

TISSUE WORLD MAGAZINE

The independent news provider for the global tissue business

COUNTRY REPORT: MEXICO

RISING URBAN
POPULATION
DRIVING STRONG
TISSUE CULTURE

Plus ...

MarketIssues

Special Report: Tissue World Miami Global industry leaders return to TWM's "reality" tradeshow

Technical Theme:

Packaging, Wrapping & Logistics Latest advances in poly baggers, loaders and e-commerce packing

ExitIssues

North America scrapping the old for bigger, better machinery to meet the rise of China and Europe

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A roundup of news from across the global tissue industry. To get the very latest news go to www.tissueworldmagazine.com

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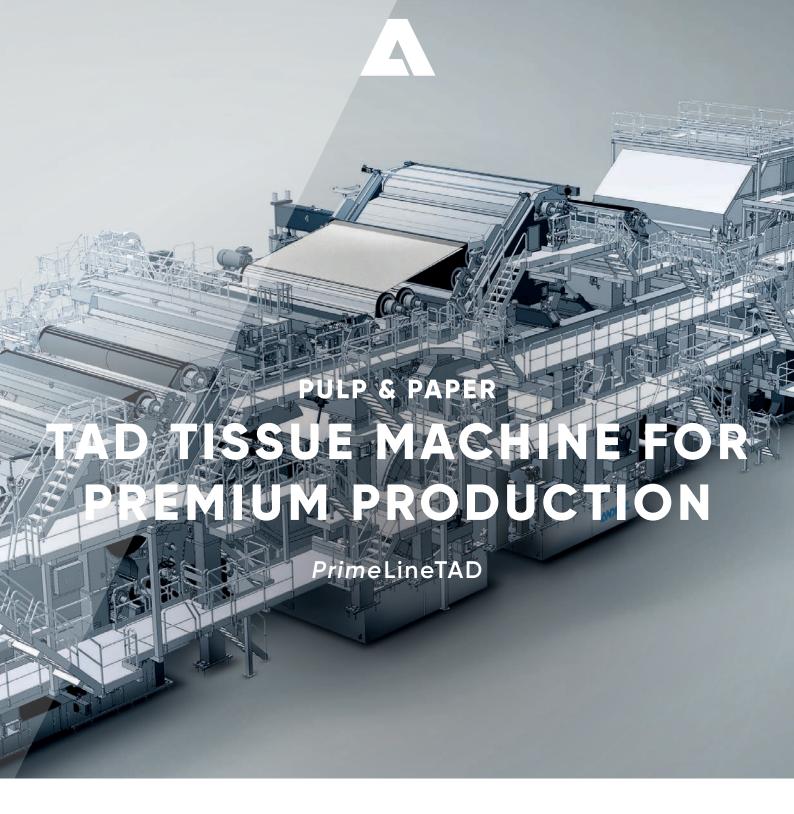
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Cover: An image showing how population growth is driving strong tissue demand across the world, especially in countries such as Mexico, this TWM's Country Report. Image by Contrast Creative, Manchester, UK.



The ANDRITZ *Prime*LineTAD machines enable the production of a so called structured sheet that improves bulk, absorbency, and softness, while still retaining desired strength properties.

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TAD process, refining air flow parameters, and optimizing energy usage (electrical/gas/vacuum).

Contact us for more information about our *Prime*LineTAD machines or technologies for tissue production: tissue@andritz.com





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E-COMMERCE AND SUSTAINABILITY: A SUPPLY CHAIN WHICH STARTS WITH A DECISION ABOUT A TOP LOADER

Helen Morris

Senior Editor, Tissue World Magazine

vidence of the intensive research going into life cycle assessment of tissue products was dominant in Tissue World Miami, and is reflected equally in the pages of TWM.

There are many examples of cradle-to-gate assessments being made at all levels ... how is embodied carbon and the carbon footprint better controlled during production, display, delivery, re-use and, only if absolutely necessary, disposal.

The gate in question, the store or supermarket, is for an increasing number of companies the end of the assessment because they are designing products that can be easily recycled or composted, avoiding the landfill altogether.

It has taken time to get to this point of far-sighted awareness over the whole supply chain, or what we might now come to term survival production.

At Miami, Sofidel Group Chief Executive Luigi Lazzareschi pointed to a model of "responsible proximity" capitalism, businesses naturally oriented towards sustainability as a strategic growth driver.

That company is well down that path. Wider afield, European Commission environmental, social, and governance (ESG) regulations from 2024 will require companies to assess and explain financial and impact results ... embracing the supply chain from its source material to its destination in the wider environment - the so-called Double Materiality concept.

Today's essential business strategy is growth that can be sustained. Josh Goulet, Account Manager at packaging systems company Edson, in Hamilton, Canada, explains in this issue's *Technical Theme* the pros and cons of side and top-loaders, explaining that the company's 4000TL top loader is especially suited to e-commerce supply chain applications. E-commerce sales in the US reached 13.3% of all retail sales Q2 2021, an increase of 2.5% on two years earlier. Globally, they reached US\$4.28 trillion in 2020, expected to top US\$5.4 trillion this year, and rising. Manufacturers can now sell single roll up to large mega-packs online on a larger platform, increase their customer base geographically, reducing consumer miles travelled. A growth and climate strategy in action.

A steadily increasing and aware population dictating tissue growth

We learn in our *Country Report* on Mexico that its tissue culture is strong, and carries big potential. To the south, the bigger market of Brazil is outperformed on household disposable income – almost twice as much at almost \$20,000 last year.

Potentially crucially, while Mexico's 129 million population is almost 100 million fewer than Brazil's, that population is on a steady percentage rise, and younger, discerning consumers are more climate and hygiene aware with lifestyles requiring tissue products to play an important role, during and post-pandemic.

To the north, the huge market of the US through which Mexico has grown both its import and export tissue business over the last two decades. Expansion and technological advances has meant premium private label business competition within America, and Canada. *Country Report* talks to Fábrica de Papel San Francisco's Sales & Marketing Director Juan José Mubarak Helú Villavicencio, at his Baja California base. He foresees a 5% plus tonnage sales growth as the country begins to emerge from the pandemic, and tourist income picks up.

And to Luis Alberto Reséndiz, General Director of Convertipap, a family-run tissue manufacturer based at the company's Tlaxcala plant located four-hours east of the thriving Mexico City.

TWM had the benefit of on-site reporting during a tour of the plant with Mr. Reséndiz in 2018. The plans-in-action pointed out then are coming to fruition... while the pandemic tested development, continued investments have brought the goal of 125,000tpy production target into sight with a sixth tissue machine due on stream 04 2023.

TISSUE WORLD MIAMI 2022

Tissue World "reality" returned for an impressive four days in Miami with over 100 exhibitors and more than 1,200 total participants kicking off its first in-person exhibition and conference in more than two years in style.

The modernised Miami Beach
Convention Center was the perfect
location to welcome the global tissue
and towel industry back to in-person
business during 15-18 March, 2022.

It was the first time the industry had met in-person since the start of the pandemic, with many in the industry meeting friends and business partners again for the first time in many months.

North America's largest tissue exhibition and conference welcomed more than 100 exhibitors and more than 1,200 total participants from 47 countries.

The new-look tradeshow floor hosted visitors and exhibitors keen to sign deals and view the latest technologies: from paper machinery, through to converting, packaging, chemicals and Al.

Hundreds of attendees at the fourday conference – with the theme Tissue Today & Forever, Drivers and Strategies for a Sustainable Future - heard delegates discuss a wide range of issues in deepdive question and answer sessions aimed at navigating the challenges of the years ahead.

Expert speakers from across tissue's value and supply chains shared industry insights and expert knowledge on the latest trends and developments, which also included technical sessions from leading machinery suppliers and the Yankee Dryer Operations Workshop.

The networking drinks reception was one of the busiest seen in years, so much so that it was repeated on the second day, as friends and colleagues caught up and discussed deals.

Making sure safety is uppermost

As part of Tissue World's ongoing commitment to ensuring that everybody attending – be it visiting, exhibiting or sponsoring – felt safe and confident, various safety measures were in place.

The exhibition was organised in

accordance with event organiser Informa Market's AllSecure health and safety standard.

Informa Markets has developed a detailed set of enhanced measures to provide the highest levels of hygiene and safety at its events.

Tissue World is the only global trade show offering you a platform to do business across all aspects of your day-to-day business life.

Miami 2022 was a great start to a unique year for Tissue World, and our industry friends across the world.

We would like to thank all our exhibitors, visitors and partners for their support over the past few years.

For those who couldn't be there, and for those who could, over the next few pages Tissue World Magazine carries a summary of some select key issues raised during our conference's Senior Management Symposium sessions.

EXPERT SPEAKERS FROM ACROSS TISSUE'S VALUE AND SUPPLY CHAINS SHARED INDUSTRY INSIGHTS AND EXPERT KNOWLEDGE ON THE LATEST TRENDS AND DEVELOPMENTS, WHICH ALSO INCLUDED TECHNICAL SESSIONS FROM LEADING MACHINERY SUPPLIERS AND THE YANKEE DRYER OPERATIONS WORKSHOP. THE NETWORKING DRINKS RECEPTION WAS ONE OF THE BUSIEST SEEN IN YEARS, SO MUCH SO THAT IT WAS REPEATED ON THE SECOND DAY, AS FRIENDS AND COLLEAGUES CAUGHT UP AND DISCUSSED DEALS.





POSITIVE CHANGE FOR THE FUTURE OF TISSUE

Dino Bianco, Chief Executive, Kruger Products

Mission and vision

To drive strong revenue, profit and shareholder values, and be the most trusted tissue company in North America. We will do this by building our consumer muscle, expanding our business footprint, excelling at end-to-end supply chain excellence, driving sustainability, and creating a winning team and culture.

Kruger Products is Canada's number one tissue company, claiming 47% of all branded volume and 33% of all tissue. We are also the number one branded tissue company in Canada, holding the first slot in bath and facial, and number two in towel. We are the seventh largest tissue manufacturer in North America, with 2020 sales of \$1.5bn and presence in the consumer and AfH markets. We have nine product facilities, 80 converting lines and 14 paper machines.

Over the past two years we have reinvested in our product innovations and strategies. Our highest quality paper towel is now comparable to leading US brands. We have state of the art TAD capability. In Q1 2021 we launched SpongeTowels UltraPRO in Canada, and in Q1 2022 we launched White Cloud UltraPRO. In Q1 2022, we introduced our sustainably-focused brand Bonterra across bath, towel and facial.

Sustainability remains key

Throughout 2020 we reduced energy consumption by 15%*, reduced GHG

emissions by 26%*, reduced water consumption by 37%*, and 100% of fibre was third-party certified.

Our 2030 sustainability targets include:

- To use 100% third-party certified fibres;
- To reduce scopes 1 + 2 emissions by 25%*;
- To reduce water consumption by 50%*;
- To reduce virgin plastic packaging in branded products by 50%*.

(*Intensity-based versus

2009 benchmark)

Sustainability moving from supply chain to shelf in tissue, from company reputation to brand reputation. Consumers want sustainability, quality and price. From single element to whole bundle, and more consumer transparency and information.

Moving to a digital world

Kruger Products is making a significant investment to utilise AI across our business system. Several ground-breaking technologies present great opportunities in tissue:

PLANNING OPTIMISATION

- 1. Demand forecasting
- 2. S&OP execution optimisation

SUPPLY CHAIN & PROCESS SIMULATION

3. Dynamic simulation

PREDICTIVE MODELLING

- 4. Setpoint optimisation
- 5. Loss prediction
- 6. Quality optimisation
- 7. Predictive maintenance

This will all result in our ability to optimise and refresh integrated plans to adjust to demand and operational fluctuations; build a control tower with live supply chain tracking to support tactical and strategic decisions via what-if scenarios and predict process and supply chain behaviour and outcomes and recommend procedural and operational optimisations. Technologies present opportunities across the value chain.

Investing for growth - \$1bn investment since 2018

New Sherbrooke plant: \$575m investment, TAD PM (70,000tpy), three converting lines, started-up February 2021. This project was managed during Covid-19, where we hired and trained 180 people remotely.

Additional investment at Sherbrooke: New plant announced, 60tpy conventional paper machine, two new converting lines in a \$350m investment with start-up staged for 2022–2024.

At completion the Sherbrooke tissue hub will have two paper machines producing 130,000tpy, five converting lines, to produce ultra-premium and conventional products, BT, PT and Facial capability.

The future of tissue is exciting!



Time, as Einstein said, is relative.

Its real value is in how we use it.

Today Futura turns twenty and looking back we can see just how far we have come in such a short time.

Technological leadership, continuous innovation and automation:

in the context of partnership, they have accelerated our ability to deliver superior performance for our customers.

We're twenty. But what we stand for is ageless.

