

TWMM

TISSUE WORLD MAGAZINE

The independent news provider for the global tissue business

NORTH AMERICA

TISSUE'S UNPRECEDENTED BOOM
... AND RECORD NOSEDIVE

AT-HOME SURGES, AfH SLUMPS
BUT PREDICTED TO RECOVER

Plus ...

Analysis of tissue demand trajectories through the rest of the pandemic

Projects Survey

Tissue projects for 2020, 2021 and 2022

PM Technical Theme

The world's leading PM suppliers discuss their latest technologies

MarketIssues

WEPA's Hendrik Otto: People's hygiene awareness has grown ... we expect it to rise even further

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ConsumerSpeak

'I just couldn't send my vintage giant tissue boxes from the 1930s to landfill'

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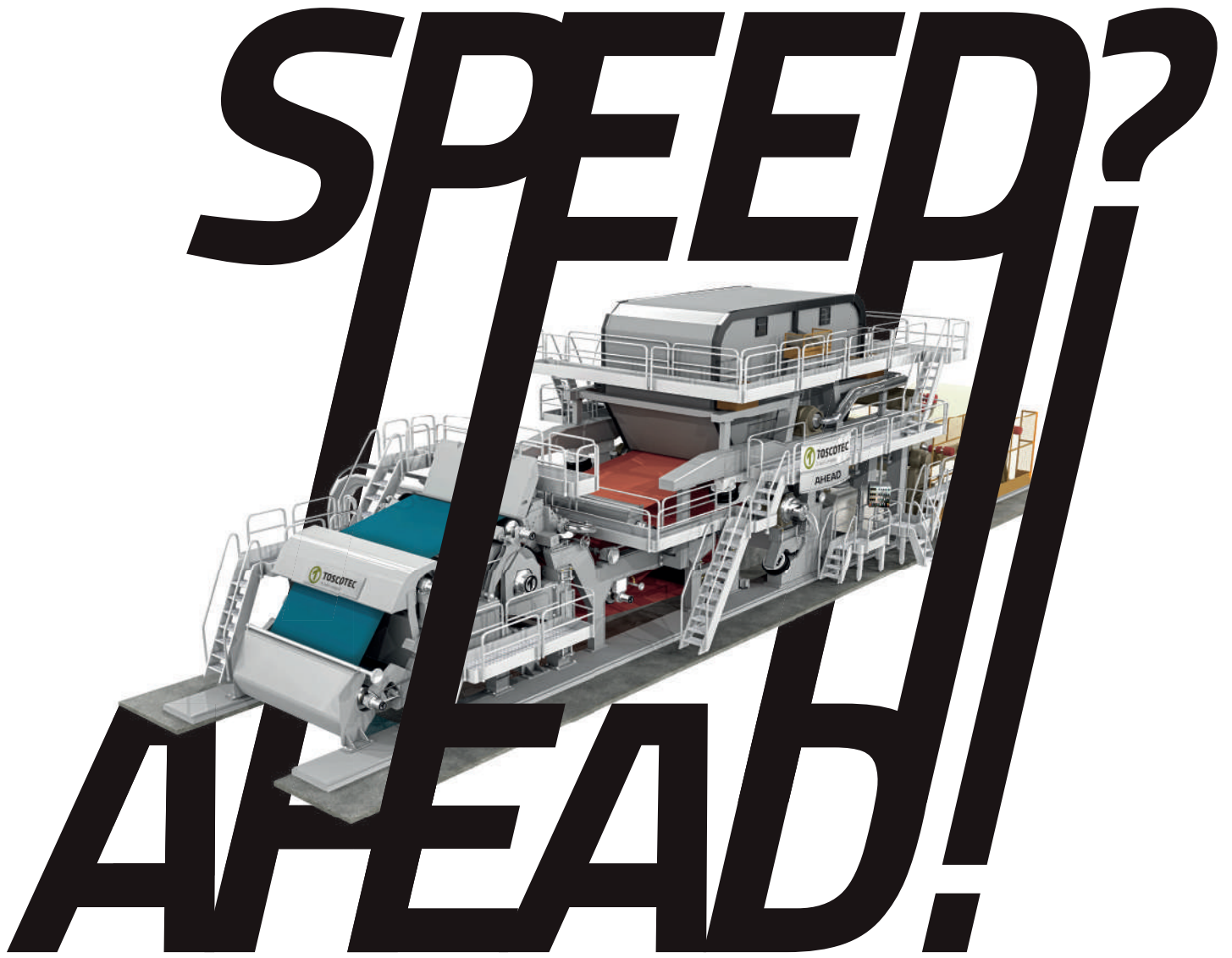
▲ North America: Regional Report

Kruger Product's 'dynamic' 2020 continues with a major start-up at home and planned expansion into the US market. Greater emphasis is given to consumer insights, branding architecture, quality segmentation, data analytics to "up our game at the front-end" says Chief Executive Dino Bianco.

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Cover: Following the outbreak of Covid-19, demand in North America's At-Home market increases as its AfH sector drops. Image by Contrast Creative, Manchester, UK



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NORTH AMERICAN TISSUE'S UNPRECEDENTED BOOM ... AND A RECORD NOSEDIVE

Helen Morris

Senior Editor, Tissue World Magazine



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The phrase 'boom and bust' is traditionally used in a sequential sense. If a boom gets out of control it may lead to an economic collapse or a major slowdown in subsequent years.

As TWM's extensive regional analyses show, North American tissue is going through an extraordinary combination of the two at once. Consumer tissue is surging – commercial tissue is in an unprecedented decline. Hygiene and AfH sectors reaching opposite extremes. At-Home in boom, while AfH in ... not bust, of course, but as HoReCa has collapsed and so many commercial outlets remain shut or restricted, in doubt about when the return will begin and at what level it will return.

US At-Home converted product shipments touched 37% in March. AfH shipments are expected to record negative growth equivalent to during the Great Recession in 2009.

Euromonitor International reports the unprecedented boom and the record nosedive with tissue still in the grip of extreme pandemic pressure. Fisher International extrapolates the North American tissue demand trajectory through the rest of the pandemic: infection rates to get worse until the end of Q2 or Q3 2021; volume recoveries of 50-75% in this sector in the next two years; and consumer and commercial tissue demand mix significantly changed when we finally reach the 'New Normal.'

On the boom side of the scales, Kevin Otero, Chief Executive at Arizona-based Royal Paper, gives an extensive insight into what this year has been like inside a company responding to the many challenges posed by the pandemic. Flexing up, as he puts it: "Overall, 2020 was a record year of growth for us. We expect 2021 to be the same."

And Dino Bianco, Kruger Products Chief Executive, explains how the drop in AfH demand is closely linked to the outbreak of Covid, and the re-opening up of economies. A rebound is expected: "There is pent-up demand for AfH. We saw a bit of it in the summer as restaurants and bars started to open up. So we do expect this sector to recover."

Across this issue, we report on the sense of a shift in North American tissue. After a year of red flags, 2021 promises yet more significant flag waving – as well as opportunity. US debt is at a record level, touching \$28 trillion. World-leading-economy status is forecast to be lost to China by 2028. Mexico is an emerging tissue performer. And a major question for the future is how the North American net trade balance in tissue will develop.

A surge in remote controlled expertise

Remote help offered by top tissue machinery suppliers has evolved into expert remote control being taken up by more paper manufacturers ... a development inspired by pandemic restrictions.

Performance centres are now securely connected 24/7 directly to the production lines of their customers in the commissioning and start-up phases, but also during normal operation.

The trend is one among many discussed by leading executives from the world's major paper machinery manufacturers who assess their companies' priority issues in Technical Theme.

TWM talks to Andritz, Baosao, Kawano Zoki, Toscotec and Valmet about saving energy, CO2 emissions, fibre usage, market concentration – and Covid-19.

A rare plus point for health in the days of pandemic

Even as hopes grow that the various vaccines coming on stream will begin the fight back against the Covid virus, it has been hard to find any good news in the long trail of health misery ... but here is a small but welcome plus, for the people in Japan.

In recounting the pluses and minuses of the industry, Shinji Goda, Director and General Manager of Engineering, Kawano Zoki, points out this beneficial fact. Hygiene product demand generally has gone up, but the demand for facial tissue has decreased. The reason: a decline in the number of cold and pollen allergy patients because people there are wearing masks ... all the time.

A portrait of Hendrik Otto, Chief Operating Officer, wearing a dark suit, white shirt, and patterned tie, with glasses. He is looking directly at the camera with a slight smile. The background is a light blue wall with vertical lines.

PEOPLE'S HYGIENE AWARENESS HAS GROWN DURING THE PAST MONTHS ... WE EXPECT IT TO RISE EVEN FURTHER

Chief Operating Officer Hendrik Otto assesses the opportunities and challenges facing WEPA production sites in Germany, France, Italy, Poland, the UK and the Netherlands as Covid-19's varying impact continues.

The pandemic had significant impact across the entire tissue paper industry. Due to increased sales in the retail sector, orders increased significantly in March and April 2020 across Europe, but especially in Germany. Together with our customers, we did everything possible to ensure security of supply. We adapted our production to the demand

as far as possible. To ensure a maximum supply of our products, we concentrated on the production of standard articles. In consultation with our customers, for example, we dispensed with individual embossing.

Temporarily, the demand for toilet paper in 2020 was nearly twice as high as usual

but that has since levelled off. By the end of 2020 we did not see any additional consumption in toilet paper.

It is difficult to predict the buying behaviour for hygiene paper products in the current situation. After the panic-buying we saw in March and April 2020, consumption behaviour returned to normal

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in most countries. Nevertheless, at the end of September we again saw the first supermarkets in the UK starting to ration certain products such as toilet paper. We can only appeal to the people: having a standard stock of products of daily need at home is perfectly sufficient. There is no need for hoarding. What we notice is that due to the fact that many people spend more time at home, there is an increased demand for facial boxes and kitchen towels.

As a result of the Corona measures, more toilet paper has been used at-home instead of in businesses or hotels. However, a product where we expect an increased demand in the long run is paper towels. During the pandemic, people's hygiene awareness has increased: especially in public restrooms people attach greater importance to hand cleaning with paper towels, which is recommended for better hygiene.

Overall, we will have to wait and see how the changed consumer behaviour and the "new normal" will affect the consumption of tissue products in the long-term. But for sure the awareness for sustainable products will continue to rise.

The increased hygiene awareness will serve as a positive driving force for AfH market development. However, it will suffer from a lower level of activities in the classical AfH environment: the public has decreased their travel activities by more than 50%, leading to less consumption in airports or hotels.

Furthermore, a lot of companies have had positive experiences with home office solutions which, at least partly, will continue to exist in the future and will therefore lead to lower consumption in the office environment. In addition, the gastronomy and catering channel suffers significantly amongst others from closures or hygiene measures which do not allow the businesses to operate at full capacities.

Overall, we expect the consequences resulting from lower AfH activities to prevail in the short-term, while in the long run increased hygiene awareness and paper consumption will bring the market back into a positive growth dynamic.

We are also seeing an increase in private label products and a move away from branded tissue products. We have already seen this trend over the past several years all over Europe. In Western Europe, the private label share lies over 66% and in Germany it's over 85%. Retailers see better chances to distinguish themselves in the market through their own labels as consumers are looking for more than just

"IN WESTERN EUROPE, THE PRIVATE LABEL SHARE LIES OVER 66% AND IN GERMANY IT'S OVER 85%. RETAILERS SEE BETTER CHANCES TO DISTINGUISH THEMSELVES IN THE MARKET THROUGH THEIR OWN LABELS AS CONSUMERS ARE LOOKING FOR MORE THAN JUST A BRAND. THE PRODUCTS MUST TELL A CREDIBLE STORY AND BE SUSTAINABLE."

a brand. The products must tell a credible story and be sustainable.

The growing online market will be no exception in the tissue products sector. However, with the right concepts (offline and online mix of the retailer) and products, the stationary trade should continue to have an advantage with these voluminous and rather low-priced products for quite a while.

With regards to our professional business, many wholesalers offer our products already in their online shops and we also experiment with different concepts here. E-commerce is also becoming more and more important in the AfH market.

For WEPA in 2021 and 2022, we are consistently investing to maintain our state-of-the-art production sites in Germany, France, Italy, Poland, the UK and the Netherlands. We have just announced further extensive investments in infrastructure and production at our UK plant in Bridgend. The main focus of the investment is the construction of a new paper machine as we see growth potential for us in the UK consumer market.

In addition, we have just commissioned new machinery for our plant in Poland that produces primarily for the AfH sector, among others a new paper machine which will be put in operation this year. It replaces the former crepe line and is an investment in greater quality. Even though the current situation in the AfH market is challenging, we see potential for growth in this market in the coming years. Furthermore, we are convinced that rising living standards, urbanisation and especially the growing hygiene awareness will increase the demand for tissue products in Europe in general within the next few years. Especially in Eastern Europe, we see great potential.

In our local markets, as with others, the Covid-19 situation is very volatile. We all need to remain vigilant. That is why we keep our hygiene standards and occupational safety measures at the highest level.

Hygiene papers are products of daily need and we see that people's hygiene awareness has grown during the past months. We expect it to rise even further. This offers new opportunities to us and we are continuously working on innovative hygiene solutions.

Sustainability – a topic which has always been very important to us – is also becoming an increasingly important aspect in society and for consumers. We keep working on innovative concepts in this field. Developing new sustainable products and concepts continues to be one of our focus areas. For example, our Hybrid Fair Fibre concept is the intelligent combination of recycled fibres and cellulose that meet consumer demands in terms of ecology and comfort. It has a proportion of 30% recycled fibres and a 20% improved environmental footprint.

On the other hand, we also face challenges – mainly, the ongoing development of the pandemic. Especially the situation in the AfH sector which will remain challenging for the coming months of 2021.

Besides that, the issues of energy supply and raw material availability and the corresponding price development are imponderable. As well as the upcoming lack of qualified personnel in Germany, especially in the logistics sector.

However, we accept the challenges, and we are confident to successfully shape our future as an agile and sustainable family-owned company.

"OVERALL, WE WILL HAVE TO WAIT AND SEE HOW THE CHANGED CONSUMER BEHAVIOUR AND THE 'NEW NORMAL' WILL AFFECT THE CONSUMPTION OF TISSUE PRODUCTS IN THE LONG-TERM. BUT FOR SURE THE AWARENESS FOR SUSTAINABLE PRODUCTS WILL CONTINUE TO RISE."

ANALYSIS OF THE NORTH AMERICAN TISSUE DEMAND TRAJECTORY THROUGH THE REST OF THE PANDEMIC

- Infection rates to get worse before significant herd immunity no sooner than end Q2 or Q3 2021
- Post-pandemic business travel and office occupancy impacted in the long term
- Most forecasts predict volume recoveries of 50-75% in this sector in the next two years
- Leisure travel to increase two-fold above pre-pandemic levels as vacations and family visits become crucial
- 'New normal' will change mix of consumer and commercial tissue demand

North America's tissue business in the middle of the Covid-19 pandemic

North America represents the world's most mature tissue market and maximum tissue consumption rate per capita. China and the Asian region have supplanted North America as the center of global tissue growth.

However, the region's product and consumer trends are still predictive of potential trends in the developing regions. Economic and social convention consider North America to comprise of Canada and the United States, although geographically it also includes Mexico and a group of islands in the region. Mexico's demographics and economic statistics are reported as part of the Latin American region. However, since Canada, Mexico, and the United States are the only countries producing tissue in this area, we consider them as a unit. The new USMCA trade agreement supports intensive cross border tissue activity between these three countries initiated by the previous NAFTA treaty.

Several of the North American tissue producing companies operate in two of

the three countries in this set. Kimberly-Clark Corporation operates in Canada and the United States. It also has minority ownership in Kimberly-Clark de Mexico, which includes some cooperative agreements. Essity has tissue production operations in the United States and Mexico as well. The Canadian based tissue producers have been very active in building capacity south of the Canadian border and in the United States. Kruger Tissue, Irving Consumer Products, and Cascades have all built new advanced TAD machines in the United States to produce ultra-premium consumer tissue.

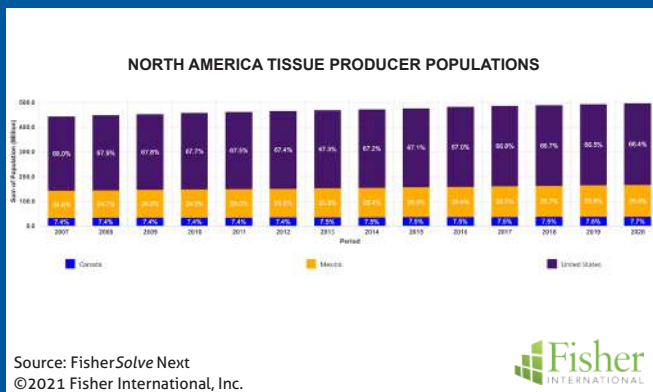
The United States represents about two thirds of this region's total population, with Mexico adding slightly more than one quarter of the total. Figure 1 shows the relative evolution of each country's population over the past 14 years. Mexico is growing the fastest at approximately 1.04% in 2020. Canada is in second place, probably due to more immigration, and growing at 0.81%. The United States population increased at a rate of 0.4% in 2020, the lowest growth rate since 1900. Additionally, it lost relative population



Bruce Janda
Senior consultant, Fisher International

share to Mexico and Canada over the last 14 years.

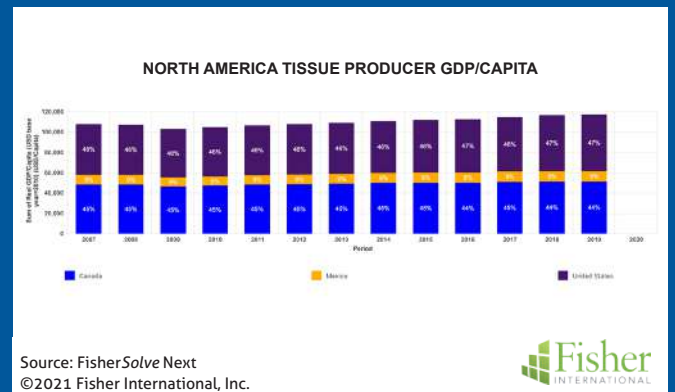
Figure 2 represents the gross domestic product per capita of each of the three countries. Normalised by population, Canada and the United States' economies are quite similar in generating individual purchasing power. The trend suggests that the United States recovered quicker and more completely from the Great Recession than Canada. Mexico is significantly lower in economic production per person, so it has not shown significant economic growth compared to Canada or the United



Source: FisherSolve Next
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Figure 1



Source: FisherSolve Next
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Figure 2

States. As a result, the US consumer had relative income growth to support further tissue consumption versus the Mexican or Canadian consumer.

Unemployment rates represent a significant drag on the development of both consumer and commercial tissue consumption and new product adoption. Again, we see Mexico's recovery from the Great Recession followed behind the United States, while Canada had a more moderate response and maintained lower unemployment overall in Figure 3. The Covid-19 pandemic has had a significant impact on unemployment in all three countries, but Mexico's impact is significantly less than Canada and the United States. Figure 3 provides the best graphical illustration of the immediate effect of the pandemic.

Figure 4 shows the consumer price index for each of the three countries based on the year 2010. Canada and the United States follow very closely with relatively low inflation in historical terms. However, Mexico has been increasing much quicker. This makes Mexico's tissue exports appear lower-priced, but makes it harder for Mexican consumers to purchase or import tissue.

