the critical process points. Thanks to this analysis, it is possible to detect the possible causes of any malfunctioning also in remote, thanks to the Cloud, and to promptly act preventively. This way we can reduce, if not actually eliminate, machine downtimes."

Giurlani: "Automation at Futura is synonymous with the Andromeda System, and in particular its integrated Robotic Movement System which allows rolls to be loaded, unloaded and spliced with exceptional levels of automation and safety, guaranteeing maximum process continuity.

"It also enables the automatic replacement of embossing rolls and performance of maintenance operations from the backstand to the rewinder.

"The handling of the finished reel and its cleaning are also completely automated. The finished reel is moved, using the integrated crane, to the cleaning system, which removes the remaining paper without damaging the core. Once perfectly cleaned, it is placed on the loading/unloading platform ready to be moved to the warehouse, while a new reel is placed on the unwind stand, all without manual intervention.

"Unprecedented production continuity and operator safety, plus the ability to manage all the machines from a control room, from which several lines can be overseen simultaneously, are also stand-out automation features."

Berti (Carlo): "Our technology has always been committed to its mission of innovation and is focused on minimising waste and maximising production efficiency to guarantee our customers be successful even in the most demanding markets while increasingly reducing the environmental impact.

"One of the most recent innovations that increase the production efficiency of the line concerns the "ATS – Any Time Splice", an automatic parent reel exchange system. It is a machine that is positioned between two unwinders and allows the splicing on a fly a parent reel to the other at any time, while ensuring an important efficiency recovery.

"The system was born to carry out the exchange of the two parent reels at reel-end, but it can be used at any time, both for qualitative reasons and for possible breaks: the great novelty of the device, furthermore, is the ability to avoid useless wastes of

> **"JOI HYDRO-BOND IS A TECHNOLOGICAL REVOLUTION THAT WILL ALLOW THE PRODUCTION OF A NEW GENERATION OF TOILET PAPER."**
>
> GIOVACCHINO GIURLANI

"IT'S REALLY HARD TO IMPROVE THE QUALITY OF CUT FOR MAFLEX BECAUSE TODAY WE ARE AT VERY HIGH LEVEL. WE STABILISED THE CUT IN LADON OPTIMISING OUR CUT PRECISION WITH FIELD PROVEN UNIVERSAL ELECTRONIC CLAMP."

FABIO BERTI

product during the exchange."

Ulusoy: "Diameter control and inline weight measurements are the main features that improve production efficiency in all our related machinery, and serves our costumers' continuous product quality and high standards."

Berti (Fabio): "We have been designing increased finished product specification ranges with our push-button/tool-less change-overs. This helps our customers save time when making large scale changeovers. This also allows the operators to change the machines over quickly, without any need for maintenance and changeover crews. Our name Maflex itself means 'Maximum Flexibility'."

Ruglioni: "Our entire line is engineered and designed in order to reach the maximum level of flexibility. In order to allow this, while keeping the entire line easy to manage, we automated most of the changes that are needed in the day-to-day running of the equipment. This means having a sensible reduction of the downtimes, and a related increase of the overall line efficiency."

Tamarri: "The challenge in recent years has been to provide systems for overall plant efficiency: rewinders able to grow together with customers thanks to upgradable systems, multipurpose lines that can process both soft and tight windings. The DoubleGeometryTechnology applied on the winding nest on our Amica UNICA allows producing TRUE consumer and industrial products. Another example of efficiency is represented by our FORTE: it remains the unmatched standard in rewinders for operator and maintenance accessibility. It can quickly and easily switch between the production with core and coreless products, with a converting process familiar to operators.

"Our central driven CS Unwind consumes substantially less energy and operator time (including the reduction of crane operations) than traditional unwinds. Our new development on the consumer log saw, XCUT, launched in North America with SMARTFlow Technology, includes features to eliminate air cuts during production, as well as the need for operators to use extensive personal protective equipment (PPE) when accessing the log saw thanks to our Automatic Blade Shielding System and our revolutionary A. B. C – Automatic Blade Changeover.

"The reliability of our packaging system frees up operators for value-added tasks, and our Advanced Line Control techniques ensure consistent production by minimising process stops."

TWM/4: What new ways are you ensuring that the quality of cut is consistent?

Granucci: "Many parameters must be considered and configured in order to obtain a precise cut with high log saw performance and increased blade life. Today, many of our customers make constant product changes with different roll diameters, densities, coreboard and using different types of tissue. The operator must hence keep log saw parameter changes always updated in order to obtain consistent quality cuts. With the increase in the level of automation and intelligence of our machines, we have also enhanced the level of repeatability of the process, reducing the potential sources of variability that an operator with little experience is unlikely to be able to detect and manage. Today, for example, we can record the parameters on cutting recipes for each individual product and check the wear of the grinding wheels and their sharpening by using servomotors, up to blade change that takes place automatically. All this has intrinsically also afforded an increase in the level of operator safety on the machine and an increase in production efficiency."

Giurlani: "We have developed a digital system to check the bevel of the blade in real time. In Futura's cutting system, the bevel is constantly measured while the machine is running, and sharpening is automatically adjusted accordingly. Only when automatic regulation is unable to compensate for deviations is an alarm sent requesting operator intervention. The system guarantees a consistently perfect cut and reduces costs, as blades are no longer replaced regardless of their actual condition."

Berti (Carlo): "In order to guarantee a good quality of the product cut, important steps have been made in the field of blade sharpening. We focused on developing more reliable, efficient and performing cutting systems."

Ulusoy: "ICM ensures the quality of cut for consistency with continues measurements and analyses of the diameter, width and the temperature of the blade."

Berti (Fabio): "It's really hard to improve the quality of cut for Maflex because today we are at very high level. We stabilised the cut in LADON optimising our cut precision with field proven universal electronic clamp. This includes our new version LADON PLUS with dual orbit system to increase speed on smaller diameter logs. All of our log saws allow for tool-less product changeovers. The LADON Industrial series is able to perfectly cut from 90mm to 330mm and consumer HESPERIA series cuts logs from 90mm up to 200mm of diameter.

"We partner with the best suppliers on the market to ensure our log saws are equipped with the newest technologies available. These systems include maximum control of the blade and orbit speed, grinding adjustments, excellent vibration detection system, and a VORTEX cooling device. Additionally, our universal electronic clamp can adjust its pressure according to product cut. It's impossible to list all the functionalities on our machines in just a few sentences; we invite you to visit our recently renovated manufacturing facility to touch our latest new technologies with your hands."

Ruglioni: "Consistency of cut is, for sure, one of the most relevant points as we talk about product quality. Our PROTECH log saw grants a high-level consistency of the cut thanks to its double frame structure that prevents from having slanted cuts, and a more effective usage of the log saw blades, taking advantage of our double bevel grinding system."

Tamarri: "This phase of the process requires particular attention. For this reason, R&D activities have been oriented towards standard and customised solutions in order to meet customers' needs. Sensors for sharpening optimisation and micrometric adjustments to increase machine reliability and repeatability, checking actual working time and greatly reducing maintenance interventions. One of the possible options to ensure consistent quality of the cut is a technology that eliminates air cuts. This means that, for a given roll throughput, the cut rate can be set at a lower speed that typically leads to a more consistent cutting quality. Of course, the system can also be leveraged for higher throughput compared to a traditional log saw with air cuts while maintaining quality standards. We have coupled high-resolution web guiding with precision side-shifting to maintain good web quality through to the end of the log, which provides the log saw with the best possible opportunity for a good quality end cut. This new technology takes advantage of this, delivering even shorter and lower weight trims."