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SUSTAINABILITY, STAKEHOLDER CAPITALISM AND SHARED VALUE CREATION: SOFIDEL'S ROAD TO THE FUTURE RUNS THROUGH ESG REPORTING

Luigi Lazzareschi, Chief Executive, Sofidel Group

How sustainability has become one of the central themes of contemporary public debate

Today, sustainability is a mainstream issue. But it took many years for this to happen. These are just some of the steps, or significant moments, that have prompted sustainability to establish itself among the central themes of the contemporary debate.

In 2008, sustainability became a strategic development factor for Sofidel. If not an answer, we already had a clue. Sofidel has its roots in a model of "responsible proximity" capitalism that sees many family businesses naturally oriented towards sustainability. For the longer term view, we needed to systematise and enhance this heritage. Integrating sustainability to make it a strategic growth driver for the creation of long-term shared value for all our stakeholders.

We tried to be clear and transparent from the beginning. We wanted to make public the ten main benefits that, in the medium to long-term, Sofidel expected from integrating sustainability into its growth strategy.

This was mainly achieved by:

- Working with authoritative and competent partners, environmental sustainability objectives defined and made public
- Results verified by third parties and made public
- Reporting activities carried out according to international standards
- Stakeholder engagement and awareness activities
- Constant orientation towards transparency and collaboration with all stakeholders
- Important investments in technological, process and product innovation



In minimising its impact on natural capital and fostering the transition to a more just and inclusive low-carbon economy Sofidel has made particular efforts to:

- · Fight against climate change
- Work towards responsible sourcing of raw forestry material
- · Reduce water consumption
- Reduce the incidence of plastics in the production process
- · Engage stakeholders

Some of the objectives we have achieved are:

 24% reduction in carbon intensity (2009.2020) - (746kg CO2 per tonne of paper) by implementing innovative strategies and technologies such

- as energy efficiency improvement, combined generation of heat and power (CHP), renewable sources (wind power, solar panels, hydro power), biomass boilers
- 100% of cellulose certified by independent third parties with forestry certification schemes (FSC, PEFC, FSC Controlled Wood)
- 96.6% rate of water recycling into production cycles and 7.2 l/kg average consumption in litres per kg of paper produced, very close to the lower end of the range recommended by the Best Available Techniques (BAT) of European Union for Pulp and Paper sector
- · Reduction of the incidence of



plastic packaging by 19.6% with the adoption of plastic film with lower thickness and with the optimization of its packaging design

 81% of Sofidel's procurements are sourced from sustainable suppliers, classified as excellent

How does Sofidel respond to the challenges that the world faces? How can it really do its part to build a better future? Clean living is our answer, our purpose and our promise.

PRODUCT – Clean Living, for everyday needs. Products fundamentally designed to ensure the hygiene of people, home environments, and workplaces. To make our days easier and to enrich our quality of life.

ENVIRONMENT – Clean Living, for a healthier planet. A sustainable approach to production to reduce our environmental impact and promote ecological transformation.

PEOPLE – Clean Living, for integrity and respect. A way of doing business and building relationships based on respect for the values of professionalism, competence, honesty, and transparency, for a fairer and more inclusive society.

Sustainability reporting is increasingly relevant

The world is focused on the ecological transition and its economic and social

consequences, and there is a strong demand for standardised accounting systems to report on the relationship between financial performance, risk, and social and environmental impact generated by the choices made by companies. It's time to bridge this gap between information supply and demand.

In its path of integration and implementation of sustainability policies, Sofidel has voluntarily chosen to have the results achieved verified by third parties to safeguard the reliability of the data disseminated and to allow sharing and comparison with other players.

Important steps are taken in Europe: the "Double Materiality"

The issue of measuring the social and environmental impact of businesses is a key point in European development policies. The European Commission is working on ESG reporting requirements that include the so-called "double materiality" principle.

In simple terms, it means that not only the impacts related to environmental and social sustainability dimensions on a company activities can be material, but also the impacts generated by a company's operating activities - as well its value chain, upstream and downstream - on any sustainability dimension. Companies will be required - expected from 2024

- to disclose information on both the environmental and social risks they face and the impacts their activities actually cause on these dimensions.

IFRS works for the standardisation of ESG reporting principles worldwide

At the same time the Financial Reporting Standard (IFRS) is working to bring accounting harmonisation to the measurement of corporate environmental and social impacts. Sofidel's road to the future runs through ESG reporting. Sofidel deeply believes that a strong ESG proposition helps create long-term shared added value. In its journey from "shareholder company" to "stakeholder company", Sofidel intends to invest more and more in ESG reporting which it now considers to be an essential competitive lever for these reasons:

- Reporting on environmental and social impacts in a measurable and transparent manner
- · Improving strategic planning
- · Promoting innovation
- Expanding stakeholder engagement
- Effectively countering any form of greenwashing or unfair competition ensuring long-term shared added value for people and the planet.

What did the Covid-19 pandemic experience highlight?

The Covid-19 pandemic highlighted:

- The close interrelationship linking economic, environmental and social dimensions
- The importance of safeguarding the quality of information
- As individuals, citizens and consumers, we form opinions and make decisions based on the information we have and on which we build relationships of trust.
- There is an increasing demand for consistency and transparency especially from younger generations.

It is in our mutual interest to work towards having standardised ESG reporting methodologies and rules for integrating and communicating the analysis of ESG parameter impacts into our processes. The business world must meet this growing demand for information. From here comes its legitimacy. To be, and to be able to document, that we are organisations capable of creating lasting well-being for people and for the planet.

HOW DOES SOFIDEL RESPOND TO THE CHALLENGES THAT THE WORLD FACES? HOW CAN IT REALLY DO ITS PART TO BUILD A BETTER FUTURE? CLEAN LIVING IS OUR ANSWER, OUR PURPOSE AND OUR PROMISE.



NEW LOCATION

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The European edition of Tissue World portfolio is the world's largest tissue industry trade show.

The event has taken place in a few European cities including Nice, Barcelona, and most recently Milan over the past 26 years. In 2023, the flagship show will make its stop in Düsseldorf, Germany for the very first time!

A mature tissue market with high private label shares, Germany is home to some of the sector's largest private label manufacturers. Don't miss the inaugural global tissue industry gathering in Germany, one of the most developed tissue markets in 2023!

www.tissueworld.com/dusseldorf info@tissueworld.com

Portfolio



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TISSUE MARKETS OVERVIEW AND FORCES THAT WILL SHAPE THE NEXT FIVE YEARS

Matt Elhardt, Vice President, Sales, Fisher International

10 facts about global tissue

1. Global tissue is a ~60 million st market
Asia now accounts for half of the world's
tissue machine capacity
Asia Pacific - 29,729,266 FST (49%)
Europe - 12,696,408 FST (21%)
North America - 9,950,382 FST (16%)
Latin America - 6,142,715 FST (10%)
Middle East - 1,315,687 FST (2%)
Africa - 1,132,740 FST (2%)

- 2. Population and urbanisation drive tissue production China and US account for over 50% of global capacity.
- 3. Tissue is a "local" business. Trade is much lower compared to other pulp/ paper markets, and less than 5% of tissue capacity leaves the home region in the EU and North America.
- 4. Since 2010, new investment in tissue has been driven by Asia. The region now accounts for 70% of new machine capacity in recent years.
- 5. Tissue supply is (mostly) fragmented everywhere in the world. Companies rarely exceed 20% capacity share in any regional geography.
- Like politics, tissue dynamics are local.
 Of the top 10 global tissue companies,
 only two operate in more than two regions.
- 7. Tissue mills buy market pulp for most of their furnish 60% of parent roll costs for the average global tissue mill.
- 8. Globally, tissue prices and pulp prices share turning points. Non-fibre costs drive margins.
- 9. The USA is unique in share of advanced tissue making, with 90% of the world's market for TAD, NTT, etc, located there.
- 10. We expect global tissue demand to grow 1%-5% in the coming decade, with the most growth seen in Asia.

NORTH AMERICAN ANNOUNCED T&T CAPACITY AND EXPECTED DEMAND ANNOUNCED CAPACITY IS EXCEEDING GROSS DEMAND BY 600 BPS. SOME 80% OF NEW CAPACITY IS ANNOUNCED BY COMPANIES THAT SERVE PRIVATE LABEL MARKETS. PRIVATE LABEL CAPACITY IS GROWING FAST AND FRAGMENTING.

U.S. / Canadian tissue: North American tissue by the numbers

Demand - 10,000,000 st Net Imports - 480,000 st Expected Growth - 1% Private Label Share - 1.3rd

North American Top-10 Tissue Producers by Capacity: the top three companies - GP, P&G and K-C - own 56% of total capacity.

(Some) Trends to Watch...

Uncertainty may be higher now than it has been in decades, resulting in drastic shifts in habits.

Covid-19 caused an acceleration of consumer buying shifts – particularly AfH to At-Home, and e-commerce. The industry saw 10 years of change in 10 weeks. Widespread supply chain issues persist. The question remains how long aftershocks will persist and whether new variants will emerge. What consumer changes will stay will also be one to watch, with currently 70% of companies planning to continue with hybrid work.

First "major" European land war in 70 years. More unknowns than knowns at this point, probably two main immediate impacts to global tissue -

- Pulp prices (if capacity is shut)
- Gas prices rocket-high spot prices in Europe have already caused some Italian capacity to close. Gas prices could create significant short-term pain for unhedged companies, creating dislocations in manufacturing competitiveness.

The antidote to uncertainty is scenario planning – identify risks and address them, find the "underlying truths" that are likely in most scenarios.

Longer term trends to watch in the coming years

Will new capacity (especially in private label) create a bubble? North American announced T&T capacity and expected demand announced capacity is exceeding gross demand by 600 bps. Some 80% of new capacity is announced by companies that serve private label markets. Private label capacity is growing fast and fragmenting. Will the industry consolidate?

Carbon: whether voluntary or mandatory, carbon will increasingly be a cost for producers. How will the industry take advantage of the significant shift in views on the environment?

Takeaways

- North American tissue is very likely to see a cycle of surplus capacity over the coming years. Pressure will vary by tissue segment and channel
 - Among private label, low-cost producers who can compete will gain share
 - Better quality, and the prospect of reduced consumer spending power (inflation) could be a tailwind
- Will branded players create innovation that reverses the trend of private label share growth?
- Carbon costs either voluntary or mandatory – will become more widespread in the next five years.
 Opportunity for owners who can articulate their story proactively!
- Exogenous factors (Covid-19, inflation)
 are creating more uncertainty
 than in recent history. Managers
 are well advised to adopt scenario
 planning (even if high level), and
 place their bets.

TISSUE TREB(R

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- International Expertise
- Responsive Customer Service

When you think tissue... think Trebor.







THE PATH TO GROWTH AHEAD: OUTLOOK FOR GLOBAL CONSUMER TISSUE AND OPPORTUNITIES

Liying Qian, Senior Analyst, Euromonitor International

Global consumer tissue reassumes near pre-pandemic pattern, as the developing world drives an increased share of tissue consumption. Of the 4.3m tonnes of consumer tissue consumption increase from 2021-2026, 95% will come from the developing world.

Toilet paper remains dominant, while facial tissues lead growth and possibilities for premiumisation. The market is seeing evolving business models, digital-forward consumer shopping behaviours and brand interactions, heightened expectations for timeliness, fluidity and personalisation, and a subscription service boom.

Expanded opportunities for hybrid work and high health awareness will uphold consumers' at-home cleaning routine, and this presents opportunities for innovation and value proposition for the global tissue and towel markets.

There is also an increasing shift towards a more circular economy, as well as evolving business models. Convenience and novelty are driving subscription adoption. In 2021, 42% of consumers selected "convenience" as their top motivation to subscribe, and 27% of consumers reported using a subscription service in 2021 - up from 23% in 2019.

D2C players lead the predictive personalisation journey. Mismatch between e-commerce penetration and per capita consumption across top 25 developed markets depicts potential growth white spaces.

Any low per capita consumption and high e-commerce penetration is giving increased scope for the e-commerce ecosystem to engage with the tissue customer base as it expands, while a high per capita consumption and low e-commerce penetration is offering opportunities for further pivot towards more personalised engagement online to raise brand awareness and get a competitive edge.

Willingness to spend doesn't always match eagerness to possess. Quality and performance attributes such as softness and wet strength are top concerns:

- Value for money and affordability are almost equally, if not more, influential
- Where quality and value meet hits a sweet spot.

Manufacturers are increasingly thinking beyond the common parameters of softness and absorbency to meet expanded hygiene needs. Tactical, features-andbenefits messaging strikes a chord with the contemporary consumer sentiment

From sustainability to purpose

Pre-pandemic, the planet was top of mind, with 87.3% of businesses defining sustainability as protecting the environment in 2019. During the first lockdown, that changed to people first, with 59.1% of businesses prioritising social over environmental issues during the outbreak. Post lockdown, and purpose before profit was key; 60.8% of businesses planned to balance social and environmental issues in the future.