Canada and the United States' demographics and economics put them in

UNEMPLOYMENT RATES REPRESENT A SIGNIFICANT DRAG ON THE DEVELOPMENT OF BOTH CONSUMER AND COMMERCIAL TISSUE CONSUMPTION AND NEW PRODUCT ADOPTION. AGAIN, WE SEE MEXICO'S RECOVERY FROM THE GREAT RECESSION FOLLOWED BEHIND THE UNITED STATES, WHILE CANADA HAD A MORE MODERATE RESPONSE AND MAINTAINED LOWER UNEMPLOYMENT OVERALL.

a position to continue leadership in tissue consumption At-Home and AfH. Mexico continues to be in a strong position for tissue exports. Unfortunately, the Covid-19 pandemic struck quickly and hit the United States especially hard. Figure 5 shows the development of active Covid-19 cases per million population by each quarter of 2020. The fourth-quarter numbers do not include the last several weeks of December 2020. This has been an evident disruption in purchasing patterns and the portion of the commercial or AfH products in the United States.

Figure 6 looks at the pandemic from the manufacturing perspective. The states or provinces relative to the pandemic is indicated by red shading and tissue machine locations as green flags. Most of the United States' tissue production is in the most impacted area, followed by eastern

Canada's mills. Tissue manufacturers have continued to run with little hindrance as essential industries and workers up to this point despite the pandemic. Any short-term supply disruptions in autumn Covid-19 surges were driven by short-term panic and hoarding. Tissue supply remains sufficient to meet demand overall. We can't predict if tissue operators and producers will become affected in any post-holiday surge of cases. Tissue mills tend to be in remote locations, and it would be difficult for the pandemic to affect them all at once, causing a significant supply disruption. Mexico has been much less affected than the other countries, presumably due to lower travel rates.

Predicting the tissue demand trajectory through the rest of the pandemic, when the pandemic will end, or what ongoing tissue demand will look like in a post-pandemic market is the subject of much speculation.



Figure 3



Figure 4

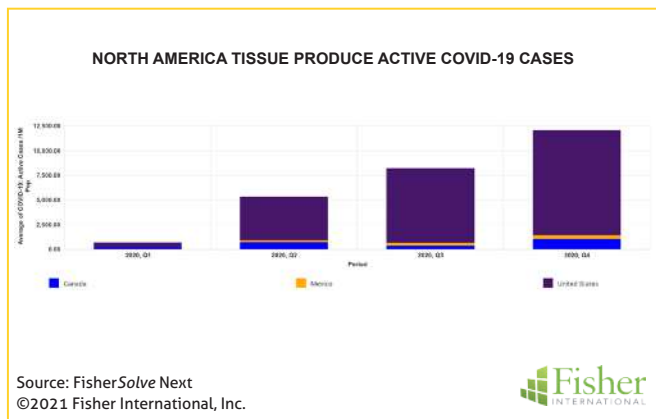


Figure 5

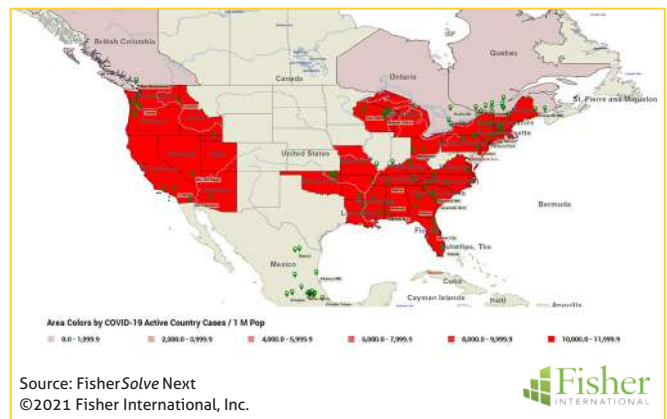


Figure 6

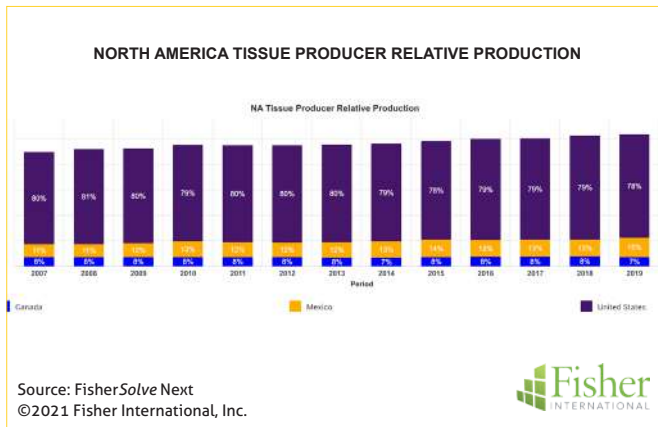


Figure 7

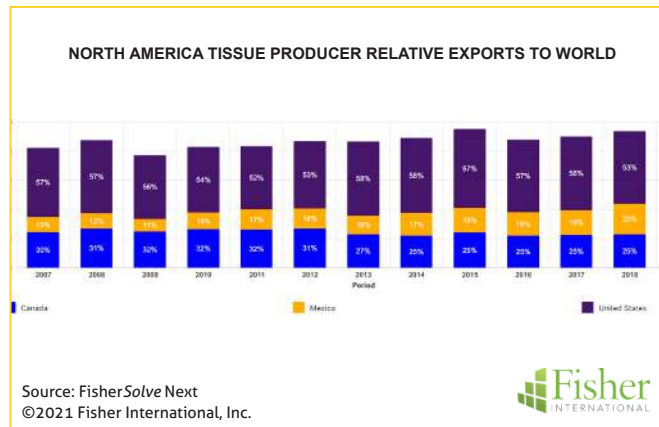


Figure 8

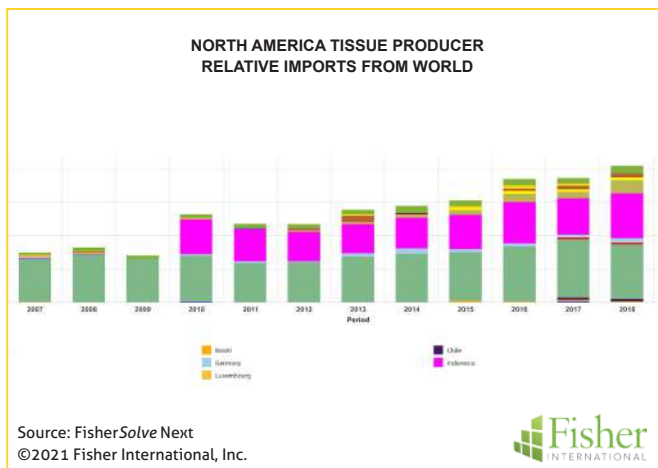


Figure 9

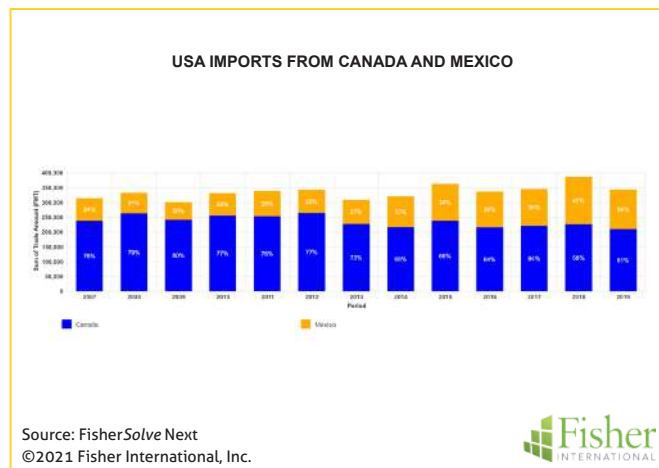


Figure 10

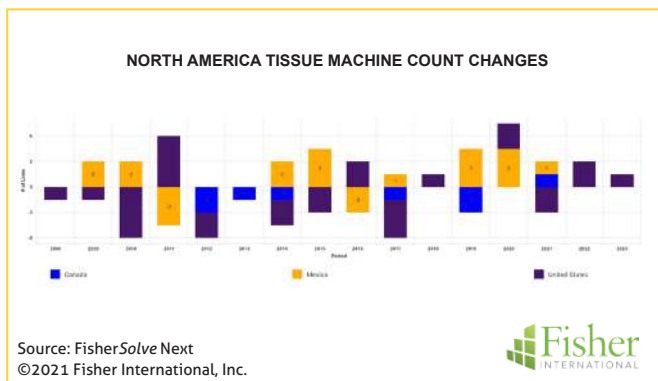


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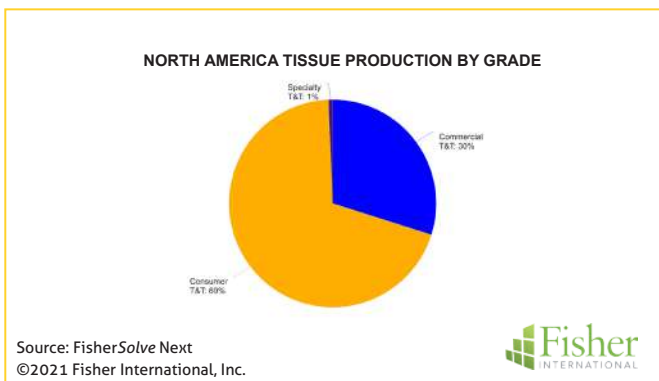


Figure 12

The assumptions used in this analysis are that the infection rates could continue to get worse before vaccination and recovery rates create significant herd immunity. This will probably not be reached in the US or Canada before the end of quarter two or three of 2021. Economists project that post-pandemic business travel and office occupancy may be impacted in the long term. Most forecasts are for recoveries of 50 to 75% of the volume associated with this form of business activity in the next two years. However, the same projections suggest that leisure travel will increase two levels higher than pre-pandemic as

vacations and family visits will become more critical. This can change the proportion of consumer and commercial tissue demand and the mix of commercial products required to meet the 'new normal' of North American AfH tissue demand. Figure 6 shows the active Covid-19 cases per million by state or province. Figure 7 shows the relative production of tissue in each of the three countries. Overall production in the region has grown. Canada's share of the aggregate output has remained relatively stable. Still, the United States' share has shrunk some as Mexico has increased overall production levels and the

resulting percentage of the North American total. Figures 8 and 9 illustrate the relative share of North American tissue exports and imports in world trade by each country. Tissue exports from North America are more than double imports to the region. Mexico's share of exports has grown significantly over the 14 years. At the same time, Canada and the United States have lost share. The import chart in Figure 9 shows that most tissue imports are coming from China and Indonesia. Europe and South American countries make up the balance. Overall trade between the three

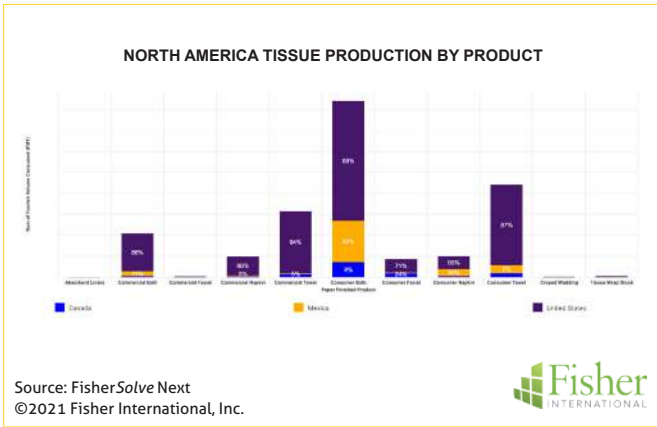


Figure 13

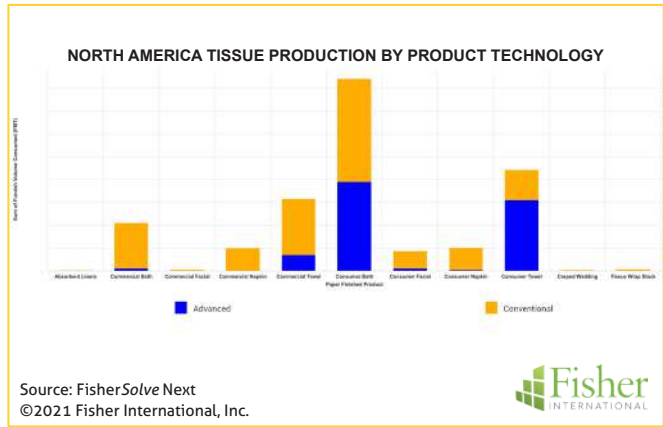


Figure 14

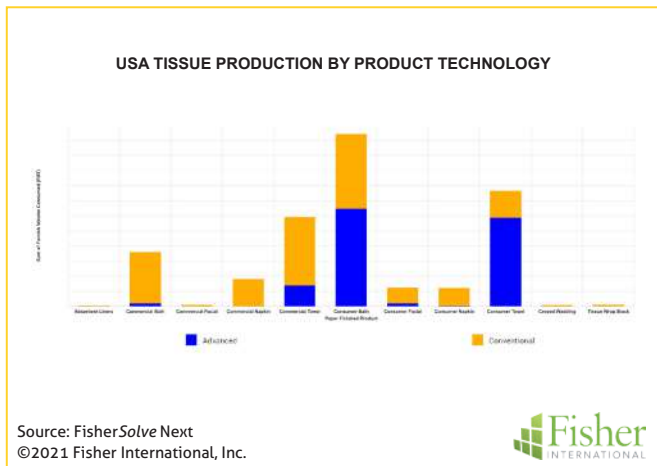


Figure 15

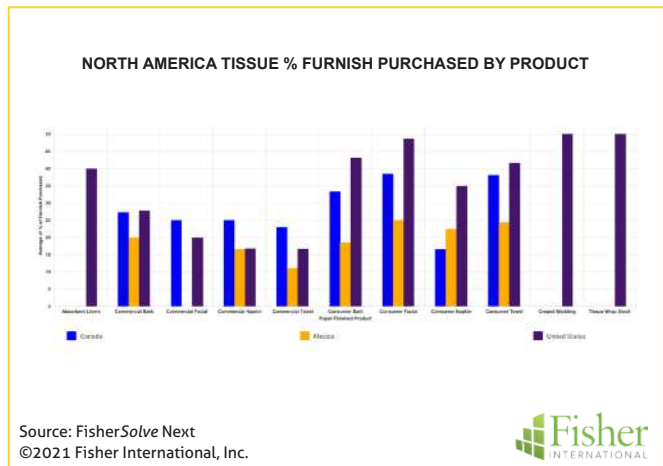


Figure 16

countries in the region is greater than the total imports from outside. Figure 10 shows the USA imports from Canada and Mexico. Canada's tissue imports represented more than three quarters of the US intraregional supply early in the chart, but Mexico exports to the United States have increased to about 40% of the total. Mexico is quickly becoming an essential source for supply to the United States and a significant global tissue trade player.

Mexico's tissue trade growth is also supported by Figure 11, where the number of tissue machines added or subtracted each year is represented in a stacked waterfall chart. Of the announced and under construction machines through 2020, three are included in this chart. All three countries have been adding machines and taking out old equipment, however Mexico has added the most machines over the timeframe studied.

The pandemic has shifted demand away from commercial tissue use AfH to consumer tissue as the stay-at-home orders took effect, and all travel has plummeted. North American commercial tissue demand represents a larger share

than any other region. The United States commercial tissue demand had been running about 34% of total tissue. Figure 12 shows the overall North American tissue production by grade. Specialty tissue is relatively small, at 1% of the total. Commercial tissue capacity represents 30% of aggregate production.

This is the tissue sector hit by the pandemic. The chart represents tissue machine production capacity and not converting capacity. Some commercial base sheet capacity has shifted to support consumer tissue production to meet the increased demand as consumers spend their time at home.

The finished products break down the tissue grade production capacities in Figure 13. The United States has several distinguishing features, such as consumers

demanding the highest softness levels in the world, which requires more energy to deliver. Extra softness is achieved by increased eucalyptus fibre purchases, non-pressing processes such as TAD, and over drying the sheet on Yankee before creping.

The US consumer towel production capacity represents 87% of the total consumer towel. US consumers are well known for using more kitchen roll towels per household than any other country. The breakdown of commercial tissue products by country is also descriptive of the United States' tissue market.

Commercial tissue capacity in the United States represents 94% of all commercial hand towels produced in North America. US commercial napkin represents 90% of total capacity and commercial bath 86%. It's not surprising that the United States sees the

THE PANDEMIC HAS SHIFTED DEMAND AWAY FROM COMMERCIAL TISSUE USE AFH TO CONSUMER TISSUE AS THE STAY-AT-HOME ORDERS TOOK EFFECT, AND ALL TRAVEL HAS PLUMMETED. NORTH AMERICAN COMMERCIAL TISSUE DEMAND REPRESENTS A LARGER SHARE THAN ANY OTHER REGION.