TWM/5: Identify some areas of technology in which your converting systems really stand out.

Granucci: "From a production standpoint, certainly Constellation, our rewinder that last year broadened its range with the S6 version, designed for medium-high production volumes and offering the best winding quality amongst all the converting technologies present in the market today.

"From the point of view of digitalisation, Digital Tissue, our "digital value proposition", that just a few months after its launch is already providing great satisfaction for our customers in creating their own smart factory thanks to our "smart" lines.

"Generally, it is worth noting that 2018 was a very important year full of investments in North America. We were chosen as Best Supplier for almost all the converting projects taking place on the American continent. This is also thanks to our strategic decision to attend Tissue World Miami together with MTC and Engraving Solutions, presenting ourselves as a complete technological partner for all production solutions for tissue, roll and folded product development and solutions for factory digitalisation."

Giurlani: "First, we would highlight all the automation features mentioned previously.

"Another example is our new JOI Hydro-bond technology, which is unique in its ability to guarantee perfect lamination of toilet paper simply using water instead of glue.

"It is the result of an experiment that FuturaLab concluded after several months of work, testing the technology under real operating conditions and on many types of paper, including conventional and structured.

"JOI Hydro-bond is a technological revolution that will allow the production of a new generation of toilet paper. It is a critical step in the direction of sustainability, efficiency and economy for manufacturers all over the world."

Berti (Carlo): "Definitely the embossing area is one of the applications in which we are masters, even though we are developing important innovations also for the rewinding process.

"However, a stunning breakthrough in tissue converting was born with Gambini's revolutionary new technology "AirMill" which creates additional value in tissue converting as well as new opportunities in the paper mill process. AirMill anticipates the essence of innovation giving the paper characteristics that before could only be obtained in the paper mill.

"Today, textured and structured paper provide very high quality but can only be produced in the paper mill, and requires large investments. However, starting from conventional paper (Dry Creped Tissue – DCT), AirMill technology creates a new type of paper with characteristics similar to textured paper whilst improving its bulk, softness, absorbency, strength and stability.

"Gambini's new AirMill represents a bridge between the paper mill and the converting activities. It ensures the optimisation of the process while keeping the properties of the paper and limiting the use of all types of resources: from economics to energy, chemicals and raw materials. It is a machine which is perfectly in line with the new sustainability trends."

Ulusoy: "In the last decade, ICM has created a very rare and unique unit which makes it possible to laminate 3ply paper with three embossing and two lamination applications in one unit. With this important innovation, it's possible to emboss three and more ply tissue paper together to improve product quality.

"VENUS – our innovated new V fold facial and towel folder line with auto transfer, Kraft and PE wrapping, and many add-ons and options. We presented our new VENUS line in Tissue World Istanbul in 2018 and since than we have received a lot of interest in our auto transferred V fold line."

Berti (Fabio): "Traditionally, at Maflex we are leaders in easy and fast product-change and we are well-known for our extreme flexibility.

"Talking about machines, LADON PLUS, our new industrial log saw version, is now a must have in every flexible converting line."

Ruglioni: "It is quite hard to mention something in specific as our solutions, from unwinders until log saws, are developed in order to guarantee to our customers the highest levels of flexibility and productivity. Our SWING lines, capable of converting consumer and AfH rolls, well summarise both concepts and shows how deep their correlation is. Our SWING lines, capable of producing both Consumer and AfH rolls, demonstrates our commitment to flexibility."

Tamarri: "Our INVISIBLE-O technology is a true innovation: it guarantees a roll without the core, usable from the first to the last sheet, with a level of quality never attained before on a coreless product. A practical product, attentive to savings, attentive to the environment. It represents an advantage for everyone, not just for the converter. The final consumer uses everything purchased at the supermarket, without waste. When this technology is coupled with PCMC Packaging and its ability to run low-gauge film and/or our new Space Saver package format, it provides a step-change improvement in sustainability and new ways of thinking e-commerce.

"Safety is another area of technology in which our converting systems stand out. Examples of safety improvements we are very proud of include the elimination of core plugs and the use of cranes in unwinds, well-planned thread-up systems with no motion while operators are inside perimeter guards, and a safety controller providing device safety diagnostics, safe torque off, and speed monitoring."

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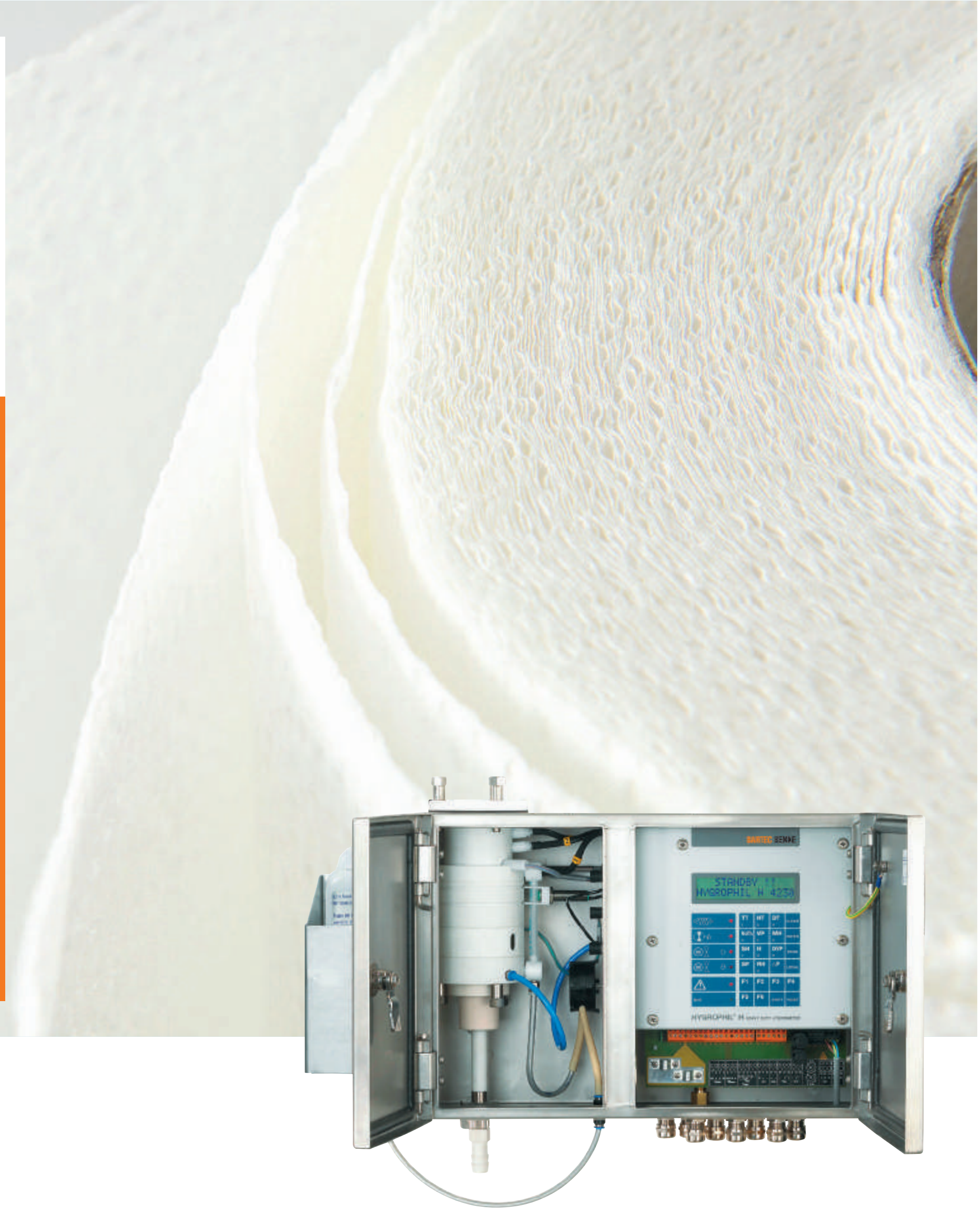