Environmental activism in 2021 was strong, and the top three consumer issues are to reduce plastics use, recycle items, and use sustainable packaging. Some 79% of consumer tissue professionals considered sustainability initiatives crucial to their companies' value proposition,

while 47% expected ethical products and brands to be very to extremely influential post-pandemic.

Eco-friendly features gather space on digital shelf

Western Europe makes up largest share of top green claims combined.
Sustainability is trending in the alternative fibres markets, low-impact manufacturing, plastic-free packaging and social responsibility. Sustainability-aware consumers are most willing to pay more for eco/ethically conscious, all natural, recyclable packaging, or 100% organic.

High-growth pockets and white spaces include emerging markets with high per capita consumption, expanding digital engagement where possible, direct-to-consumer services, personalisation and portfolio diversification.

CONFERENCE KEY POINTS

Mismatch between e-commerce penetration and per capita consumption across top 25 developed markets depicts potential growth white spaces.

Today, sustainability is a mainstream issue - but it took many years for this to happen.

Antidote to uncertainty is scenario planning – identify risks and address them, find the "underlying truths" that are likely in most scenarios.

95% of the 4.3m tonnes of consumer tissue consumption increase from 2021-2026 will come from the developing world.

Will branded players create innovation that reverses the trend of private label

share growth?

A strong demand for standardised accounting systems - to report on the relationship between financial performance, risk, and social and environmental impact generated by the choices made by companies.

Pre-pandemic - 87.3% of businesses defined sustainability as protecting the environment.

First lockdown - 59.1% of businesses prioritising social over environmental issues.

Post lockdown - 60.8% of businesses plan to balance social and environmental issues in the future.

THE NEXT FIVE YEARS: A GEOPOLITICAL FORECAST

Jacob L. Shapiro, Founder & Chief Strategist, Perch Perspectives

The world is in a globalisation recession posing severe challenges for supply chains ... and the region of fastest growth – Asia – is the most geopolitically unstable.

Russia invaded Ukraine because it has a geopolitical imperative to expand its political, economic, and military power as far as possible into the buffer regions that surround its population core in Eastern Europe, the South Caucasus, and Central Asia.

Russia cares more about Ukraine than the rest of the world. It will be willing to sacrifice and endure sanctions far in excess of what the West is willing to. In the longrun, Russia has made a colossal strategic blunder, as it cannot "win" Ukraine by conquering it – and in the meantime, it has only made Europe far more unified than ever before.

Russia's invasion is not a geopolitical anomaly. It is reflective of a world that is going through a globalisation recession. Trade disputes have been increasing steadily for the past decade. China and the US – which cooperated with each other after the 2008 financial crisis – are at each other's throats even amidst a global pandemic. The invasion is an expression of a more multipolar and geopolitically risky world.

This is affecting countries and companies across diverse supply chains. Whether in advanced semiconductors, agriculture, or tissue, this poses a huge challenge, because many of the products and services we have taken for granted are becoming national security issues for governments.

We are not going to go back to the pre-Covid-19 world. That world is gone. The best mental map I can think of from a historical perspective for the current era is the period before World War I – the 1890s, "La Belle Époque". This was a world of rising and falling great powers, an industrial revolution, and significant uncertainty.

Note – the news is not all bad! La Belle Époque was also a time of discovery, increased overall trade despite increased regional disputes, and artistic expression. Obviously what happened at the end RUSSIA'S INVASION IS NOT A GEOPOLITICAL ANOMALY. IT IS REFLECTIVE OF A WORLD THAT IS GOING THROUGH A GLOBALISATION RECESSION. TRADE DISPUTES HAVE BEEN INCREASING STEADILY FOR THE PAST DECADE. CHINA AND THE US – WHICH COOPERATED WITH EACH OTHER AFTER THE 2008 FINANCIAL CRISIS – ARE AT EACH OTHER'S THROATS EVEN AMIDST A GLOBAL PANDEMIC. THE INVASION IS AN EXPRESSION OF A MORE MULTIPOLAR AND GEOPOLITICALLY RISKY WORLD.

(World War I) was horrific – but for those companies that were able to identify how they were exposed to these risks and pivot accordingly, it was actually a very successful period.

How long is this going to last?

Certainly for the next five years, and likely beyond.

Note that demographic growth and GDP per capita growth is going to be focused on areas like sub-Saharan Africa, the Middle East, Southeast Asia, and Latin America. These are the areas to focus on in the future, and some of these areas will be highly competitive.

One of the biggest geopolitical indicators to watch is the US-China relationship. My favourite slide is the map of the world from China's perspective, which shows the geographical makeup of the countries surrounding the country's shores. That map scares Beijing, and virtually assures that the US and China are going to clash from a long-term geopolitical perspective. As a result, unfortunately, the place where growth and change is happening the fastest – Asia – is also the most geopolitically unstable.

Another major trend is the global energy transition away from hydrocarbons. Five years ago, I was talking about how important renewables are and getting laughed at at conferences like Tissue World.

Now everyone is talking about renewables – and I am in the strange position of pointing out that we still depend on hydrocarbons for energy.

That will remain true for the next five years at least. Renewables are increasing, but not fast enough to cover current growth, let alone current demand. By the end of the decade, energy will likely be a deflationary force, but in the interim, and especially for the next two-three years, energy prices have legs. We are in a paradigm shift – and you have to have your feet in both paradigms to be prepared.

Climate change is the other big geopolitical force to contend with. It is the most significant challenge from a geopolitical perspective as it literally changes geography.

The bad news is the parts of the world that are growing the fastest are in large part the parts of the world where climate change is going to be most destructive from the perspective of agricultural yields, desertification, and refugee flows.

I closed my presentation with two maps of pulp/wood exports by country and tissue exports by country. I pointed out that these maps do not reflect many of the geopolitical forces I talked about in my presentation.

For companies aiming to be ahead of the curve, horizon scanning and strategic planning for both these risks and opportunities is crucial. Geopolitics is no longer a luxury in the tissue business – it's a critical input source for successful strategy.

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NEWS IN BRIEF

A roundup of news from across the global tissue industry. To get the very latest news go to www.tissueworldmagazine.com



GLOBAL

Bretting launches 400 MPM Towel Interfolding line

C. G. Bretting Manufacturing has officially launched the 400 MPM Singlefold Towel Interfolder into the global tissue market.

It is the company's latest high-speed interfolding line, and it joins its existing multifold and tissue machinery along with a range of napkin folders for the At-home and AfH markets.

The company's Blake Bretting, Sales and Marketing, said: "The Singlefold Towel Interfolder provides the highest towel production capability on the market today."

Navigator implements price hikes; effective from 21 March

The Navigator Company has applied a 20% energy, logistics and commodities surcharge on the sales price of its tissue products, effective since 21 March.

The company said: "Since the beginning of the Russian-Ukrainian conflict, which has severely aggravated already unstable and unpredictable macroeconomic dynamics, the Navigator Company has experienced a steeper increase in energy related costs.

"With international sanctions on Russia and high European dependency on their gas supply, the current geopolitical situation has led to a very rapid increase OUTLOOK NEBRASKA HAS INVESTED IN A BRETTING MANUFACTURING BANDER AND LOG SAW TO DOUBLE THE PRODUCTION CAPACITY OF ITS MULTI-FOLD TOWEL MACHINE. THE OMAHA-BASED BUSINESS EMPLOYS 75% BLIND LABOUR IN THE MANUFACTURING OF ITS PRODUCTS AND HAS EQUIPPED THE MULTI-FOLD MACHINE WITH SIMPLE MODIFICATIONS TO ASSIST LOW VISION OPERATORS.

in energy prices, with expectations of further increases.

"Apart from the direct impact of the energy prices on Navigator's cost structure, the company is also severely affected by the indirect energy impact in several commodities and logistic costs."

BuyFirst Network launches RR cores product into market

America's BuyFirst Network has introduced its product RR cores, a concept for use in rolled paper products.

RR cores replace the tubes with a reusable core that, according to the business, works equally as well on tubed, compressed tubed and tube free rolls.

BuyFirst Network added this has "a significant beneficial effect on the environment".

RR cores fit on to any existing bath tissue holder that uses a spring-loaded roller axle.

Buckman announces price hikes; effective from April 2022

Buckman has announced global price increases for all product offerings.

The price increases became effective on 1 April 2022, or as customer contracts allow.

Price increases will vary depending on geographic region, solutions offered and the markets served.

Buckman said that in some areas, increases may be higher where local conditions may necessitate additional adjustments.

Sofidel reports "steady growth" in 2021 results

Sofidel has said its 2021 financial results have "returned to pre-pandemic crisis levels" as it reported a consolidated turnover of over €2bn and net sales of €2,095m.

The company said that after the

"extraordinary" year of 2020, where peaks in demand linked to consumer purchases during lockdown periods, Sofidel said it has now "resumed its path of steady growth".

It noted the consolidation of its sales in Europe in the second half of the year, as well as the "significant strengthening" of its business in the United States following a series of production capacity investments in the country.

However, the company also said that the "strong impact" of rising raw material prices and the impossibility of reversing the impact on product sales prices had meant that its "margins and economic results were partly affected".

Luigi Lazzareschi, Sofidel Group Chief Executive, said: "In a very difficult economic environment in which the impressive rise in commodity prices has affected economic performance, we can define the results related to business development as good.

"Sofidel sees its sales strengthened, as well as, thanks to the continuation of its sustainability strategies, its competitive conditions."

The first half of the year was "particularly affected" by the price of pulp, while in the second half the very sharp increase in energy prices – which it said was more apparent in Europe than in the United States - weighed on the cost structure.

Elsewhere in 2021, Sofidel also announced its commitment to the purchase and self-production of electricity from renewable sources produced by newly built plants through long-term supply agreements.

In Italy it has partnered with RWE Renewables for the supply of wind energy, and in Sweden at its Kisa plant it has signed with Meva Energy to construct a renewable gas production plant where syngas produced from woody biomass from the local supply chain will produce tissue products.

At its Baglan plant in Wales, UK, it has also invested in an energy efficiency investment that the business said will LUIGI LAZZARESCHI, SOFIDEL GROUP CHIEF EXECUTIVE, SAID: "IN A VERY DIFFICULT ECONOMIC ENVIRONMENT IN WHICH THE IMPRESSIVE RISE IN COMMODITY PRICES HAS AFFECTED ECONOMIC PERFORMANCE, WE CAN DEFINE THE RESULTS RELATED TO BUSINESS DEVELOPMENT AS GOOD. SOFIDEL SEES ITS SALES STRENGTHENED, AS WELL AS, THANKS TO THE CONTINUATION OF ITS SUSTAINABILITY STRATEGIES, ITS COMPETITIVE CONDITIONS."

lead "to significant reductions in climatealtering emissions".

P&G appoints Jon Moeller as Chairman

Procter & Gamble (P&G) has appointed Jon R. Moeller Chairman of the Board, effective 1 July 2022.

Moeller assumes the position in addition to his role as President and Chief Executive following the retirement of current Executive Chairman David Taylor, who served as Chief Executive from 2015 to 2021.

Moeller said: "Among other things, David committed P&G to achieve balanced top and bottom-line growth, completed the restructuring of our portfolio, and led our most important organisation change in decades.

"We are well-positioned to continue to serve consumers around the world with noticeably superior offerings that improve their lives."

The board of directors has also reappointed Joseph Jimenez as Lead Director of the Board.

AMERICA

Outlook Nebraska boosts capacity with Bretting investment

Outlook Nebraska has invested in a Bretting Manufacturing bander and log saw to double the production capacity of its multi-fold towel machine. The Omaha-based business employs 75% blind labour in the manufacturing of its products and has equipped the multi-fold machine with simple modifications to assist low vision operators. Large human-machine interface screens help operators adjust settings while standard screens make it hard for operators with vision loss to see the small touch points. Added custom multi-colour LED lighting coincides with alarms and alerts operators to areas requiring attention.

Shawano Specialty Papers boosts capacity with Toscotec TM

Shawano Specialty Papers, a division of Little Rapids Corporation, has invested in a Toscotec-supplied TT SYD Steel Yankee Dryer. The dryer will be installed on PM3 at the company's paper mill in Shawano, Wisconsin. The installation will replace Shawano Specialty Papers existing cast-iron dryer and is scheduled for start-up in the third quarter of 2022.

Jeff Wolf, Shawano Specialty Papers Engineering Manager, said: "We have two main focuses: first to provide high quality solutions for our customers, and second to continuously reduce our energy consumption and overall environmental impact utilising state-of-the-art technology."

GP to close Green Bay Day Street facility; tissue manufacturing at the site to end mid-May

Georgia-Pacific (GP) has said it will close its Green Bay Day Street facility over the next 18 months, with the loss of 190 jobs.

The company said the main reason for the closure is the "combination of changing customer demand, bath tissue upgrades and investments at other GP facilities, and less competitive assets at the Day Street mill".