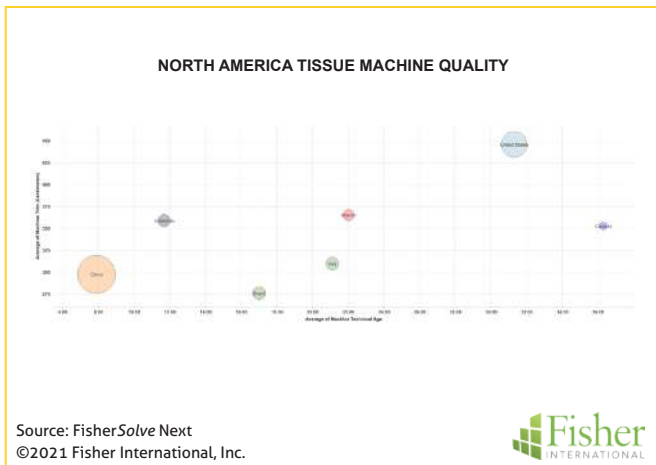


Figure 17

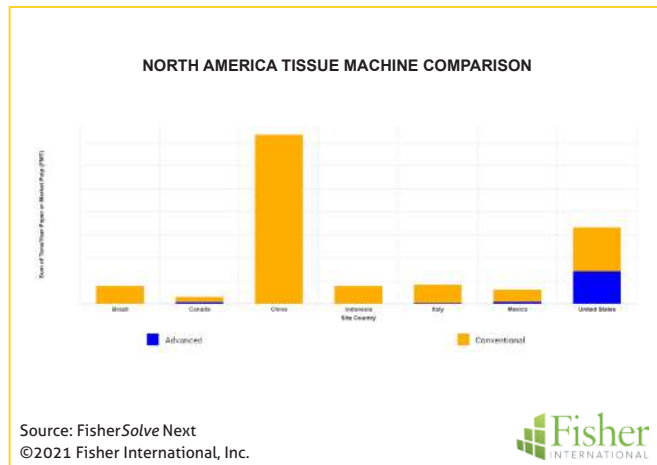


Figure 18

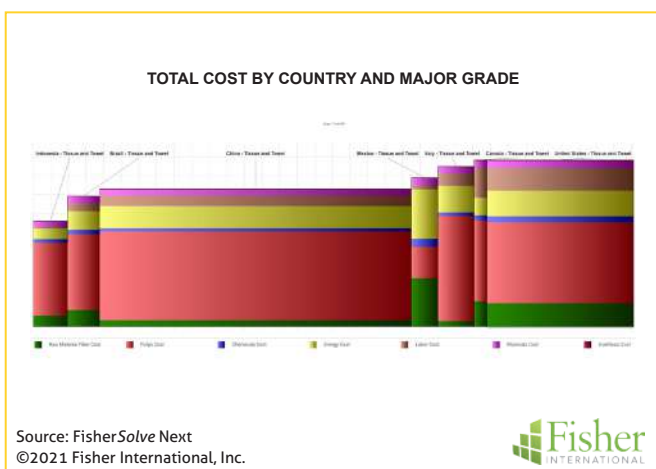


Figure 19

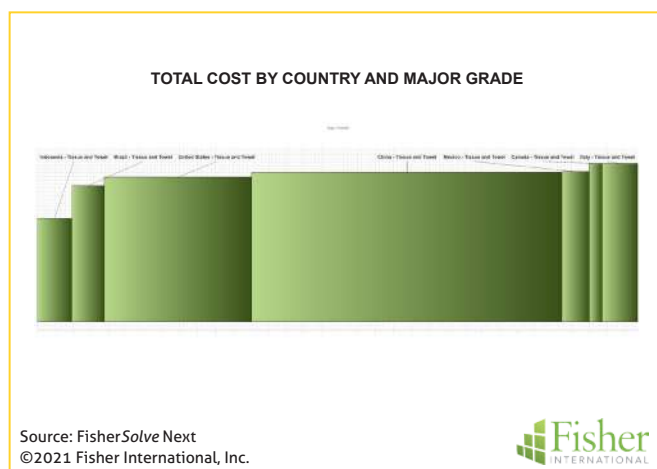


Figure 20

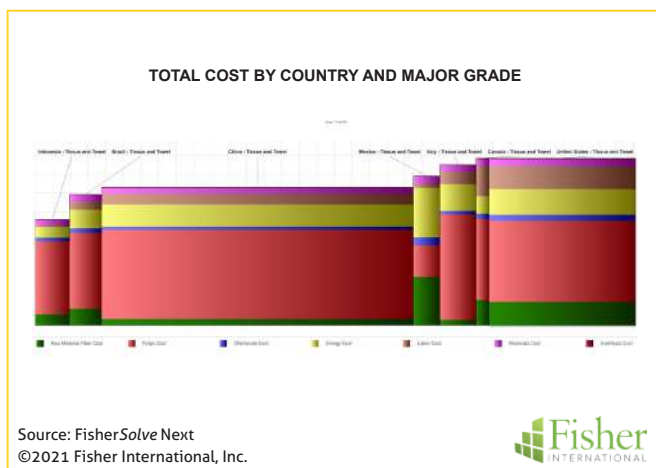


Figure 21

and handwashing tends to increase demand. There has been some movement toward replacing electric hot-air dryers with paper towels to improve sanitation. At the same time, overall travel and office occupancy rates are down. Like commercial bath tissue base sheets, most hand towel capacity is challenging to shift directly into useful consumer kitchen roll towels for increased sanitation at home. It is reasonable to expect that commercial tissue demand will recover post-pandemic due to increased leisure travel, making up for less office occupancy. If the trend toward improved hand hygiene continues, a net increase in commercial hand towel demand is possible. If we all continued to wash our hands while out

IT IS REASONABLE TO EXPECT THAT COMMERCIAL TISSUE DEMAND WILL RECOVER POST-PANDEMIC DUE TO INCREASED LEISURE TRAVEL, MAKING UP FOR LESS OFFICE OCCUPANCY. IF THE TREND TOWARD IMPROVED HAND HYGIENE CONTINUES, A NET INCREASE IN COMMERCIAL HAND TOWEL DEMAND IS POSSIBLE. IF WE ALL CONTINUED TO WASH OUR HANDS WHILE OUT OF THE HOME, THIS DEMAND COULD INCREASE BY UP TO 50%.

of the home, this demand could increase by up to 50%.

The North American region has the highest percentage of advanced tissue technology deployment in the world. Figure 14 shows that this is concentrated in consumer kitchen towel production and represents almost half of consumer bath capacity. Canada, Mexico, and the United States all have advanced technology tissue machines.

Advanced tissue technology is concentrated in the United States tissue capacity compared to Mexico and Canada. Figure 15 shows that more than 80% of consumer towels and 60% of consumer bath tissue capacity is advanced tissue making. This provides superior absorbency and softness.

The private label market in the United States has rapidly shifted two ultra-premium performances requiring this advanced technology. It's interesting to note that commercial hand towels are starting to have significant input from advanced technology. This results in lower grammage and more effective hand dries.

Integrated fibre supply is a significant contribution to lower-cost production. Figure 16 shows the relative percent of furnish purchased by product format for each of the three countries. Industrial tissue tends to use high amounts of purchased fibre, and the commercial products have traditionally used high percentages of integrated recycled furnish.

The consumer bath, facial, and towel products all have large portions of purchased pulp in the US and Canada. Consumer product performance preferences drive this. The United States also has a larger than expected percent integrated virgin fibre in tissue products, mostly due to integrated Georgia-Pacific tissue sites.

Major trading partners and future tissue import sources were chosen to create a comparison set to benchmark North American tissue production assets. This set includes China, Indonesia, Brazil, and Italy. Figure 17 shows the machines' relative quality expressed as average machine technical age and average machine trim width.

The US and Canada have older machines, but the US has the widest trim width in the set, supporting lower-cost production. China has the newest tissue machines and the largest capacity shown as the bubble's size, but these machines tend to be narrow.

Figure 18 shows the deployment of advanced tissue technology within the

comparison set used for benchmarking. Only the countries in North America have advanced tissue technology. We continue to see advanced technology in the US moving to more than 40% of total capacity. The advanced tissue technology capacity in Mexico is used both to support high-end local products and base sheet exports to the United States.

The increased energy-use in the United States used for the increased softness preference is seen in Figure 19. This presents a cash cost per tonne benchmark for each of the comparison set countries. Indonesia and Brazil are the low-cost producers due to the low-cost hardwood integrated furnish available. China and Mexico enjoy relatively low labour costs in the middle of the curve. The United States has the highest cost structure which is close to Canada and Italy.

The cash cost per tonne can be misleading if advanced technology is used to produce higher performance products with lower fibre content. Figure 20 provides a cash cost benchmark based on a case volume of product adjusted for reduced basis weight on advanced technology machines. In this case, Indonesia and Brazil remain low cost producers, but the United States is the next lowest cost based on an average of case weight between advanced and conventional tissue.

Benchmarking production by carbon emission is becoming more important as various governments implement carbon tax regimes. Figure 21 shows an overall carbon emission per ton of product on a cradle to gate basis. This is based on a tonne of product like the original cost per tonne curve and overstates the carbon emissions of the United States in terms of carbon per sheet of tissue used.

North America's tissue business is well connected by trade and cross border ownership. However, there are really two separate markets. The consumer or retail products reflect consumer demand for

very high softness and absorbency in either branded or private label products. The commercial or AfH tissue has a lesser focus on softness and is controlled by the facility management. In many cases, ease of service, low cost to maintain, and reduced theft or damage drive the tissue performance instead of the consumer. Commercial hand towels appear to be somewhat of an exception where increased amounts of advanced technology are used to reduce sheet use and please business patrons.

It remains to be seen if the tissue supply chain in North America can continue to deliver as the Covid-19 infection rates continue to spike before a vaccination can be implemented on a vast scale. The post pandemic recovery can be expected to be as disjointed as different parts of the economy rebound. This would suggest a return to a slow and steady consumer tissue growth, but the commercial or AfH tissue business could be somewhat changed. Increased focus on leisure and travel will drive increased consumption, while a slow return to the office coupled with reduced business travels and increased home office use will change the mix of consumer tissue products.

Analysis of competitive positions requires specifics on tissue producers and individual machines. This article presents a static summary of North America's tissue industry today.

Fibre prices, exchange rates, and environmental regulations will change, providing some participants with advantages and others with new challenges. North America's tissue mills will continue to change hands and perhaps consolidate; neighbouring countries may invest in tissue-making capacity, thus affecting North America's imports and exports.

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AN UNPRECEDENTED BOOM AND A RECORD NOSEDIVE — NORTH AMERICA TISSUE STILL IN THE GRIP OF EXTREME PANDEMIC PRESSURE

As the hygiene and AfH sectors reach opposite extremes, many manufacturers are repurposing some AfH-oriented manufacturing capacity to make more consumer-quality products. By Liying Qian, Research Analyst, Euromonitor International.

In true Dickensian fashion, the 2020 North American tissue industry looks to be a tale of two cities, with retail tissue experiencing an unprecedented boom while AfH tissue taking a record nosedive. With another deadly wave of the coronavirus outbreak taking a grip of both the US and Canada in the winter, it becomes clear that the bifurcating landscape in tissue will likely last for quite a while.

The spike in retail tissue demand has been mainly driven by shoppers' higher-than-usual demand for toilet paper, paper towels and facial tissues due to extended home seclusion. Although suppliers have been scrambling to play catch-up by rationalising assortment and maximising production capacity, demand and supply seem to still be out of balance. By early December, certain tissue products remained hard to find.

In contrast, AfH tissue tumbled due to pandemic-induced lengthy lockdown and travel restrictions, with toilet tissue, paper towels and facial tissues feeling the worst pinch.

In fact, to ease the loss, many manufacturers have converted higher-end AfH tissue products such as toilet paper to meet record retail demand or repurposed some AfH-oriented manufacturing capacity to make more consumer-quality products.

Looking at the five years ahead, retail tissue demand in North America should soften significantly as the pandemic retreats and shelter-in-place order loosens, with fundamentals like population growth gradually moving back to the driver's seat.

Per capita consumption of toilet paper, paper towels and facial tissues will stay slightly above pre-pandemic levels due to extended work-from-home practice and more frequent at-home cleaning.

Meanwhile, it's worth noting that further economic fallout and job loss will squeeze Americans' budgets and force more to switch to cost-efficient alternatives such as

washable cloths and bidets, subsequently diminishing gains in categories like paper towels, facial tissues and toilet paper.

Though news of several effective Covid-19 vaccines offers some light at the end of the tunnel, the recovery for a beleaguered AfH sector may still take years to come true, if ever, and, no matter the timing, will likely look different than it did pre-pandemic.

On the products level, the recovery will be uneven, with paper towels expecting the most palpable rebound in the following years, benefiting from the shift away from



By Liying Qian
Research Analyst,
Euromonitor International

AFH TISSUE TUMBLED DUE TO PANDEMIC-INDUCED LENGTHY LOCKDOWN AND TRAVEL RESTRICTIONS, WITH TOILET TISSUE, PAPER TOWELS AND FACIAL TISSUES FEELING THE WORST PINCH. IN FACT, TO EASE THE LOSS, MANY MANUFACTURERS HAVE CONVERTED HIGHER-END AFH TISSUE PRODUCTS SUCH AS TOILET PAPER TO MEET RECORD RETAIL DEMAND OR REPURPOSED SOME AFH-ORIENTED MANUFACTURING CAPACITY TO MAKE MORE CONSUMER-QUALITY PRODUCTS.

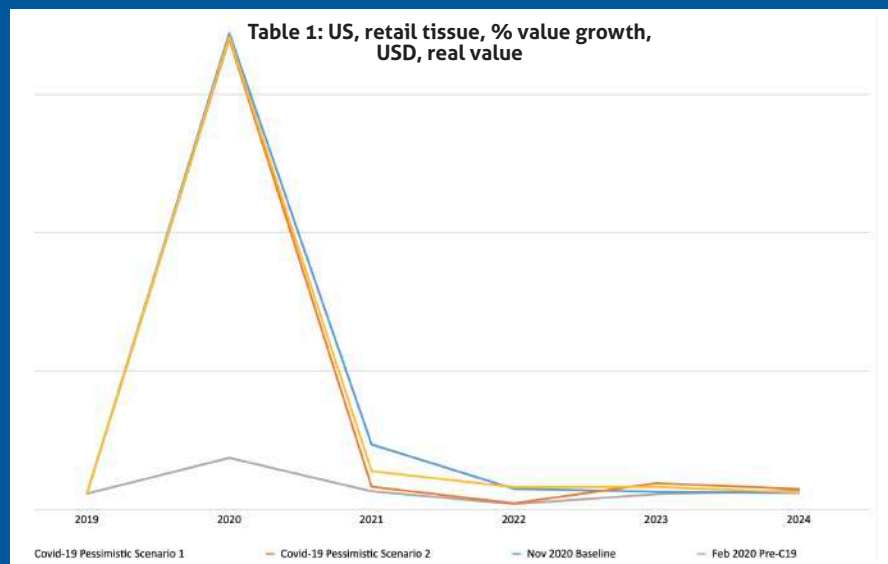


Table 1

Source: Euromonitor International

jet air dryers to paper towels, while paper tableware projecting the slowest return as displaced demand for in-restaurant dining due to safety concerns and stressed disposable income is unlikely to snap back.

Euromonitor International's new preliminary projections for 2020 (to be released in February 2021) place the overall annual performance of the US and Canada retail tissue in the mid-teens growth. AfH tissue in both countries will likely conclude the year with a slightly above 20% decline in both volume and value followed by slow recovery.

Private labels eye a bigger share as shoppers seek bargains and manufacturing capacity swells

While Covid-19 has posted considerable challenges for many companies, it has created opportunities for some, particularly the private labels. Shelves empty of brand-name products and consumers tightening belts have led to an increase in willingness to try and potentially commit to private labels.

It also helped that private labels have over the years closed the quality gap to a point where consumers, particularly less brand-loyal millennials, no longer associate premium quality with higher-priced name brands only.

In case of a further economic fallout, private label products will appear even more attractive to price-sensitive consumers and hence expect a stronger share gain.

WHILE COVID-19 HAS POSTED CONSIDERABLE CHALLENGES FOR MANY COMPANIES, IT HAS CREATED OPPORTUNITIES FOR SOME, PARTICULARLY THE PRIVATE LABELS. SHELVES EMPTY OF BRAND-NAME PRODUCTS AND CONSUMERS TIGHTENING BELTS HAVE LED TO AN INCREASE IN WILLINGNESS TO TRY AND POTENTIALLY COMMIT TO PRIVATE LABELS.

Meanwhile, ongoing investments by manufacturers to build additional tissue production capacity largely dedicated to private label products provide another sure sign for optimism in the long run.

Euromonitor International preliminarily estimated private label to gain about 2% volume share in retail tissue in both US and Canada in 2020.

Sustainability is here to stay

Sustainability may not be the top priority for consumers during the acute initial phase of Covid-19 when immediate attention turned to securing supply of goods. However, continued investments made by manufacturers and brands to ensure green sourcing, production and packaging, as well as the growing consumer interest in alternative fibres indicate that sustainability is here to stay.

It's also worth noting that a slew of eco-friendly direct-to-consumer start-ups such as Bim Bam Boo, Bippy, Peach, Who Gives a Crap, and No. 2 are having a moment. Not only have their agility during stockpiling and proactive digital customer

engagement helped fast-track growth in 2020, their aesthetically and sustainably made products continue to allow them to differentiate and build an emotional bond with consumers.

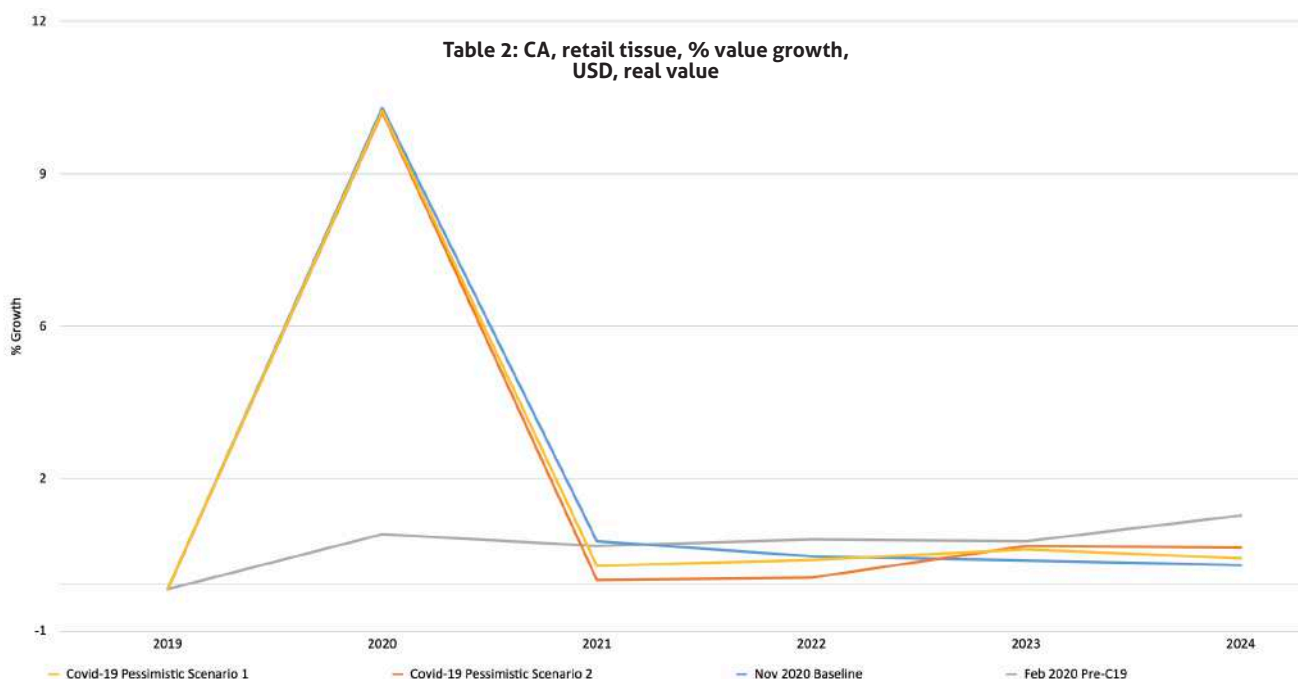
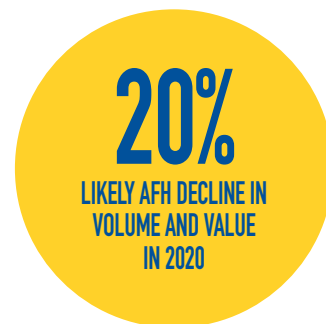
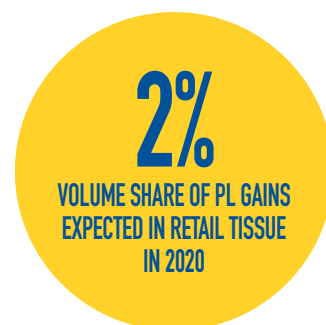


Table 2

Source: Euromonitor International

KRUGER PRODUCTS' 'DYNAMIC' 2020 CONTINUES WITH IMMINENT MAJOR START-UP AND PLANNED FUTURE EXPANSION

Canada's leading manufacturer of quality tissue has redirected its strategy during the last three years. Chief Executive Dino Bianco has driven a focus on consumer insight... "to up our game at the front-end" ... linked to an efficient production base. TWM spoke to him.



Q1 target for start-up: Critical weeks ahead to get TAD line on stream at Kruger's impressive Sherbrooke plant in Quebec.

Krugger Products' new 70,000tpy TAD line is expected to be up and running in the next few weeks at the company's Sherbrooke, Quebec-based facility. An impressive feat under usual circumstances, but even more so considering the rapidly changing market dynamics of the past 10 months.

Over a Teams call from its Canadian headquarters, Chief Executive Dino Bianco says that even though it has been hard to make absolute commitments because of Covid, the company has managed "pretty well". "The next few weeks will be critical just making sure we can keep everything on plan well," he says. "But we are targeting

the first quarter for start-up."