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DISTRIBUTION SPECIAL: TISSUE DELIVERY TRENDS

Access to information the key to optimal supply chains

Pirkko Petäjä
Principal, Pöyry Management Consulting

DELIVERY TRENDS

There are a few trends that can be identified in the internal supply chain and delivery related matters. An important trend is the customer centricity. Customer requirements determine the developments in the deliveries from tissue company's mills, warehouses and distribution centres to retailer and distributor company warehouses and even for the on-line deliveries. The requirements for delivery time, packaging sizes, transportation means, etc, are after all mostly driven by what the customer wants, needs and appreciates. Fast deliveries are only developed because clients may choose supplier based on the lead time rather than price or product quality. It all starts from the customer needs and preferences.

Another delivery trend is sustainability. Ecologic solutions can be requested by the direct customers, but even the general attitude that is strongly for sustainable, environmentally friendly solutions is enough to impact the companies to search for sustainable solutions to improve the company image and perception in the public. It starts from resource efficiency in the supply chain, including logistics, reduction of plastics in the packaging and sustainable solutions in the transportation. Avoiding long transportation distances and using environmentally friendly transportation means are key for increasing sustainability in the delivery. Rail transportation decreases the CO2 emissions and climate impacts and is favored when available, which is unfortunately rather rare. For the same reason environment friendly fuels are appreciated in the truck transportation. New technical solutions and automation trends can also have some positive environmental impact.

If a tissue producer or retailer can claim to use sustainable solutions in the delivery, often together with sustainable solutions in production and the whole supply chain, it can impact the final consumer's choices. Sustainable technological solutions may be difficult to communicate in the bulk business, but in the limited on-line occasions it can be for instance delivery by bicycle – and it is surely advertised.

IF A TISSUE PRODUCER OR RETAILER CAN CLAIM TO USE SUSTAINABLE SOLUTIONS IN THE DELIVERY, OFTEN TOGETHER WITH SUSTAINABLE SOLUTIONS IN PRODUCTION AND THE WHOLE SUPPLY CHAIN, IT CAN IMPACT THE FINAL CONSUMER'S CHOICES. SUSTAINABLE TECHNOLOGICAL SOLUTIONS MAY BE DIFFICULT TO COMMUNICATE IN THE BULK BUSINESS, BUT IN THE LIMITED ON-LINE OCCASIONS IT CAN BE FOR INSTANCE DELIVERY BY BICYCLE – AND IT IS SURELY ADVERTISED.

Increased automation and interest in advanced technical solutions is clearly a significant trend in tissue delivery operations. Of the technologies generally seen as futuristic, automation already has the weight of evidence behind it. Retailers and logistic companies are achieving demonstrable results both in automation of transportation and in warehousing. As for automation of transport, the progress is likely to be largely in the software side of things rather than physical infrastructure of vehicles. Self-driving trucks and vans are still some way off, but software can be used to automatically manage things such as vehicle scheduling. Investments in automated warehouses and more and more automated order handling in tissue mills shorten delivery times, increase volume throughput and reduce costs.

In the tissue sector several suppliers offer automation in the converting and warehouse areas. Their software platforms and technology guarantee the customer companies the means for optimal management of all logistic operations from the entry of raw material to the complete management of warehouse and shipments. This type of system has been applied by forerunner companies, such as for example Sofidel.

HOW TO IMPROVE PERFORMANCE IN THE TISSUE SUPPLY CHAIN?

There are opportunities for performance improvement at the end of the tissue supply chain in finished product warehousing, distribution and order handling to external warehouses and retail. One key point is the accuracy of sales forecasting and its impact on production planning. With a developed software platform and information handling a tissue producer can better manage the production planning, warehousing and shipments. Digitalisation and automation may help to provide information to optimise production batch sizes, changeover policies, production sequencing etc. However, not only is the information that is available of importance, but also that the producer can use it the best way. Pöyry has services where the improvement potential in the supply chain operations is identified and the required changes to fill the performance gap are executed.

The realisable Execution Gap (improvement potential) is comprised of both cost saving and throughput improvement opportunities. These improvements are available especially through management process changes. This Execution Gap consists of items focused on existing gaps in sales and customer service processes, production planning, as well as supply chain management. Savings of between 8-12% can be realised through sales and supply chain improvements, which typically translates to 0.8-1.8% EBIT, depending on project scope. The performance improvements feed directly to the bottom line or drive top line revenue growth.

Above: *From Who Gives a Crap, a promotional campaign*

Automated delivery: *Promotional campaign for drone service*

WHY IS ON-LINE BUSINESS IMPORTANT?

On-line business can create a direct contact to the consumers and therefore increase the availability of the market information that helps to manage the supply chain. Tissue on-line business is increasing, but is still nowhere near having any significant share of tissue sales. This is especially true for the consumer segment, while in the AfH segment at some part of the supply chain E-commerce and direct on-line sales can be more common.

Bulk of the on-line tissue sales for consumers is likely to follow similar development as e-commerce of groceries, as these are normally purchased together. The on-line grocery business is very much in the hands of existing retail chains. However, also specified e-commerce companies like Amazon sell tissue products as do the e-commerce companies focusing on certain product groups.

On-line sales' impact on delivery and on the information flow is not very significant from the tissue producer's perspective if the order is placed at the retailers or e-commerce companies. It does not make much difference for a producer whether the consumers buy tissue from a store or order it from retailers' online stores.

There are very limited direct on-line sales from a tissue company to consumers. Some specialties like Renova coloured tissues or many napkin providers sell on line, but the question is of well-priced niche business that covers also the delivery costs. One benefit here is, however, the direct contact to the consumers and the information gained.

In the AfH segment the most advanced solutions with sensors in washrooms provide data to both customer companies and the tissue supplier. The tissue supplier can use the data about washroom visitors and refill levels to predict demand development. Through this the sales and production planning and consequently the supply chain efficiency can be improved. These types of innovative ways to source and utilise data offer opportunities to automate and optimise supply chain operations.