Tissue manufacturing at the site will end in mid-May, with some other parts of the mill shutting down in September.

The Day Street mill will continue to make napkins until the Autumn of 2023.

SHAWANO SPECIALTY PAPERS, A DIVISION OF LITTLE RAPIDS CORPORATION, HAS INVESTED IN A TOSCOTEC-SUPPLIED TT SYD STEEL YANKEE DRYER. THE DRYER WILL BE INSTALLED ON PM3 AT THE COMPANY'S PAPER MILL IN SHAWANO, WISCONSIN. THE INSTALLATION WILL REPLACE SHAWANO SPECIALTY PAPERS EXISTING CAST-IRON DRYER AND IS SCHEDULED FOR START-UP IN THE THIRD QUARTER OF 2022.





Start-up team: Vinda starts-up four Valmet-supplied hybrid machines

CHINA

Vinda boosts capacity with four hybrid TM start-ups

China's Vinda has increased its ultrapremium quality tissue production capacity by 150,000 tonnes after starting up four Valmet-supplied hybrid machines.

The company said the ultra-premium products will be manufactured at a "significant lower energy cost" than other mature structured tissue technologies.

All four tissue machines started up in a period of five months.

Liang Weixiong, Project Director, Vinda, said: "We are confident that the hybrid technology will contribute to our growth in the tissue market.

"The paper quality is meeting our expectations and we are convinced the technology will enable further product development and market differentiation in the future."

The machinery supplier said that the hybrid machines "will ensure sustainable production of high-quality tissue products".

Hengan Group increases capacity with TM investment

Hengan Group has signed for a Baosuo Group-supplied BC1800-3650 Baotuo Crescent Former tissue machine. PM30 has a HENGAN GROUP HAS SIGNED FOR A BAOSUO GROUP-SUPPLIED BC1800-3650 BAOTUO CRESCENT FORMER TISSUE MACHINE. PM30 HAS A DESIGN SPEED OF 1,800M/MIN, A PAPER WIDTH OF 3.6M, AND WILL BE INSTALLED AT THE COMPANY'S CHANGDE CITY PLANT IN THE HUNAN PROVINCE. ONCE THE PAPER MACHINE IS PUT INTO OPERATION IT WILL ADD 30,000TPY OF HIGH-QUALITY HOUSEHOLD PAPER TO THE HENGAN GROUP.

design speed of 1,800m/min, a paper width of 3.6m, and will be installed at the company's Changde City plant in the Hunan province. Once the paper machine is put into operation it will add 30,000tpy of high-quality household paper to the Hengan Group.

Fujian Hengan Group boosts premium tissue capacity

Fujian Hengan Group has invested in two Valmet-supplied Advantage QRT tissue lines to increase its production of premium tissue products.

The company said the move was a result of the increasing number of consumers looking for tissue products with premium or ultra-premium quality.

The two new lines will be installed at mills in Hunan province and Hubei province and will mainly produce high quality facial and kitchen towel.

It will add around 70,000 tonnes of tissue to the company's current production of facial, toilet and towel tissues. Both machines are planned for start-up during the first half of 2023.

Liansheng Pulp & Paper boosts capacity

Chinese pulp, paper and tissue producer Liansheng Pulp & Paper (Zhangzhou) Co. has invested in an Andritz-supplied complete pulp mill to be erected in Zhangzhou, Fujian province.

Start-up is scheduled for mid-2024 and the scope of supply will include a chip handling plant consisting of eight 360° stacker reclaimer chip storage and chip screening systems.

Each stacker reclaimers will have a capacity of 387,000m3 each and, according to the supplier, are the largest in the world.



Production boost: Velvet CARE's Advantage DCT in Klucze will produce high quality tissue at 2,000m/min speeds

POLAND

Velvet CARE investment boosts capacity by 60%

Velvet CARE has started up its second Valmet-supplied Advantage DCT line at its plant in Klucze. The machine is currently producing high quality tissue in an operating speed of 2,000m/min and will increase the plant's production capacity by more than 60%. Wanda Ciesielczuk, Production and Technical Director at Velvet CARE, said: "This is a day to remember with tenderness and pride.

UK

Northwood Group joins forces with Consuma Paper Products

The UK's Northwood Group has acquired Consuma Paper Products to create a retail-focused tissue and towel business.

The move will mean that Northwood's retail business, Northwood Consumer Limited (NCL), and Consuma Paper Products (CPP), will merge to create a multi-site tissue manufacturing operation with state-of-the-art equipment, offering a complete range of rolled and folded tissue products.

The businesses will continue to operate out of their Birmingham and Grantham facilities. As an integrated operation, Northwood has supplied CPP with tissue for over 20 years, providing both virgin and recycled tissue either from its own UK Mills or from global supply partners.

Oday Abbosh, Founder & Chief Executive

of Better All Round (BAR), CPP's parent company, said: "Joining forces now is a natural extension of our relationship with Northwood, bringing together the best of two groups in serving our customers.

Together we will have increased capacity and be able to leverage new technology. In a market that remains under significant pressure from a broad set of macro and geopolitical events, this will allow our customers to benefit from scale, multiple synergies, and shared expertise".

Paul Fecher, Chairman of Northwood Group, said "Our heritage in tissue production, sourcing and converting across the AfH and Retail sectors, together with our forward-looking investments in state-of-the-art machinery, allow us to offer innovative products to our combined clients in the private label area. We are excited to expand our retail range across the whole tissue sector of toilet, towel, facial and pocket tissues in all formats."

CPP manufactures own brand facial tissues, household towels and toilet paper

for the UK's biggest grocery retailers.

The Northwood Group operates three recycled mils in the UK and one in Spain it has 600 employees and supplies clients across the hygienic sector in the UK and Europe.

SPAIN

Manipulados Lisma boosts packaging capacity

Manipulados Lisma has increased its packaging capacities at its plant in Toledo after investing in three Infinity Italiasupplied machines. Lisma's order includes the first VISION G3 multipack wrapper to be installed in the EU, as well as the first Infinity Infusion modular system with an i18 bundler and C15 casepacker to be installed in the region. According to Infinity, the lines are operator-friendly and capable of quick changeovers, and have some of the smallest footprints in terms of machinery size in the market.

THE UK'S NORTHWOOD GROUP HAS ACQUIRED CONSUMA PAPER PRODUCTS TO CREATE A RETAIL-FOCUSED TISSUE AND TOWEL BUSINESS. THE MOVE WILL MEAN THAT NORTHWOOD'S RETAIL BUSINESS, NORTHWOOD CONSUMER LIMITED (NCL), AND CONSUMA PAPER PRODUCTS (CPP), WILL MERGE TO CREATE A MULTI-SITE TISSUE MANUFACTURING OPERATION WITH STATE-OF-THE-ART EQUIPMENT, OFFERING A COMPLETE RANGE OF ROLLED AND FOLDED TISSUE PRODUCTS.



MEXICO'S TISSUE BUSINESS: A RELATIVELY YOUNG AND GROWING POPULATION BOOSTS TISSUE POTENTIAL

Even as per capita GDP has vastly increased over the last 14 years, low domestic demand growth has pushed the industry to seek new trade abroad backed by expansion and replacement strategy across manufacturing.

exico is the 10th most populated country globally with a relatively young and growing population. Its urban population accounts for 81.3% of the total, and about 30% of the population is concentrated around Mexico City. Mexico's \$2.4 trillion economy is ranked 11th in the world. In addition, the renewed North American Free Trade Agreement with Canada and the United States provides Mexican manufacturing opportunities and a bridge between Latin American culture and the Anglo cultures within the north. Ultimately, it is these factors that provide a solid basis for consumer tissue consumption.

However, Mexico's location on the long southern border with the United States also creates problems regarding drug trafficking cartels and violence as illegal products move from South America to the world's largest economy. The cash that is associated with the cartels ultimately ends up supporting government corruption. In addition, Mexico also has its southern border issue with drugs and refugees coming from Central and South America.

These complications tend to reduce the potential of the Mexican people and economy to support tissue manufacturing.

Mexico's population grew by about 1.04% in 2021. Figure 1 shows the population growth trend as bars. The country's gross domestic product per capita is shown as the blue line on the same figure. This is an adjusted GDP per capita based on purchasing power parity to enable global comparisons. The strong GDP growth with a moderately growing and young population should support domestic tissue demand growth.

The country's consumer price inflation and unemployment are shown in Figure 2. The bar graph shows the unemployment rate trend, which has been decreasing up until 2021. However, underemployment may be as high as 25%, which would be a drag on consumer tissue demand. The inflation rate has shown significant volatility and appears to be climbing as of the end of 2021.

Mexico is a net tissue exporter, as shown in the subsequent two figures. Figure 3



Bruce JandaSenior Consultant, Fisher International

shows the growth of Mexico's tissue exports have tripled since 2007 – and the United States accounts for almost all of this growth and total volume. Other tissue customers include Canada, Chile, Costa Rica, El Salvador, Nicaragua, and Puerto Rico.

Tissue imports are shown in Figure 4. Again, the United States is the largest tissue supplier to Mexico, with other imports coming from Canada, Chile, China, Colombia, Indonesia, Peru, Turkey, and the United Kingdom. Mexico's tissue imports tend to run at about 1/3 of 2020 tissue exports, as shown in Figure 3 and 4. This indicates that Mexico intends to remain a net tissue exporter and that production capacity has not been added too quickly.

Figure 5 shows the tissue machine additions and deletions trend and as we can see, 16 new machines were added while seven shut down over the chart period. This indicates good discipline in managing the tissue fleet. However, each new machine generally represents a significant capacity increase compared to the removed machines.

Mexico tissue makers use mostly recycled bleached fibres as shown in Figure 6. Other components include unbleached pulp substitutions and unbleached papers that are not deinked, Kraft eucalyptus bleached pulp, Kraft southern softwood, and Kraft

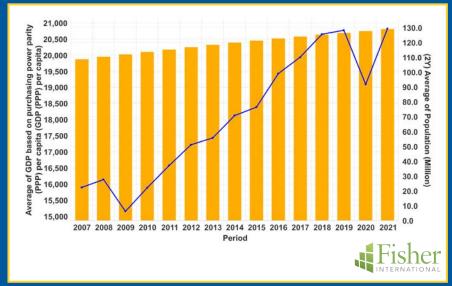


Figure 1: Mexico GDP per capita and population

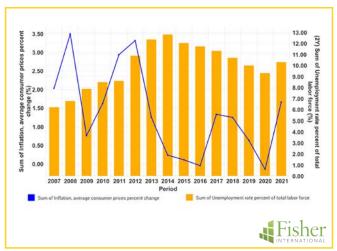


Figure 2: Mexico Consumer Price Inflation and Unemployment

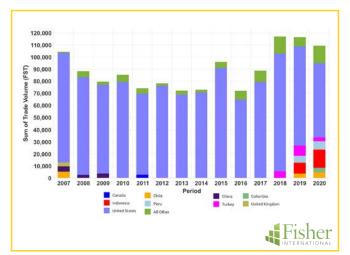


Figure 4 Mexico Tissue Imports

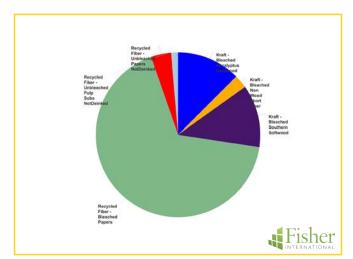


Figure 6: Mexico Tissue Fibre Sources

bleached nonwood short fibre. The nonwood fibre would include crop residues such as bagasse from sugar cane.

Mexico's tissue production is focused on consumer bath, as shown in Figure 7. Consumer towels and consumer napkins are the other largest segments. Commercial bath tissue, napkins, and towels are somewhat smaller sectors compared to the United States or Canada.

Mexico has long had several tissue machines with TAD processes but has added new advanced tissue capacity within the past 15 years. Figure 8 shows the relative proportion of advanced

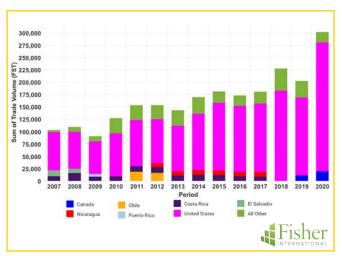


Figure 3: Mexico Tissue Exports

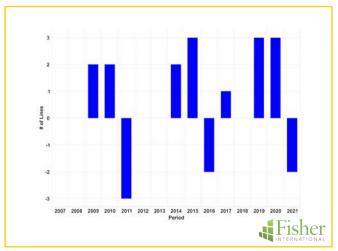


Figure 5: Mexico Tissue Machine Additions and Deletions

technology today at less than 15%. This includes TAD and non-TAD textured and structured tissue technology, making premium and higher-margin products for domestic and export needs. This sector is expected to grow as the proportion of US advanced tissue products increases.