Before deciding on Quebec for its third TAD machine, the company had been looking at a number of sites, including a plant in north eastern USA: "We are very committed to both Canada and the United States tissue markets," he says. "We happened to put this one in Canada as it came down to an economic decision, where we had a partnership with the Quebec government.

"And obviously the cost of electricity is cheaper in Quebec. But at the end of the day, it is a North American machine. It is close to the United States border and will primarily supply Canada as well as north eastern USA, taking some of the pressure off our Memphis, Tennessee-based tissue

"BEFORE DECIDING ON QUEBEC FOR ITS THIRD TAD MACHINE, THE COMPANY HAD BEEN LOOKING AT A NUMBER OF SITES, INCLUDING A PLANT IN NORTH EASTERN USA: "WE ARE VERY COMMITTED TO BOTH CANADA AND THE UNITED STATES TISSUE MARKETS," HE SAYS. "WE HAPPENED TO PUT THIS ONE IN CANADA AS IT CAME DOWN TO AN ECONOMIC DECISION."

facility enabling us to better distribute product in the optimum markets. So, with its start-up, we get a synergy between these two sites."

The company chose TAD because it was seeing "so much growth" in that segment: "This is something we saw in the United States, particularly in private label growth, which is what we decided to focus on with a premium private label supply. We are supplying a very good, branded-quality type offering, and that was our point of difference in the market."

In Canada, there is "a great opportunity for growth", especially in the paper towel category where Kruger Products has its SpongeTowels brand. "These factors lead us to go for TAD technology so we can continue to grow our branded SpongeTowels line in Canada, and our private label TAD supply in the United States."

Sherbrooke's production is "already sold," the temporary change being that the company was going to expand to new customers following its start-up. When Covid hit, the focus was to stay on existing customers in the North American market to make sure they were well supplied.

Sherbrooke will be the company's ninth manufacturing site; it joins two other TAD PMs, one which was the first TAD machine in the world constructed in 1954 in Gatineau, Quebec, and a second machine that was installed at the company's Memphis site in 2012. There are four papermaking plants in Canada, three of which are in Quebec while the other one is in British Columbia.

The New Westminster, BC plant is home to two machines (64,500tpy) and converting lines, producing AfH and consumer products. Memphis has three paper machines (110,000tpy) and converting lines.

Facilities in Crabtree, Gatineau and Lennoxville, Quebec include eight paper machines, a deinking and recycling plant, a converting facility and distribution facilities. Crabtree produces 91,000tpy, Gatineau 94,000tpy while Lennoxville produces 24,000tpy. The company also has two converting facilities in Ontario.

Bianco himself started in the tissue industry three years ago, having built his career previously at Kraft Foods Group, a food manufacturing business. He has steered the company through the development of the Sherbrooke facility, as well as the outbreak of Covid-19. "One of the goals when I came onboard was to take this tissue company and accelerate its evolution into a consumer-focused

IN CANADA, THERE IS "A GREAT OPPORTUNITY FOR GROWTH", ESPECIALLY IN THE PAPER TOWEL CATEGORY WHERE KRUGER PRODUCTS HAS ITS SPONGETOWELS BRAND. "THESE FACTORS LEAD US TO GO FOR TAD TECHNOLOGY SO WE CAN CONTINUE TO DO OUR BRANDED SPONGETOWELS LINE IN CANADA, AND OUR PRIVATE LABEL TAD SUPPLY IN THE UNITED STATES."

organisation," he says. "Tissue companies generally tend to see themselves as suppliers of tissue, and whether it's a branded product or a private label product I wanted Kruger Products to have the best knowledge in consumer insights ... the best knowledge on branding architecture, quality segmentation, data analytics, etc. To up our game there at the front-end - category management with our customers - and at the same time we are depending on our manufacturing having a very efficient flexible footprint."

Throughout the past three years he has focused on building a culture that is two-fold: getting more efficiency out of its assets, and maximising output by improving performance in e-commerce, artificial intelligence and pricing analytics: "We are targeting bringing those capabilities into the organisation as these are skills we didn't have before, and ones we need to think about. We're building a diverse and empowered workforce for the future."

And then Covid-19 hit the market: "2020 was very interesting on many fronts for all of us," he says. "You can describe it in many different ways. Our main focus coming into this Covid dynamic was keeping our people safe, and two, keeping the business running. We knew we were an essential service, and I am pleased to say we did very well with both."

Like a lot of companies, Kruger Products established many Covid procedures "very early, to protect our people and facilities". "We have had Covid cases, but in virtually every region we operate in our Covid numbers are below the local market

numbers. And none of the transmission has happened in our facilities. We feel very proud about that."

To ensure business continuity, contingency plans were made for its key assets, prioritising if they had a problem. It also expanded its purchases of raw materials to make sure that it had control over the supply chain for pulp and packaging.

"Following the outbreak, demand for tissue significantly increased in North America," he says. "We were able to reduce the number of SKUs that we produce so we could run more efficiently along our lines, narrowing our SKU count by almost 50%. We focused on the fast-moving SKUs, so some of the variety came down from the shelf for the consumer.

"But certainly, that also meant we could get more production because we were able to run longer. All-in-all, 2020 was a very dynamic year for tissue."

Another realisation from 2020 was that there was very much a consumer-driven shortfall, not a production-driven shortfall: "There were consumer hikes caused by pre-buying and the loading of pantries at home, and of course increased usage as people were based more at home and so using more consumer products." The approach was to be "fair and equitable with our customers" in terms of the allocation of products.

"And we didn't take any price increases, even though demand was very strong. We were very principled in keeping our pricing consistent throughout the whole pandemic. There were shortfalls but these were

"FOLLOWING THE OUTBREAK, DEMAND FOR TISSUE SIGNIFICANTLY INCREASED IN NORTH AMERICA," HE SAYS. "WE WERE ABLE TO REDUCE THE NUMBER OF SKUS THAT WE PRODUCE SO WE COULD RUN MORE EFFICIENTLY ALONG OUR LINES, NARROWING OUR SKU COUNT BY ALMOST 50%. WE FOCUSED ON THE FAST- MOVING SKUS, SO SOME OF THE VARIETY CAME DOWN FROM THE SHELF FOR THE CONSUMER."



"2020 was a very good year for tissue. I'm very proud of how our organisation responded, both in Canada and in the United States," Dino Bianco, Chief Executive, Kruger Products

ONE KEY CHANGE HE BELIEVES WILL STAY IS WORKING REMOTELY: "WE ARE A C\$1.4BN NORTH AMERICAN COMPANY, AND IT'S AMAZING TO SEE IT WORK REMOTELY. THANK GOODNESS FOR OUR FRONTLINE WORKERS, IT'S INCREDIBLE HOW THEY STEPPED-UP AND CONTINUED TO COME TO WORK DURING THE OUTBREAK OF THE PANDEMIC. WE HAD PEOPLE GOING IN EVERY DAY AND WORKING 8-10-12 HOUR SHIFTS OF OVERTIME TO MAKE SURE WE GOT OUR TISSUE OUT THERE."

temporary in nature as the supply chain caught up."

"It was a very good year for tissue. I'm very proud of how our organisation responded, both in Canada and in the United States," he says.

One key change he believes will stay is working remotely: "We are a C\$1.4bn North American company, and it's amazing to see it work remotely. Thank goodness for our frontline workers, it's incredible how they stepped-up and continued to come to work

during the outbreak of the pandemic. We had people going in every day and working 8-10-12 hour shifts of overtime to make sure we got our tissue out there. It was incredibly to see our employees continue to keep the business going."

The interesting dynamic in terms of the company's production output was that a lot of the AfH volume went into categories that were stable or growing. Some 20% of Kruger's business is AfH in Canada and the United States, and around 50% of that

volume went into growth sectors such as healthcare and commercial cleaning. The other 50% are in sectors that were declining due to the outbreak of Covid – tourism, restaurants, hospitality. "The issue was that the sectors that were declining were declining at such a profound rate," he says. "Restaurants closed, we all saw travel restrictions and hospitality restrictions. This category took a 30-40% decline through the March-May period in North America, only starting to recover a little in the summer before going back down as restrictions went back in place."

A crucial learning curve to come out of the pandemic was flexibility. In some cases, the company found that its AfH products could be sold into the consumer segment. For example, single roll toilet paper that would usually be found in hotels was moved to the consumer sector, as well as paper towels. "We could make some adjustments," Bianco says. "But at the end of the day it was a very tough year for AfH."

Crucially, however, the drop in AfH demand is closely linked to the outbreak of Covid and the re-opening up of economies. And it is expected to rebound: "There is pent-up demand for AfH. We saw a bit of it in the summer as restaurants and bars and even hotels started to open up, you could see a great rush. We do expect this sector to recover. We think that will happen, and right now we're expecting to see this in the back half of 2021. Maybe even in spring, depending on the containment of the virus and the opening up of economies."

Bianco has also seen two sides to opportunities for private label and branded products in the North American market. In the United States, Kruger Products is primarily a private label supplier, and also has the one brand, White Cloud, which includes bathroom tissue, facial tissue and paper towels manufactured primarily at the Memphis facility. "We have seen tremendous growth in both cases, mainly because customers were looking for more tissue product and so we were able to sell White Cloud to customers that we haven't supplied previously."

And while there was growth in the private label market in the United States "at the expense of some of the branded players", there were no significant step changes: "Some of the increase in demand for private label was driven by supply, and some of it was partly because of the pricing gaps where consumers focused on value. You did see the continuing growth of private label in the United States throughout the

pandemic but not any significant step changes. It has already been growing the past few years and it continued to grow."

In Canada, the story was very different. Branded growth was stronger than private label and Bianco says the company was beneficiary to that. It focused on supporting and pushing its brands, continuing with advertising and making sure its price value was in line. "We did a lot of marketing back to communities and on social media. We were very active, and as a result of that we were able to grow our share in branded in Canada.

"Private label still did well, but we were able to grow our branded share, especially toilet paper and paper towel across the Canadian marketplace. It's a tale of two stories in the marketplace, and the different dynamics that you see in the two countries."

The new Sherbrooke TAD line will fulfill a lot of this demand: "We will have strong production starting in the next month or so and that will drive a lot of growth into the United States' private label sector, and in Canada the branded SpongeTowels product. We see that as being a great growth factor."

"We are a growing company, growth is our focus. And there's only so much growth we can do now in Canada, it's a small market compared to the US. We have some opportunity to grow more here in Canada, but I think we need to look at the United States for future growth.

"We have a great model there already, we just need to grow it. We will look at acquisition, organic growth, converting, papermaking ... everything is on the table. We have to operate several years ahead in this market so we hope to be announcing some capacity additions very soon. Its North American-based - we are looking at some options to increase capacity and hope to have clarity soon."

On the future during and post-pandemic, he sees the surge in consumer tissue continuing "significantly beyond Covid, and more than initially projected." For two reasons: home working and hygiene.

Home working is a definite: "Whether it's permanently from home, or 20% more from home, more people will work from home. And they will need more tissue products because of this. And that's a permanent shift."

The other is increased demand for towel and possibly facial tissue to meet new hygiene concerns: "That's a step-change that will stay. These are two trends that will go beyond Covid and we want to be ready to be able to supply that in the next few years.

"WE ARE A GROWING COMPANY, GROWTH IS OUR FOCUS. AND THERE'S ONLY SO MUCH GROWTH WE CAN DO NOW IN CANADA, IT'S A SMALL MARKET COMPARED TO THE US. WE PROBABLY HAVE SOME OPPORTUNITY TO GROW MORE HERE IN CANADA, BUT I THINK WE NEED TO LOOK AT THE UNITED STATES FOR FUTURE GROWTH. "

Prior to Covid, he says the North American market needed two to three net new machines per year just to match population growth. "Tissue demand was growing at 1-2%. With the increased demand in tissue from the pandemic, the market now needs three to four paper machines. There is a need for more capacity."

Whilst a couple of machines have come on-stream in the past year, or are expected to in 2021, he adds that looking over the next five years, demand will outstrip supply: "We will also see AfH start to recover in the back half of 2021, and that will also be a great growth factor. We also have a couple of innovations that we are working on for the back end of this year, which will include the unique positioning of some products that we have."

Environmental demand and sustainable products will "continue to be very important, maybe even more important post-pandemic". However, when the company was forced to reduce its SKU count following the outbreak of the pandemic, one of the ways it did this was to reduce production of its environment products: "The pandemic put a bit of a halt to it just simply because consumers were just buying whatever they could get. They didn't always have a choice to buy the sustainable option, and that's a broad statement for beyond tissue." He says it was temporarily necessary because these types of product are generally more complicated to produce as they're for a smaller segment.

"We had to move some capacity to our faster moving products. But that's definitely a short time measure, we continue to be very committed to sustainability, not just to the products themselves but in the way we produce, whether it's greenhouse gas reduction, water reduction, or packaging reductions.

"But the consumer desire for sustainable products will continue to escalate in the future. We are working on the supply side and the branded side to be ready to take advantage of that."

In the short term, the focus is to continue

to get through Covid. "It will be choppy. And it will be different from last year when we were bouncing our way towards wave two. We are now bouncing towards recovery, and therefore we want to be ready to supply the lockdowns and also be ready for when the market does open up both in AfH and consumer. That's our short-term watch. And getting our TAD facility up and running and producing the product as fast as possible, because the market needs it. That's a key focus for us."

He adds it's not just about growing through marketing, but also growing through innovation and distribution. "Making sure our pricing is driving good value for our brands and maintaining strong customer relationships."

"One thing the pandemic has taught us is the real need to be flexible. We need to make small investments to have our lines be able to produce AfH-type products or consumer-type products. That's a bigger goal for us as a company to have that flexibility. We have assets and sites that are very dedicated to producing certain types of products.

"We want to unleash the network so that we have more flexibility on where we can produce things. Either because of a pandemic, which we hope not to have to go through again, or just because of market need, we want the flexibility to be able to provide products from different sites. We are looking at that as part of our whole network, and AfH will be part of that. Either AfH has excess capacity and we use it in consumer, or AfH has short capacity and we can use some more consumer capacity."

"That's the transformation we've been through the past few years. We are happy with the culture we are building and the capacity and operational assets we have put in make sure we are set up for success for many, many years. We will have a great expansion this year and we will continue to ride that momentum."

“2020 WAS A RECORD YEAR OF GROWTH FOR US. WE EXPECT 2021 TO BE THE SAME”

An entrepreneurial spirit gives Royal Paper the means to diversify and expand west to east across the complete range of private label products. Chief Executive Kevin Otero gives TWM an insight into the shifting manufacturing and retail trends during the Covid pandemic.



"Being flexible and able to pivot to the opportunities have been vital", Royal Paper Chief Executive Kevin Otero

FOUNDED IN 1992, ARIZONA-BASED ROYAL PAPER IS A PRIVATELY-OWNED, VERTICALLY INTEGRATED PRIVATE LABEL TISSUE PRODUCER OFFERING A COMPLETE SELECTION OF HIGH-QUALITY TISSUE PRODUCTS INCLUDING BATH TISSUE, PAPER TOWELS, NAPKINS, AND FACIAL TISSUE TO THE RETAIL (AT-HOME) AND COMMERCIAL (AFH) MARKETS. IT HAS THREE MANUFACTURING FACILITIES, WITH TWO PAPER MACHINES BASED IN GILA BEND, ARIZONA, AND TWO CONVERTING SITES AND TWO DISTRIBUTION CENTRES IN PHOENIX.

When a Flex 700 Swing rewinder came on stream at Royal Paper's tissue facility in Arizona it was the fourth delivery of the complete line. It also coincided with an acceleration in demand for certain tissue products across the US as the pandemic took hold and fundamentally changed the industry.

Kevin Otero, Chief Executive of the company, Royal Paper, looks back on it now from the vantage of a record-breaking year. The timing of adding additional capacity was at a great time to capitalise on increased demand. They were able to "flex up" and "pivot to the opportunities" to meet the challenge head on.

Just how they were so well primed to respond – to unprecedented demand, advancing machinery and technology, extending the range of products, accelerating, and stabilising the supply chain, targeting, and completing an acquisition ... and most importantly safeguarding personnel – becomes clear as he talks to TWM from the US.

Founded in 1992, Arizona-based Royal Paper is a privately-owned, vertically integrated private label tissue producer offering a complete selection of high-quality tissue products including bath tissue, paper towels, napkins, and facial tissue to the retail (At-Home) and commercial (AfH) markets. It now has two paper machines based in Gila Bend, Arizona, two converting sites and two distribution centres in Phoenix, and - as of the end of 2020 - an additional converting facility in Duncan, South Carolina, following the acquisition of Sun Paper. It became integrated in 2007 when it installed its first paper machine and then added an Andritz-supplied PrimelineCOMPACT tissue machine with Steel Yankee at its Arizona mill in 2015. The line has a design speed of 2,100m/min, and the Steel Yankee a diameter of 4.8m.

And in May 2020, a Gambini-supplied Flex 700 Swing rewinder line started-up at its Arizona facility. "It was just as we were starting to see an acceleration of tissue

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consumption in some of the categories driven by Covid-19," Otero says. This new line allowed us to flex up and be able to supply our customers to meet that increase in demand, adding significant capacity over the year with well over a million cases."

As part of its evolving growth strategy, in November 2020 it acquired Duncan-based Sun Paper, a family- owned producer of high-quality private label tissue products. Otero says the move will "better position the company to serve customers across the US," and means it has a stronger presence in both east and west of the country, increasing its footprint to better supply the growing demand for quality private label and sustainable products.

Some "big investments" are being made there to expand tissue and towel production and adding capacity with two new napkin lines that will be on-stream by the end of 2021. "Our vision is to become the preferred national private label supplier for our customers across bath tissue, towel, napkins and facial tissue. We were excited about the fact that Sun Paper was also operating across those four categories," he adds.

With the purchase, Royal Paper is also broadening its leadership team: "The Salgado family at Sun Paper – founded in 1990 by Jose Salgado and three of his children, Rita, Joe, and Carlos; son Daniel joined in 2003 – have grown up in the tissue business since they were kids, so they are a tremendous addition to our team, bringing years of experience," he said. "Both companies began with entrepreneurial spirit and we also have a strong service-first culture. Many of the customers on both sides we have had for more than 10 years.

For business split, currently the majority of our production is in private label brands and the rest is in Royal Brands. The company has just finished re-launching its SuperSoft value brand, which is aimed at "savvy consumers, and orientated towards families as it's in larger packs, targeting the value equation". It has more than doubled over the past year and the company has also entered into distribution in many new retail chains, both the drug channel and also regional grocery.

It has also re-launched its flagship sustainable brand, EarthFirst, targeting consumers who are concerned about the impact of products on the environment but who wanted high-quality recycled products. "Demand for this product has tripled over the past year," he says. "We've seen tremendous growth in this sector, especially in the Club channel.



Savvy consumers: Royal Paper's SuperSoft brand targets the value equation

The strategy is to provide a full range of products for customers and be flexible in response to changing trends: "One of the things we're seeing with private label is that the retail partners – as they build the brand – want paper suppliers that can help support them across all the categories. That's key for us, to be able to provide this so they can provide the full range. We are focused on long-standing relationships and building the brand along with our retail partners."