ON-LINE MARKETING AND THE BRAND WEBSITES CREATE A CONTACT TO THE CUSTOMERS

Marketing, especially of the brands, is fully made by the tissue companies. No matter how the product is finally sold the brand awareness is created by the tissue company. This concerns also any on-linemarketing targeting to the e-purchase and leading to the page where the purchase can be made. Companies find the on-line connection to the clients important, and maintain mobile sites and mobile support for their clients. This works especially well for hygiene products, such as baby diapers where ratings and prices are eagerly followed and compared at the point of purchase.

Also AfH on-line sales are supported by the brand owner in the on-line marketing through brand web-sites where there is a direct connection to the specific retailer's or distributor's site to order. The information flow the tissue producer gets through connections to the customers can improve their forecasting and production planning and that way the efficiency of the whole supply chain. The forerunners in digitalisation who get their systems ready first will have a competitive advantage until everybody else is on the same level.

CONCLUSIONS

- Client centricity, sustainability, automation and advanced technical solutions are key drivers and trends in tissue deliveries.
- The performance in the supply chain can be improved based on better information flow from the modern delivery solutions, new data sources and better management of the use of the information.
- On-line connections can create a closer relation between tissue producer and the final consumer and improve the important information flow directly from the markets and consumers.

Pöyry Management Consulting is the leading advisor to players within the global Paper, Pulp, Packaging and Hygiene sector. Contact: pirkko. petaja@poyry.com, www.poyry.com

LOGISTICS IS ENTERING A NEW AGE OF EFFICIENCY – BY DESIGN AND NECESSITY

Vittorio Cavirani, general manager, Elettric80, discusses harnessing the virtues of speed, accuracy, safety and traceability through E2E integration of Smart SW solutions. A TWM report.

Vittorio Cavirani
General manager, Elettric80

For years, businesses have worked to improve the efficiency of their production lines. Today, with the advent of the fourth industrial revolution, attention is progressively shifting towards the system's operation as a whole. The focus, therefore, lies on tangibly improving the efficiency of the entire factory process. A necessity and a genuine change in perspective that is gradually affecting the entire market. The crucial point of this transformation is that distribution is experiencing sudden and unprecedented disruptions that have major repercussions on production, market trends, consumer habits and behaviours. Distribution in all sectors, including the tissue industry, is a strategic topic because the margins for improvement and for savings are truly remarkable: from the optimisation of transport, to savings on packaging material, to significant reduction in waste and product damage. For the past few centuries, improvements relied upon the development of transportation and infrastructure, which allowed for the faster, greater and cheaper movement of goods; today, logistics is the key to progress, as the advent of technological innovations such as drones, virtual reality and 3D printing route its future, harnessing concepts such as speed, accuracy, safety and seamless delivery.

This "revolution" was started by E-commerce and the digital economy with

their disruptive effects on organisation and transport, warehouse and delivery management. Thus, the number of steps between manufacturer and end consumer was drastically reduced. This is the context for one of the most significant challenges for distribution in the near future: the logistics of the last mile – that is, the reception of goods by the end consumer, because maximum consumer benefit is achieved when the product is delivered directly to the customer's home with the purchaser present.

Luigi Lazzareschi, chief executive of Sofidel Group with whom Elettric80 and BEMA have collaborated for years, said: "The businesses of the future will be committed to deliver directly to the consumer or to a local distributor. Transit times, analysis of availability, information and customisation of goods – including storage methods – will be the factors of major change. The service offered to end customers will make the difference. In this context, in order to create value, the businesses of tomorrow will rely more and more on systems and technologies which increase control over processes and products, improving speed and efficiency of logistics both inside and outside the factory."

Whether they will succeed in this is another matter. What is required is undeniably the complete optimisation of all processes, which necessitates a supply chain without any weak links, from the entry of raw materials all the way to the product's arrival on the market.

"The choices made by our companies are heading in that direction and allow us to make factories which are increasingly automated and integrated, capable of adapting to the market needs quickly, and where every process is traceable and under control" said William Nelson, president of Elettric80 Inc & Elettric80 S de RL.

"Elettric80 and BEMA are leading the way", added president Enrico Grassi. "By attentively listening to market needs, availing of continuously evolving know-how, hardware and software, and by exploiting a clear-cut vision. An intelligent company solves problems; a wise company avoids them. We aim to be a wise company."

ELETTRIC80 AND BEMA HAVE BEEN COLLABORATING WITH ITALIAN TISSUE GIANT SOFIDEL FOR MANY YEARS. LUIGI LAZZARESCHI, CHIEF EXECUTIVE OF SOFIDEL GROUP, SAID: "THE BUSINESSES OF THE FUTURE WILL BE COMMITTED TO DELIVER DIRECTLY TO THE CONSUMER OR TO A LOCAL DISTRIBUTOR. TRANSIT TIMES, ANALYSIS OF AVAILABILITY, INFORMATION AND CUSTOMISATION OF GOODS, INCLUDING STORAGE METHODS, WILL BE THE FACTORS OF MAJOR CHANGE."

This article was written for TWM by Vittorio Cavirani, general manager, Elettric80.

DS **Special Feature: Distribution**

SMART FACTORY ROBOTICS AND AUTOMATION HAS COME TO THE RESCUE

Early adopters are reaping the rewards now. In a world where speed to market is critical, future advances in AI will only further strengthen the technical leaders. By Paul W. Hill, business development manager, Reko Automation Division.

DS

Paul W. Hill
Business development manager, Reko Automation Division

To meet the increasing labour challenges within the manufacturing landscape of the CPG tissue industry, some early adopters have gained an advantage by implementing the latest automation technologies. This strategy has allowed them to manufacture more efficiently in today's tight labour market. These technology investments also enable manufacturers to be more competitive in a market of increasing demands and diverse packaging configurations.

In 2018, Reko International completed a multi-million-dollar investment to expand its automation facilities in Windsor, Canada. Given the growing demand for factory automation solutions across multiple industries, this expansion allowed Reko to extend both the breadth and depth of their automation products and services.

Automation services in the CPG-Tissue industry can start with a collaborative automation Landscape Assessment of the facility. Helping clients review the plants processes to develop a game plan for specific areas of production is key. This work includes inter process feasibility studies, ROI calculations, engineering layouts, partnering efforts and equipment proposals. The end goal is to introduce and implement helpful leading technologies to the plants and for the technical leaders, that eliminate mundane operator tasks and repetitive zero-value added work. Target areas for these new technologies and equipment range from; main product manufacturing assets, inflexible packaging equipment all the way to the raw material/finished goods warehousing and distribution. The latest Smart Factory Automation Equipment provides improved quality control through advanced vision inspections to further improve flexibility, productivity and efficiency. These developed technologies stimulate industry leaders to optimise their in-house processes along with tightening up the interfaces to their suppliers and customers.

Smart Factory Robotics & Automation is revolutionising how manufactures produce their products. Emerging technologies are one of the keys to future CPG-Tissue product manufacturing success. Advanced factories use Industry 4.0 technologies to link together groups of automation cells that move plant-wide efficiency to a new step change level. These technologies improve quality and reduce costs by enabling predictive, corrective and adaptive processes and inter-processes.

This interconnectivity changes the rules of the game requiring more thoughtful and interesting activities of the plant staff.