Mexico's advanced tissue capacity is overwhelmingly focused on consumer bath tissue, as shown in Figure 9. The proportion of consumer towels produced with advanced technology is much lower than expected. Still, it shows the difference in total consumer towel consumption in Mexico versus the US and Canada. This is the main difference in Mexico's tissue consumer habits compared to the rest of North America. However, it is more in line with Latin American consumer behaviour.

The main tissue-producing countries that were shown in Figures 3 and 4 were selected to form a competitive set for comparison. This set of countries is plotted in Figure 10 to provide a benchmark of Mexico's tissue machine fleet. The adjusted average technical age is plotted on the X-axis to indicate relative capability based on installation date and timing of upgrades. This is also an indication of the potential speed and tissue quality. The Y-axis shows the machine's finished roll width or trim and indicates how productive the machine is for a given speed. Mexico's average machine is more recently updated than ones in Canada or the United States, but behind compared to Indonesia and Turkey. The United States' machines are much wider and provide a competitive advantage. The older machines in Canada and the US tend to have more advanced process capabilities than the others, but do not reach the same

machine speeds on average.

The relative average cash cost of tissue making for the same set of Mexico's trade partners is shown in Figure 11. Mexico has a relatively low-cost position with only Indonesia and El Salvador at an advantage. However, Mexico has a higher proportion of energy cost in total. The width of the bar shows the large capacity of the United States. Turkey, the United States, Chile, and Canada all offer higher costs than Mexico, which gives Mexico a cost advantage for export.

Figure 12 repeats the same average cash cost analysis but restates the production as cases of product versus tonnes of product. This provides an advantage to countries with a high proportion of advanced tissue processes as they can make more usable products at an equivalent performance rate with less fiber per case. Alternatively, this advantage can be taken to create higher performance products that sell for higher margins. This restatement shows Mexico slightly more advantaged than per tonne, as shown in Figure 11. However, it also shows how the United States, with a large proportion of advanced tissue machines, has costs that tend to be more competitive than a simple per tonne analysis.

The cost analysis of Figures 11 and 12 provided a snapshot of current competitiveness on a cash cost basis. The Fisher Viability model offers a study that looks out over approximately five years regarding the capital investments required to remain competitive, such as size, technological age and other factors including cash costs, that will affect performance in the future. With that being said, Figure 13 shows that Mexico is in an excellent competitive position.

Analysis of the energy consumption in units of gigajoules per tonne of tissue produced and the cost of energy per tonne is helpful to compare the tissue operations in each country. Figure 14 shows the energy consumption in gigajoules per tonne for each country. Mexico is in the middle of the pack, but the United States and Canada consume more fuel and steam than the other countries. We know that any advanced tissue processes that avoid pressing will have higher energy consumption per tonne than conventional tissue making. Softer grades of tissue also employ increased drying in order to crepe at higher solids.

Figure 15 provides another way to look at energy consumption per tonne. Instead of energy units, this chart shows energy costs per tonne. Here we see Mexico having relatively high energy costs due to the cost of grid power. The United States and Canada are in the low energy cost range. Of course, the low-cost energy allows for soft and advanced tissue processes to run economically.

Energy consumption provides a significant portion of the carbon footprint for tissue production in each country. Carbon footprint can

THE FISHER VIABILITY MODEL OFFERS A STUDY
THAT LOOKS OUT OVER APPROXIMATELY FIVE YEARS
REGARDING THE CAPITAL INVESTMENTS REQUIRED TO
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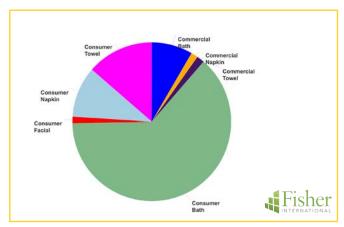


Figure 7: Mexico Tissue Products

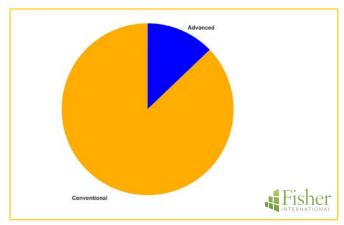


Figure 8: Mexico Tissue Machine Process

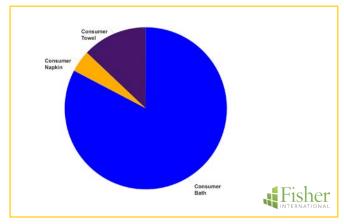


Figure 9: Mexico Advanced Tissue Products

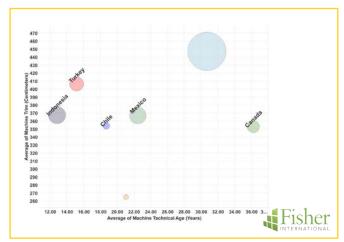


Figure 10: Mexico Tissue Machine Quality versus Trade Partner

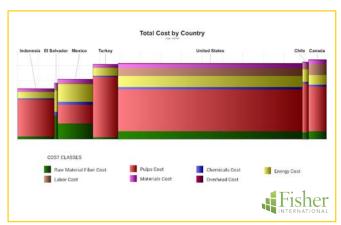


Figure 11: Mexico Tissue Production Cash Cost per Tonne versus Trade Partners

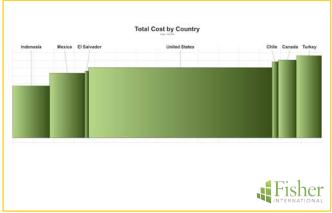


Figure 12: Mexico Tissue Production Cash Cost per Product Case versus Trade Partners

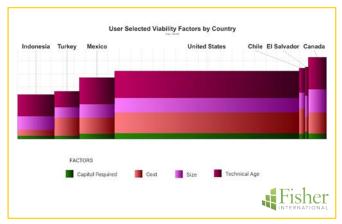


Figure 13: Mexico Tissue Machine Viability versus Trade Partners

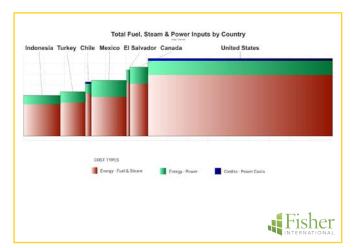


Figure 14: Mexico Tissue Energy Consumption GJ per Tonne versus Trade Partners

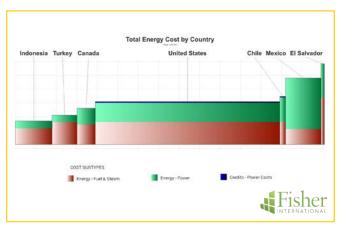


Figure 15: Mexico Tissue Energy Costs per tonne versus Trade Partners

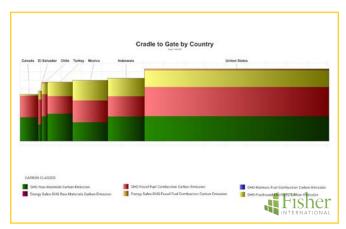


Figure 16: Mexico Tissue Carbon Emissions per Tonne versus Trade Partners

be measured in many ways, depending on what type of comparison is desired. This carbon analysis employs a cradle to gate analysis to include all forms of carbon emitted, including when raw materials are gathered and prepared. Figure 16 shows that Mexico is in the middle of the pack with Chile, Turkey, and Indonesia. Canada on the other hand is very low, helped by its carbon-neutral hydropower. The United States has the highest tissue carbon footprint due to both soft tissue and the large portion of advanced tissue processes employed.

Mexico has grown its tissue business over the past two decades by taking advantage of its location and trade agreement within North America. As a result, most of the Mexican tissue trade, both imports and exports, is with the United States. This has allowed Mexico to grow its business beyond what is needed for domestic tissue consumption and start building a base to develop with other countries within Latin America. In addition, recent expansions with advanced tissue processes allow Mexico to compete for the premium private label business within the United States. This is also a force to compel domestic manufacturers in the United States and Canada to remain competitive in product performance and cost.

Analysis of competitive position requires specifics on tissue producers and individual machines. This article presents a static summary of Mexico's tissue industry today. Fibre prices, exchange rates, and environmental regulations will change, providing some participants with advantages and new challenges. In addition, Mexico's tissue mills will continue to change hands and consolidate, and neighbouring countries may invest in tissue-making capacity, affecting Mexico's imports and exports.



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A STRONG TISSUE CULTURE, REGIONALLY STABLE MEXICO WELL PLACED TO REACT TO ECONOMIC UNCERTAINTIES AHEAD



Ian BellHead of Tissue and Hygiene,
Euromonitor International

Ithough Brazil remains the epicentre of the Latin American tissue market, replacing Mexico as the largest contributor to regional volume sales back in 2007, the comparison belies the stronger tissue culture that exists in Mexico. Population and income levels are critical factors, Mexico with 129 million inhabitants (almost 100 million fewer than Brazil) has a mean household disposable income of close to \$20,000 in 2021, compared to roughly half that figure in Brazil.

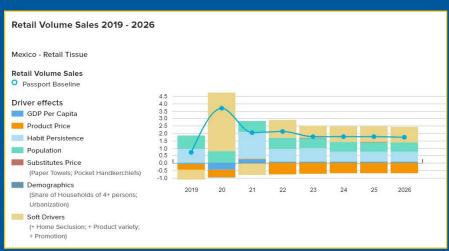
This Mexican market accounted for 25% of Latin American regional volume sales in 2021, a figure that has crept downwards over the last decade as other markets have seen tissue uptake expand through a combination of availability and income increases. The battle over share of regional value is potentially a more interesting story, relatively more stable Mexico taking a 23% share in (USD MSP value sales) and was once again the region's largest value contributor as economics, relatively more

stable Mexico, continued to underpin changing consumer lifestyles, in which tissue products play an important role, which was especially the case during this pandemic period.

International comparisons

By a more international comparison, the tissue market (retail tissue in this comparison) in per household expenditure terms is positive with USD49 is well ahead of the global average (\$40) and respectable when compared to developed markets such as Japan (\$67). The Mexican tissue market, like others, faces uncertain and changing times, the spectre of price inflation likely hampering "real" premiumisation, but there is still much to be positive about the market with annual volume growth of 2% forecast over the medium term.

Habit persistence remains a key element of future growth, meaning that once consumers are engaged with tissue, there is an overwhelming tendency to continue



Source: Euromonitor International

purchasing without significant counterforce. This is the area where the influence of the pandemic presents an opportunity beyond the windfall growth reported in 2020 and 2021 which must be balanced against the disruptive influence of inflation.

Financial insecurity

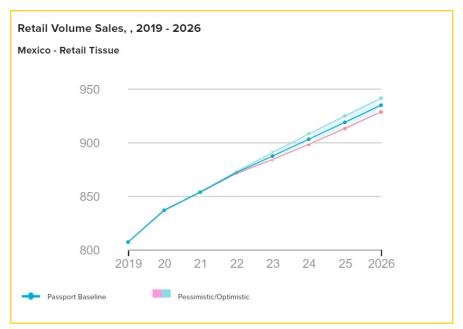
As financial insecurity grows, price remains key for the purchasing decision as retail tissue is a highly competitive category in Mexico and will have to continue to be so to continue to win loyalty. In addition to price inflation for tissue products, specifically set against a more general cost of living background, the stickiness of pandemic lifestyle change is something to keep an eye on, not least the ranks of white-collar workers now more commonly at home.

With the success of home working in Mexico, some workplaces have suggested ongoing flexible working, announcing new work schemes where workers continue to work from home for a few days a week. This would continue to benefit retail tissue over the medium term.

The battle for tissue will inevitably be around the balance of opportunity (need) and pricing, while a further virus wave should not also be ruled out. As such, the price was a key factor in the purchasing decision of retail tissues throughout 2021. Leading player Kimberly-Clark has a large portfolio of brands, while private label maintained its significant presence throughout the year.

Hypermarkets and supermarkets, such as Walmart, Soriana and H-E-B, as well as warehouse clubs, such as Costco, have their own private label brands of toilet paper, offering consumers good-quality products at very accessible prices.

This resulted in brand loyalty for retail tissue products becoming more limited than in other areas of tissue and hygiene, especially when it came to products that are used frequently, such as toilet roll.



Source: Euromonitor International

Trading down

In previous years, premium-positioned products such as two-ply toilet paper had increased their mainstream reach, as they were becoming accessible beyond higher-income households. However, with the impending economic crisis seeing many consumers facing tough expenditure choices, even purchasing basic household goods, such as toilet paper will face new scrutiny. Trading down was already seen as a driver in 2021 as government pandemic financial support receded, meaning that lower-income consumers especially will rely on one-ply toilet paper due to affordability.

Lower-income consumers usually also lack space at home to store large pack sizes, making the option of buying in quantity to get better deals harder. As a result, manufacturers will have to position themselves effectively and work with pack sizes that make them affordable to a broader base of consumers.