Off the back of this increase, the company aims to continue its growth during 2021: "The obvious ongoing challenge has been managing the business during the pandemic," he says. "Our first priority is keeping our workforce safe and following protocols; starting in March 2020, it was new for all of us so there was a lot of concern about how to keep the workforce safe and keep the business open when a lot of companies were closing down. We are an essential business, and with the important role hygiene products played during this time, we certainly were an essential business. So keeping the business running and the workforce safe was first and foremost."

Temperature checks were installed on sites, and CDC best guidelines and practices were implemented to make sure Covid wasn't brought into the workforce. Extra sanitation stations were added around the facilities, screeners and mandatory mask wearing were introduced. "I'm proud to say that in that situation, we've been able to run very effectively throughout all of 2020. We have been able to manage the business and keep our employees safe."

From a business standpoint, he adds that it's been a tale of two cities: "We are fortunate in that we are in both the

At-Home and AfH sectors, and that we are very diversified. AfH has been impacted as businesses have shifted to working from home, and schools and restaurants have closed and the business has been impacted as a result. But we have worked hard in gaining new customers and growing that way. We have also been very focused on building capacity and capability to serve the At-Home market, which has been growing at unprecedented rates as retail businesses benefit from increased work-from-home and consumption of these products shifted the usage patterns, primarily in bath and towel categories."

Being flexible and "able to pivot to the opportunities" have been vital: "We've benefited by having new equipment, which allowed us to expand capacity, and also shifting to the opportunities where there was growth."

"There were lots of opportunities where retailers had issues with their paper products supply chains and incumbent suppliers, which was a great opportunity for us to get our brands in. It created some great growth options for us to be able to supply some key organisations. So for us, overall 2020 was a record year for growth. And we expect 2021 to be another record year."

The business will continue to look for growth opportunities in "under-served, high-growth segments" and also in new channels, building its capability to serve these sectors in different ways. "One of the things certainly growing from a new channel standpoint is some of the direct-to-consumer offerings, focusing directly on paper products, particularly with a sustainability focus, and trying to supply customers with subscription services," he adds.



EarthFirst: demand for Royal Paper's flagship sustainable brand has tripled over the past year

In 2020, Otero notes some competitors pulling out of business to focus on a smaller number of customers. "That happened quite extensively, a couple of the bigger players literally stopped serving a number of their customers, either with issues they were having probably with integration or supply with their customers," he says. "That created great opportunity for us to pick up those customers where we were a good match, and very much contributed to some of our growth."

However, there still remains "some very real" challenges for retailers in the supply situation: "I go out literally every week and do a store checks and share pictures amongst our team of what's going on at the retailer's shelves. You see a lot of adversity there and a lot more are operating at normal, whilst many others still have shelves that are literally still empty of tissue and towel stock. So we try and get information to go after new opportunities, but also for ourselves to understand how things are evolving with our top customers."

Sustainable products also got "a lot of trial" during 2020: "I think that will continue to help them grow at a faster pace and that has been a core strength for both Royal Paper and Sun Paper," he adds. "A big part of our business is retail and private label brands with our retailers. Back in 2008 with the recession, you saw a lot of people try private label and it accelerated growth rates then, and we're seeing the same thing happen now. With two dynamics, not only

because of the instock situations, but also because of the situation of many people being unemployed. It brings the focus back to value-products, which we think will continue to accelerate the growth of private label over the coming years."

However, the main challenge to the business – and the North American tissue market as a whole – has been to fulfill the overnight increase in demand: "At the beginning in the first wave, there was a lot of experimentation with imports and AfH products that they put into retail," he says. "But many of these items are still sitting on the shelf. That shows some of the challenges and difficulty with being able to pivot across the market."

The types of products that are sold in the commercial were not as conducive to sell to consumers, he says, and that he also noted quality issues. "There was a lot of import product also that you could easily pick out on the shelf; you could see the quality differences, grey and graininess, see the colour differences in the paper itself.

"Those things I think the consumer noticed as well, and so they did not get repurchased. When the second wave came, a lot of the retailers were then more conscious of that situation and focused on trying to get the reliable brands that they knew and experimented less."

He adds that, as with many business sectors, a lot of people have also been working remotely: "Many of our

customers were doing a lot of the activities remotely so we have learned new ways to communicate, with Zoom, and communicating a lot more on email," he says.

"And also doing it a lot more frequently because things were changing much more dynamically. So overall the communication has increased significantly as we all try to respond to the consumer better. And that has been one of the good things, it's allowed us to better respond and improve the in-stock situation."

In terms of economic changes, the biggest impact has been on the AfH business, which has seen limited growth in some end markets because of the lack of travel. "But the AfH market will rebound, and it will rebound quickly as a vaccine gets distributed and things move back to normal. We certainly see it improving at the back half of the year."

For retailer brands and private label, the next few years will be "a great period" for these sectors in the North American tissue market: "Retailer brands and private label will continue to grow at an accelerated rate.

They have really benefited from this trial that has been created during the pandemic, and we will see long-term changes in habits. More consumers will be buying private label – just as they did in past recessions – as they become more value-focused. And that has created big opportunity for value brands in this space."

Otero has also seen a big shift in the paper towel market because of an increased focus on hygiene during the pandemic. "This category is up 30%," he says. "New cleaning routines have been adopted using these products so that people can stay healthy and stop the spread of germs. I do not know if that will continue, but in retail we are definitely seeing the most pressure here for in-stock is for these products. It's the category that is most challenged with that, because of the shift in consumer behaviour."

Bathroom tissue, he believes, will shift back to a more normalised At-Home and AfH split as consumers go back to work and schools. "But I expect working-from-home will persist. We will see a change here as more and more companies see the benefits of working from home. Companies can see that people can work from home and be effective whilst also reducing their commutes, which has positive impacts on the environment."

Plenty of opportunity then, for another record year of growth.

"THE AFH MARKET WILL REBOUND, AND IT WILL REBOUND QUICKLY AS A VACCINE GETS DISTRIBUTED AND THINGS MOVE BACK TO NORMAL. WE CERTAINLY SEE IT IMPROVING AT THE BACK HALF OF THE YEAR."

NEW YORK'S HISTORIC TISSUE MILL REINVENTING ITSELF ... AFTER A DEVASTATING FIRE AND NOW COVID-19

"Overnight, we saw a shift across America . . . Covid changed the way everyone is behaving and thinking . . . we all need to keep a close eye on how many shifts in consumer demand will be permanent." TWM spoke to Marcal Paper's President and Chief Executive Rob Baron.

TWM first visited Marcal when it was known as Soundview Paper, back in 2016. The site is distinguished from the rest of the New York skyline by a large, red illuminated 'Marcal' sign across its entrance, advertising the company's historic flagship brand. Established by founder Nicholas Marcalus in 1932, it is located 12 miles northwest of New York City and was acquired in 2012 by Connecticut-based Atlas Holdings. The group has spent the last nine years transforming the mill – navigating through both the devastating fire in 2019 that destroyed much of the plant, and the 2020 global pandemic – to create a successful manufacturer of recycled and virgin fibre towel and tissue products for America's AfH and At-Home markets.

The site had 23 converting assets converting 120,000tpy, as well as fully-integrated deinking, towel, tissue and napkin production. It manufactures the Marcal brand of tissue products for AfH, office and retail customers, using recycled paper collected from the densely populated metropolis on its doorstep.

Today, the company operates as Marcal Paper and offers a broad line of 100% recycled bath tissue, paper towels and napkins, all manufactured without chlorine bleaching, fragrances or dyes on one Paper Machine which runs virgin or 100% recycled paper. AfH makes up 90% of production, and At-Home – almost a year after the outbreak of Covid-19 – has now doubled sales to make up the remaining 10%.

Just four months after the fire of 30 January 2019 destroyed most of the historic building, trial paper production on one of its two tissue machines was re-started. In January 2021, the site is producing 65,000 tpy.

In a wide-ranging interview over a Teams call, President and Chief Executive Rob Baron, who has worked at Marcal in a variety of roles since at 2014, discusses at length the "substantial impact" on the North American tissue market that Covid-19 has brought. The overarching theme, he says, is not just internally, but externally: "With the outbreak of the pandemic in America in April, we all immediately saw a large portion of the population – in the interest of public health – having to figure out how to work from home," he says. "So what we saw, literally overnight, is an immediate shift from AfH to At-Home. The whole population had to get out of buildings, start social distancing ... and people just started using bathrooms at home. That was the number one change."

The second was the shock in April that everyone had when they went to the supermarkets and the shelves didn't have the products on: "Toilet paper is historically a very stable business, which means you have to be running at very high levels of utilisation. Usually, we are only really worried about population growth and slight changes in GDP. But what we saw happening here was a complete shift in consumption."

He adds that when there is an industry that runs at very high utilisation, people

simply couldn't keep up with the increase in demand. So while there was panic buying, as with many countries around the world it was also simply that there was vastly more consumption. "This was a key challenge for an industry that's set up to be very efficient at a certain level of production," he says.

That was the overarching impact for 2020, going into 2021: "The AfH sector usually sells the bulk of its products to places that have large group gatherings. Hotels, airports, conventions, ball parks, stadiums. And that's the area that has been aggressively reduced, again in the interest of public health. The scientists have done a tremendous job in trying to understand Covid as quickly as possible, and not everything is known as the data is so new to us, but that data suggests that large group gatherings are a bad idea right now."

At Marcal, he says the immediate concern was how to protect the company's employees, whilst also keeping the business – safely – running. It was a case of having to ask employees to stay in the building, so Baron says they did everything from cleansing, face masks and also conducting weekly Covid tests at their own expense. "This helps to reduce the chance of a super spread, but also sends a message to our employees that our number one priority is their welfare. And that we don't want them to do anything that any one of us wouldn't be willing to do."

Across the North American tissue market, the other big shift in demand was for kitchen towels: "I don't know a single company who has a kitchen towel machine that isn't already sold out. Covid has changed the way everyone is behaving and thinking. People are now more concerned with the cleanliness of surfaces to reduce the spread of Covid, they're washing their hands more and more, and they're concerned that air dryers simply won't contain the spread of the virus. So the demand for towels has been very strong."

"TOILET PAPER IS HISTORICALLY A VERY STABLE BUSINESS, WHICH MEANS YOU HAVE TO BE RUNNING AT VERY HIGH LEVELS OF UTILISATION. USUALLY, WE ARE ONLY REALLY WORRIED ABOUT POPULATION GROWTH AND SLIGHT CHANGES IN GDP. BUT WHAT WE SAW HAPPENING HERE WAS A COMPLETE SHIFT IN CONSUMPTION."

Longer term, Baron says the expectation is that, as Covid cases start to drop and vaccinations are rolled out, there will be a strong rebound in AfH activity. "Everyone has sacrificed, some more than others. The essential workers ... every one of us has given up a trip to get away, a trip to see their family ... in some ways this has also taught us how precious life is. So once cases start to drop and states start to re-open, people will take those trips and stay longer. So I definitely expect to see AfH bounce back."

Another trend that he expects to stay is hand cleaning, a habit that "people have built up, it's conditional and will remain high-priority."

During 2020, the company saw its At-Home sales literally double from 5% to 10% of its total output. It hasn't diversified to enter the private label market, although it does a couple of products for its At-Home grocery channel, a 1 ply bathroom tissue, and it has also launched a 2 ply bathroom tissue at the start of 2021, as well as an ultra-premium towel for higher-end needs where "better quality is needed and the customer is willing to pay".

However, the strategy is to keep its products focused, and the assortment small, with a focus on the long-term growth of the AfH market. "Before Covid, we weren't in private label, so we didn't try to get into that market during the middle of the pandemic," he says. "We already had six balls in the air, and throughout 2020 we all dealt with things that are just not usually on our plate."

With the new market trends expected to continue across the North American region, in 2020 the company invested in a high-speed bath line for At-Home and AfH at its Pennsylvania facility. It also purchased a high-speed multi-folding line, which was added in the middle of the year. "We have continuous plans to add one or two lines per year and we are also working on equipment upgrades, improving assets on the floor, adding saws, adding casepackers, etc. Just so we can make the operation more efficient."

Marcal merged with the Pennsylvania-based AfH converter Nittany Paper in December 2019, and Baron doesn't rule out further M&A activity as a route to growth: "Any future purchases all depend on the right fit and timing, but it could be in the At-Home or the AfH space."

He forecasts that the AfH space will "stay highly recycled", while At-Home will stay with virgin paper. "That was a trend before Covid, and a reason why we moved more into AfH. I don't see a change in that trend."



Long-term investment: "We have continuous plans to add one or two lines per year and we are also working on equipment upgrades, improving assets on the floor." Rob Baron, Marcal Paper President and Chief Executive

DEMAND LEVELS FOR TISSUE AND TOWEL PRODUCTS ARE "LIKELY TO CONTINUE THROUGHOUT 2021", HE SAYS, AND ADDS THAT ONCE THE REGION IS SEEING A MIX OF VACCINES BEING ROLLED OUT AND HERD IMMUNITY, HE HOPES THIS WILL LEAD TO A DROP IN THE SEVERITY OF CASES. "IN THE USA, ONE OF THE MAIN CHANGES WE HAVE SEEN IS THAT THE WHOLE POPULATION IS SUDDENLY GETTING USED TO WORKING FROM HOME."

A bigger issue will be service, and one of the things as an industry companies will have to watch: "We all need to keep a close eye on how many shifts in consumer demand will be permanent," he says.

Demand levels for tissue and towel products are "likely to continue throughout 2021", he says, and adds that once the region is seeing a mix of vaccines being rolled out and herd immunity, he hopes this will lead to a drop in the severity of cases. "In the USA, one of the main changes we have seen is that the whole population is suddenly getting used to working from home. Business in high-cost areas can see that if half their workforce works from home, it's very cost effective and offers flexibility, and means we can all have a smaller footprint. So there will continue to be demand for At-Home products. While we all want the world the way it was, there will be many changes that stick around."

Large segments of the population have also got used to buying a variety of products online, with different generations who didn't buy online previously having suddenly got very conformable doing so.

"The pandemic has closed down malls, or people are scared to go out, so now people have accounts online and this has given e-commerce a big boost. My mum now buys from Amazon! That's it in a nutshell. So e-commerce has definitely been a beneficiary of the pandemic overall."

On ending our call, the main issue he wants to draw attention to is appreciation of the plant's employees: "We have taken our employees' health very seriously. We test weekly, we do contract tracing. But one of the unsung heroes in all this was the essential worker that showed up every day and came into work, because they care about their family, and the company also, they care of Marcal."

"Times are scary now but they were really scary in April; no one knew what Covid was, it had just exploded, there was no test for it, the doctors hadn't learned how to help increase the chance of survival.... but they are unsung heroes. Not everyone can work from home, some people had to turn up and work onsite. And it's given me a whole new level of appreciation for what they've done. And, I hope, we're almost at the finish line".

“DON'T GO ANYWHERE WITHOUT KLEENEX” AS MY MOTHER USED TO SAY BACK IN THE DAY

Charlotte Minor is a long-time Colorado resident but grew up in Maryland and Michigan and also lived in Arizona for a time. Now retired, she worked for a decade as a journalist on small town newspapers in Arizona and Colorado, and later in a series of clerical jobs as a school registrar, textile catalogue writer, library acquisitions clerk and data analyst.



I grew up in a family that, of necessity, went with the cheapest tissue and towel brands available. My father would definitely have qualified as a hoarder. He'd grown up during the Depression, and saved pretty much everything because it might one day be valued for its 'collectivity'.

Much of that attitude rubbed off on me and is probably the reason I didn't want to just send the unusual vintage giant tissue boxes from the 1930s that I have in my collection to landfill.

I imagine there's some sort of Kimberly-Clark or Kleenex product museum somewhere that might have answers to some of these sorts of questions, so I contacted Tissue World Magazine to see

if there is anyone who can help me find a home for them!

The huge boxes are from the 1930s and so interesting and unusual. Giant boxes like that provoke questions about people's buying habits in the 1930s. Maybe they are some early-day precursor to paper towels? Since they have places for hanging the boxes, did everyone in those days have tissue dispenser boxes hanging on the walls instead of just sitting around on surfaces like we do today? It would be great to find someone who might have a tissue collection and who would want to collect them.

I collect paper ephemera myself, but of a different type - I have a lovely album

of antique early 1900s and some late 1800s Victorian Christmas postcards. I also sell ephemera online (through eBay) and find there is quite a market for my dad's educational ephemera from the 1940s-1970s as well as all sorts of advertising ephemera.

Growing up, another attitude that rubbed off on me was my mother's credo: "Don't go anywhere without Kleenex". If I find myself out and about when a runny nose strikes, I reproach myself if I don't have a stash of Kleenex in my pocket.

There were so few brands of tissue available when I was growing up. The only ones I really remember from the Sixties are Kleenex, Charmin and Scott. The major change I've seen for these types of products over the years is the increase in number of brands, a multiplicity of choices to make when deciding which product to select from the grocery store shelves. There are so many types of paper towels, facial tissues and toilet paper that one can stand for quite a while in the aisle pondering the best possible selection.

As to the products I prefer, a toilet paper roll that fits inside our wall-mount toilet paper dispenser and doesn't leave a tonne of flake debris strewn on the floor beneath it is a must.

Unlike when I was growing up, we now focus on buying facial tissue with an unscented brand that doesn't "flake" off pieces of tissue. I also have an odd obsession with buying the ones that come in cube-shaped boxes rather than the conventional style box, probably just because I have a few decorator dispensers into which they fit perfectly.

For paper towels, I love the new "Pick-a-size" style of paper towel roll; I love having that option to go with a small or large piece, depending on the task at hand.

“I HAVE A LOVELY ALBUM OF ANTIQUE EARLY 1900’S AND SOME LATE 1800’S VICTORIAN CHRISTMAS POSTCARDS. I ALSO SELL EPHEMERA ONLINE (THROUGH EBAY) AND FIND THERE IS QUITE A MARKET FOR MY DAD’S EDUCATIONAL EPHEMERA FROM THE 1940S-1970S AS WELL AS ALL SORTS OF ADVERTISING EPHEMERA, OF WHICH I HAVE QUITE A COLLECTION.”

I never buy napkins because we use a more sustainable option - fabric napkins. However, I make an exception for those gloriously beautiful holiday napkins with reindeer, poinsettia, owl or other prints! I can't resist buying a couple of packages of them on sale after the holidays for the following year's events. (If I'd known in January 2020 that I wouldn't be needing them, as events are impossible this year, I would have skipped a year!)

I do feel it's best to buy environmentally-friendly tissues and towel products, though I'm sometimes torn between the proper environmental solution and the least expensive option.

I was quite annoyed at a certain large bulk retailer when its toilet paper and paper towel products not only were encased in a large plastic wrap around all 24 items, but also had individual plastic wraps around each roll! That is overkill on the non-sustainable plastic that winds up creating plastic islands in our oceans!

I recently read an article about Americans' obsession with luxury toilet paper causing deforestation of Canada's forests, which has caused me to re-assess the toilet paper brands I use. Once the shopping protocols I've been following during the pandemic (online purchase and curbside pickup) are no longer necessary, I plan to investigate some of the brands made with bamboo.