The current manufacturing community continues to confront the realities of how to staff boring routine work in an unfulfilling environment. This can fuel a perpetual revolving door of people and talents doing what they do not want to do.

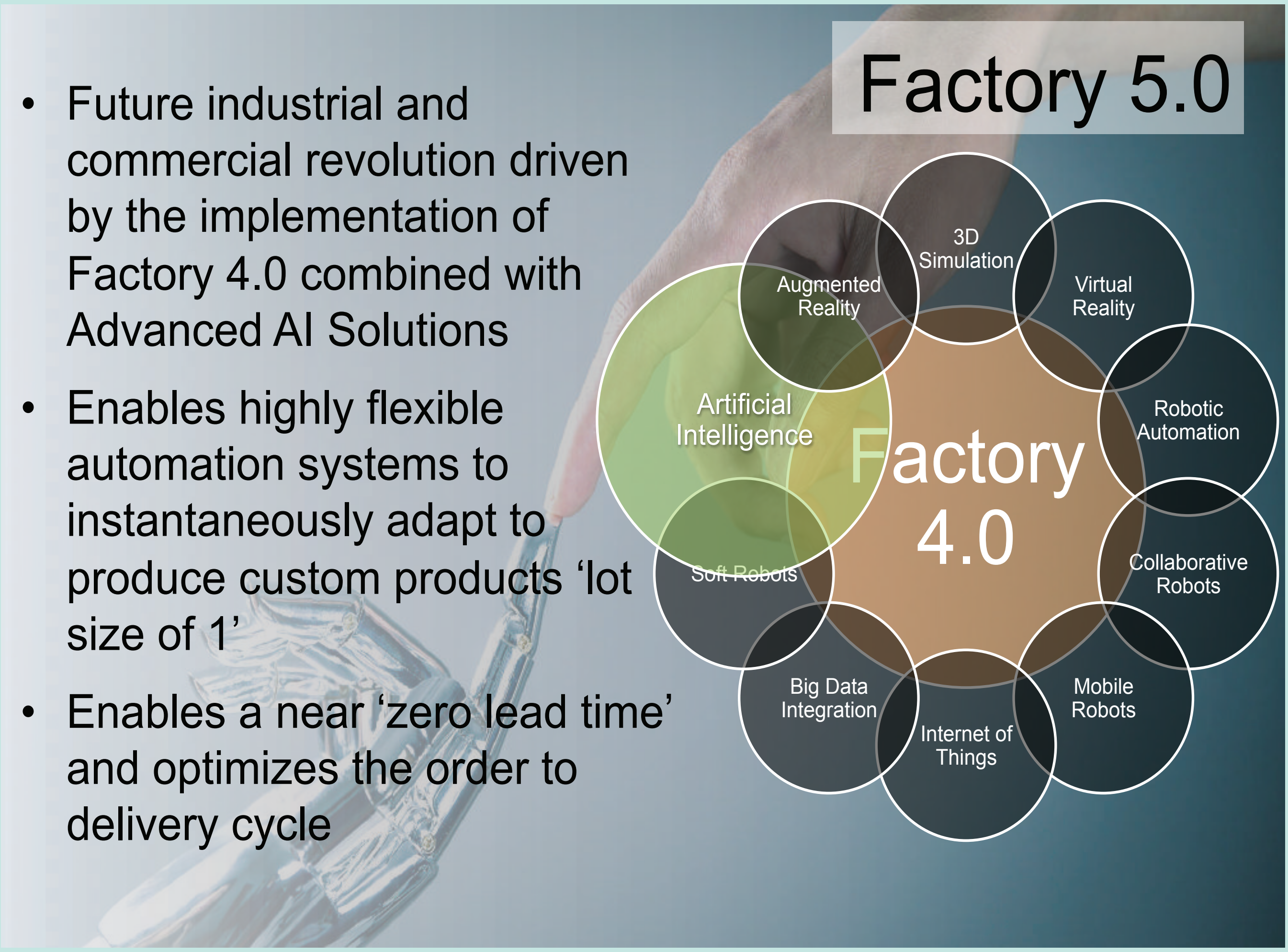
Fortunately, today more than in a long time, the new focus is moving away from off-shore manufacturing and towards enabling their teams to be composed of highly trained technical leaders to achieve the next level of productivity. The realities of short lead times and order to end-user timing is critical to the survival of these business units.

Combining these forces with those that drive E-commerce and increasing online purchasing behaviours, creates a very dynamic and difficult operation without the aid of advanced manufacturing technologies.

Today, Reko has much to offer with its strong client relations and advanced technology equipment. CPG-Tissue industry customers are now also enjoying the results

AUTOMATION SERVICES IN THE CPG-TISSUE INDUSTRY CAN START WITH A COLLABORATIVE AUTOMATION LANDSCAPE ASSESSMENT OF THE FACILITY. HELPING CLIENTS REVIEW THE PLANTS PROCESSES TO DEVELOP A GAME PLAN FOR SPECIFIC AREAS OF PRODUCTION IS KEY. THIS WORK INCLUDES INTER PROCESS FEASIBILITY STUDIES, ROI CALCULATIONS, ENGINEERING LAYOUTS, PARTNERING EFFORTS AND EQUIPMENT PROPOSALS.

of the company's advanced engineering and design tools. The latest in 3D VR Virtual Reality simulations help customer teams visualise, interact and prove out a designs digital twin, virtually prior to 'cutting metal'. This technology allows for a shortened and complete decision-making process to help



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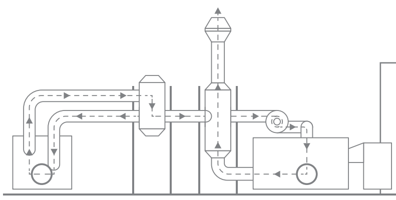

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EIL
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facilitate faster equipment deliveries that meet customer expectations with the latest Smart Factory Automation. Support for this real-time automation is provided using AR - Augmented Reality technologies. Enhanced AR remote support, training and real time data collection improves the availability, efforts and measures for the operations and maintenance personnel.

Collaborative Robots are another technology being implemented to automate many tasks without the need for robot guarding. Human-machine collaboration and safety is at the core of these new technologies. Mobile Robots technologies now provide navigation and planning systems that permit the transportation of products without the erratic and sometimes dangerous use of fork lifts. The Internet of Things sets up the enabling communication framework and protocols for smart devices to function collaboratively, make some decisions and feed data to other controllers. Big Data Integration is occurring simultaneously and in conjunction with Smart Factory Automation allowing software networks to store process data for analysis by upstream or downstream process controller.