With this in mind, private label is therefore expected to rise, attracting consumers with low prices. The increase in private label's shelf space and brands will also aid the growth of private label, with consumers looking for products with better prices and value product perception, easily able to source these from stores. In response, larger players will continue to differentiate themselves through added-value propositions, offering innovation through more absorbent products, natural materials, and attractive designs to be more competitive.

Hygiene as a driver but not of New Product Development

Ongoing hygiene concerns and working from home boosting growth will continue to be a positive influence on sales in 2022, with hygiene concerns continuing to persist, leading consumers to clean surfaces more regularly, heightening sales of products such as paper towels, while facial tissues are being used to cover the face, and limit touching of the face. While consumers continue to highlight hygiene-related behaviour changes around tissue products, it is interesting to point out that product innovation has followed a discernibly different path.

Product innovations focus on convenience, scents and eco-friendly concepts. The leading players will continue to innovate across the forecast period to stand out in the marketplace, especially against the heightened competition from private label options. Manufacturers are expected to focus on elements such as natural ingredients, softer materials and the use of different scents. In Mexico, scents are an important way to differentiate products in what is an incredibly competitive category. In toilet paper, aromas including

PRICE REMAINS KEY FOR THE PURCHASING DECISION AS RETAIL TISSUE IS A HIGHLY COMPETITIVE CATEGORY IN MEXICO AND WILL HAVE TO CONTINUE TO BE SO TO CONTINUE TO WIN LOYALTY. IN ADDITION TO PRICE INFLATION FOR TISSUE PRODUCTS, SPECIFICALLY SET AGAINST A MORE GENERAL COST OF LIVING BACKGROUND, THE STICKINESS OF PANDEMIC LIFESTYLE CHANGE IS SOMETHING TO KEEP AN EYE ON.

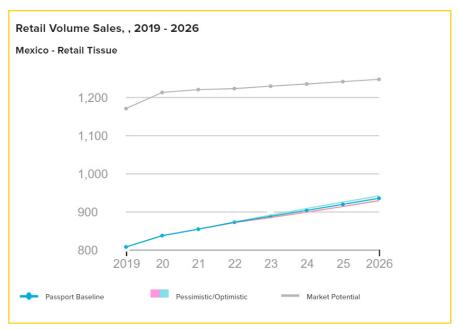
DESPITE OVERALL DISTRIBUTION SHARES REMAINING LARGELY **UNCHANGED IN 2021. GROWTH DID** VARY ACROSS CHANNELS. AND SOME FACTORS HELPED TO SHIFT THESE DYNAMICS. E-COMMERCE. DESPITE ACCOUNTING FOR A LOW SHARE OF SALES. NEARLY DOUBLED ITS SIZE AND GREW 10 TIMES **FASTER THAN THE AVERAGE IN** RETAIL TISSUE. THANKS TO LARGE INTERNET RETAILERS, SUCH AS MAGAZINE LUIZA. ONLINE RETAIL TISSUE SALES GREW DRAMATICALLY. AND IT BECAME AN IMPORTANT **CHANNEL AMONG MORE WEALTHY** CONSUMERS.

vanilla, almond, aloe vera, cocoa, orchid and cotton are very popular, with players expected to add additional scents over the coming years.

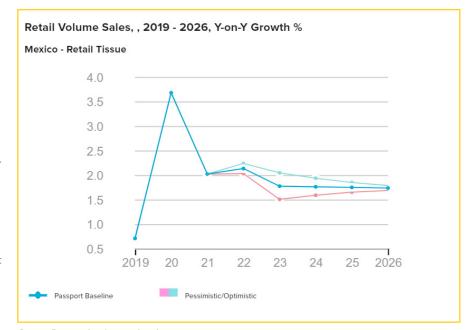
In facial tissues, scents including fruit (for example, strawberry, coconut, pineapple and apple), floral and fresh aromas using menthol are popular. These features tend not to be found in private label products, making scent an important way for brands to differentiate their offer. Different product packaging with more attractive designs and slogans is also expected to be seen, with products advertising themselves as softer and luxurious, focusing on the experience of using the product. Another innovation expected to be seen is the use of special packaging, including special seasonal designs for Christmas and festive periods, as well as packaging focused on ease and convenience, such as pouch bags for on-the-go use.

Channel shifts

Despite overall distribution shares remaining largely unchanged in 2021, growth did vary across channels, and some factors helped to shift these dynamics. E-commerce, despite accounting for a low share of sales, nearly doubled its size and grew 10 times faster than the average in retail tissue. Thanks to large internet retailers, such as Magazine Luiza, online retail tissue sales grew dramatically, and it



Source: Euromonitor International



Source: Euromonitor International

became an important channel among more wealthy consumers.

Meanwhile, supermarkets, hypermarkets and traditional grocery retailers grew aligned with the category average and remained the main distribution channels for retail tissue, especially when consumers stockpiled. However, convenience stores, albeit accounting for a low share of value sales, also saw important growth in 2021, as their location in residential neighbourhoods was essential in terms of offering consumers convenience.

The growth of this channel, which has outlets with less space and is used for smaller purchases, will require manufacturers to adapt to offer smaller pack sizes.

The shape of things to come

Although Mexico's experience during the height of the pandemic and in this latest phase is far from unique, the tissue market does emerge as an overall beneficiary of lifestyle changes.

The big question for the industry remains, as it often does - can the economy support consumers' changed relationship with tissue and reinvigorate categories that were left behind. Given the scale of economic disruption coming, it is increasingly difficult to discern if this particular glass is half full or half empty, and our forecast model concurs with this observation.

WITH A SIXTH TISSUE MACHINE DUE TO BE STARTED-UP IN THE LAST QUARTER OF 2023, CONVERTIPAP PROVES IT IS ONE STEP AHEAD

The best laid development plans on 2018 were tested during the pandemic years. Today, continued investments have brought the goal of 125,000tpy production target into sight. TWM Senior Editor Helen Morris talked to Convertipap General Director Luis Alberto Reséndiz.

Reséndiz, the General Director of family-run Mexican tissue manufacturer Convertipap, concludes with a fitting reference to a quote by Chinese business magnate, investor, and philanthropist Jack Ma:

"Opportunity is in the place where people are complaining."

The idea that Convertipap has been able to see opportunities, where others see troubles, is perhaps why it has been able to elevate itself a step further during a global pandemic from when TWM first met Reséndiz in 2018.

The philosophy has been a constant throughout his thoughts when discussing the past few years. Four ago when we walked around the company's Tlaxcala plant, located a four-hour drive east from the country's thriving Mexico City, there had already been an impressive range of planning and action taken since Convertipap was first established in 2000 by Reséndiz's father, Mr. Nicolás Reséndiz.

It had evolved from producing just kraft paper and 10tpd of napkins when it started out, to two plants located in the Mexican Republic – the second in Ixtapaluca –then had three tissue machines producing more than 55,000 tonnes of tissue paper, towel or napkins per year, and one machine producing kraft paper.

Most recent investments have been a Recard-supplied tissue machine that had started-up in June 2017, boosting the company's production capacity by 25,000tpy and, in November 2017, a PCMC Amica Matrix line expanded production further.

In 2018, Reséndiz had elaborated on how consumer growth figures in Mexico were up to 6%, and back then, there was "not enough tissue" to supply the population. "The consumer tissue market is growing rapidly, growing faster than Mexico's population and even though GDP growth is slowing down demand for tissue products continues to grow."

The consumer tissue market was forecast to continue to grow at 5% year-on-year, while private label products are growing at 6% year-on-year. "There are a lot of opportunities to be taken," he says.





Above: A PCMC Amica Matrix line which started up in 2017 expanded production further. Below, best selling products from Convertipap's range of green tissue products

2018 planning targeted seizing those opportunities, advancing the company's ability to adapt and respond, to play close attention to the changes in the market so it could react on time. He says: "We are a family business that has grown because of a lot of effort, sacrifice and work; therefore, everything we do, is done looking forward to continue consolidating and growing with firm steps in the tissue paper market in Mexico with a clear vision, passion and our own means."

Then the pandemic hit, and while the main challenge suddenly became just to continue producing the same high-quality products, the outlook for tissue was still healthy. During our interview in 2022 he says: "The past few years have seen a lot of ups and downs due to all the health issues that the world has faced. But based on a lot of effort and daily dedication, where all our employees in both plants took a main role showing a full commitment with our vision, we were able to continue producing high-quality products which allowed us to keep in business despite the many challenges faced every day."

He adds that the company has also not lost sight of the requirements that consumers are facing due to financial





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issues that have affected Mexican families: "Simply, we have had to pay attention to what is most important - the consumers."

Investing in machinery has been the backbone reaction to meeting changing customer demands. With a new emphasis on hygiene following the outbreak of the global pandemic, Convertipap has expanded its production base. In January 2021, the Tlaxcala plant started-up its fifth tissue paper machine.

Now the company's two paper mills operate five machines, of which four are dedicated to tissue paper and one to brown paper. The plants produce 80,000tpy of tissue and 15,000tpy of brown paper for the consumer private brands and own brands markets, with 90% of production for toilet paper and 10% for AfH.

A sixth tissue machine is also on the cards, with start-up planned for the last quarter of 2023. A new deinking plant will be installed to support it, increasing the company's production to 30,000tpy to reach the goal of 125,000tpy. Three more lines will be installed and will convert consumer products, increasing the automation of current production lines to "provide a more energy efficient operation, a better product and service," he says.

There are already six converting lines, five lines for AfH and also for the manufacture of napkins in different formats and sizes.

2022 will be "a year of financial challenges" focused on investing correctly in products that "will undoubtedly continue to grow, and that, hand-in-hand with suppliers from both, machinery and supplies, will make possible the development of new options that can meet our customer needs at a cost that is according to market requirements."

Demand for tissue products in Mexico continues to grow: "Taking into account that Mexico had a population growth of close to 1.3% during 2021 (it's currently close to 130 million in total) and that this trend will continue in the following years, toilet tissue is evidently a basic necessity product. It will always be a challenge for producers of paper in Mexico and the world to supply the increasing demand."

As with businesses across the globe, the company has also faced an increase in

NOW THE COMPANY'S TWO PAPER MILLS OPERATE FIVE MACHINES, OF WHICH FOUR ARE DEDICATED TO TISSUE PAPER AND ONE TO BROWN PAPER. THE PLANTS PRODUCE 80,000TPY OF TISSUE AND 15,000TPY OF BROWN PAPER FOR THE CONSUMER PRIVATE BRANDS AND OWN BRANDS MARKETS, WITH 90% OF PRODUCTION FOR TOILET PAPER AND 10% FOR AFH.

commodity prices in the national territory, such as natural gas which is up +60/70%, recycled fibre which has increased more than 70%, chemicals which have increased more than 50%, and plastics which are up +80/90%.

"It has all made profit margins low. However, it has also been impossible to pass on these increases to customers and end-users in the same way. This means we can't fall asleep waiting for everything to improve, but act efficiently, encourage our employees to observe and recommend adjustments; as well as open our eyes to these opportunities that are in front of us and react clearly and with intention.

"Market conditions at the moment may not be the best; however, for the company, it is just those situations that we see as opportunities to make product innovations; as well as new sales strategies that manage to reactivate the circular economy of which we are part of, being very attentive to what happens outside with customers and consumers."

To again quote Jack Ma: "If you want to grow, find a good opportunity. Today, if you want to be a great company, think about what social problem you could solve."



Foundation stone: (L-r) Convertipap founder, Mr. Nicolás Reséndiz, and his son Luis Alberto Reséndiz with the Primera Piedra Ampliacion of the Tlaxcala plant

CONTROLLED CAPACITY TO MEET DEMAND GROWING THROUGH MOVE INTO PRIVATE LABEL AND RETURNING TOURIST SECTOR

Juan José Mubarak Helú Villavicencio, Sales & Marketing Director of Fábrica de Papel San Francisco, forecasts a 5% plus tonnage sales growth ahead. Report by TWM Senior Editor Helen Morris.



here is a real sense of being on the starting line for growth for Fábrica de Papel San Francisco, especially in the vision laid out by Sales & Marketing Director Juan José Mubarak Helú Villavicencio from his base in Mexicalli, the capital city of the Mexican state of Baja California.

The time of caution and restraint brought about by the pandemic are, he implies without actually using the word, over. "We expect ..." is the phrase which punctuates his assessment of the company's prospects for the near future. The perhaps surprisingly slow start in getting into private label during recent years is also about to come to an end.

But first, the evidence of the restraint: "Obviously, because of the pandemic we have had to be conservative about the growth rate, especially in the AfH market.

"During 2020, the AfH market decreased around 3.8%. But in 2021, this market has grown back by around 13.7%.

And: "According to the main market research companies, the tissue market will not grow this year."

Also: "We don't have private labels in the AfH market, but private labels do represent around 20% in the consumer market."