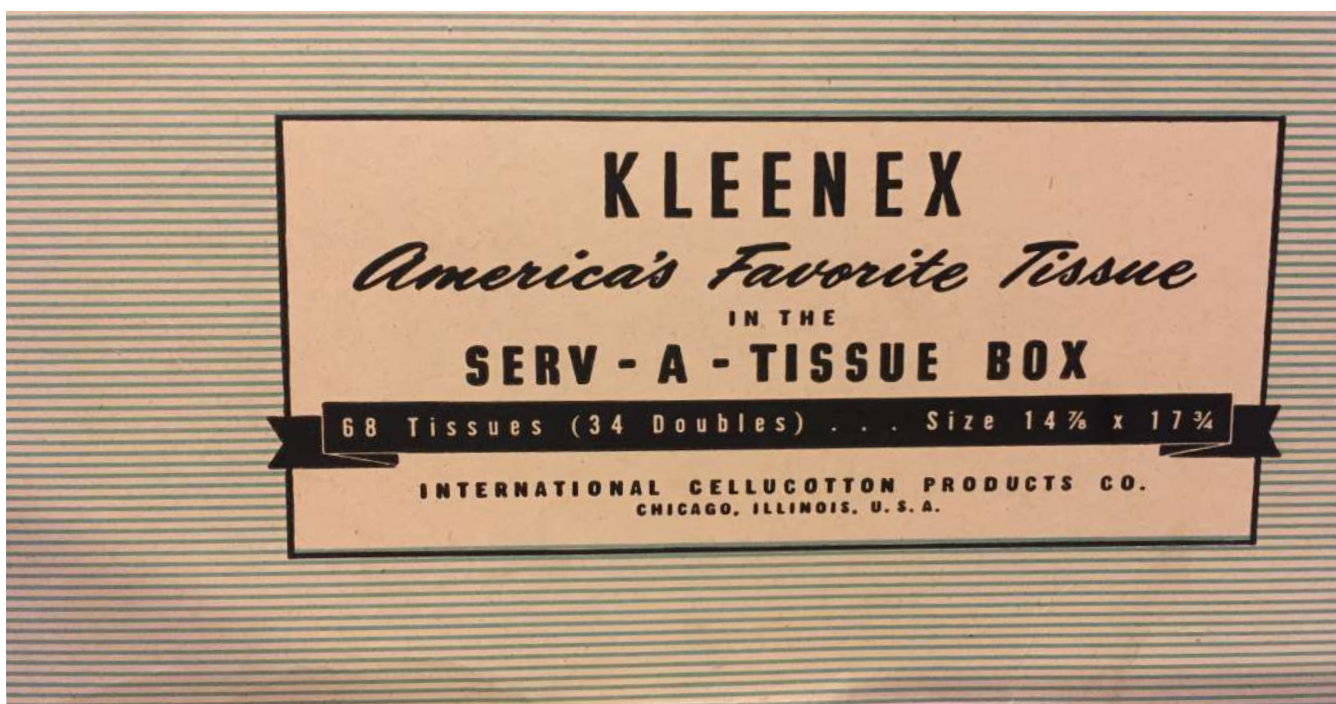
Professional Size: With the important message - When Tissues Reach This Level It Is Time To Reorder Kleenex



“I DO FEEL IT'S BEST TO BUY ENVIRONMENTALLY-FRIENDLY TISSUES AND TOWEL PRODUCTS, THOUGH I'M SOMETIMES TORN BETWEEN THE PROPER ENVIRONMENTAL SOLUTION AND THE LEAST EXPENSIVE OPTION.”

During 2020, Covid-19 impacted my tissue-buying habits in that we order everything online and thus are at the mercy of whatever brand is available for online customers who will be picking up their products curbside. We pretty much have to accept substitutions, regardless of whether they conform to our brand choice. So far, despite the toilet paper

hoarding trend at the start of the first wave of Covid-19 in the US, we haven't been unable to score toilet paper, facial tissue or paper towels from our local grocers. It was fun seeing all the tips and comments about possible places to purchase toilet paper in local Facebook groups and Next Door back in March-June.



The Serv-A-Tissue box: Charlotte's Mom never went without

SPECIAL FEATURE:

COUNTRY	COMPANY MILL	INVESTMENT	PM NO	NEW / REBUILD	START-UP DATE	CAPACITY CHANGE (tonnes/yr)	PM TRIM (m)
Africa	Confidential	Confidential	NA	Major Rebuild	2021	NA	NA
Algeria	Warak	Setif	2	New	2021	30000	2.8
Argentina	Celupaper	Buenos Aires	5	New	2021	23400	2.75
Argentina	Softys	Zarate	NA	New	2020	65000	5.6
Asia	Confidential	Confidential	1	New	2020	60000	5.66
Asia	Confidential	Confidential	2	New	2020	60000	5.66
Bolivia	Confidential	NA	4	New	2020	32000	2.8
Brazil	Damapel	NA	4	New	2021	32000	2.8
Brazil	HP Papéis	NA	1	New	2021	21600	2.8
Brazil	OL Papéis	NA	3	New	2020	19500	2.8
Brazil	Tangará Papéis	Pinheiro Preto City	2	New	2020	20000	2.8
Brazil	Trópicos	NA	3	Rebuild	2020	15276	2.6
Canada	Kruger Products	Sherbrooke, Quebec	NA	New	2021	70000	NA
China	APP	Rudong	1	New	2021	34300	3.6
China	APP	Rudong	2	New	2021	34300	3.6
China	APP	Rudong	3	New	2021	34300	3.6
China	APP	Rudong	4	New	2021	34300	3.6
China	APP	Rudong	13	New	2021	34300	3.6
China	APP	Rudong	14	New	2021	34300	3.6
China	APP	Rudong	15	New	2021	34300	3.6
China	APP	Rudong	16	New	2021	34300	3.6
China	APP	Rudong	5	New	2021	34300	3.6
China	APP	Rudong	6	New	2021	34300	3.6
China	APP	Rudong	7	New	2021	34300	3.6
China	APP	Rudong	8	New	2021	34300	3.6
China	APP	Rudong	9	New	2021	34300	3.6
China	APP	Rudong	10	New	2021	34300	3.6
China	APP	Rudong	23	New	2021	34300	3.6
China	APP	Rudong	24	New	2021	34300	3.6
China	APP	Rudong	25	New	2021	34300	3.6
China	APP	Rudong	26	New	2021	34300	3.6
China	APP	Rudong	NA	New	2021	65000	5.6
China	APP	Rudong	NA	New	2021	65000	5.6
China	Auswei Paper	Jiangmen	NA	New	2020	17800	2.8
China	Baoding	YuSen Mill	2	New	2020	NA	3.5
China	Baoding	YuSen Mill	1	New	2020	NA	3.5
China	Baoding Ruifeng Paper	NA	NA	New	2020	NA	2.8
China	Baoding Ruifeng Paper	NA	NA	New	2020	NA	2.8
China	Confidential	Confidential	NA	New	2021	17800	2.8
China	Confidential	Confidential	NA	New	2021	3500	3.5
China	Confidential	Confidential	NA	New	2021	3500	3.5
China	Confidential	Confidential	NA	New	2021	3500	3.5
China	Dezhou Shenggang Paper	Qingyun County	NA	New	2021	NA	NA

PROJECTS SURVEY

PM SPEED (m/min)	SUPPLIER	COMMENTS
NA	Toscotec	CF
2000	Valmet	Advantage DCT 100 with ViscoNip press
1300	Toscotec	MODULO-PLUS
2200	Valmet	Advantage DCT 200 with ViscoNip press
2000	Andritz	PrimeLineST W22-XT
2000	Andritz	PrimeLineST W22-XT
1600	Hergen	Crescent Former Machine EVO-16
1900	Hergen	Crescent Former Machine EVO-16
1700	Hergen	Crescent Former EVO 16 ECO
1300	Hergen	Crescent Former EVO 12
1600	Hergen	Crescent Former EVO 16 ECO
1120	Hergen	Crescent Former SMART HCF-920
NA	-	TAD
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
2200	Valmet	Advantage DCT 200 with ViscoNip press
2200	Valmet	Advantage DCT 200 with ViscoNip press
1100	Kawano Zoki	BF-1000S
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1300	Baosuo	BC1300-2850
1300	Baosuo	BC1300-2850
1100	Kawano Zoki	BF-1000S
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
1600	Valmet	IntelliTissue 1600, CF
NA	Baosuo	BC1300-3600 Crescent Former TM

TWM's Projects Survey charts all new capacity being added, ordered or in final planning stages during 2020 – 2021, as well as noting any projects already planned for 2022.

TWM's annual Projects Survey is the result of a year-long accumulation of tissue capacity data from companies across the world.

It represents a detailed snapshot of production strategies in all the major tissue regions, set against a global picture of dynamic but shifting trends in consumption, technological advances, raw material costs, radically new energy essentials, and continuing pandemic and economic uncertainty.

In 2020, two of the biggest changes to the global tissue machinery market were recorded as Toscotec was acquired by the Voith Group and Valmet acquired PMP Group.

Those developments make this year's Projects Survey particularly insightful for the future trajectory of global tissue machinery expansion, and the changing market shares of the machinery manufacturers.

Across all continents, and despite a global pandemic – and in many cases because of the pandemic and the well documented surge in the consumer At-Home sector as hygiene became an increasing priority – tissue continues to boom.

The strong market growth of around 3.7% annually that we've seen over the past few years is forecast to continue, albeit reportedly at a slight drop of 3.3%.

This is largely due to slowing economic growth in key regions such as China and Western Europe.

However, the rebound of commercial tissue in many regions following the – hoped for – easing of Covid-19 cases is forecast to accelerate tissue demand in many regions as economies re-open.

In fact, once and when the variously enforced lockdowns restricting travel, office working and socialising are eased, much relieved populations are expected to relish the new freedoms and seize every opportunity to catch up on lost time. The seriously restricted HoReCa sector is due a turn of fortune.

As always, a note of caution must be attached to the survey, due in large part to its sheer scope.

Leading companies have been approached in all the major tissue nations. The figures included here are based on the best information provided,

COUNTRY	COMPANY MILL	INVESTMENT	PM NO	NEW / REBUILD	START-UP DATE	CAPACITY CHANGE (tonnes/yr)	PM TRIM (m)
China	Dezhou Shenggang Paper	Qingyun County	NA	New	2021	20000	NA
China	Guangxi Sun Paper	Beihai City	1	New	2021	NA	5.65
China	Guangxi Sun Paper	Beihai City	2	New	2021	NA	5.65
China	Hengan Group	Yunfu	30	New	2022	NA	3.65
China	Hengan Group	Yunfu	29	New	2022	NA	3.65
China	Hengan Group	Yunfu	28	New	2021	NA	3.65
China	Hengan Group	Yunfu	27	New	2021	NA	3.65
China	Lee & Man	Chongqing	NA	New	2021	21666	2.85
China	Lee & Man	Chongqing	NA	New	2021	21666	2.85
China	Lee & Man	Chongqing	NA	New	2021	21666	2.85
China	Lee & Man	Chongqing	NA	New	2021	21666	2.85
China	Lee & Man	Chongqing	NA	New	2021	21666	3.5
China	Lee & Man	Chongqing	NA	New	2021	21666	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Lee & Man	Jiangxi	NA	New	2020	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	2.85
China	Shaoneng Group	Leiyang Cailun, Guangdong	NA	New	2021	20000	3.9
China	Taison	Anhui	13	New	2021	60000	5.6
China	Taison	Anhui	15	New	2021	60000	5.6
Confidential	Confidential	Confidential	NA	Major Rebuild	2021	NA	NA
Confidential	Confidential	Confidential	NA	Major Rebuild	2021	NA	NA
Confidential	Confidential	Confidential	NA	Major Rebuild	2021	NA	NA
Confidential	Confidential	Confidential	NA	New	2022	80000	5.6
Confidential	Confidential	Confidential	NA	New	2022	50000	3.46
Confidential	Confidential	Confidential	NA	New	2022	40000	3.65
Confidential	Confidential	Confidential	NA	New	2022	40000	3.65
Confidential	Confidential	Confidential	NA	New	2021	70000	5.6
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	38000	3.5
Confidential	Confidential	Confidential	NA	New	2021	NA	5.6

PM SPEED (m/min)	SUPPLIER	COMMENTS
NA	Baosuo	BC1300-3600 Crescent Former TM
2000	Andritz	PrimeLineTM W 2000 TM
2000	Andritz	PrimeLineTM W 2000 TM
1700	Andritz	PrimeLineCOMPACT M 1600 TM
1700	Andritz	PrimeLineCOMPACT M 1600 TM
1700	Andritz	PrimeLineCOMPACT M 1600 TM
1700	Andritz	PrimeLineCOMPACT M 1600 TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
600	Baosuo	BCS600-3550 Hand Towel TM
1300	Baosuo	BC1300L-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1300	Baosuo	BC1300-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1600	Baosuo	BC1600-2850 Crescent Former TM
1200	Baosuo	SF12-1100 Suction Former TM
1200	Baosuo	SF12-1100 Suction Former TM
1400	Baosuo	BC1400-3900 Crescent Former TM
1800	Andritz	PrimeLineST W8
1800	Andritz	PrimeLineST W8
NA	Toscotec	CF
NA	Toscotec	CF
NA	Toscotec	CF
2200	Toscotec	AHEAD 2.2L
2000	Toscotec	AHEAD 2.2M
1500	Toscotec	TADVISION
1500	Toscotec	TADVISION
2000	Toscotec	AHEAD 2.0L
2000	Valmet	Advantage eTAD
2000	Valmet	Advantage eTAD
2000	Valmet	Advantage eTAD
2000	Valmet	Advantage eTAD
NA	Valmet	Advantage ThruAir

and this has included TWM's extensive research into the global tissue industry, as well as a reliance on reliable responses from the many companies contacted to detail their present and future developments.

Additionally, and understandably, some companies declined to comment on their projects at this time, and there are also a substantial number of confidential projects.

A crucial part of compiling the report also includes first-hand knowledge gained by TWM from the many visits – and, following the outbreak of Covid-19, calls, Teams and Zoom – to interview tissue mill executives around the world for our six annual Country Reports.

During 2020, this has included in-depth interviews with your peers and competitors in Turkey, Canada, Scandinavia, Poland, Portugal and Japan, and in this edition's first Regional Report of 2021, in North America.

It needs also to be noted that for this year, as with last, many of the projects are subject to revision as, in many cases, information was not provided because it was deemed commercially sensitive or subject to financial uncertainty. It's also the case that a distinctive feature of this time in the cyclical development of tissue production is marked by the timely closure of old facilities to make way for the new, especially in markets suffering from overcapacity.

In some cases, delayed start-ups have also meant projects have been repeated from last year's survey: some of the 'new' capacity announced this year in fact includes some of last year's estimate.

Lastly, the survey is solely interested in complete tissue machine projects that will increase tissue capacity, rather than the numerous smaller rebuilds or press substitutions around the world that won't substantially impact capacity.

With that in mind, 2020 records a total of 146 tissue machine projects that are expected to come on stream, or have already started-up, in 2020, 2021 and 2022. This compares to the 101 new tissue machine projects noted in last year's Projects Survey, the 115 projects noted in 2018, 121 projects recorded in 2017, the 111 in 2016, 126 in 2015 and the 146 recorded in 2014.

The majority of these projects are again in China, and there are also numerous other small confidential start-ups in China not listed here. A key feature of this year's chart is the number of new tissue start-ups and expansion projects also seen and expected in the Next Eleven economies, with Turkey, Mexico and Indonesia in particular requiring attention.

Notable points to include

In retail volume terms, China now leads the global tissue market space. Chinese machinery suppliers are expanding their reach and this year's

COUNTRY	COMPANY MILL	INVESTMENT	PM NO	NEW / REBUILD	START-UP DATE	CAPACITY CHANGE (tonnes/yr)	PM TRIM (m)
Confidential	Confidential	Confidential	NA	New	2021	60000	5.6
Confidential	Confidential	Confidential	NA	New	2020	70000	5.6
Confidential	Confidential	Confidential	NA	New	2020	38000	3.5
Confidential	Confidential	Confidential	NA	New	2020	70000	5.6
Europe	Confidential	Confidential	NA	Major Rebuild	2021	NA	NA
Europe	Confidential	Confidential	NA	New	2021	70000	5.6
Europe	Paloma Higieniski papirji	Sladki	6	New	2020	65000	5.6
France	Global Hygiène	Charavines	NA	New	2020	NA	2.8
France	Papeterie Le Bourray	Saint-Mars-la-Brière	4	Rebuild	2020	NA	NA
Greece	Maxi	Katerini	NA	New	2021	40000	NA
India	Century Pulp and Paper	Lalkua	NA	New	2021	30000	2.8
Indonesia	APP	OKI	4	New	2021	41650	3.7
Indonesia	APP	OKI	3	New	2021	41659	3.7
Indonesia	APP	OKI	2	New	2021	41650	3.7
Indonesia	APP	OKI	1	New	2021	41650	3.7
Italy	Cartiera Confalone	Montoro inferiore (AV)	1	New	2021	32000	2.85
Italy	Cartiera della Basilica	Botticino	1	New	2020	24000	2.74
Japan	Confidential	Confidential	NA	New	2020	46000	3.5
Japan	Confidential	Confidential	NA	Rebuild	2020	18000	2.5
Japan	Confidential	Confidential	NA	New	2021	60000	5.6
Japan	Confidential	Confidential	NA	Rebuild	2021	18000	3.4
Japan	Confidential	Confidential	NA	Rebuild	2021	15000	3.4
Japan	Confidential	Confidential	NA	Rebuild	2021	15000	2.5
Japan	Confidential	Confidential	NA	Rebuild	2021	13000	2.1
Japan	Daio Paper Corporation	Kawanoe	NA	New	2021	70000	5.6
Japan	Marutomi	Ono mill	2	New	2021	22500	2.85
Mexico	Convertipap	Convertipap	NA	New	2021	35000	2.8
Mexico	Grupo Corporativo Papelera	NA		New	2020	100 (tpd)	2.6
Mexico	Papel San Francisco	Mexicali	NA	New	2020	45000	2.7
Peru	Papelera Reyes	NA	4	New	2020	27000	2.8
Poland	GZP	NA	2	Rebuild	2021	20000	2.6
Poland	Wepa Piechowice	Piechowice	NA	New	2021	40000	2.75
Romania	MG TEC Industry	NA	1	New	2021	30000	2.85
Romania	MG TEC Industry	NA	2	New	2022	30000	2.85
Russia	Hayat Kimya	Kaluga	9	New	2021	70000	5.6
South Africa	Picknik Marketing	Johannesburg	2	New	2020	25200	2.75
Thailand	Berli Jucker Cellox	Prachinburi	5	New	2021	30000	2.8
Thailand	C.A.S. Paper Mill Co.	Singburi	1	New	2021	30000	2.85
Tunisia	Azur Papier	NA	NA	New	2020	33000	2.75
Turkey	Essel Kağıt	Osmaniye	3	New	2021	90000	5.7
Turkey	Europap Tezol	Mersin	4	New	2022	40000	2.92
Turkey	Hayat Kimya	Mersin	8	New	2021	70000	5.6
Turkey	Lila Kagit	Corlu	4	New	2021	70000	5.6
UK	WEPA Group	Bridgend	NA	New	2021	65000	5.6
USA	Confidential	Confidential	NA	Major Rebuild	2020	NA	NA
USA	Irving Tissue	Macon	NA	New	2022	75000	5.6
USA	Kimberly-Clark	Mobile	NA	New	2020	NA	NA
USA	Sofidel	Inola, Oklahoma	1	New	2020	60000	5.5
USA	Sofidel	Inola, Oklahoma	2	New	2020	60000	5.5
Vietnam	Xuan Mai Paper	Ho Chi Ming City	1	New	2020	NA	2.85
Vietnam	Xuong Giang	NA	NA	New	2020	NA	2.85

PM SPEED (m/min)	SUPPLIER	COMMENTS
2000/1800	Valmet	Advantage NTT
NA	Valmet	Advantage DCT 200 with ViscoNip press
NA	Valmet	Advantage DCT 135 with ViscoNip press
2000	Valmet	Advantage NTT
NA	Toscotec	CF
2200	Valmet	Advantage DCT 200 with ViscoNip press
2000	Toscotec	AHEAD 2.0L
1800	A.Celli	iDEAL 1800S tissue machine
NA	Toscotec	Tisco Former
1850	Recard	Crescent Former TM
2000	Valmet	Advantage DCT 100 with ViscoNip press
1700	Valmet	IntelliTissue 1800, CF
1700	Valmet	IntelliTissue 1800, CF
1700	Valmet	IntelliTissue 1800, CF
1700	Valmet	IntelliTissue 1800, CF
2000	Toscotec	AHEAD 2.2S
1200	Toscotec	MODULO-PLUS
1800	Kawano Zoki / Valmet	DCT135HS
1000	Kawano Zoki	BF-12
2000	Kawano Zoki / Valmet	DCT200HS
1200	Kawano Zoki	BF-15 Towel
1000	Kawano Zoki	BF-12
1000	Kawano Zoki	BF-15
1000	Kawano Zoki	BF-12
2200	Valmet	Advantage DCT 200 with ViscoNip press
1500	Toscotec	MODULO-PLUS
2000	Valmet	Intelli-Tissue 2000, CF
2000	A.Celli	iDEAL mod. 2000S tissue machine
2200	Valmet	Advantage DCT 100 with ViscoNip press
1700	Hergen	Complete Paper Machine EVO 12
1300	Hergen	Crescent Former SMART HCF-920
2000	Toscotec	AHEAD 2.2S
1900	Andritz	PrimeLineCOMPACT V
1900	Andritz	PrimeLineCOMPACT V
2200	Valmet	Advantage DCT 200 with ViscoNip press
1500	Toscotec	MODULO-PLUS
1800	Andritz	PrimeLineCOMPACT C6 with shoe press
1850	Toscotec	AHEAD 1.5S
1800	Recard	Tissue machine
2000	Toscotec	AHEAD 2.2L
2100	Toscotec	AHEAD 2.2S
2200	Valmet	Advantage DCT 200 with ViscoNip press
2200	Valmet	Advantage DCT 200 with ViscoNip press
2200	Valmet	Advantage DCT 200 with ViscoNip press
NA	Toscotec	Twinwire
NA	Valmet	Advantage ThruAir
NA	Valmet	NTT PM
2000	Toscotec	AHEAD 2.0L, dry-crepe PM
2000	Toscotec	AHEAD 2.0L, dry-crepe PM
1300	Andritz	PrimeLineECO
1300	Andritz	PrimeLineCOMPACT S 1300 TM

survey charts 69 projects expected to start-up in China in 2020, 2021 and 2022. This is compared to the 35 projects noted last year.