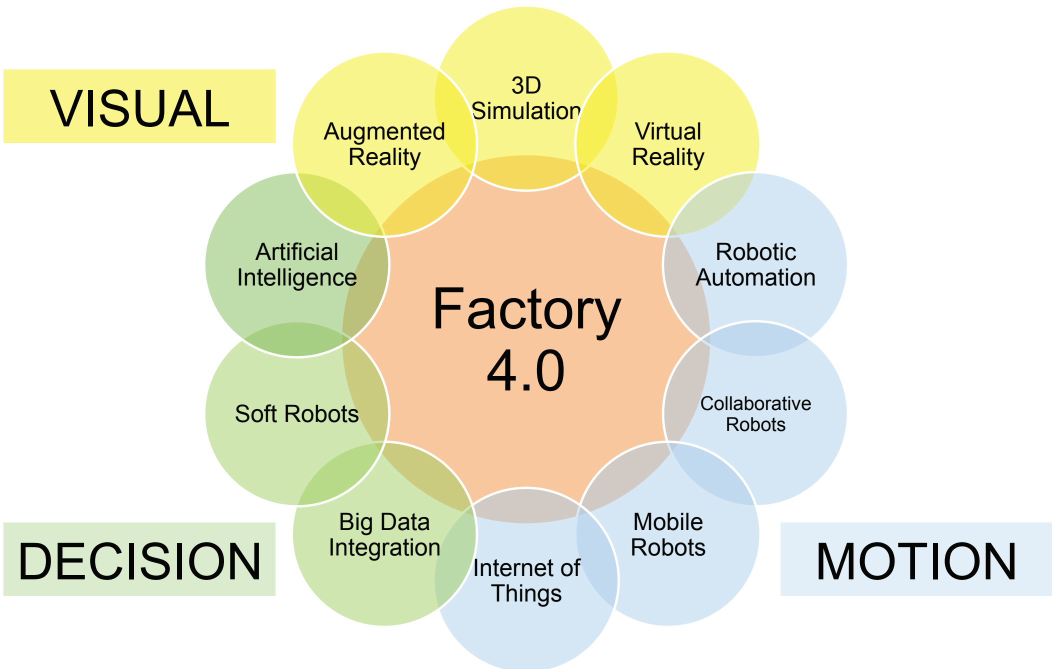
Industry 4.0 technologies relating to Smart Factory Robotics and Automation are just beginning to be combined with Advanced AI Solutions, to be known in the future as Industry 5.0. The future impact of Artificial Intelligence (AI) will allow advanced real time decision making using the interconnectivity of data. We live in a world now where speed to market is critical. In the future, an ultimate batch size of 1 may be produced and speedily delivered, profitably. Fully tailored online orders. Smart Factory Automation will drive the journey to combining an ultra-flexible process, capable of many variants, higher production volumes with a multitude of products.

Industry leaders are taking note that they can no longer compete based upon searching out cheap labour and just assume they will be successful. Success comes from applying the latest technologies and having a technical staff that can do the things robots cannot do, while at the same time enabling the robots to do what people otherwise do not want to do. Industry is stepping away from the drudgery of manual and tedious responsibilities. With a modern-day perspective, factories can be rescued from a continuous and repetitive HR demand and improve the working environment through the application of Smart Factory concepts and technology. Automation experts are one of the architects that will help the industry remove the mundane, strenuous and hazardous duties that hamper our progress today.

Smart Factory Automation has come to the rescue by eliminating costly temporary labour cycles to provide a better way for countries to retain manufacturing and remain competitive by investing in advanced manufacturing solutions*

COLLABORATIVE ROBOTS ARE ANOTHER TECHNOLOGY BEING IMPLEMENTED TO AUTOMATE MANY TASKS WITHOUT THE NEED FOR ROBOT GUARDING. HUMAN-MACHINE COLLABORATION AND SAFETY IS AT THE CORE OF THESE NEW TECHNOLOGIES. MOBILE ROBOT TECHNOLOGIES NOW PROVIDE NAVIGATION AND PLANNING SYSTEMS THAT PERMIT THE TRANSPORTATION OF PRODUCTS WITHOUT THE ERRATIC AND SOMETIMES DANGEROUS USE OF FORK LIFTS.

This article was written for TWM by Paul W. Hill, business development manager, Reko Automation Division.



TISSUE TAKES ON THE LOOMING ISSUE OF RAPID DECLINE IN P&W

Costs concern as the supply and use of printing and writing papers - the primary source of recycled fibre for tissue/towel production – is declining rapidly as the digital world takes over. Bill Moore, president, Moore & Associates, addresses the key issues.

Bill Moore
President, Moore & Associates

Although the global use of recycled fibre use as a percentage of tissue/towel mill furnish has peaked, recovered paper (RCP, also known as PfR [paper for recycling in Europe]) is still an important raw material for the sector. Figure 1 shows the fibre sources used by the world's tissue mills over the last several decades. Since peaking in the year 2000 at about 50%, recycled fibre (RCF) use has declined slowly to the current level of about 40%. RCF is being primarily replaced by chemical fibre pulp. This decline in recycled fibre by the tissue sector can also be seen in Figure 2, the global usage of RCP by paper and board product grade. In 2008, tissue grades consumed 16.6m tonnes of RCP (8% of world usage), dropping to 15m tonnes in 2018 (6% of world usage).

This decline in recycled fibre usage is being primarily caused by a number of changes occurring in the available supply of the RCP that effect tissue manufacturing. Printing & Writing papers (P&W) are the primary source of recycled fibre for tissue/towel production. Figure 3 shows the global consumption of P&W papers and tissue grades over the last twenty years. From its peak in 2007, global P&W paper consumption has declined from 119.4m tonnes to 98.4m tonnes in 2018. During that timeframe, global tissue consumption increased from 26.9m tonnes in 2007 to 39.2m tonnes in 2018. One needs to note that not all tissue products are made from recycled fibre.

P&W paper grades when recovered make up the RCP grade category deinking high grades (DHG). The world's largest sources of DHG, which are the primary grades of recovered paper used by the tissue sector, are North America and Europe. These developed economies have large usage of P&W paper grades.

For tissue produced from recycled fibre, recovered paper costs are a significant component of the overall production cost. The use of recovered paper in the tissue sector is predominantly in the away from home products, and varies by region with North America (US, Canada and Mexico), Europe, developed Asia (Japan, Korea, and Taiwan), and the Middle East having substantial recycled fibre based tissue production. Much of emerging Asia's new tissue capacity, particularly China (but also

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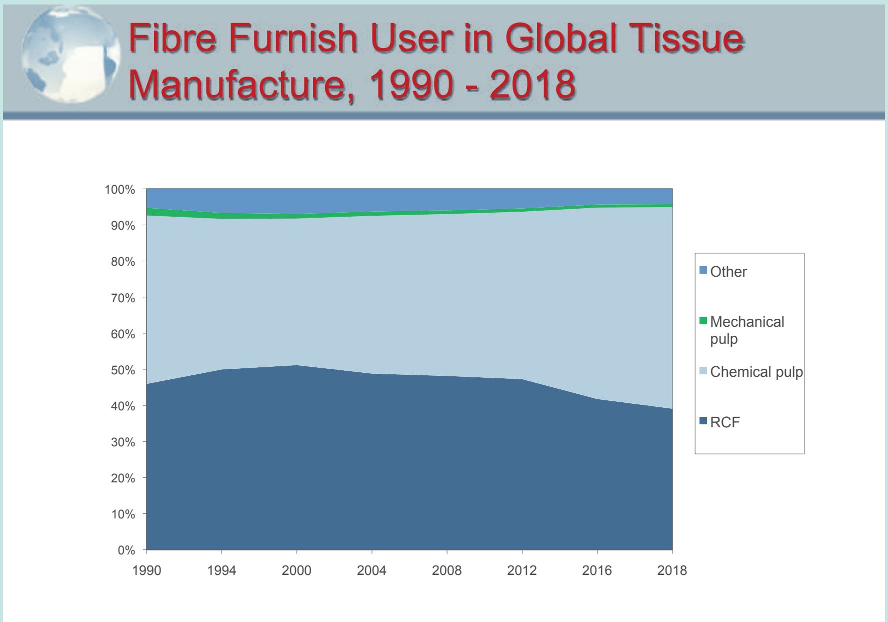