Now to the more optimistic outlook: "Currently we have a lot of opportunities to grow because we have the capacity to fulfil our clients' demands at the time they request it. We have seen some of our competitors have experienced some troubles to be able to meet their customers' demands on time. Generally, we are seeing the private label sector is growing faster than regular brands in Mexico, mainly because the trend to offer products with the brand of the retailer generates synergies in

cost distribution, price point and exhibitions that contribute to the preference of the consumer."

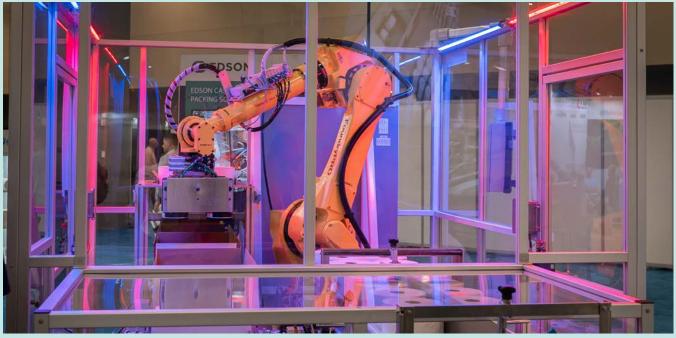
On AfH and private label: "In 2022, we expect that the AfH market will grow by more than 6%. Private label for AfH was not a big player in the past, but right now it is moving forward very quickly, so we have to consider participating in this segment in the future. We expect the AfH market to continue growing despite the Covid-19 impact because the industrial activity will increase faster than previous years. We also expect that the tourist sector – which drives up a lot of tissue and towel demand here will also recover soon. We also expect that the At Home/consumer market will grow at the usual rate of 4% every year.

All of which generates an expected sales growth goal at 5% or more in tonnage for Fábrica de Papel San Francisco.

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SIDE LOAD OR TOP LOAD FOR YOUR CASE AND TRAY PACKING MACHINE? HOW TO MAKE AN INFORMED CHOICE.

Josh Goulet, Account Manager, Edson, explains the pros and cons that best suit your system.



Unveiled in Miami: Edson's new 4000TL-Robotic Top Load Case Packer

hen it comes to packing converted paper and tissue products, what style of machine is best: side load or top load? The simplest answer is – it depends.

Selecting the right case and tray packing solution depends on several factors, most notably desired line speeds, the footprint of available space you have for a system, the products to be packaged and how many different SKUs you would like the system to run. Taking these factors into consideration, there is a general rule when it comes to case and tray packing solutions for converted paper and tissue applications that says if you are looking to run 20 cases or more a minute, a side-load machine is a better fit.

Here is why: a side-load case and tray packing machine offers several speed-related advantages, namely able to handle the three critical packing functions of erecting, filling and sealing to deliver a fully integrated solution. The act of filling cases

from a side-load design is slightly faster than a top-load design where product is picked robotically and dropped into a case. Can a top-load system achieve 20+ cases a minute? Yes it can, but to do this you need to pack multiple cases at a time, and the system requires multiple robots – both of which grows your footprint and initial cost.

Side load is often the preferred design for many larger converted paper and tissue manufacturers that may run the same application 24/7 where they are looking to pack cases as fast as possible. A common high-speed application is packing two 12-bundle packs of paper towel in a case. The side-load machine can take corrugate blanks and erect them, collate the product into the case configuration and slide them into the case, close the flaps and seal it at rates between 20 and 30 cases per minute.

On the other hand, when speed is not the primary driver of an application, a topload case and tray packing machine may be a better fit. The advantages a top-load solution brings to small-to-medium sized converted paper and tissue manufacturers are flexibility, a small footprint and labour savings.

Running at a rate of about 12 - 15 cases per minute, a top-load solution uses a servo driven gantry system or robots to pick and place product into cases. Flexibility is derived from different end-of-arm tooling options that allow a top-load machine to pack a wide variety of SKUs for the away-from-home towel and tissue industries. A top-load machine also brings a small footprint to a plant floor. For example, if your hand-packing operation uses a 10ft x 10ft space, a top-load design fits in nicely within those same dimensions without taking up any additional space.

And speaking of hand-packing operations, moving toward a top-load case and tray packing machine offers customers great savings on labour. Everyone knows

the hiring challenges these days because of the ongoing labour shortage. Hiring people is one thing; getting them to show up on a consistent basis is another. This is an area where adding automation on your end-ofline operations can really provide a strong and quick ROI.

Replacing your manual hand-packing operation, which can be staffed by as many as 10 employees, with an automated topload system can greatly reduce the number of employees needed to work that line. Now, instead of needing several employees to pack, the entire operation can be staffed by just one or two. Automation reduces the number of employees needed for your endof-line processes; those people can now relocate to other areas where they can be more beneficial to the company.

Last month, Edson unveiled its new 4000TL-Robotic Top Load Case Packer at Tissue World in Miami. This machine was designed with simplicity in mind as it does not require much adjustability. During changeover from one product to another, the machine's end-of-arm tooling automatically adjusts itself. An operator simply inputs the recipe or SKU he or she would like to run, and the controls make the modifications (operators may have to manually adjust lane guiding to correspond with the SKU being run). In comparison, traditional case and tray packing machines

typically have multiple change parts that need replacing and adjusting to run different SKUs.

While a top-load case and tray packing solution operates at slower speeds, its flexibility to manage multiple SKUs in smaller case sizes is an attractive feature, especially for e-commerce applications. According to Statista.com, a business data platform that specializes in market and consumer data, e-commerce sales in the United States accounted for 13.3 percent of all retail sales for the second quarter of 2021, which represents an increase of 2.5 percent from the same quarter just two years ago. Globally, e-commerce sales accounted for \$4.28 trillion (U.S. dollars) in 2020, and are expected to grow to \$5.4 trillion in 2022.

As people are embracing online shopping, those purchases are including converted paper products as well. According to a recent article published in The Research Business Company, a market research-based website, "Increasing demand for online shopping is expected to help the converted paper products (bath & kitchen towel) manufacturing market grow. Manufacturers can now sell their products on a larger platform than before, which will increase their customer base geographically, driving the growth of the converted paper products manufacturing market."



Josh Goulet: Moving toward a top-load case and tray packing machine offers savings on labour

A machine like the 4000TL is well suited to accommodate e-commerce sales. These types of orders are generally smaller runs, with fewer individual rolls. An online search shows you can purchase toilet paper ranging in sizes from a single roll, all the way up to large mega-packs. Whether you are a smaller tissue manufacturer or one of the Fortune 500 giants, e-commerce sales are affecting everyone.

This article was written for TWM by Josh Goulet, Account Manager, Edson.



E-commerce: the 4000TL is well suited to accommodate increased e-commerce demand



INFINITY ADVANCES ITS PACKAGING MACHINERY WITH COMPACT SPACE–SAVING DIVERSITY

Automatically refilling seven-shelf poly bagger reduces wicket length and increases capacity. Report for TWM by Gregory Sense, Marketing Coordinator, Infinity Machine & Engineering Corp.



Infinity's latest packaging innovation: poly baggers as versatile as the packing they support

hile not as conventional as poly bundles, poly bags have unique benefits and applications for tissue product packaging. While bundles are suitable for rolled product, folded product like napkins are too unstable and need to be packaged in poly bags. However, poly bags are not only for folded products, they are also often used on industrial rolls as the bag end seals are easy to open and are better looking than bundle seals.

While poly bags are versatile, the packaging machines that utilise them are not. Most poly baggers on the market today have a long, belted wicket in order to move poly bags to the machine loader. These wickets jut out from the side of the machine and are often 10 feet (three metres) long. Because of the wicket's large size and awkward placement, these machines take up a large amount of floor space and can greatly reduce the accessibility of a facility.

In addition to this, the traditional belted wicket system has a limited capacity of bags that can be loaded at a time, reducing bagging efficiency. However, Infinity Machine & Engineering Corp. has retooled

its poly bagger to eliminate these major drawbacks.

Infinity has developed a multi-shelf wicket system for its G10 and G20 poly baggers that eliminates nine feet of wicket length and simultaneously increases poly bag capacity. The new multi-shelf wicket system features seven shelves that can each be filled up to two inches high with poly bags. When one shelf is empty, the machine automatically retracts the shelf and replaces it with a full one.

The switch cycle for the Infinity multishelf wicket system is also comparable to that of traditional belted wickets, as shelves are swapped and back in production in 15 seconds. Empty retracted shelfs are annunciated by an illuminated signal and can be restocked with bags safely and efficiently while the machine is in operation. The compact design of the multi-shelf system eliminates a roughly three feet by nine feet section of machine, dramatically decreasing the amount of space needed to accommodate a poly bagger. The trays on Infinity's new wicket system are also length adjustable, allowing the machine to run shorter poly bags at higher speeds.

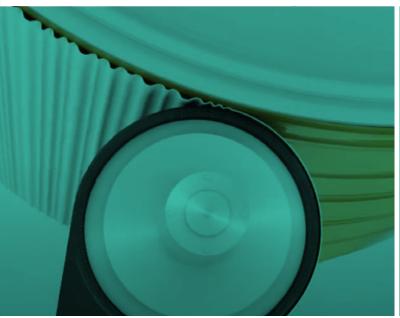
While Infinity has radically improved the design of its poly bagger, the new multishelf wicket system is still compatible with Infinity's signature Infusion 3 in 1 modular system. The new more efficient poly bagging module can be seamlessly swapped in and out of a common infeed with casepacking and bundling modules, creating the pinnacle of packaging diversity.

Infinity's latest innovation in tissue packaging machinery has finally enabled poly baggers to be as versatile as the packing they support.



The new multi-shelf wicket system: seven shelves can each be filled up to two inches high with poly bags

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Π

KORBER BUSINESS AREA TISSUE TARGETS E-COMMERCE AND SUSTAINABLE PACKAGING WITH LAUNCH OF PATENTED CASMATIC ZEPHYRUS

A significant increase in the on-line purchase of tissue products, brought about by the pandemic, is the latest trend for the global packaging market. Nicolò Squarzoni, Product Manager at Körber Business Area Tissue, discusses the company's latest machinery launch



The Casmatic Zephyrus: A new era of packaging with delta robots' technology

n 2020, the Covid-19 pandemic led to a significant increase in growth across all tissue categories, excluding napkins. Furthermore, during 2021 - 2026 the global tissue paper market is expected to grow at a CAGR of 6.45%. In this scenario, although 90% of tissue sales will still occur in-store, growth of the e-commerce channel will top 15% for almost all tissue and towel categories. Tissue is projected to be one of the fastest growing e-commerce product categories. These developments will also offer up opportunity for producers to propose sustainable packaging options to the market such as kraft paper, bioplastic and recycled LPDE.

Such increases in demands in both e-commerce and sustainability have been caused by the pandemic and are trends that will drive the tissue market in the coming years.

In response, Körber Business Area Tissue has launched the Casmatic Zephyrus, which represents a new era of packaging in the tissue industry due to a patented application of delta robots' technology.

The Casmatic Zephyrus is able to respond to both e-commerce and sustainability challenges with an integrated and highly automated solution. Modularity and flexibility have been the key drivers during the entire development stage and as a result this solution features four different modules: infeed, box former, pick and place and outfeed.

The box former module picks the flat boxes from the stack, applies glue and forms the boxes. The infeed module receives the tissue products from the upstream machines and separates them according to the selected pack format. In the pick and place module the delta robots pick the grouped products and fill the boxes, which are then glued and sealed in the outfeed module.

Casmatic Zephyrus offers high flexibility in production thanks to the possibility of increasing its production capacity by adding extra box former modules and extra pick and place modules for a speed range of 45 – 180 boxes per minute. It can be integrated into an existing packaging line between the log saw and standard packaging machines

with the possibility of producing in three different modes:

- Full production: tissue products are all packed by Casmatic Zephyrus.
- Mixed production: tissue products are packed by both Casmatic Zephyrus and standard packaging machines.
- Bypass: Casmatic Zephyrus let pass through all the products which are then packed by the standard machines only.

The customer can then produce additional and sustainable pack formats made from cardboard and microwaved carton, with the possibility to expand its business with minimum impact on the existing layout.

The delta robots ensure maximum flexibility and precision in product handling, providing the ability to package different products at the same time and even two different pack formats at the same time.

The modular design guarantees fast installation and commissioning while the modern frame design with full plexiglass doors guarantees high visibility of all

mechanical parts during production.

With the Casmatic Zephyrus, Körber has introduced a revolutionary packaging concept responding to both the sustainability and e-commerce emerging market trends. With this new solution, boxes can be made out of 100% recycled cardboard, and once opened, the box can be closed again, keeping the product uncontaminated and easy to store.