Asia Pulp and Paper is leading the surge with 20 new IntelliTissue 1600 CF machines, now supplied by Valmet, to be installed in China, and four IntelliTissue 1800 CF lines to be installed in Indonesia. These substantial investments are all due to come on-stream in 2021, reinforcing the company's presence as a leading – and growing – regional and global supplier.

In North America, tissue market growth has been robust largely because of the AfH market pre-Covid, but latterly from an almost overnight boom in At-Home tissue from panic buying and hoarding.

Key start-ups have included Sofidel America's Inola, Oklahoma plant, where it brought online two Toscotec-supplied paper machines.

Kruger Products also announced that it had selected Sherbrooke, Canada, for the location of its new TAD PM. As we hear in our interview with the company's Chief Executive Dino Bianco in this January/February TWM, start-up is eagerly anticipated for early 2021.

Elsewhere, emerging markets will play an increasingly important role in future industry expansion. Asia Far East has staggering potential based in terms of the region's geography and population. It also includes some of the world's most populous countries such as India – the current great untapped tissue market – and Indonesia. These regions – along with Eastern Europe – are proving themselves to be key growth areas.

While the global tissue market has always been a beneficiary of improving global hygiene standards, nothing has had quite the impact of the outbreak of Covid-19. A new emphasis has been placed on hygiene, and the companies that supply these products. Whether it will remain a long-lasting trend remains to be seen. There are many in the industry who believe it will. We look forward to seeing how they develop.

CAUTION

All aggregates taken from the survey should be treated with some caution. While all care has been taken to publish comprehensive data, it is inevitable that projects will be missing or details incomplete. Many projects have also been delayed, so start-up data used in last year's Project Survey has had to be repeated. We welcome your help to ensure as comprehensive a survey as possible at the end of 2021.

DRIVEN BY INNOVATION – AT THE LEADING EDGE OF MACHINERY ADVANCES

Leading tissue executives assess their companies' priority issues – including saving energy, CO2 emissions, machine rebuilds, fibre usage, structured/textured products, remote expertise, market concentration, and Covid-19



Klaus Blechinger
Vice President Tissue, Andritz



Sheng Qiao
Deputy General Manager, Baosuo



Shinji Goda
Director and general manager of engineering, Kawano Zoki



Marco Dalle Piagge
Sales Director, Toscotec



Ingmar Andersson
Senior Vice President, Valmet, Tissue Mills business unit

TWM/1: How have the events of 2020 impacted the global tissue market, and how has your company responded?

Klaus Blechinger, Vice President Tissue, Andritz: "We have the impression that the Corona pandemic caused contradictory developments in the tissue market. Our

Klaus Blechinger

"AFH TISSUE PRODUCERS REPORTED A REMARKABLE DECREASE OF SALES DUE TO LOCKDOWNS AND TRAVEL RESTRICTIONS FROM AUTUMN 2019 (ASIAN COUNTRIES) TO END OF 2020 (REST OF THE WORLD). THEY TRIED TO COMPENSATE A SMALL PART OF THE LOSSES BY THE INCREASING CONSUMPTION IN THE MEDICAL CARE INDUSTRY."

Chinese customers were the first to report that they were forced to close their mills for a certain period of time and then reports followed about panic buying of toilet tissue in Asian regions. When the virus expanded to other market areas, the panic buying increased as well. Our customers were

forced to activate all their reserves to meet the exploding demand.

"In contrast to that, AfH tissue producers reported a remarkable decrease of sales due to lockdowns and travel restrictions from autumn 2019 (Asian countries) to end of 2020 (rest of the world). They tried to compensate a small part of the losses by the increasing consumption in the medical care industry. In some regions such as China and Middle Eastern Europe, the Corona infections decreased for some months and our customers reported that their sales figures started to go "back to normal" but unfortunately the world, especially the "western" world, was then hit by something comparable to a second wave of infections.



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LUCCA - ITALY
GREEN BAY, WI - USA

"Today, our customers report a similar situation like at the beginning of the Corona pandemic but not that intense: the demand for household tissue slightly increases, the demand in the AfH segment remains on a very low level and a recovery is only expected when a vaccine will hopefully be available to a broader mass of people.

"When we were hit by the Corona pandemic and its influence on the daily business life we could luckily react very fast and flexibly. This was possible due to three strengths Andritz has: our global presence, a state-of-the-art tissue pilot plant, and sophisticated digital solutions. As we have local tissue experts in all our key regions such as Asia, Europe and the Americas, we could cope with the travel restrictions. In addition, we were able to continuously conduct trials for our customers at our tissue pilot plant in Austria, report the results immediately and online to give recommendations. A couple of years ago we also launched the Metris Performance Centres which have a 24-hour online support and remote control. They are directly connected to the production lines of our customers with a comprehensive and secure connectivity to provide valuable support, in the commissioning and start-up phase but as well during normal operation.

"The experts in the Performance Centre can actively assist during those phases by keeping an eye on all the main parameters and intervening in an advisory and controlling capacity – if necessary and requested by the customer. This – independent from a pandemic like Corona – generally shortens the start-up period of a tissue line significantly from several weeks to just a few days. In addition, the plant can be prepared for further optimisation while in operation. Customers like Hungary's Vajda Papír, Russia's Arkhbum Tissue and some in South America and South East Asia are proof of the success."

Sheng Qiao, Deputy General Manager, Baosuo: "The events of 2020 raised lockdowns in many countries and caused economic contraction. But for the tissue market, as far as we can see, the consumer market will keep on growing. For AfH, it's also just a matter of time, and it's expected to be a high increase after the restriction due to the pandemic.

"In order to support the prevention of the virus as well as to ease the demand for masks, we launched our fully-automatic mask production line, and build dust-free workshops in production for masks on the self-build machine.

Sheng Qiao

"THE EVENTS OF 2020 RAISED LOCKDOWNS IN MANY COUNTRIES AND CAUSED ECONOMIC CONTRACTION. BUT FOR THE TISSUE MARKET, AS FAR AS WE CAN SEE, THE CONSUMER MARKET WILL KEEP ON GROWING. FOR AFH, IT'S ALSO JUST A MATTER OF TIME, AND IT'S EXPECTED TO BE IN HIGH INCREASE AFTER THE RESTRICTION DUE TO THE PANDEMIC."

"For the tissue business, we increased online communication and support with customers, launching a series of combined production lines with a more flexible products applicable range, such as rewinders that produce all range of roll products, from consumer roll to AfH roll, as well as folders that produce facial tissue and hand towel."

Shinji Goda, Director and General Manager of Engineering, Kawano Zoki: "We feel that Covid-19 has clearly impacted the supply-demand balance of each product. In Japan, we have seen the increase in towel paper, the decrease in AfH toilet rolls that had previously been supported by inbound tourists, the decrease in demand for facial tissue due to less cold and pollen allergy patients since people are wearing masks all the time, and the increase in household tissue products such as kitchen towels due to remote work or staying at home for longer periods of time.

"We have responded to the customers by delivering tissue machines and converting machines which comply with current product demand."

Marco Dalle Piagge, Sales Director, Toscotec: "Toscotec has always been operational during lockdowns in Italy, adopting all necessary measures in compliance with Covid-19 regulations.

"The pandemic had a strong impact on the tissue industry. At one end, we registered delays on some projects due to entry restrictions and other pandemic-related issues in Latin America and Asian countries. On the other end, in close cooperation with our customers we managed to find solutions to push ahead with many projects, which we successfully completed according to the original schedule, including erection on-site, commissioning and start-up. We continue working at mills, where we strictly implement all necessary measures to ensure the safety of all parties involved."

Ingmar Andersson, Senior Vice President, Valmet, Tissue Mills Business Unit: "In general, the demand for tissue

making capacity for most markets has increased and we have received a lot of requests and orders for new projects, even more than a normal year, despite the ongoing pandemic and uncertainties.

"The exception in the demand is normally touristic places which have reduced their needs.

Valmet has continued projects under way towards delivery, installation and start-up without noticed delays.

"We have learned and developed new ways of supervising the installation and start-up. Valmet has resources in many countries that have supported during these difficult times. In addition, we have developed remote support using all the available ways to communicate verbally as well as using video-based tools. This has enabled us to make all the site efforts as agreed."

TWM/2: What key tissue trends do you forecast for 2021?

Blechingner: "Due to the lockdowns and people working in home offices there will definitely be a rise in e-commerce and finished consumer tissue. Hygiene awareness may continue to be on a very high level as long as the governments promote and highlight its importance. When having a look on our recent orders, then we can see an increase in tissue machine capacity in the Asian regions, but likely investments in strongly hit areas like Europe and the Americas will also increase."

Qiao: "People will have more care about hygienic than before the epidemic, and the rise of e-commerce will accelerate; all of this will support the growth of the tissue and hygiene industries.

"The increase for tissue consumption is worldwide, but in the African and Asian market the increase should be more significant as the current consumption in those areas is still at a low level."

Goda: "In Japan as well, e-commerce is growing as the time spent at home increases. In addition, due to increased hygiene awareness the development

Ingmar Andersson

“GENERAL AWARENESS OF THE IMPORTANCE OF HYGIENE HAS INCREASED THE INTEREST IN PAPER TOWEL. MANY COUNTRIES SUCH AS THE US AND JAPAN HAVE ABANDONED AIR HAND DRYERS IN PUBLIC WASHROOMS, AND THIS HAS LED TO A HIGHER DEMAND FOR PAPER TOWEL.”

of new household tissue products with antibacterial effect is progressing. Towel products necessary for wiping hands, desks, etc, will be developed for various purposes, not only at home but also in public places and will spread to places that were not previously recognised as necessary.”

Dalle Piagge: “Many tissue manufacturers around the globe have confirmed a rise in e-commerce revenues this year. The pandemic certainly speeded the process along, but I also believe that as producers make progress in offering improved digital experience to consumers, e-commerce sales will increase even more in the future.

“In 2020, hygiene-related awareness has definitely increased among the general public, and the idea that paper drying is more effective than hand dryers is now widely accepted. Consumption increased in household tissue – in particular in North America – but declined in the Afh market.”

Andersson: “General awareness of the importance of hygiene has increased the interest in paper towel. Many countries such as the US and Japan have abandoned Air Hand Dryers in public washrooms, and this has led to a higher demand for paper towel.

“We don’t expect that e-commerce will change the consumption amounts very much, it is merely the general standard of living and consumer behaviour that will drive an increased consumption. However, e-commerce will change sourcing and distribution.

“Traditionally, tissue products have been produced relatively locally to the consumers. Now, there is a global change where closeness to fibre, energy and

general cost structure, thanks to size of facility, will open for shipping over long distance.

“The importance of well-established branded products is reduced since the access to high-tech production is available globally. Furthermore, major supermarket chains are promoting products with high-quality under their own names.”

TWM/3: What developments have you made in terms of energy in 2020?

Blechinger: “In the tissue production process, a lot of energy is consumed during the drying process. Thus, one of our R&D focus areas in 2020 was to reduce the need of thermal drying. On the one hand we focused on mechanical dewatering and thermal drying as one of the key cost drivers of the tissue production process: we improved our shoe press features, focused on the re-evaporation system (steam generator) and kept on offering our steel Yankee technology. On the other hand we had a close look on the interaction of premium-quality tissue production and energy consumption, namely on textured and TAD grades.

“The PrimePress XT Evo shoe press ensures both improved dewatering and better product quality, thus reducing the need for thermal drying. As a result, the energy demand of the tissue machine with shoe press is substantially lower. In addition, the Andritz edge control system and the unique and patented deflection compensation lead to better product qualities.

“Steam for tissue machines is typically produced by the mill’s boiler system. There are some technical issues with this arrangement: older, less energy-efficient

steam production equipment, long steam piping layout, and excessive losses of steam pressure and energy. Andritz’s solution to solve this problem is the PrimeDry YES steam generator that uses exhaust air from the Yankee hood. Depending on the application, the PrimeDry YES can produce in the range of 25-40% of the steam required for the Yankee, which can save up to 15% in energy costs.

“On a tissue machine, the Yankee is a key component due to its consumption of energy and its impact on the quality of the final product. Therefore, it is essential to operate the Yankee in the most efficient and economic means possible. Our Steel Yankees, with diameters of up to 26ft., enable safe and energy-efficient drying. In combination with Yankee head insulation and a steam-heated hood there is a huge potential for energy savings. Our steam-heated hood for example operates in a temperature range around 200°C of impingement air temperature, which can provide an additional 15-25% of drying capacity compared to the Yankee alone.

“We had a close look on the interaction of premium-quality tissue production and energy consumption. We developed a tissue machine, PrimeLineTEX, for the production of textured tissue. This kind of tissue has a quality close to TAD but the production process is remarkably less energy intensive. As the trials at our pilot plant were very promising, we experience increasing interest in our product, especially from customers from South East Asia, Europe and South America.

“At the moment we’re working on an energy saving solution for the production of premium structured tissue (TAD).”

Qiao: “Saving of energy consumption is a long terms strategy and the key to the future. For tissue machines, the upgrade has enabled customer to have the same production capacity but with less consumption in water, power and gas.

“For converting machines, we have made improvements in machinery automation and capacity, so as to reduce the unit consumption. The most significant is the wide use of the auto transfer folder line compared to normal manual folders; it achieved a 100% accurate count, 50% unit power consumption, space occupy and labour cost.”

Goda: “We have approached heat recovery and energy saving in tissue machines from the perspective of selecting appropriate equipment and optimising operating conditions. Additionally, pursuing

Marco Dalle Piagge

“MANY TISSUE MANUFACTURERS AROUND THE GLOBE HAVE CONFIRMED A RISE IN E-COMMERCE REVENUES THIS YEAR. THE PANDEMIC CERTAINLY SPEEDED THE PROCESS ALONG, BUT I ALSO BELIEVE THAT AS PRODUCERS MAKE PROGRESS IN OFFERING IMPROVED DIGITAL EXPERIENCE TO CONSUMERS, E-COMMERCE SALES WILL INCREASE EVEN MORE IN THE FUTURE.”

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production that enables well-balanced operations with excellent stability has also been promoted as an energy saving measure that can reduce losses the most.”

Dalle Piagge: “First of all, the third-generation design TT SYD Steel Yankee dryers we started up in 2020 are giving optimal performances. This new product upgrade raises the energy efficiency standards for Yankee dryers globally in the tissue industry. We worked on the optimisation of the shell geometry and calculation methodology based on the large database pulling data of more than 200 TT SYDs currently operating in the world.

“Secondly, thanks to the close cooperation with Voith’s R&D team, Toscotec developed a new machine concept for structured tissue that ensures the highest tissue quality currently available on the market through a new technology based on low energy use.”

Andersson: “Energy efficient production has been on our radar for many years and most of our new developments are targeting at reducing the energy usage per case produced. We have many energy reducing features available for tissue makers but in many cases it boils down to reducing the one-time investment cost and some features will be deferred to a later time.

“Today we are not only aiming at saving energy but also to reduce CO2 emissions which includes both energy and fibre usage. The most powerful way to save energy as well as fibre is to increase the bulk and absorbency of any of the Hybrid Concepts.

“The well-established TAD technology will produce a product with great bulk and absorbency but usually TAD has higher energy consumption.

“As for the conventional technologies such as Crescent Formers, the most powerful energy saving is the reduction of moisture after the pressing using advanced pressing. This in addition with other ways to recapture and reuse energy, Valmet Tissue machine concepts have the lowest energy per tonne.”

TWM/4: Are we likely to see more M&A activity in the tissue machinery sector in 2021 and 2022?

Blechinger: “With our latest acquisitions – namely Novimpianti and Xerium a couple of years ago – we can already offer the complete product range for tissue production, from stock preparation

Shinji Goda

“WE HAVE APPROACHED HEAT RECOVERY AND ENERGY SAVING IN TISSUE MACHINES FROM THE PERSPECTIVE OF SELECTING APPROPRIATE EQUIPMENT AND OPTIMISING OPERATING CONDITIONS. ADDITIONALLY, PURSUING PRODUCTION THAT ENABLES WELL-BALANCED OPERATIONS WITH EXCELLENT STABILITY HAS ALSO BEEN PROMOTED AS AN ENERGY SAVING MEASURE THAT CAN REDUCE LOSSES THE MOST.”

to the reel including machine clothing, automation and pumps. Thus, most probably there will not be major acquisition activities in 2021/2022 by us, but you know... never say never.”

Qiao: “Yes, this is a market behaviour that M&A activity improves market maturity, integrating the existing technology and resources to better promote development of the industry. At the same time, some companies can also overcome difficulties and survive in this event.”