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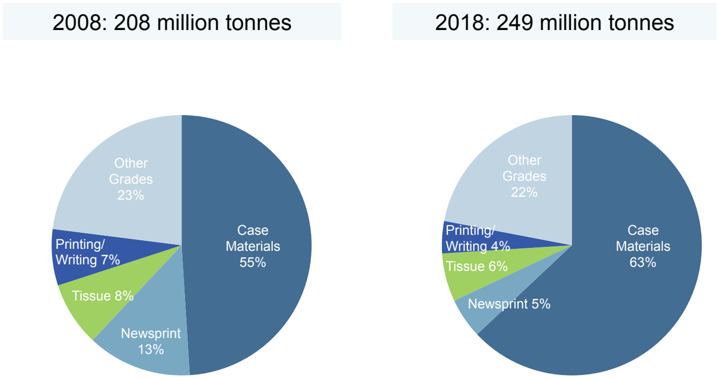
Global RCP Usage by Product Grade



Indonesia and others), and a substantial amount of Latin America's are based on virgin fibre. Because of China's small role in the global DHG market, the country's recent RCP import restrictions have had minimal effect on DHG, in contrast to major impacts on the global OCC and Mixed Paper market caused by the country's significant decrease in imports. However there has been some uptick in DHG demand from China, as some 'cleaner' DHG grades are being substituted for lower quality RCP grades that cannot be imported into China.

The largest grade of DHG is Sorted Office Paper (SOP) followed by the ledger grades and Coated Book Stock (CBS). Traditionally, the sources of these grades of recovered paper have been office recycling programmes and printer scrap. Over the last fifteen years, a major new source of SOP has been from confidential document destruction and shredding of office papers due to both privacy and legislative/regulatory developments in certain areas of the world, primarily North America followed by Europe. Another large source of DHG, the postal services of the world have been declining in the developed economies as electronic communications replace hard copy mailings.

On the demand side, while tissue is the largest user of DHG, there are also several other uses including back into P&W papers production and also making market freesheet deinked pulp. The use of DHG in recycled fibre-based P&W papers is limited to several areas of the world, primarily in the United States, some Western European countries and India. The reason for the limited use of DHG in printing and writing papers is that it is the most uneconomical form of paper recycling because of high yield losses in the deinking process. In comparison, producing away from home tissue products from DHG has been an economical fibre source and is the reason why usage had increased for many decades. The production of freesheet deink pulp and use in P&W papers is declining as overall production of the paper product grades decline.

But a major problem with the supply of DHG looms on the horizon and is even obvious today. The use of P&W papers in the developed economies of the world is declining and rapidly so in the US and several other countries of the world. This will constrain the supply of DHG available for use by the tissue and other sectors. Even with growth in the use of printing and writing papers in Asia, Eastern Europe, and several other regions, the decline in North America, Western Europe, and Japan will more than offset this new available supply. Even the developing and emerging countries of the world are not increasing their use of P&W papers as they 'skip' hard copy documents in favour of electronic communications.

The other major source of DHG, the printing industry, has also been on a steady downturn in the developed world. While the global recession of 2008/2009 caused a downturn in all paper production, the P&W papers and printer sectors were down dramatically. This was not only due to the recession but also a structural trend of producing/printing fewer hard copy documents, which continues to this day and this trend will also constrain the supply of DHG going forward.

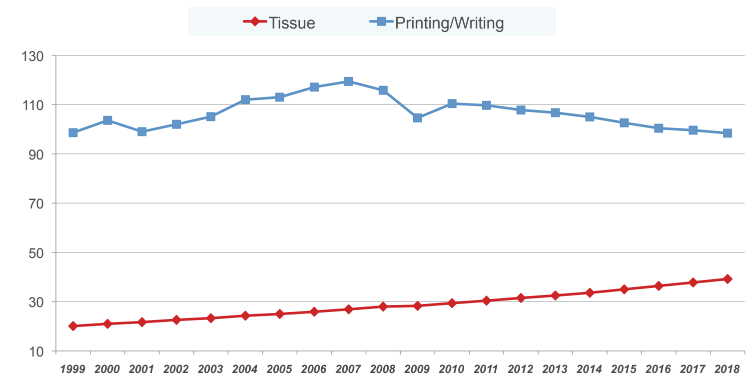
Figure 4 shows the Western Europe balance of Uncoated Freesheet papers (UFS – a large part of the P&W grade category) and DHG consumption over the last five years and projections for the next three years. Over the time frame of 2014 to 2021, UFS usage in the region will decline 1.4m tonnes and DHG demand while declining, will only decrease by 0.4m tonnes.

Figures 5 and 6 have historical prices for two DHG grades used by the tissue sector. Figure 5 is a short term monthly price history for German Multi Printing (Grade 3.10). This chart shows the steady increase in price throughout 2017 and into the first quarter of 2018. For the balance of 2018, the market price remained steady at what we believe is the top of the market cycle, coinciding with the peak of the global bleached pulp pricing cycle. Going into 2019, Multi Printing and SOP have started to slowly decline.

Figure 6 shows longer range US average SOP pricing from the year 2000 through 2018. It is worthy to note that all of the global RCP and DHG markets move together, differentiated only by transportations costs to the end user and currency values. There are several key takeaways from this pricing chart:

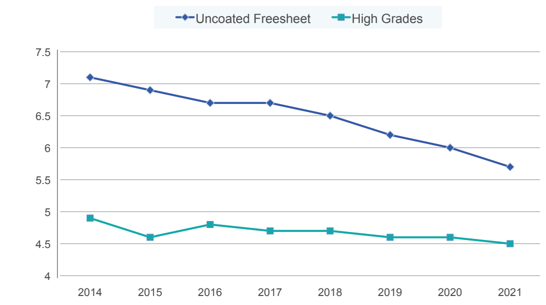
- The 2011 peak of almost $250/tonne represents a good upper bound price

Global Tissue vs. Printing/Writing Usage*



** Million Tonnes: Note, not all tissue is based on recycled fibre*

W. Europe Uncoated Freesheet Usage & Deinking High Grade Papers Consumption*



** Million Tonnes*

for the market going forward.

- While 2018 did not reach the full year peak pricing of 2008 and 2011, early in the 4th quarter the monthly price was above $225/tonne and has started to decline into early 2019, the same as the German Multi Printing price.
- The bottom cycle pricing of $90/tonne in 2001, $110 in 2005, $135 in 2009, and about $145 for 2013 – 2016 (a long trough!) show a progression upward that Moore & Associates believes will continue. This is a classic characteristic of 'supply limited' RCP grade. Expect future bottom cycle prices to increase $5 to $10/tonne in each of the next several pricing cycles.