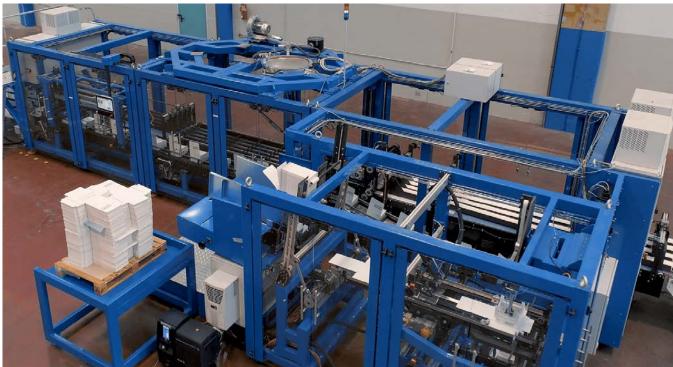
The possibility to produce "shipping ready" boxes allows customers to develop and increase their e-commerce business in a simple, fast, and personalised way.

This article was written for TWM by Nicolò Squarzoni, Product Manager at Körber Business Area Tissue.

THE CASMATIC ZEPHYRUS IS ABLE
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Nicolò Squarzoni





The Casmatic Zephyrus: A new era of packaging with delta robots' technology

E ExitIssues

NORTH AMERICA'S TISSUE FINANCES ARE STRONG... BUT AGEING MACHINERY WILL NEED TO BE REPLACED TO MEET THE RISE OF CHINA AND EUROPE

With four of the top 10 largest global tissue manufacturers in China, future North American investments are set to target advances in scale and technology, and over 80% of the new capacity is believed to target the private label market. Market trends report by Sanna Sosa, Senior Principal, AFRY USA.



Sanna Sosa Senior Principal, AFRY USA

nvestments in new large-scale stateof the-art tissue manufacturing assets
continue to be active in North America,
although in terms of the global tissue
investment context, Asian and European
tissue producers have surpassed North
American producers in the race for capacity
growth. The private label segment is
expected to continue to grow in North
America, which includes the US, Canada and
Mexico. Many new machinery investments
are targeting the sector, especially with
ultra-premium quality technologies.

The long term financial performance of the tissue sector is healthy, typically at or above 15% EBITDA, but impacted by the cyclicality of market pulp prices. Although pulp is the key cost driver for tissue companies, pulp integration remains rare.

Investment: new large scale tissue machines continue to be built in North America

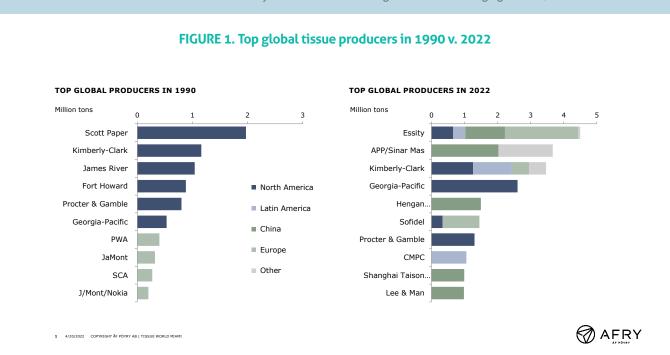
Over the past three decades, the global tissue sector has gone through a strong period of growth, capacity build and consolidation. If we take a quick peek down memory lane and think how the global

top 10 players' landscape looked like in the 1990s (Figure 1), we only see North American and European companies. In fact, the six largest tissue companies in the world were all North American companies.

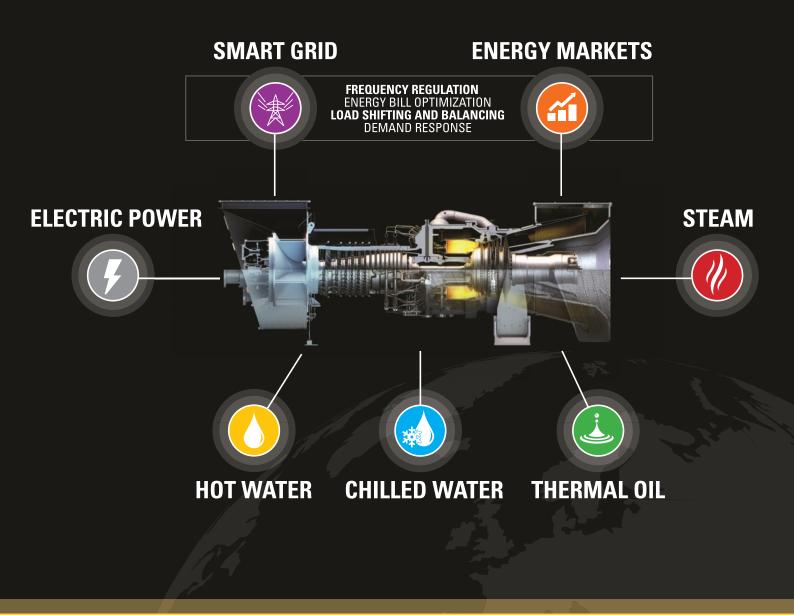
In the late Nineties we saw Asian - back in the day mainly Japanese - companies entre the top 10 list, and at the same time industry consolidation started to take place and was the driving investment force in the early 2000s. But it wasn't until the beginning of the 2010s when we saw the Asian companies starting to grow significantly and reshuffling the global leading players' landscape.

Currently, four of the top 10 largest global tissue manufacturers are from China. Fittingly, China has become the largest tissue machine capacity base in the world at close to 17 million tonnes of installed capacity, according to AFRY's global tissue asset database. In comparison, here in North America we are estimating the installed tissue manufacturing capacity at close to 10 million tonnes.

As a results of the aggressive growth and investments in the tissue sector in emerging markets, the North American



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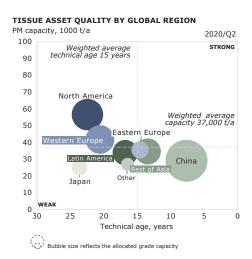
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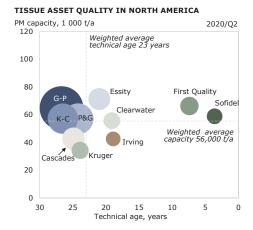
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FIGURE 2. Tissue asset quality (scale and technical age) – global v. North America





AFRY

tissue assets have become old (23 years on average on technical age) in comparison to what is found in other regions (the average tissue machine technical age globally is at 15 years; while only eight years in China), although the North American tissue machines are still on average larger (on average at about 56,000tpy) than in other regions (global average tissue machine size at 37,000tpy) (FIGURE 2).

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If we focus on North America, the leading North American tissue manufacturers have been consolidating and renewing their asset base, while the medium size players have been growing their market share. Currently the top three producers of tissue account for 55% of the installed capacity in the market, which is down 5%-points from just six years ago. Both Georgia-Pacific and Kimberly-Clark have idled tissue machines at Augusta (two machines in 2018), Crossett (one machine in 2019) and Fullerton (two PMs in 2020), while bringing in new capacity online, but with overall minor increase or decrease in the company tissue capacity. At the same time, producers like First Quality Tissue, Sofidel, Kruger, Irving, Clearwater have been growing their tissue capacity footprint. And the same trend is set to continue.

There are seven new tissue machines with a total capacity of about 450,000tpy announced to enter the market over the next three years (FIGURE 3). Six of those are by the medium size or newer entrants to the North American tissue market.

Over 80% of the new capacity additions are believed to mainly target the retail private label market. There is only one dedicated AfH tissue project announced by ST Paper, reflecting the continued challenges in the AfH markets that is slowly starting to recover from Covid-19, and how

the pandemic has permanently changed people's preferences when it comes to working from home, and perhaps even business travel, as well as the sector's struggle with availability of high-quality recycled fibre raw material.

Technology – growth in high quality TAD technology capacity

The North American tissue landscape is changing from tissue manufacturing scale and technology perspective, but less so in terms of what comes to fibre (pulp) integration (or lack thereof).

In the pulp and paper industry, capacity is added in big increments. We have typically, on average, seen two new tissue machines being built per year in North America. The new state-of-the-art tissue machines are close to 70,000tpy per machine in a market that is growing on the retail tissue side under 100,000tpy, hence impacting the supply/demand balance. The new state-of-the-art manufacturing capacity also moves the yardstick for manufacturing efficiencies and cost competitiveness.

Supply/demand management has also in the tissue sector fallen on the shoulders of the biggest industry players. We have seen that dynamic to play out as well in the other sectors of the broader pulp and paper industry, for example in uncoated freesheet and containerboard. For consumers, the new technology investments and innovations translate into better products, new product qualities or features, for example in the packaging of products.

Four of the new tissue machines on our new capacity additions map are TAD machines. In capacity terms we are estimating 62% of the new upcoming tissue capacity will be TAD technology and will increase the share of high-quality TAD

tissue products especially in the private label segment.

Compared to product qualities and production technologies the branded retail tissue market, the private label segment still has catching up to do when it comes to the share of TAD technology and products. Based on estimates in AFRY's tissue database, TAD and other structured higher quality tissue manufacturing technologies represent 56% of the branded retail tissue production, while the share of TAD and other structured higher quality tissue manufacturing technologies at the private label sector is still under 40%.

None of the new tissue machine projects are pulp integrated (on-site). However, Irving's goal is to supply its Macon tissue mill partially from its pulp mill in St. John, NB. Overall, in North America only six tissue mills are backward integrated to virgin pulp (on-site), which is less than 10% of the total 74 tissue mills in the market.

However, it is important to remember that pulp integration in the tissue sector is low not only in North America but globally. In China, there is fibre integration at tissue mills, but mostly to nonwood pulp e.g. hamboo.

We know that pulp represents two-thirds of tissue (jumbo roll) manufacturing costs, hence let's explore how tissue companies' financial performance has been affected by market pulp price cycles.

Profitability – attractive at 15-20%, but sensitive on market pulp cycles

Overall tissue company margins have been attractive at 15-20%, but sensitive to market pulp prices. In periods of high pulp prices, the EBITDA performance of North American tissue companies tends to suffer

FIGURE 3. New announced tissue capacity in North America

NEW TISSUE PROJECTS



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anywhere from 5-8%-points on average. Not surprisingly, considering that pulp represents as much as 2/3 of jumbo roll tissue manufacturing costs and high pulp prices can drive close to \$200/t increase into manufacturing costs.

Pulp integrated tissue mills have lower, and more stable, manufacturing costs compared to the tissue mills dependent on market pulp. The cost difference between the pulp integrated tissue manufacturing operations vs mills using market pulp is estimated at above \$300/t, based on AFRY's tissue manufacturing cost benchmarking tools (of course highly depending on the market pulp price cycle).

Aside from raw material costs, the large At-Home, brand-oriented tissue companies still have a clear margin advantage to their smaller, private label-

oriented competitors. Likely driven by branded retail tissue products' continued ability to command a premium price. However, the growth of medium-size companies will challenge the incumbents with their modern manufacturing assets and focus on the continuously expanding private label market. Hence, focus on asset footprint rationalisation and restructuring programmes to improve EBITDA performance from the cost side is likely to continue.

State of the industry

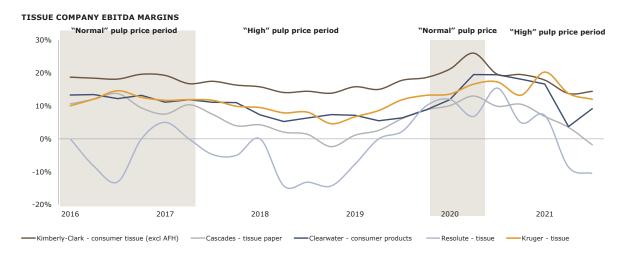
The essential industry's financial performance is strong, although market pulp price cycles continue to challenge the consistency of the financial performance. Retail tissue companies had a record year in sales growth and margins in 2020, thanks

to tissue product panic buying during the pandemic and low market pulp prices. The escalation of market pulp prices and deflated demand pressed down margin performance in 2021 for tissue companies.

Tissue manufacturing asset investments in North America continue active. Overall the tissue machine scale is increasing via investments in state-of-the-art large scale assets, and as small tissue machines are closed. The trend towards TAD technology machines continues, targeting the retail private label market. The capacity growth is likely to create at least short-term supply/demand pressures, until the companies with largest asset and capacity footprints are likely to remove high-cost capacity. For their margin's sake.

STATE OF THE INDUSTRY

FIGURE 4. Tissue company EBITDA performance



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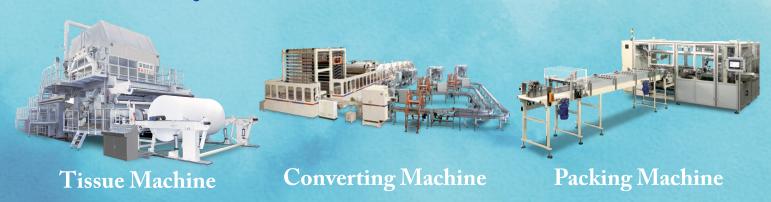




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