Goda: “Considering the current situation, we assume there will be more in the coming years. We will focus on whether the companies acquired by others will be able to respond finely to various customer needs in the future. The market is expected to continue to change, and it will be important for each machine supplier to achieve a firm relationship and meticulous contact with the customers.”

Dalle Piagge: “In 2020, we witnessed a robust market concentration in the making. As was reported, since the end of April 2020 Toscotec is part of the Voith Group. In the marketplace, this change is reflected in the fact that Toscotec is now responsible for new tissue lines and major tissue machines rebuilds for the Voith Group at global level. Voith strategically supplements our portfolio with spare and wear parts, digitalisation solutions, and services, among other offerings. As a result, tissue producers receive the most cost-attractive solutions tailored to their individual needs from a single source.”

Andersson: “We do not see any obvious consolidations ahead among the major suppliers in the near future. During this year we have seen Voith acquiring Toscotec, and Valmet joined forces with PMP Group, which have the integrated the Intelli-Tissue technology in its offering. In general, this has given various markets access to a wider scope of services and technologies which in the end is beneficial to the customers.

“In China, many suppliers are offering commodity technology and we expect some suppliers may take the lead and

accept the challenge from international suppliers in the same way other industries have been developing, such as cars, phone technology and the wind power industry.”

TWM/5: What key technical innovations do you forecast for the global tissue machine market?

Blechinger: “Technologies to reduce energy consumption and the CO2 footprint and solutions for sustainable tissue production will again gain in importance. In addition, due to the restrictions caused by the COVID pandemic, digital solutions in the fields of online and remote support during all project phases (from order to commissioning, start-up and maintenance and continuous process optimisation) become more and more important.

“We are also focusing on the extensive use of alternative energy sources to replace fossil fuel-based source energies in the paper drying process. We are looking for a more and more sustainable tissue making process by reducing the carbon footprint generation of a tissue plant. The technology has greatly advanced in the industry and may now allow industrial applications that are becoming of interest also in the tissue making process.

“Another big challenge for the European market is looking at the tissue products with a new concept and redesigning the products themselves using the new available technologies. When looking at the whole tissue production it is important that the proper converting methods are associated to the new tissue products. At our tissue pilot plant we are supporting our customers to offer new paper concepts reel for converting trails and generating new product concepts. The aim is to save fibres and energy and develop products with same or superior quality.

“Another interesting topic on which our customers showed a lot of interest is the use of alternative fibres to wood fibres. The climate changes we are witnessing will offer new opportunities to the industry. Each global region is testing alternative

Ingmar Andersson

“WE HAVE NOTICED AN INCREASED INTEREST FOR SO CALLED STRUCTURED/TEXTURED PRODUCTS SUCH AS THE WELL-ESTABLISHED TAD TECHNOLOGY, BUT ALSO FOR RELATIVELY NEW INVENTIONS SUCH AS ADVANTAGE NTT, QRT AND ETAD SO CALLED HYBRID PROCESSES. STRUCTURED PRODUCTS HAVE FOR A LONG TIME BEEN A CORNERSTONE TO THE PRODUCTS OFFERED IN THE US MARKET BUT ONLY TO LIMITED EXTENT FOR THE MARKETS IN EUROPE, LATIN AMERICA, AUSTRALIA AND SOUTH KOREA.”

fibres or fibre mixes to save wood and preserve the environment.”

Qiao: “A more flexible product range, easier installation and setting way, more convenient remote-control assistance and less energy, production material consumption.”

Goda: “Machines that can produce unique products are expected to be required in the future. We believe there will be an increasing demand for machines that are not mass-produced but with high added value, such as the one that can make higher basis weight, bulky products, or the machine that can produce various grades.

“We will strive for further effort to meet the customers’ requests from every perspective, including consultations starting from customer product development requests, proposals for optimized converting machines, flexible comprehensive engineering support including factory layout, and after-sales service.”

Dalle Piagge: “Digital solutions are playing an increasingly central role in the global market: in combination with key papermaking know-how, artificial intelligence allows us to increase the efficiency of tissue machines. Voith has already developed substantial expertise in digitalisation; in this respect, it perfectly supplements our portfolio with a wide range of digital solutions, designed to increase both operation and maintenance efficiency, as well as perform trouble-shooting and the optimisation of complete production lines.

“The other clear trend we see is a widespread demand to reduce energy consumption. Engineering solutions to save and recover energy in the machine’s drying section and related systems has always been a strong focus of Toscotec. I believe this effort is paying off: our new tissue lines and drying section rebuilds are achieving optimal energy efficiency performances, setting new records, and most importantly,

meeting the customers’ efficiency targets.

“At the same time, the market is increasingly demanding premium quality tissue. Unfortunately, the request for high-quality structured tissue and low energy consumptions do not generally go hand-in-hand, but that is the challenging demand we are facing as tissue machinery manufacturers and it is precisely what which we are finding solutions for at the moment.”

Andersson: “We have noticed an increased interest for so called structured/textured products such as the well-established TAD technology, but also for relatively new inventions such as Advantage NTT, QRT and eTAD so called Hybrid Processes. Structured products have for a long time been a cornerstone to the products offered in the US market but only to limited extent for the markets in Europe, Latin America, Australia and South Korea. The hybrid process opens new possibilities for other markets to get access to premium products at a reasonable investment cost as well as low energy usage.

“As a company we have the complete portfolio from small to very large capacity and a range of technology from Dry Crepe to TAD and various Hybrid Concepts built on long time historical experiences.”

TWM/6: What will be the main challenges and opportunities in 2021?

Blechinger: “The main challenges will remain Covid-19 and the travel limitations coming with it, at least during the first months of 2021. However, I believe that this will also trigger many opportunities especially as the world has been woken up in the past few months to the increased and stronger need for more sustainable and greener solutions.

“One of the key questions is how – and how fast – economies will recover from the influence of the pandemic. How business is done has changed tremendously over the last months; we as machine suppliers

have and will serve our customer with the same or even improved services that they are used to. Huge opportunities will show up in the area of digital solutions as global mobility is expected to further decrease while the demand of our customers to have continuous – at least online – support granted will for sure increase. For all that we can proudly say we are well equipped and prepared.”

Qiao: “The improvement of people’s hygienic awareness has given the tissue market a lot of new opportunity. It’s not only the rise of capacity, but also the requirement for a more convenient and new clean products category. We will focus on this trend, improve machine performance, guiding customers with new ideas.”

Goda: “Hygiene awareness will continue to grow globally for the foreseeable future, creating many opportunities for the industry. However, there are movements in the market to focus on the “next” approach to the products, and it will be necessary to carry out proactive activities for the next move and generation along with the current efforts.”

Dalle Piagge: “Given the current situation, the Covid-19 pandemic still represents a big challenge for the industry in many areas of the world. I hope we will soon be able to meet customers in person, but at the same time we can effectively conduct business through digital means.

“Having learnt this valuable lesson, we will not go back to travelling as much as we did in the past.

“Among the opportunities ahead, I certainly see the completion of the intense integration work we have been carrying out with the Voith Group in many areas, including R&D and product portfolio. These valuable synergies equip us to be successful in offering customers the most comprehensive and technologically advanced portfolio.”

Andersson: “Going into 2021, we will remain under the stress of Covid-19 implications. Tissue makers have firm plans and are moving ahead with projects around the world and we shall do our utmost to satisfy their plans and deliver according to plan.

“Due to the pandemic we will also see more of digital solutions and remote support where we already are doing commissioning, start-ups, pilot trials and FAT’s remotely.”

NEXT INVESTMENT CYCLE TO SEE 5.8MT ADDITIONAL SUPPLY OF GLOBAL BCP IN 2022-2023

Last year's subdued capacity growth – the first net contraction since 2014 – to be accelerated by so-far confirmed projects, before the market slows again. Report by Pierre Bach, Research Analyst at Hawkins Wright.

EI



Pierre Bach
Research Analyst, Hawkins Wright

FOLLOWING THIS TWO-YEAR HIATUS IN CAPACITY GROWTH, SOME 5.8MT OF ADDITIONAL SUPPLY IS DUE TO HIT THE MARKET, OF WHICH 2.3MT AND 2.7MT IN 2022 AND 2023 RESPECTIVELY, WILL HAIL THE START OF THE NEXT INVESTMENT CYCLE.

averaging +2.4% p.a., with BSKP capacity expanding by 4Mt (+1.6% p.a.) and BHKP by 11Mt (+3.2% p.a.). Offsetting some of this growth has been a 0.7Mt decline in sulphite capacity (-10.4% p.a.)

Last year's subdued capacity growth is mostly attributable to a 0.3Mt decline in annual BSKP capacity – the first net contraction since 2014. This owed to a combination of shuts and conversions, planned or precipitated by the prolonged market downturn, offsetting the ramp-up of the Svetlogorsk mill in Belarus, and some modest growth elsewhere (e.g. Metsa Aane Koski, SCA Ostrand, Ilim Ust-Ilimsk, Rayonier Jesup and Resolute Calhoun).

Paper Excellence's decision to shut two of its Canadian mills (Pictou and MacKenzie) during H1 slashed NBSK capacity by an estimated 0.4Mt this year, while the swing to BEKP and subsequent conversion to

dissolving pulp at Arauco's Valdivia mill has reduced radiata pine capacity by a similar amount. Other conversions at Enocell (to DWP) and at Fibre Excellence Tarascon (to UKP) conspired to reduce bleached softwood capacity by an additional 0.15Mt.

Meanwhile, total BHKP capacity increased by 0.7Mt, driven by growth in Indonesia at APP OKI and APRIL Riau mills (+0.3Mt) and by Arauco's temporary swing towards BEKP production at Valdivia. Some growth elsewhere (Klabing Puma, Phoenix Paper Wickliffe, ENCE Navia, Mondi Ruzomberok) makes up the rest, offset by the swing to BSKP at Resolute Calhoun and a 50,000tpy decline at Sappi Somerset.

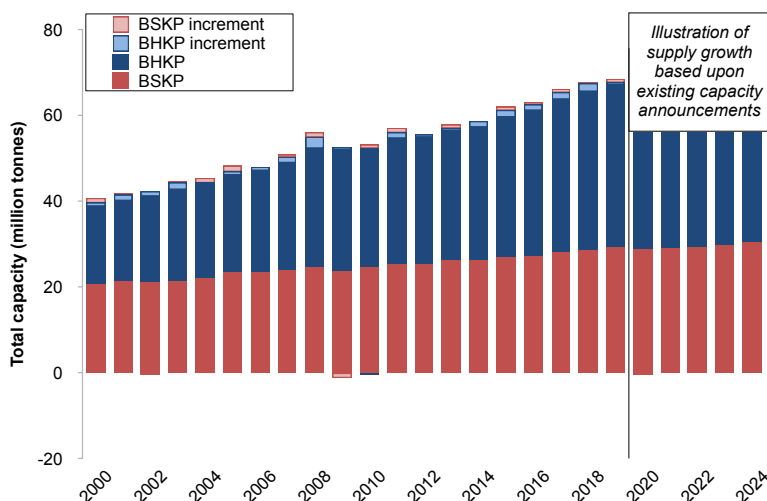
Looking at the forecast period to 2024 as a whole, some 6.4Mtpy of extra capacity is due to come online, at an average rate of +1.3Mtpy (+1.8% p.a.). Projections for 2021 look even weaker than 2020, with just 0.24Mt of net capacity growth, featuring the first full year of operation at Nordic Kraft Quevillon, the completion of Svetlogorsk's ramp-up, integration at New-Indy Catawba and the conversion of a UWF paper machine to market pulp at Domtar Ashdown, which will temporarily boost BHKP supply during 2021 before ultimately increasing BSKP and fluff capacity at the mill.

Following this two-year hiatus in capacity growth, some 5.8Mt of additional supply is due to hit the market, of which 2.3Mt and 2.7Mt in 2022 and 2023 respectively, will hail the start of the next investment cycle. Confirmed projects thus far imply that capacity growth will then slow to +0.8Mt in 2024 – although there are many thus far unconfirmed projects, notably in Brazil and in China (mostly integrated) which could be given the greenlight in the months ahead.

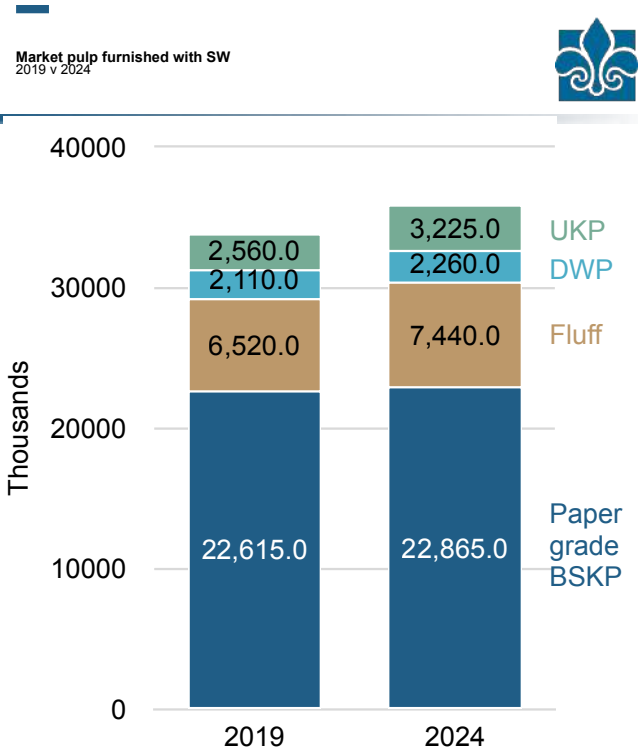
Of the 5.8Mt of additional capacity due to come online during the 2022-24

The global bleached chemical market pulp capacity reached 68Mtpy in 2020, comprised of 29Mtpy of BSKP capacity and 39Mtpy of BHKP (plus 0.3Mt/y of sulphite pulp). The growth in capacity last year was equal to just 0.4Mt (+0.5%), which compares with average growth of 3.1% pa during the prior five-year period. Global BCP capacity has increased by 14Mt over the past decade,

Global BCP capacity additions
y-o-y change and cumulative capacity, by grade



Source: Hawkins Wright



Source: Hawkins Wright HAWKINS WRIGHT

period, some 4.3Mt will be attributable to BHKP, comprised almost exclusively of BEKP. The main contributors will be Arauco MAPA in Chile, Bracell's Lençois Paulista project in Brazil and UPM's greenfield mill in Paso de los Toros, central Uruguay. We also include some debottlenecking work across several mills (e.g. Klabin PUMA, Metsa Anekoski), as well as a reduction in southern mixed hardwood supply when Domtar completes its aforementioned conversion and swings to BSKP at Ashdown.

Meanwhile, BSKP capacity is set to increase by a more modest 1.4Mt during 2022-24, owing almost entirely to NBSK additions thanks to Metsa Fibre's rebuild of the Kemi mill in Finland, to Södra's debottlenecking work at Värö, and to increased BSKP output at Domtar Ashdown.

That being said, even if overall BSKP capacity is set to increase, conversions to UKP, fluff or DWP production implies that the capacity dedicated to paper grade production will remain relatively unchanged (+0.3Mt) through the forecast period (see chart). Swing mills situated in the US south are expected to gradually increase their bias towards fluff production to keep up with demand growth.

About half of the expected growth in UKP capacity (from 2.6Mt to 3.2Mt) is attributable to conversions of BSKP capacity, for example at Tarascon, Old Town, and Tasman. Swings to dissolving include mills like Valdivia, Enocell and Foley.

Although these numbers are based solely on confirmed projects that are in the public domain, capacity forecasts always feature some inherent risks – perhaps more than ever today given the fact that actual supply has behaved very differently to capacity growth in recent years.

Increased consolidation and scale of modern mills has meant that certain suppliers' production schedules have had an outsized bearing on the industry's overall run-rate, just as any unforeseeable mechanical outage can quickly tighten markets that would appear otherwise balanced or even oversupplied.

The previous investment cycle may have led to record capacity

ALTHOUGH THESE NUMBERS ARE BASED SOLELY ON CONFIRMED PROJECTS THAT ARE IN THE PUBLIC DOMAIN, CAPACITY FORECASTS ALWAYS FEATURE SOME INHERENT RISKS – PERHAPS MORE THAN EVER TODAY.

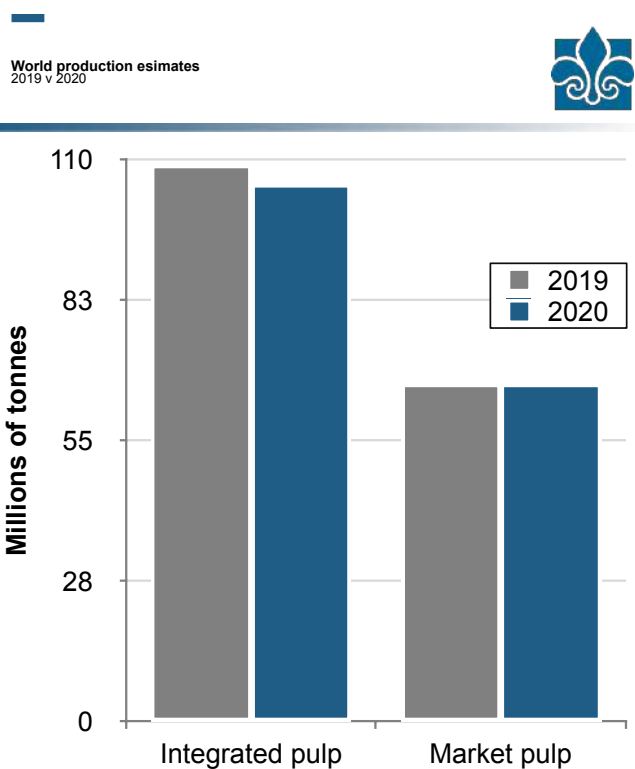
growth, but actual supply has only really hit its potential last year.

At the same time, although it may be tempting to tally up capacity projections with demand forecasts to draw conclusions on market balance, in reality there are a variety of factors impacting supply at any given time, including seasonality, price differentials (for swing mills) and scheduled maintenance.

The latter proved particularly heavy during H2 2020, with many producers forced to postpone shuts normally scheduled for Q2 into Q3 or even Q4 due to Covid-19 restrictions. Although our capacity numbers show little growth in 2021, the year will be relatively light on maintenance shuts, particularly for those mills on a fifteen or even eighteen-month cycle – most obviously in Latin America.

And finally, we also need to take into account the impact of integrated pulp supply. During the market downturn in 2020, we estimate that globally, some 4Mt of integrated supply was cut in reaction to the low market pulp pricing environment which made it uneconomical for many to produce their own pulp.

This simultaneously reduced integrated supply and increased appetite for market pulp from buyers who do not typically turn to the market for their furnish – and partly explains how market pulp shipments expanded by an estimated 1.3Mt in 2020 despite global P&B production falling by about 9Mt. Conversely, any significant recovery in market pulp prices will likely stimulate additional integrated supply, thereby stifling market pulp demand and, in turn, market pulp supply.



Source: Hawkins Wright HAWKINS WRIGHT



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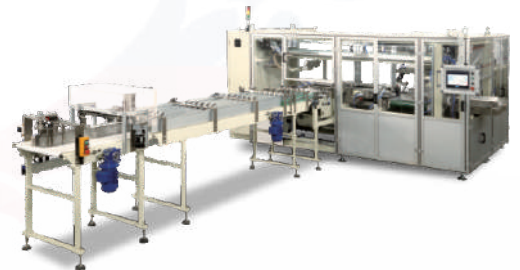
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