Coated Book Stock (CBS) the either key DHG used by the tissue sector has many of the same supply and demand characteristics of SOP. High quality book printing (which generates CBS) is static to declining. On the demand side the tissue sector has reduced the usage of this low yield grade by process changes and higher levels of coated paper in SOP. Because of the demand decrease, CBS which for decades traded at prices of an average of 120% of SOP, has been at par with SOP for the last five years and is expected to remain at that level going forward.

While we will always have peaks and valleys in commodities like DHG, the overall trend line for pricing over the next ten years is clearly upwards. DHG prices, however, are bounded by the costs for bleached hardwood and eucalyptus pulp as they can be readily substituted for recycled fibres if prices reach levels that are uneconomical.

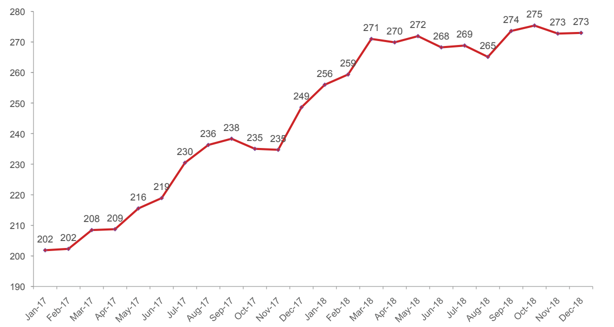
With constrained amount of printing and writing papers going into the available supply, new sources of recovered paper for the recycled tissue industry must be found. One potential source of RCP for the tissue industry is the collection of post-consumer bleached paperboard packaging (both poly coated and uncoated). It is our

Long Term Average SOP Price (US $/ton)

expectation that more and more of these grades will be recovered; however, their total available supply is fairly small.

The growing brown napkin/towel business is based primarily on Old Corrugated Containers (OCC), but we are seeing increased usage of the RCP grade Mixed Paper also in these products. Brown products, particularly napkins, are being favoured by many cost conscious restaurant chains, not only because of price but also because of consumer preferences as to what they see as more 'environmentally friendly' products. While we are currently in a cycle bottom for OCC prices, going forward there is very large new demand for the grade as it is the fibre source of choice for corrugated box production. The good news is that the supply of corrugated boxes is growing, very much related to increased E-commerce consumer purchasing. Mixed Paper currently and for the foreseeable future is priced very low – averaging <$10 tonne in a number of countries. Both the OCC and Mixed Paper market slumps have been caused by the Chinese RCP import restrictions. China was the world's largest Mixed Paper consuming country and their imports of the grade have virtually stopped. Mixed Paper has the lowest recovery rate of the major RCP grade categories, so supply is plentiful. The challenge is the mixed fibre and contaminants found in this 'catch all' grade.

Germany Multi Printing (3.10) Price (Euro/tonne)



The other area seeing renewed activity as a fibre source for tissue manufacturing is non-wood pulps: bamboo, bagasse, wheat straw, grasses, and other agricultural residues. Most of the action on these sources of fibre is still in its infancy, but consumer interest in 'greener more sustainable' products may be an important driver here.

As global recovery rate for all RCP grades increase, it is inevitable that quality is declining. Two factors contribute to this: the 'next tonne' recovered of a material is usually always more contaminated than the easy to get materials, and the collection systems to recover materials are more mixed. While this has affected the low grades of RCP more than DHG, the tissue sector has also seen quality decreases in much of its recycled fibre supply. There is a move to better measure and control RCP quality in many parts of the developed world, with Europe leading the way. These systematic and sometimes real time measurements not only contribute to better being able to monitor and control RCP quality, but for the tissue sector, they may play an important role in the fibre recipe and process operation adjustments based on changing RCP incoming quality and composition. The most sophisticated of these RCP measurement systems can accurately measure full bales for moisture, plastics and other contaminants, ash, mechanical vs. chemical fibres and even brightness.

All businesses face challenges as condition change in their markets. The sources and usage of recycled fibre in the tissue sector presents some significant issues that the industry is working toward meeting.

EVENTS CALENDAR

24-26 MAR 2019	Paper2019	Chicago, USA	www.paper2019.com
25 – 27 MARCH 2019	Tissue World Milan 2019	Milan, Italy	www.tissueworld.com/milan
17 – 19 APRIL 2019	CIDPEX 2019	Wuhan, China	en.cnhpia.org/class/view?id=4
5 – 8 MAY 2019	Papercon 2019	Indianapolis, USA	www.papercon.org
5 – 7 MAY 2019	International Pulp Week	Vancouver, Canada	www.internationalpulpweek.com
14 – 15 MAY 2019	Label Summit Latin America 2019	Medellin, Colombia	www.labelsummit.com/colombia/
26 – 29 JUNE 2019	Paper Vietnam 2019	Ho Chi Minh, Vietnam	www.paper-vietnam.com/
4 – 6 JUNE 2019	Int. Paper Chemicals Tech Expo	Guangzhou, China	www.paperexpo.com.cn/
4 – 6 JUNE 2019	Guangzhou P&P Intel. Equip. Expo	Guangzhou, China	www.paperexpo.com.cn/
4 – 6 JUNE 2019	Int. Pulp and Paper Industry Expo-China	Guangzhou, China	www.paperexpo.com.cn/
25 – 27 JUNE 2019	Zellcheming-EXPO	Frankfurt, Germany	www.mesago.de/en/ZEX2019/home
18 – 21 SEPTEMBER 2019	PackPrint 2019	Bangkok, Thailand	www.pack-print.de
24-27 SEPTEMBER 2019	Labelexpo Europe	Brussels, Belgium	www.labelexpo-europe.com/
9 – 11 OCTOBER 2019	MIAC 2019	Lucca, Italy	www.miac.info
10-12 OCTOBER 2019	China Int. Paper Technology Exhibition	Shanghai, China	www.chinapaperexhibition.com/en/
16 – 17 OCTOBER 2019	Pulp and Paper Asia	Jakarta, Indonesia	www.pulppaperasia.com
22 – 24 OCTOBER 2019	Tissue World Sao Paulo	Sao Paulo, Brazil	www.tissueworld.com/saopaulo
NOVEMBER 2019	EXPOCORMA	Concepción, Chile	www.expocorma.cl
3 – 6 DECEMBER 2019	Paperex 2019	New Delhi, India	india.paperex-expo.com/Home
3 – 6 DECEMBER 2019	Labelexpo Asia 2019	Shanghai, China	www.labelexpo-asia.com/

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- ☐ Consumer (At Home) Finished
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- ☐ Other Tissue Grades, please specify: ____

B. JUMBO ROLL SUPPLIER
- ☐ Jumbo Roll Maker, for sale to converters

C. TISSUE CONVERTER Primary business is making paper and producing:
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- ☐ Other Tissue Grades, please specify: ____

D. RETAILING AND DISTRIBUTION
- ☐ Retailer ☐ Broker ☐ Distributor

E. SUPPLIER TO THE TISSUE INDUSTRY Please check all that apply:
- ☐ Paper making machinery
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- ☐ Printing machinery and supplies
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- ☐ Folders/interfolders
- ☐ Transport and logistics
- ☐ Testing machines
- ☐ Insurance and financial services
- ☐ Fabrics, felts, clothing
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- ☐ Deinking
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